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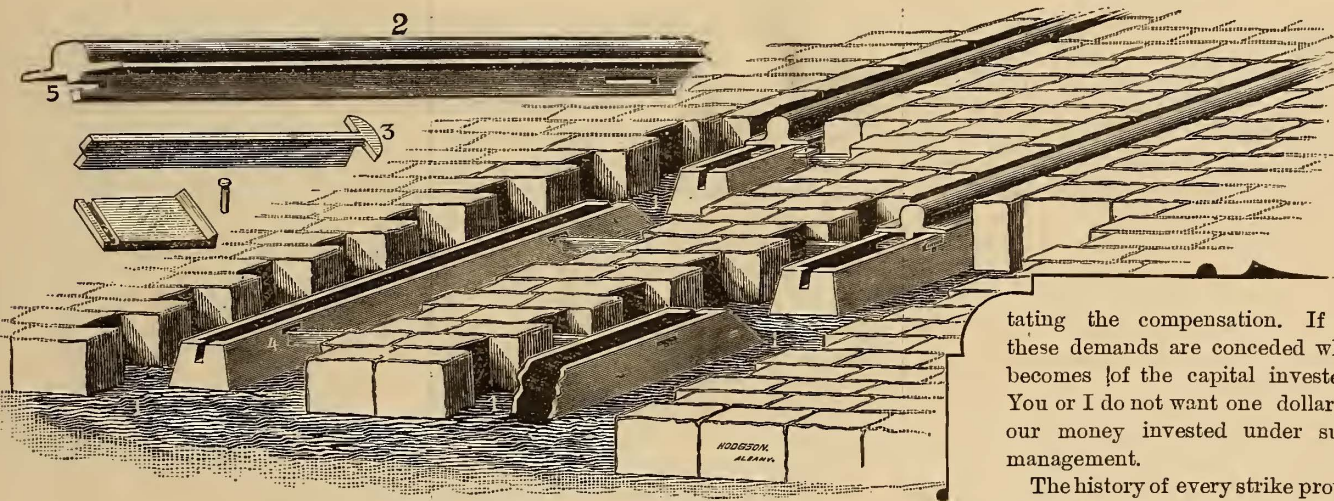
# THE STREET RAILWAY JOURNAL

VOL. I. { NEW YORK: 32 Liberty Street. } AUGUST, 1885. { CHICAGO: 12 Lakeside Building. } NO. 10.

**Gibbon's "Metallic Street Railway."**  
 In this plan for track\*, there are hollow cast iron boxes, (1), broader at the base than at the top, and suitably slotted along their closed tops to permit the entrance of a web or tongue projecting vertically from the flanged base of a rail (2) which is otherwise like the ordinary centre-bearing type. Trenches are dug for these boxes, which are partly of the nature of chairs, and partly like longitudinal stringers. They are laid in the trenches and tamped. T-shaped mortises

The story was derided by many, who said it was overdrawn and portrayed a condition of things that would never exist in this country.  
 The recent strike of the employees of the West Division Railway in Chicago Ill., seems to prove that the unknown author was correct in his views as to the trouble to be expected between Capital on the one hand and Labor Combinations upon the other.  
 Briefly stated, the Conductors and Driv-

state the discharged men and the strike occurred.  
 It would undoubtedly have been wiser to have borne with the violation of rules, rather than have discharged the men and taken the chances of a strike, so far as dollars and cents are concerned; but if it is conceded that the employees of any company are to dictate to its management who shall be discharged, it follows, as a matter of course, they shall dictate who shall be employed. They already arrogate the privilege of dic-



GIBBON'S METALLIC STREET RAILWAY.

(4) in their sides, accommodate in their vertical portions the heads of flat strips (3), which are at once track gauges and lateral tie rods. The rail is then so placed on the boxes that the slots in its web come opposite the mortises in the boxes; and horizontal checkplates (shown in the cut) are then driven through the horizontal part of the T-shaped mortises (4) of the boxes and through suitable horizontal slots in the web of the rail.

\* The Metallic Street Railway Supply Co., Albany, N. Y.

“Street Railroad Strikes.”

MESSRS. EDITORS:—Many of your readers perused “The Bread Winners,” a story that created a widespread interest and was received with great favor or the reverse as men viewed that question of vital importance to each and every man, woman and child living in these United States,

ers' Benevolent (?) Union, composed of employees of the Chicago West Division Railway Co., made certain demands upon the officers of that company. These demands consisted of increased compensation, the discharge of an obnoxious official and several minor matters. The official resigned and the company acceded to certain demands. The Union was satisfied and passed resolutions complimenting the company's officials; peace and quiet reigned.

The superintendent of the said company discharged within the following two weeks, ten or more employees for violation of rules. These men have been more or less prominent in the Benevolent Union, and the Union at once said that they had been really discharged because of the part they had taken in its deliberations, and notified the West Division Ry. to reinstate them or a general strike would result upon Tuesday morning, June 30. The company did not rein-

tating the compensation. If all these demands are conceded what becomes of the capital invested? You or I do not want one dollar of our money invested under such management.

The history of every strike proves that the Union sooner or later falls into the hands of unprincipled men

as portrayed in “The Bread Winners.” While it is undoubtedly the right of each individual to decide for himself or herself what rate of compensation he or she will accept for services, it is not right that he or she shall by force prevent others accepting the said compensation or less as they may elect. Herein lies the wrong of all strikes. The strikers will not continue at work, nor will they permit others to take their places, resorting to force, when intimidation and persuasion does not suffice.

Every other Trade Union in Chicago is said to have lent moral or pecuniary assistance to these deluded strikers. They assisted in obstructing the tracks of the company by every means in their power, and the delectable Member of Congress, having risen from tending a saloon to that exalted position by the votes of just such men from that district, addressed the strikers with encouraging words. I presume your readers have

read "Solid for Mulhooly." If not we would advise them to do so. It pictures American political life in an inimitable manner and with a master pen.

What is to become of the street railways of this country, if they are to be governed by the conductors and drivers? 'Tis a most serious question and concerns each and every one of your readers.

Consider the riots at Pittsburgh, at Cincinnati, at Cleveland, at Chicago, in the Hocking Valley; and the attendant loss of life and damage to property, not to be measured by millions of dollars.

The conflict thus inaugurated between Capital and Labor will shake the foundations of our government, and many a wise man in his heart of hearts trembles for the future. Not many years since the Judge of one of the chief courts of this government, at Washington, died. It was the privilege of the writer to have many conversations with this great man, who for many years assisted in guiding the affairs of this nation. He welcomed death, for he was thereby spared the greater pain of witnessing the struggle that he felt assured must in the near future take place between Capital and Labor, and to which he considered the War of the Rebellion to compare as a babe to a strong man.

It behooves every thoughtful mind to consider well upon this subject. While this "is a government of the people by the people," the very liberty thus offered all those oppressed or downtrodden elsewhere who seek our hospitable shores, this very fact brings us the most turbulent and unruly from every land, and at times I shudder for the future in store for my beloved country.

Adam Smith wrote "Civil government, so far as it is instituted for the security of property, is in reality instituted for the defense of the rich against the poor, or of those who have some property against those who have none at all."

The Hon. Moody Merrill stated at the first Convention of the American Street Ry. Association, "The amount of capital invested in these railways exceeds one hundred and fifty millions of dollars, with absolutely no security but the faithful and satisfactory service rendered the traveling public by the companies themselves." Common prudence will dictate that the companies having now an organization should through it afford, each the other, all possible support. Let this matter receive the consideration its importance demands at the next convention.

"AUX ARMES."

#### Elevated Information.

Signs were placed on the lower stations of the Brooklyn (N. Y.) Elevated Railroad recently, indicating the names of the streets on which the stations are built. The signs show the street names in bold white letters on a black ground, and are placed on the stations of both the up and down tracks. It is a great convenience to people not thoroughly informed.

#### Cable Railways.

The inherent desire in the human race on the American continent, especially in cities, is to consume the least quantity of time in moving from one place to another, and although a business man may waste ten minutes in idle or fruitless conversation with another, while conveyances are passing at one or two minute intervals; yet when he has concluded to start, he is impatient at the delay of one or two minutes in waiting for a car or omnibus. The general traveler over street railroads, when business or pleasure calls him to go from one part of a city to another, will consider the various routes which lead to the desired point, and will take that line which will soonest transport him to his destination. He will mentally examine the road which has the least detention and which also makes the fastest time, of which a small per cent can be saved in traveling to be wasted at either end of his route. This mental process goes on in the brains of most business men whenever about to ride upon street cars, and by and by by mere force of habit becomes second nature; so that whenever attention is called to any new or projected line of street railroad, this consideration of time and space with reference to its termini and points on its route, most always takes place and is an important factor in the operation of forming an opinion favorable or otherwise as to the merits of the undertaking. In this consideration also now comes up the motive power of the cars to be moved, and since steam motors and cable roads have come into use the merits and disadvantages of each are compared. To some nothing is more safe or sure than horses—to another, perhaps a steam motor may offer decided advantages, while to a citizen of San Francisco probably the cable system combines more good qualities than any other method. To those who are unacquainted with the cable system probably, if it enters his mind at all in this mental examination, he says that it is impracticable that a slender thread-like cable can run along a public street and draw cars containing passengers or anything else, and he thinks that even if it were feasible the promiscuous street traffic would have to be stopped or the stoppage of a car drawn by a cable would be so frequent that it would be impracticable. Then, too, suppose some team should get in front of a cable car, there would be a collision with a liability of serious accidents. In addition the cable is liable to break and every car on the line must stop until the break can be repaired, and no one knows how long it might take to splice or repair a broken cable. These are some of the thoughts that suggest themselves to one unacquainted with cable roads, and these questions are often propounded by those desiring information concerning the cable roads already in existence, such as:

Suppose a cable breaks, how long does it take to repair it?

If one car gets disabled, what is done that the other cars may be stopped in the shortest possible length of time?

Supposing some malicious person or some accident should cause the breaking of the cable or the tube in which the cable runs should become broken, what would be the effect?

How many accidents do you have per year on the cable roads that are caused by the cable road, because it is a cable road?

Is this system adapted to underground or elevated roads, or is it only adapted for surface roads?

The first question may be answered by saying that to splice a cable takes from three to four hours, sometimes a little less than two and one-half hours, the latter for making a single splice, and from three to four hours if a piece of cable has to be added, which causes two splices to be made.

It is proper to say that while this length of time is required for repairing a cable it does not follow that all breaks occur when running during the busy hours of day or that all splices have to be made when cars should be running, for although, during the early days of cable roads, breaks occurred during the running hours of the road, yet by continued experience gained in the working of cables it has through care and the exercise of intelligent judgment been found not difficult to wear out a cable with but one or two stoppages from accident during its lifetime. In other words it is common even now to run and wear out cables with stoppages not exceeding one minute on an average per day during its life. This care is no more nor so great perhaps as that bestowed upon the rolling stock and engines of a steam railway. Take for instance the elevated roads of New York. Each and every engine is not only subject to an inspection at the end of every trip, but at night or when the day's work is over an additional and more thorough inspection is made, so that all needed repairs may be made before the engine goes on the road again; and it is believed that no engine is allowed on the road when there is a question in the slightest degree of its completing a trip without failure. Now each engine requires an inspection. In cable roads there are usually duplicate engines and boilers, and the engineer has much easier or better opportunities of understanding or noticing the particular condition of his engine than does the engineer of a locomotive, because his attention is directed particularly to his engine and boiler almost solely, while a locomotive engineer has many important calls for care in running his engine and train over the road, so that the chances between a breakdown on the elevated road and a breakdown of the engines of a cable road are multiplied in the former. The cable seems the part most likely to break, but as before stated, with increasing experience the indications of weakness in a cable are apparent days before there is any probability of its giving out, and as soon as these signs betray themselves care is taken to make all needed repairs the first stop at night after the cars cease running.

If a car gets disabled, the grip is simply disconnected from the cable and the next

car coming along pushes it to the engine house, where it is taken in and needed repairs are made and a spare car sent out in its place.

The grips are so constructed that they will require five or six times their usual load before they will slip on the cable. On one road in San Francisco having steep grades the load often brings a resistance of 4,000 pounds, under which the grip easily does its work; so that for comparatively level lines it will be a simple matter for a disabled car to be pushed ahead of another train.

If maliciously disposed persons cause the breakage of the cable or the destruction of the tube, there is no other way but to repair it. I am not aware that this has ever happened in the history of any cable road in operation. The tubes or conduits are usually constructed strong enough to withstand the heaviest drays and trucks that city ordinances usually allow to be drawn through the streets, and nothing but such a character and disposition as manifests itself in obstructing by a tie or otherwise the rails of a steam railway would ever dare to injure the cable or destroy the tube of a cable railway.

As to accidents: Cable roads are liable to have them the same as horse cars, but I never to my recollection knew of an accident occurring where it would be most natural to suppose it would occur—that is, in crowded streets, when people most frequently cross in front of moving trains; but almost invariably in San Francisco, at least, they occur when no one is near the train except the passengers about to step off or on. I think six accidents have occurred in San Francisco during the past year and from the passengers either getting on or off while the car was moving—not waiting for the car to stop in either case. About 25,000,000 of passengers are carried yearly in the cable cars in San Francisco, so that it will be seen that the accidents are not necessarily numerous in proportion to the number carried. The control of the cars or trains is, I believe, more absolute than when horses are used, from the fact that more perfect brakes are employed, and as the speed of the most of the cable roads in San Francisco is eight miles per hour, especially in the streets having the heaviest traffic, I think that they are adapted where conditions will admit of this speed being maintained. It is a question for each particular locality or the conditions and requirements of that locality to determine whether it is best adapted for underground, surface or elevated roads.

I believe that with proper considerations given to the rolling stock, it is practicable to maintain a speed of ten miles per hour in the cable, so that natural obstructions would determine when that speed could be utilized. The present experience in cable roads is limited to a few cities, therefore its anticipated capabilities have not been tested, but the promises which it gives of future benefits to the traveling community warrant its construction and operation in many places well known to be favorably situated,

without attempting any novel methods of construction, or its construction in localities with well-known difficulties of access from congested traffic.

W. W. HANSCOM.

♦♦♦  
The Mule:—

CONSIDERED ETYMOLOGICALLY, HISTORICALLY, ROMANTICALLY; GENEALOGICALLY; PHYSICALLY, MENTALLY, MORALLY; ANALYTICALLY, SYNTHETICALLY, PRACTICALLY, ARTISTICALLY, DYNAMICALLY; WITH SOME SUGGESTIONS AS REGARDS HIS PRESENT USEFULNESS, AND SPECULATIONS CONCERNING HIS POSSIBLE IMMORTALITY.

In the consideration of this interesting subject, one is met at the outset by the difficulty in deciding whether to treat him as a work of art, or as a freak of nature. Then again, the actualities are so immeasurable, and the possibilities so innumerable, that less able writers would hesitate their complete recital and consideration; and indeed, the mule has been almost unchronicled in history, and unsung in fable. Fame unending has been awarded those writers who have rehearsed the deeds and qualities of those other hybrids or mongrels, the hideous hydra, the silent and mysterious sphynx, the kingly basilisk, the reckless and impetuous centaur and hippocentaur, the voracious minotaur, the fierce griffin and hippogriff, the huge, ubiquitous, and startling kraken or sea-serpent, the dreadful and flame-emitting dragon, the fiery and graceful unicorn, and the modest and musical mermaid. Let it be reserved for us to go down to future centuries and peoples as the faithful and admiring chronicler of the *feats*, and champion of the *standing*, of the much abused, greatly neglected, and unappreciated, but altogether admirable, *Mule*.

It might be well to premise these remarks by a glance at the etymology of his name, which we derive from the latin word *mulus*, the forms in most of the various languages which know and name this interesting animal being like him to whom they apply, almost the same wherever met, "*semper idem*." The Greeks knew him as *μηλιονος* (*hemi-onos*) or "half-ass"—but he must not be confounded with *Ἡφαιστίων* (*hephaistion*), or, vulcan;—and they also called him *ὄρεως* (*oreus*), a word which the poets (Homer in particular) knew or used as *οὐρεως* (*oureus*). Referring to the Latin derivation, which concerns us more particularly, it might be suggestive to note hastily the striking similarity between the word *mulus*, and *mulier*, or woman. To avoid confusion it should be noted that of the two, the woman is *mulier*.

The mule is cosmopolite and doubtless pre-historical. Physically he is a study worthy our close observation. He has fore feet in front, and two behind, giving, at will, a stability which is proverbial, a sure-footedness almost miraculous, or a pedal range far-reaching and striking. His feet are small and finely formed, as indicative of superiority; their texture firm; although facilities for close investigation (especially by prolonged handling) are rarely and charily afforded. It is asserted on the authority of a Cincinnati editor, (who dedi-

cates the information to naughty little boys), that there is contained in the hind foot of every mule, a small lump of gold, extractable by means of a pocket knife. [It is here worthy of remark, in justice to myself, that, whatever physical characteristics of my subject I may have noticed and here noted, are derived solely from studies from *life* (supplemented by drawings to scale and working models), as no one has ever yet seen or heard of a dead mule. For this reason our views of his internal economy are vague and altogether theoretical, and hence unsatisfactory.]

Concerning the mule's feet, which have a quickness, freedom, and force of action truly surprising, we should say that he is "quadruped" *par excellencé*, as the monkey is in a like degree four-handed. *Ex pede Herculem*. The centipede's excel his in their number, and the elephant's in their size, but his have a convenience and promptness of action, almost galvanic; indeed their stroke has been compared in range, velocity, and unexpectedness, to that of the lightning itself.

In this connection, perhaps a leaf from his paternal history might not be out of place. In Porkopolis (or Swine-cinnati) a donkey belonging to one of the public parks was attacked by a lion escaped from a travelling menagerie, but the open jaws of the terrible brute were met with crashing onsets from the heels of the donkey; and stunning blows, rained upon the head of the lion at each attack, caused the great monarch of the African forests to beat an ignominious retreat. The victor is now quite a *lion* in his native city. The devastation wrought by the jaw of an ass in the hands of Samson, is a matter of history; and the jaw of an ass is even to-day a terrible weapon, greatly feared in our debating societies, &c.

But, *revenons a nos moutons*—that is, to our mule.

It has been said that a mule can kick a fly off his own (or any other) ear, with any desired or disengaged foot, or with all, at will; and that he can throw a rider, and kick him with all four feet consecutively *or* at once, before he touches the ground.

To effect such extent, variety, precision, and force of range, would seem to necessitate what will doubtless be found the actual structure, should a dead mule ever be found:—*viz.*, telescopic tubular legs, with universal or "ball and socket" joints, spiral springs, and "hair triggers."

A tribute to his kicking powers is here subjoined, from *Scribner's Monthly*:

You Nebuchadnezzah, whoa, sah!  
 What is you tryin' to go, sah?  
 I'd hab you for to know, sah,  
*Ps* a holdin' ob de lines.  
 You'd better stop dat prancin';  
 You's pow'ful fond ob dancin',  
 But I'll bet my year's advancin'  
 Dat I'll cure you ob your shines.

Look heah, mule! Better min' out—  
 Fust t'ing you know you'll fin' out  
 How quick I'll wear dis line out  
 On your ugly stubbo'n back.  
 You needn't try to steal up  
 An' lir' dat previous heel up;  
 You's got to plow dis fiel' up,  
 You has, sah, for a fac'.

Dar, dat's de way to do it!  
 He's comin' right down to it;  
 Jes' watch him plowin' t'roo it!  
 Dis nigger ain't no fool.  
 Some folks dey would 'a' beat him!  
 Now, dat would only heat him—  
 I know jes' how to treat him:  
 You mus' *reason* wid a mule.

He minds me like a nigger.  
 If he was only bigger,  
 He'd rotch a mighty figger,  
 He would, I *tell* you! Yes, sah!  
 See how he keeps a-clicken'!  
 He's as gentle as a chicken,  
 An' never thinks o' kickin'—  
 Whoa dar! *Nebuchadnezzah!*

Is dis heah me, or not me?  
 Or is de debbil got me?  
 Was dat a cannon shot me?  
 Hab I laid heah more'n a week?  
 Dat mule do kick amazin'!  
 De beast was sp'iled in raisin'—  
 But now I 'spect he's grazin'  
 On de oder side de creek.

His head is capacious, and its structure suggestive of meditation, patience and firmness. His ears are large and flexible, denoting an exquisitely sensitive and highly generous disposition, and possibly a high capacity for music, especially the *Wag'n Ear-ian* school. The eye is slightly melancholy, although watchful, far-seeing and quick to warn him of approaching or suspected danger.

The nose, which is strongly formed, is frequently Roman in outline, corresponding with the indomitable firmness and tireless energy which we know him to possess. His skin, contrary to what we might expect in one of his exquisitely sensitive disposition, is thick and tough; a wonderful provision of providence to protect our much persecuted hero from the merely physical, although frequent and severe, and even galling, persecutions with which he is visited.

The lips are full, but firm; and there is in them a slight suggestion of that *biting* sarcasm in which we know him to indulge at times. His body is that of one framed for endurance and suffering. It is well that he possesses in an eminent degree the virtue of patience; as Nature, while endowing him with a Spartan firmness and indisposition to *fly* from *torments*, has not only exposed him to *torments* from *flies*, but has been niggardly as regards the brushing qualities of his tail, which member resembles that of his paternal progenitor.

His voice, in the frequent use of which he greatly delights, is full, resonant, and exceptionally far-reaching; it is generally thought to be *base*, and is never a *hoarse* one, or at all *neigh-sal*.

His constitution is hardy and rugged; his body tireless, and his appetite unbounded; although he has been known to subsist upon hemlock splinters and burdock leaves. He has shown a marked appetite for the tails of others of his species; browsing upon them cheerfully and abstractedly, while evolving new mechanical movements and gyrations, while he practices with his heels, on the slightest opportunity—*creating* the opportunity if necessity require.

We have now considered the physical features of the mule; his mental and moral characteristics may next engage our attention. His sage appearance doubtless does not

believe his powers of mind, schooled in diplomacy and ripened by meditation and experience. It is his sagacity that leads him to determine, in a moment, friend or foe; his classification being so effected as to bring within the latter characterization the noble equine and entire human race, as feudal enemies. That he is capable of making abstruse mathematical calculations is evinced by his skill in contriving and executing complicated movements of the heel and toe; and his engineering skill is attested by the masterly way in which he so applies his legs as struts or braces, as to render it impossible to move him in any direction, and more impossible to move him forward than any other way. His aptness as a scholar is attested by Mr. Daniel Rice, the humorist, whose educated mules have attained world-wide fame, which they have reflected in part upon their teacher. His memory is of the highest order. A circus mule has been known to remember for years the boy who rosined his hands to prevent being thrown; and to address to him ironical remarks in pantomime, so forcible in their nature as to completely upset him. If we were to venture an opinion upon his reading, we should say that his favorite author is Kick-ero.

Let us not underrate his engineering abilities, or common sense. A mule heavily laden with a side-projecting burden, and traveling on narrow mountain paths, instinctively keeps to the *outer* edge of the path, although the chasm may be 2,000 feet deep, and a single miss-step would end his days and usefulness.

A horse will shrink from the edge of the precipice, at the much greater risk of striking his load against the wall and being thrown outward and over.

This cannot be instinct, or inherited, for those that are thrown over could rarely leave behind them progeny inheriting the sense of the danger. Besides, all mules do it, and no mule could have had a parent by whose experience and loss to profit. Further, no mule ever had a mule for a parent, anyhow.

*Ergo*, it is engineering skill or common sense of the highest order. Q. E. D.

Morally, his is a strong character. As we have said, he is possessed of indomitable firmness, an unconquerable will, and a still more uncompromising *won't*. That he is upright, has never been questioned; that he is downright, none dare deny. A leading characteristic is pugnacity and tenaciousness of opinion. Inflexibility of will is strongly developed; as also are stubbornness, and obstinacy. He is at times headstrong and dogmatic, but these last are owing to his desire for consistency and for liberty of thought and freedom of action.

His tenacity of purpose has perhaps never been more strongly developed or established than in our "late unpleasantness," where the army mule, frequently impressed into the service from the opposing side, or perhaps from Quaker ownership, has expressed in actions, which spoke more strongly than words, his willingness to become a martyr for opinion's sake. It is recorded of those army mules that their determination not to pull could not be counteracted by words, how-

ever forcible or personal, or blows, however vigorous; and that it having frequently become necessary to build a fire under them to induce them to reconsider the question, it has at times absolutely become necessary to *draw* the *fire*, since the mule would not *draw* the *wagon*, even when addressed in such *glowing* eloquence.

Debarred by his hybrid nature from the joys, privileges, and responsibilities of pater-nity, we must not wonder that his trains of thought and his plans in life differ from those of other animals more favored in this respect. His affectional emotions are bestowed upon his companions—having learned to work "in team," the yearning for companionship leads him to refuse to work when his mates are changed.

Whether the Horatius Cocles who held the bridge over the Tiber and has come down to us with undying fame, renewed in song by a Macaulay—was not indeed a *mule*, is an historical question well worthy our investigation. The supposition originates (it is believed) with ourselves; and should a suitable committee of this "or any other body" investigate and favorably decide the question, (by the customary vote of eight to seven), we hereby give notice of our intention to apply for domestic and foreign letters patent on certain new uses and applications of the mule in defensive (and perhaps even in offensive) warfare.

#### The Harlem Cable Road.

Rumor says that the long line of cable road under construction in the upper part of New York belongs practically to the Third Avenue Company. Rumor may be wrong; but in any event the line, when open, will be a powerful rival to the elevated roads, and will have a strong influence on the future development of the city. It will open a section of the city which is now inaccessible to any of the elevated lines, and will have an important influence in bringing about a great change in the manufacturing portion of New York City. That the Harlem flats will, at some time in the future, be devoted to manufactories, appears to be inevitable. These flats lie low, are near the rivers, and have little attraction for the better class of people. They are now being rapidly covered with cheap dwellings. The unhealthiness of the location will in a short time drive out the better tenants. Then the cheap property will attract the manufacturer. Washington Heights and the highlands beyond will become the fashionable quarter of the city, while Westchester County, along the river and sound, and Long Island City, will provide homes for the workers in the factories on the flats. In view of the changes which have taken place within the last ten years and the present rapid movement of the population, it is not unreasonable to expect an entire change in the character of New York within the next fifteen years.—*Ind. America.*

Every street railway official needs to profit by the experience of his fellows in other companies. The place to obtain it is in the STREET RAILWAY JOURNAL. One dollar per year.

**Cable Railway Directors.**

The last meeting of the old board of directors of the Cable Railway Company was held at No. 206 Broadway, Tuesday, July 7; and a new board was elected for the ensuing year by the stockholders. There are 20,000 shares into which the capital stock is divided, and 19,995 of these were voted on at the meeting. All but nine of them were voted on by Mr. Charles P. Shaw as attorney or owner. Mr. Shaw reported on behalf of the retiring directors, in his capacity as counsel to the board, the transactions of the past year. He said in substance that no legislation had been made against the company, and that he saw nothing in the way of the cable railway being constructed in the near future. The assaults on the company's charter and franchises by interested parties must fail of their object, for no objection had been raised that had not been fully answered. Of the \$15,000,000 5 per cent 50-year gold bonds authorized by the company for construction purposes only, not one had been withdrawn from the trust company. Of the \$25,000,000 of second mortgage income bonds now in preparation for issuing, not one had been sold in advance or promised to any one. So the assets of the company consisted of 95 per cent of every share of the 20,000 shares of capital stock, and all the mortgage bonds, aggregating \$40,000,000, with \$2,000,000 capital stock, and all were available. All the expenses of the company thus far had been borne out of the private pockets of the syndicate, and the company, being entirely out of debt, was equipped, by its securities and right to call for assessments on its stock to the extent of \$1,900,000, in a satisfactory manner to build its roads.

The following directors were then elected for the coming year: Wallace C. Andrews, Homer A. Nelson, Augustin C. Moss, Joshua B. Shaw, Rowland N. Hazard, John J. O'Brien, Thomas W. Evans, Samuel B. P. Higgins, and William S. Williams.

**Electric Railways in San Francisco.**

It is expected that in a few weeks the Pacific Coast Electric Construction Co. will have an experimental electric road running from the Southern Pacific depot to the Union Iron Works at the Protrero, in San Francisco. For some time past experiments have been made in this direction, and the plans are now said to be complete. The road will be similar to the cable-road, only, instead of a cable underneath the track, there will be a negative and positive wire. These, when brought together by the grip of the dummy, will complete the circuit and provide the motive power. When the car stops the wires will be released; thus the power necessary to drive the car will be saved while it is at rest. The generating machines are also so arranged that as soon as a car stops they will cease to generate the amount of electricity to propel the car. Should the experimental line prove a success, electricity as a motive-power will, no doubt, be adopted on many of the street-railway lines in San Francisco.—*Times*.

**Starting Cars on Cable Roads.**

Mr. W. W. Hanscom, commenting on suggestions in the *Machinist* on the advantages of giving cable cars the speed of the cable by gravity before applying the grip, says:

"The desirability of giving the car on cable roads a speed equal to that of the cable before applying the grip so as to avoid the shock of starting so suddenly and the consequent abrasion of cable and grip, is acknowledged by all. Some of the roads in San Francisco are so situated that the car may be started at one end of the line by gravity; at the other end the car has to be started on an up grade. This causes great wear to the cable and the jaws of the grip, the latter having to be replaced by new ones very often.

"While it is often practicable to have sufficient grade at the end of the line to start the car by gravity, on at least one half of the round trip cars must of necessity be started on an up grade unless all points of stoppage of trains can be controlled and the grades of streets happen to be favorable. From 90 to 95 per cent of the starts are made on the route and generally not more than 45 per cent of these on a down grade or level, so that while starting cars by gravity at the termini is of some importance, it is not of that paramount consequence it would seem."

**The Uptown Cable Road.**

It looks as if New York would soon be able to judge of the merits of cable road-railing. Everything but the cable is ready for the road that is to run from 125th street and Eighth avenue, through Tenth avenue to 187th street. The officials say that cars will be run by the cable August 1st. Then the road is to be extended along 125th street to the East River if no legal troubles arise. The slit between the car tracks, which opens into the cylinder through which the cable runs, is about an inch wide. An iron shank runs from the bottom of the car through the slit and grips the cable. The grip is similar to that in use in Chicago, and is not at all like that in use on the East River Bridge. In place of the wood lined sheaves there is a lower jaw which is stationary and an upper jaw which rises and falls, having a bearing of 20" on the rope. When the cars are to be started the "driver" closes down on the jaws, which pinch the rope like a vice. It is said by the officials of the road that the cars will start and stop easier than the horse cars do. At first they will be run at the rate of about seven miles an hour. This is a little more than a mile an hour faster than the average speed of the horse cars. The cable cars of Chicago attain a speed of between nine and ten miles an hour, and when things get into good working shape this will probably be the speed on the New York line.

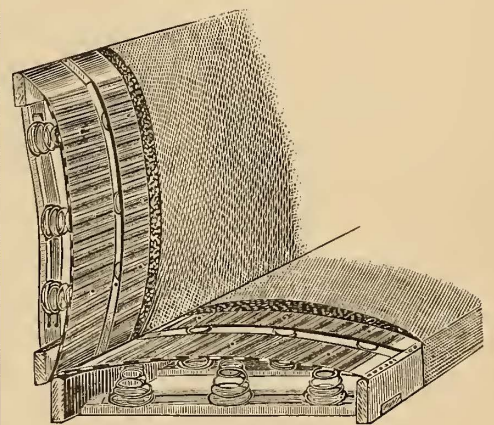
The Fourth Avenue horse railroad is pushing its line up beyond Eighty-sixth street, its present terminus. By the first of October it is expected that the road will be in operation to 137th street.

**Tramway Construction in Cincinnati.**

The Cincinnati Street-Railroad Company notified the Board of Public Works that Rees E. & George F. McDuffie recently assigned their interest under ordinances and contract with the city in the right to construct and operate Street-Railroad Route No. 21 (the Warsaw Pike and Price Hill Route) to the Consolidated. They desire to proceed promptly, but say they are confronted with the difficulty of doing so properly by the condition in which the work done on Warsaw pike and Hawthorne street has been completed. The original contract requires a metal of 16", but the pike as completed has only 9" of metal. This would cause the track, if laid, to stand 3 to 6" above the metal. They urge the board to have the stakes set for the railway to the established grade, and that the metal be at once provided to complete the street as the track progresses.—*R. R. Journal*.

**Rattan Sectional Spring Seat and Back.**

This seat and back are covered with woven rattan cemented to canvas duck; the



springs are riveted to an elastic slatted top, with spring-steel cross pieces between. It is made in "spring edge" form.

\* Hale & Kilburn Mfg. Co., 48 N. 6th Street, Phila.

**To Warn Elevated R. R. Engineers.**

Fire-Commissioner Purroy of New York City has issued an order that danger signals be carried on each hook and ladder truck to warn engineers on the elevated trains. The signals will consist of two red flags to be used in the daytime and two globe hand lanterns with red glass for the night-time.

In case of fire in a building located on any street or avenue which is occupied by the elevated railway tracks, and it is deemed necessary by the officer in command of the fire not to allow the trains to pass, either for the purpose of the force working from the tracks or that it would be dangerous for the trains, a danger signal will be displayed on each track at a distance of not less than 100 yards from the fire, and immediate notice will be sent to those in charge of the first station in each direction that the trains must not pass until, in the judgment of the officer in command, it is safe for them to do so, when the danger signals will be removed.



MONTHLY, \$1.00 PER YEAR.

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## AMERICAN RAILWAY PUBLISHING CO.

32 LIBERTY ST., NEW YORK.

12 LAKESIDE BUILDING, CHICAGO.

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### Capital and Labor.

The overshadowing error of the day consists in the assertion that physical labor is the only source of wealth. The teachers of these false doctrines hold that the intellectual and the moral have such an infinitesimal effect upon the accumulation of property that they cannot be given any assignable quantity. If it were possible that this theory is true, then the cathedral "with glistening spires and pinnacles adorned," the suspension bridge that spans the broadest river, the steam engine that furnishes the greatest power, the electric cable over which messages are transmitted with the velocity of lightning, have their existence to-day without the aid of the intellectual force of the architect, the engineer or the inventor. If there were not dangerous political demagogues engaged in the vocation of infusing these poisonous dogmas into the society in which we live, thus periling the very existence of the commonwealth itself, it would hardly be necessary to combat such a statement, that carries its refutation upon its face.

Muscle and bone are set above the conceits of Newton, Morse and Ericsson. If one admits the absurd premise of these wranglers, then it follows that all we see about us that characterizes our civilization belongs as a matter of right to the men who simply carried out the details of invention and discovery. All material improvements, the highway, the railway, even the social structure itself is said to be owned by those who performed the manual labor that was employed in the production of the realized wealth of the country. On the basis of natural right this claim could never have been made good, even in the very earliest stages of hunting and pastoral life.

However, the growth and development of the arts and sciences have determined that these claims for the exclusive rights of

labor are not sustained. The steam engine has doubled the productive power of the world, and the people have just so much more time for mental improvement. The thought which comes through the mental labor of centuries greatly relieves the laborer of physical work. While the inventor and the discoverer benefit mankind, the legislator, the jurist and the moral teacher show how it is possible to conduct a commonwealth in such a manner as to ensure the rights of all.

Although this last statement seems to assume the character of a platitude, still it is well known that there are those, who with questionable motive, teach the existence of classes who divide upon the question of capital and labor; teach that between these classes there exists an irrepressible conflict—that they are arrayed against each other in hostile camps.

The process of organizing labor against capital, against property, against corporations, and even against law itself, has progressed to such an extent that actual violence and force have manifested themselves in many sections of the country. Peaceful and orderly combination does not seem to be the object of these movements. Whole communities are terrorized by mob violence, and labor demonstrations develop into incipient revolutions.

### Work of Operating Elevated R.R. Trains.

Some recent experiments made by Mr. Angus Sinclair on the N. Y. Elevated R. R., and published in the *Car Builder*, go to show that a 21½ ton engine with 11"×16" cylinders and 42" drivers, pulls 4 cars weighing 23,850 lbs. each, and 170 passengers weighing 130 lbs. each, at from 72 to 174 revolutions of driver, with an average of 163.4 indicated H. P., with a water consumption of 42,959 lbs. and a coal consumption of 5760 lbs. in the 20 hours' service.

Mr. S. ciphers it out that the mean effective pressure in the cylinders was 81.5 lbs. per square inch, and that the total tractive force was 3759 lbs; and that deducting 10 per cent for friction there was a net tractive force of 3384 lbs., or a little over 42 lbs. per gross ton. From this, the remarkable conclusion is made that "if the Elevated Railroad trains were run through without making stops, they could be operated with a draw-bar tension of about 8 or 10 lbs. per train ton, but the conditions under which they are moved require a draw-bar tension of about 40 lbs. per train ton to be maintained while the engine is using steam."

The steam engine indicator is a remarkable and a useful instrument; but even its most enthusiastic admirers, up to the present time, have not offered it as a means of measuring draw-bar tension.

However, assuming these figures of draw-bar tensions to be correct, and taking Mr. Sinclair's figures for average horse power, based on the engine's having taken steam only  $\frac{1}{4}$  of the time and hence reducing the average to 77.8 H. P., or  $77.8 \times 63 = 4901.4$  H. P. for the 63 trains on the road—we have this to say as to his conclusions against the

use of cables driven by stationary engines:—

The train weight, including a 21½ ton engine, is 80 tons; then we should have a saving of  $21\frac{1}{2} \div 80 = 26\frac{7}{8}$  per cent in train weight at once, by the use of the cable.

The next saving is in the amount of traction per train ton. Quoting Mr. Sinclair's own words: "If the locomotive had nothing to do but get the train up to its average speed of fifteen miles an hour and keep it going at that velocity, the work would be very light. But that is not the way the work is done. During the run of 8½ miles from Harlem to South Ferry, the train makes twenty-five stops, and the trip is made in forty-two minutes. The work done by the engine is a succession of twenty-five spurts, when the train is forced rapidly from a state of rest to a speed of about twenty-five miles an hour, then suddenly brought back to rest by the action of the brakes. The operation of the locomotive pulling one of these trains strikingly resembles the recurring work done by the engine of a pile-driving machine, which is constantly raising a heavy weight that is suddenly dropped and has to be raised again."

If the cable was used, not only would the train weight be only 73 per cent of what it now is, but the traction per train ton could be reduced to 15 lbs., which is only 35.7 per cent of 42. Thus we get traction down to 35.7 of 73 = 26 per cent of Mr. Sinclair's figures for locomotive service.

Mr. S. places the coal consumption per indicated H. P., in the case he cites, at 5.8 lbs. per hour per H. P. Stationary engines capable of developing up to 4900 H. P. could very well get along with just half that; so that our 26 per cent is still further divided by two, and we have all the margin between 13 per cent and 100 per cent to cover the friction of the cable.

Then, again, we have the wages of most of the locomotive engineers and some of the locomotive firemen saved by the use of the cable.

Mr. S. concludes his article with the following unpleasant admission:

"With the terminal steam pressure so high as these small engines have to maintain it that the work required may be done, there is no opportunity to use steam economically, and no improvement can be effected unless heavier engines with larger cylinders are employed or a lighter load given them to pull, *changes which in this case are inadmissible* and are not advisable, since the achieving of any net economy would be by no means assured."

The italics are our own; and assuming the correctness of Mr. Sinclair's test, there is ample reason for looking into the cable system for the shakily elevated roads of New York.

### Women Alighting from Cars.

Can anyone, tell why a woman in alighting from a horse car almost invariably faces to the rear instead of the front of the car? It is the cause of most of the accidents to ladies. An exchange suggests that the car having passed the point they want to stop at, they naturally turn that way.

### The Legal Aspect of the Chicago Riot.

Under the circumstances set forth in an article in another column, headed, "Account of the Chicago Riot" it would eminently be proper to inquire into the nature of the statute law that obtains in the State of Illinois, relating to the subject matter. It provides for the punishment of any person who shall willfully and maliciously obstruct the railway tracks or the passing of cars. The city ordinances provide that "any person who shall make, aid, countenance or assist in making any improper noise, riot, disturbance, breach of the peace in the street or elsewhere in the city, and all persons who shall collect in bodies or crowds for unlawful purposes to the annoyance or disturbance of citizens or travelers shall be fined," and the laws of the State provide that such persons be confined in the county jail; and in case of injury to property or persons that each person concerned shall be imprisoned in the penitentiary not more than five years.

The law of 1875 provides that the Mayor shall have power to call on every male inhabitant of the city over eighteen years of age to aid in enforcing the law, and to call out the militia to aid in suppressing riots and other disorderly conduct, and further, if he (the Mayor) be guilty of a palpable omission of duty he shall be liable to indictment, and on conviction shall be fined and removed from office.

The facts herein narrated show that an assemblage of persons took forcible possession of the principal thoroughfares of the city of Chicago, for the avowed purpose of preventing the operation of one of its most important institutions. The immediate cause of this riot was the demand on the part of the employees for the re-instatement of the discharged men; and the company's refusal to comply.

The rules which the conductors sign upon entering the service of the railway, provide that the contract may be terminated and the conductor be discharged on any day, at any hour of the day, by notice, either verbal or written, by the Superintendent of the company, given to the conductor at any time, without stating any cause of discharge; and the conductor has the same privilege to similarly and summarily terminate the contract.

The effect of the demand by the men was to require the company to change its very rules of management; and not only to deny the railway's right to conduct its own affairs, but to force it to act under the dictation of the men whom it employed.

The employees discharged themselves by their refusal to work. The severance of their connection from the company was complete. The next seen of them, or most of them, was when they took their place along the route of the cars, to incite disorderly conduct among their sympathizers and friends, if not to use actual violence and force themselves.

It was at this time that the different labor unions took up the quarrel of the strikers, and what is still more alarming a strong socialistic element backed up the unionists,

This feature of the *émeute* must not be overlooked. State socialism, which demands that the government shall conduct railways, telegraphs and education is not necessarily wrong, because it is simply and openly urging the advantages of a certain theory; but the great danger of that phase of socialism which exists in Chicago is that it partakes of the character of anarchic democracy, and has a decided tendency to attack civil government, pillage property, destroy life, and sweep away existing institutions. The scenes that have often taken place in that city prove beyond a scintilla of doubt that one of the worst forms of revolutionary democracy obtains there, and whatever was the origin of this so-called strike, the condition of things, already described, was nothing more than a dangerous uprising, closely allied with anarchism, if not with nihilism itself.

Instead of treating the facts before the public as a question of violation of the plain provisions of the law, imposing a duty on the part of the Mayor to suppress the riot, that officer was not only guilty of an omission to promptly arrest the criminals, but in all the published interviews had with him he pleaded that the difficulty was of the nature of a dispute between the railway on one side and employees on the other, and recommended arbitration while a mob held possession of the public streets.

This proposition, coming from the chief executive officer of the city, was most extraordinary, as it degraded the company to an equal footing with rioters who had virtually seized the property of the corporation.

It was not until the 6th day of July that the Mayor issued a proclamation that the property of the railway would be protected while in the performance of its chartered rights. But the preamble of this document ignored the actual condition of facts by calling the riot an "excitement growing out of a strike."

Although it will be readily admitted that this high official personage did not intend to coquette with these law breakers, still the natural effect of his dilatory course was to mislead the crowd into the commission of acts of bloodshed and pillage. The real conflict was between the law and the criminal; between anarchy and peace; and the course of the Mayor should have been sharp and decisive.

Regarding the cause that led to the troubles between the corporation and its employees, it may be remarked that the whole combination of the drivers and conductors is an unnatural one, for the reason that their duties are entirely different. The conductors are money collectors. The civil rules of the United States Government exempt the officers who collect money and account for it. All banks claim the right to discharge immediately any of their employes. If publicity were to be given to the charge of dishonesty in all cases of discharge, endless trouble would ensue.

The West Side Railway Company has a very small interest involved in the issue raised by the labor demonstration in Chicago, compared to those of the vast

business, commercial and financial corporations of the country. If there cannot be some limitation placed upon the power and acts of those who claim that mere manual labor is entitled to dictate its own terms and conditions of employment, then the whole property of the land, both private and corporate, lies at the mercy of the first mob which may be incited to rise.

The great peculiarity of our existing civilization is interdependence. One section of the country is dependent upon the productions or manufactures of another. This internal commerce is made possible by rail-intercommunication. The corporations that have this vast interest in keeping, employ an army of skilled laborers and other employees. If these men could by an extended combination, cease to work at a given time and also prevent the employment of others to take their places, there would exist a revolution of a most destructive and disastrous kind, involving in its direful effects the very fabric of our liberties.

Undoubtedly, labor has its rights and privileges. It is armed with the ballot, and the proper course for it to pursue is to bring its wrongs, if it deem it have any, into the issues of peace, and at the proper time to deposit its votes upon the subject in dispute in that urn that should contain the will, the morals and the conscience of the people. The light of intelligence will then "beat upon" the questions under consideration, and the masses will be taught that there should be in reality no conflict between labor and capital.

### Superintendent Lake.

Relative to the impression conveyed by Eastern papers that one of the conditions of the West Division R. R. striking conductors returning to work was the dismissal of Superintendent Jas. K. Lake, nothing could be more erroneous.

The men struck because (ostensibly) fifteen of their number were discharged, and among the fifteen, prominent members of the association. They demanded that the fifteen be re-instated or they would strike. Their demand was refused, hence the strike.

The compromise was this. The men were first to return to work, then the fifteen were to have an examination before President Jones, and he was to decide if there was cause for their dismissal. They were so examined; eleven of them reinstated. No demand was made for any official's dismissal. None would have been entertained a moment. Superintendent Lake would not have to be asked for his resignation twice. He is too well known as a street railway official to be at loss for a position, and aside from this, his private fortune is such that he need not engage in any business if he does not wish to. There has been a great deal of talk by cheap papers who aim to cater to the trade union labor element, but it's all senseless "yawp." No man stands higher in the community or has the good will of the better classes in Chicago, both as citizen and official, than James K. Lake.

### Account of the Chicago Riot.

The West Division Railway of Chicago runs its cars through the principal streets on the west side of that city, and has forty-five miles of double track. It employs some 1300 drivers and conductors.

Prior to June 27, a dozen men were discharged by the company. On the evening of that day the Conductors' and Drivers' Association passed resolutions requesting the company to reinstate the discharged men. Superintendent Lake replied in a written communication that he had always regarded the Association as a *benevolent* organization; and had encouraged it by giving preference to its members; that the men were discharged for cause; and it would be idle folly for the company to accede to the demands of the men; that the company desired to pay fair wages and to treat all its employees with humane consideration; that to accede to present demands would mean that the company would no longer have control of its conductors and drivers; that the labors of the President and the Board of Directors would be done away with and security for the stockholders gone; and that the proposed strike was due to a few unprincipled men.

Upon the receipt of this letter a strike was determined upon, to commence on the 30th of June. At a meeting of the Association, delegates from the Trades Association, the Sailors' Union, the Iron Union, the Telegraphers, and other Trades Unions, all pledged their sympathy and financial support. It was then openly declared by these laborers that they would not ride on cars run by "scabs;" nor in fact allow such cars to be run. Mayor Harrison stated to a committee from the Association that in case of a strike no interference would be permitted on the part of the police, unless the law was transgressed.

In the early part of the 1st of July there was an attempt to run cars on Madison street, under the protection of the police. When these cars reached Union street the crowd, which numbered 3000, began throwing paving blocks, beer kegs and ash barrels into the middle of the street, and pieces of timber were also placed across the track. The mob, however, being frustrated in its intent to stop the cars, began throwing paving blocks, cobble stones, beer kegs and whatever missiles it could lay hands on, at the cars and the police. The mob then upturned the car. A policeman defended it as best he could, and fired his pistol in his defence. The crowd called for a rope to hang the policeman. The whole day was spent in disorderly and riotous conduct. The rioters had everything their own way.

Mayor Harrison, Sheriff Hanchett, Chief of Police Doyle, Corporation Counsel Winston, and Superintendent Lake held a three hours' conference. The Mayor thought that it was a physical impossibility for the police and the Sheriff to protect all the cars on all the lines. He thought that if the company was in the right the people would come to it; if the strikers were right public sentiment would come to them. He said,

"I assume that it is not my duty, nor even proper, for me to decide the question." His duty was, he claimed, to preserve the peace and protect property through the police; not to act as judge between disputants; that he did not express opinion one way or the other; that it was not his place to advise the company. Congressman Lawler claimed in a conversation with the Mayor that the company had not treated its employees fairly and had no right to expect the city government to back it, and that the masses sympathized with the strikers.

At five o'clock on the morning of July 2, strikers, unionists, laborers and other friends of the strike gathered on Western avenue and along Madison street, prepared for any sortie that the company might attempt. No cars were run; and the rioters having their own way the peace of the city was broken only by occasional acts of violence. Several new drivers were assaulted; and in the afternoon of this day a police officer named Kelley drove up to the barns and began an address to the crowd. He assured the strikers of his sympathy, and hoped that their cause would succeed. This officer was not arrested, but was merely required to drive on. In the evening fully 5000 laborers held a mass meeting. One speaker advised the people to organize. Congressman Lawler openly incited a riot by counselling that the "scabs" be hit with bricks, and blamed the Mayor for "forcing the police on the oppressed."

On the afternoon of this day the mayor had counseled arbitration. On the morning of July 3d, three cars were filled with policemen at the barns on Western avenue, and with an escort of patrol wagons started for the city. An immense crowd composed chiefly of outside labor organizations with a strong "hoodlum" element then rushed for Madison street, and began blocking the thoroughfare by piling up iron gas pipes, heavy timbers, and all the building stone, bricks and other materials that could be found. The police after some time removed these obstructions. At other points there were huge barricades found on the track. A rush was made for the cars, but the officers drove back the rioters with their clubs. Acts of violence continued during the day. Still the opinion of the mob seemed to be that there was no objection to the police riding occasionally on Madison street, so long as no passengers attempted to enter the cars.

The anniversary of American independence was comparatively quiet, as the company made no effort to run any cars, and the police allowed the people to assemble on the streets. The Mayor addressed two letters, substantially the same—one to the strikers and one to the company. He stated that differences had led to a strike, "in which each side claims itself to be in the right and in which both sides may be in the wrong," that the public had a right to expect the company will afford it the accommodation which its charter imposed on it, that the public agrees with him that the dispute can be settled by arbitration. "If you" (the company), he added, "refuse"

(to arbitrate), "and riot and bloodshed should result from a continuance of the strike, the public may feel inclined to hold you" (the company) "responsible."

Sunday followed the fourth, and the day was marked by the holding of meetings of a more or less communistic nature in different parts of the city. One of the speeches at the Trades and Labor Assembly urged the City Council to declare the charter of the railway forfeited and that it assume the control and running of the lines for the people. Another person made a ferocious speech dealing in arguments favoring the use of stones, clubs, powder and dynamite; and alleged that the Trades-Union was acting and should act upon the socialistic idea. He recommended that they organize a Zouave company. The Socialists gathered in large numbers on the lake front to listen to incendiary remarks from their leaders. The oppression on the part of the favored classes, the need of armed resistance to law and order were all talked about. One man from St. Louis denounced all property rights, advocated armed resistance to authority and claimed that only the knife, pistol and torch could bring the capitalistic class to a realization of the wrongs that labor suffered under. He talked for an hour in an address full of blood, burning and killing, and was urged on by the cheers of his audience. This man was followed by another who made a highly inflammable harangue. "How many of you have guns and pistols?" he shouted.

"I have! I have!" came the cry from all sides. "Then get them ready, for in a few days or perhaps tomorrow we may want to use them. We can march down the Boulevards, Michigan and Prairie avenues—those avenues of the purse proud and aristocratic—and sweep them from the earth if we are only armed and united." Great cheers followed these remarks. He then denounced many prominent capitalists and employers, the West Division Street Railway, Marshall Field, Geo. M. Pullman and J. Russell Jones as the enemies of mankind. The crowd said, "Down with them!" "Now is the time to strike!" At this point a number of revolutionary circulars was distributed among the audience. The crowd now demanded "Blood and riot." The prevailing advice was to arm and take possession of Madison street in the morning, when the red flag should be displayed. It is utterly impossible even to outline the expression of communistic sentiment that flowed out of the labor demonstrations that were held on this day.

On Monday, the Mayor, for the first time, issued a proclamation to the effect that the police would, on the following day, protect the property of the company while in the performance of its chartered rights; still he characterized the riot, as the "excitement growing out of a strike." Superintendent Lake, on his part, issued a very conciliatory bulletin to the effect that he would employ all the old men who would go to work, except those who had been guilty of any act of violence.

During the day a number of cars were



run under police protection, but in the afternoon there were two demonstrations which showed that the riotous element was not subdued and that the mob had watched its opportunity for doing mischief. On Van Buren street a car was ditched and an employee making a switch was assaulted. At seven o'clock the thirty-three cars that had been run on the four lines were withdrawn and further cause for disturbance removed for the day.

On Tuesday morning the cars were run more frequently, with one or two policemen on each car. Between twelve and one o'clock 400 workmen gathered at the corner of Jefferson and Randolph streets, and hooted the cars as they passed. The police dispersed them. On the afternoon the cars were crowded with passengers and the so-called strike was at an end.

The proposition of President J. Russell Jones was accepted; to the effect that all men should resume work, except those who had been guilty of violence, and the sixteen discharged men, whose cases should be examined; and if it was found that there was no cause for the action of the company, they were to be reinstated. In pursuance of the agreement most of the discharged men have been restored and the men virtually gained their object.

#### The Right to Discharge and the Right to Quit.

Why don't employees look in a common sense way at some of the questions concerning their every-day life? Why do men with families to support let themselves be influenced by demagogues into becoming fools or criminals, or both?

Here in the case of the Chicago riot, Superintendent Lake discharged sixteen men because he wanted to, and had the right to, and the whole Western District was torn up by the roots because there were no reasons given for the discharge. Suppose some conductor or driver gets mad and quits because he doesn't like his route, or his hours, or his pay, or for any one of a hundred other reasons or whims, would Superintendent Lake have any right to refuse to pay that man's friends because that man quit either with or without reasons? By the terms of the contract with most street railway companies handling a large number of men, the company has a right to discharge a man when it pleases, without giving reasons, and the employee has a right to quit when he pleases, without giving reasons.

The Superintendent has a right to discharge a man because he don't look honest or because he don't look sober, or because he wants to reduce the force, or because he wants to put another man in the discharged man's place.

The employee has an equal legal right to quit without assigning reasons, no matter how much inconvenience he causes the employer. He may quit because he don't like his mate, or wants to go on some other road, or because he wants to loaf, or because he thinks he may be going to get the g. b." And the company has no redress.

A railway company has a right to go out of business if it thinks it isn't making money. It has a right to reduce wages if it thinks it isn't making enough money. It has in many cases no right to increase fares, although it may have its taxes increased at the whim of unfriendly, or to pay expenses incurred by extravagant legislation.

The conductor or the driver has a right to quit if he thinks he is not making enough money. He needn't consider the company a moment. He has the advantage of the company that he can more readily offer his labor in another market than the company can put its capital in another investment.

The right to discharge and the right to quit, without assigning reasons in either case, should be remembered by both parties to the contract, and protected by the proper authorities.

#### The "Novelties" Exhibition.

We take pleasure in calling the attention of our readers to the "Novelties" Exhibition of the Franklin Institute, to be held in Philadelphia from September 15 to October 31, of the present year. Numerous and excellent as previous exhibitions have been, it is probable that the "Novelties" will exceed in merit and popularity all its predecessors. The management has already effected much, and the list of applicants for space has attained large proportions. It is stated by prominent officials that the buildings will prove too small to accommodate all would-be exhibitors, and there can be no doubt that procrastination is likely to result in disappointment. Other things being equal, the early birds consume a larger amount of insect life than the later arrivals; and we should exceedingly regret seeing any really meritorious firms denied admission because they deferred too long the period of application.

#### The Stable.

R. B. Sturges, stable foreman of the Brooklyn City and Newtown Road, thinks salt is about the best remedy for ordinary cases of colic. He instructs his men to give a large spoonful. He also uses salt in cases of foundered or sore footed horses. Bathes part in brine or makes a bran poultice and saturates with brine. He thinks the less medicine is given the better. Uses the Bryden shoe and thinks it excellent for the foot.

The same gentleman gives the following about feeding: Horses make twenty miles per day, are fed three times, 4:30 and 10:30 A. M., and 4:30 P. M. First and last feed consists of four to four and one-half lbs. cut hay, five lbs. meal, two and one-half lbs. ground oats. Noon feed long hay and five quarts of oats, making about twenty-nine lbs. feed per day. No bran is fed unless horses are out of sorts.

A SYSTEM of rails for street railways, introduced by M. Marsillon, is under trial by the Compagnie des Omnibus, of Paris. It consists of an ordinary bridge rail and counter rail of the same section, bolted in an iron longitudinal sleeper. The absence of wood makes the system a very durable one, but it is very inelastic.

#### Hose Jumpers.

Street railway men may find a good subject for thought in the following paragraph, from the N. Y. *Morning Journal* of July 15, referring to the fire in Liberty street the day before:

"During the fire Broadway and New Church street were packed with people, and the hose of the firemen prevented the Broadway cars from running. A long string of cars extended from above the City Hall, and the traffic was impeded for over an hour and a half."

The idea suggests itself to us that there must have been a good many fares lost to the street car lines, by reason of the hose impeding the traffic, and that this loss is one that is very often repeated on a greater or less scale, from the same cause.

If the evil were irremediable this loss would be a fit subject for bewailment; but the fact of the matter is, that simple and effective hose jumpers are so cheaply made and so easily carried, that companies deserve the losses that they incur from such blocks at fires. Most of us remember when hose-bridges and jumpers were regularly carried and used; and we believe that the reason for their discardal was a silly squabble as to whose place it was to pay for them and carry them; the firemen's or the street railway men's. The railroads insisted that it was the place of those who laid the hose lines across the street, to prevent them obstructing travel. The fire department, on the other hand, claimed that it was the duty of those who didn't want to be bothered by such delays, to obviate them. Perhaps the railway men had the right of it, but the firemen have the best of it; and we suggest that it will pay the railways to carry hose jumpers.

There are two principal classes.

In one, there is for each rail a regular wooden bridge with a gentle incline on each side, and from two to four arches through which the hose lines lie. The bridge is about 6' long, and 6" in greatest height; and is preferably hinged in the centre of its length so as to be folded up compactly.

In the other kind, there is a simple piece of six-ply rubber belting, 6' long, about 10" to 12" wide, and having flush-bolted across it, about 4" apart, a few wooden strips as long as the belt is wide, and about 2" wide and 2" high. Between these strips the hose-lines are laid; and there is for a cover, a similar strip of belting, without the wooden strips. At suitable places there are short chains with iron pins, to hold the jumper down. One jumper goes on each rail. If every sixth car were to carry such a jumper, street-car blocks at fires, owing to hose laid across the track, would be of short duration and little expense.

A NEW street rail with a four inch upper surface and wide base, giving a section similar to ordinary railway iron, is being put on the market. It weighs 56 lbs. to the yard. Joints are made with fish plate and bolts, and the rail rests on steel chairs five inches high, spiked to white oak ties six feet apart.

### The American Street-Railway Mutual Insurance Co.

A meeting of the Directors of the American Street-Railway Mutual Insurance Company was held at the office of the Broadway and Seventh Avenue Railroad Company, in New York City, June 18, 1885, and a temporary organization effected by the election of Mr. Samuel Little, of Boston, Chairman, and Mr. W. J. Richardson, of Brooklyn, Secretary, pro tem.

The following communication with reference to the subject of street-railway fire insurance was issued to the various surface street railway companies of the United States and Canada:

Mutual Mill Insurance in the New England States is an established success of many years. It has done much to improve the character of the risks, by its restrictions upon bad practices and gross carelessness; and its suggestions of improvement have greatly reduced the number of losses and cheapened the cost of insurance. Before the establishment of the mutual companies, the rates exceeded \$1.50. Now it is estimated that thirty cents per one hundred dollars is a sufficient premium to pay the actual cost of insurance; although the mutual companies usually charge eighty cents, and return the profits in dividends. In England, where first-class construction prevails, the rates are about one-fourth of what they are in the United States, while in France and Germany they are even less. Why, then, cannot we successfully mutually insure our own property, when it is manifestly greatly to our pecuniary advantage to do so? Indeed we can much better afford to undertake the insurance of street-railway property, for the reason that the moral character of the risk is admittedly of the highest order. In that regard, it is superior to almost every other kind of property. Incendiarism can never be profitable under any circumstances to a railroad corporation.

The moral hazard is a very grave question to the insurers of stocks of merchandise. When insuring street-railway property, this is not taken into consideration. The high character of the risk should be regarded; but instead of doing so, the insurance companies have combined to organize a gigantic "strike" against street-railways. Hence the organization of this mutual company to meet the "strike," as the best available means by which the fire companies could be successfully brought to terms.

The men who have undertaken to form this company, and manage its affairs, are most of them known to the executive officers of companies that are members of the American Street-Railway Association.

The company has been incorporated under the laws of the State of New York; first, by reason of the fact that the plan has been developed by the Street-Railway Association of this State; secondly, because of the national reputation of the Hon. John A. McCall, Jr., Superintendent of the New York State Insurance Department; his certificate giving unquestioned and immediate entrance to a company in every State of the

Union. We learn that he gives his hearty co-operation, and approval of the company's plan of insurance.

The company is limited "to insure against loss and damage by fire," "surface street-railway property only," and that the liability of each member is limited to "not more than twice the amount of the current annual premium paid by such member." Only surface street-railway companies shall be members.

While individual stockholders in street-railway companies will be indirectly benefited, the company has not been formed in the interest of individuals; who, by the investment of their own personal funds, might endeavor to control the insurance of street-railway property. It will for this reason, we believe, commend itself to the managers of every street-railway.

Under date of February 14th, 1885, Mr. W. J. Richardson, as Secretary of the Street-Railway Association of the State of New York, sent out a letter containing a summary of the insurance statistics, gathered by him as Secretary of the American Street-Railway Association, from one hundred and seventy-eight companies in the United States and Canada.

The following summary, prepared by him, contains the statistics of one hundred and eighty-seven companies:

Total valuation of property.....	\$23,599,782.28
Insured for.....	14,784,561.03
Percentage of insurance to value 67 per cent nearly.	
Amount of premiums paid last year..	207,472.26
Total losses since operation of roads.	1,300,007.33
Estimated total premiums paid since commencement of operation.....	3,714,126.18
Percentage of premiums on losses....	35 per cent.

The present rates can probably be safely reduced about one-third. Each risk will be considered by itself and rated according to its material, construction, situation and fire extinguishing facilities, so that the cost of insurance may be equitably determined for all.

For the cities of New York and Brooklyn, the insurance companies have combined to make what they call a "tariff rate" of not less than 1½ per cent on all brick stables, and 2 per cent and upwards on all frame or partially frame, regardless of any of the qualifications just noted. The objection that this rating is unjust has been met practically with the reply—"Take it or leave it alone;" while the few companies that are not in the combination are as unyielding in rates as are the "tariff" companies. The result has been that in some cases, "without either rhyme or reason," rates have been increased 150 per cent.

Fire insurance must be thoroughly reliable to the insured; and a fairly large guarantee paid up capital is absolutely necessary to give a company this character. This is arranged for in this mutual company, by the provision for a "cash capital which shall be at least five hundred thousand dollars." The board has determined that this shall be the amount secured, before the company shall commence business.

This company, though organized under the laws of New York State, expects to be American in its scope. In the matter of

placing the stock, therefore, it has been determined to give the opportunity to every surface street railway company in the United States and Canada to subscribe. It is a mutual company for all, and by it all will be advantaged.

While the cost of insurance will be materially lessened, it will be seen by section twelve of the act that the profits of the business, beyond the acquirement of a proper surplus, will be apportioned according to the stock held by each surface street railway company as a member.

The most equitable basis upon which stock can be taken by the members is, undoubtedly, that of the gross receipts from passengers. The capital stock may not, and oftentimes does not, give any indication relatively of the business done.

The following resolution was adopted: *Resolved*,—That all street railway companies in the United States and Canada that become insurers of property with this company, shall have the privilege of subscribing for its stock pro rata, on the basis of the amount of their cash gross receipts from passengers during the year 1884.

### Frankfort-Offenbach Electric Railroad.

W. Howard White in a letter to the *R. R. Gazette* from Frankfort-on-the-Main, says the electric railroad between that place and Offenbach has been in operation eleven months. It is 4.2 miles in length. It consists of a single line tramway of one metre gauge, with three turn-outs. The rail is the usual European tramway pattern, with a deep, narrow flange groove, which will not allow the heavy wheels of European vehicles to drop into it, but would be liable to give trouble to light American buggies. The track is laid along one side of the roadway. It crosses two steam railroads at grade. The cars are, in outward appearance, very much like our horse cars; but the seats are arranged face to face, double seats on one side of the car and single on the other; the doors being at one side of the centre, while each platform has a single set of seats, for three persons, and there is standing room for twelve persons, the total being thirty.

The electric conductor is carried overhead along the curb line of the street. It consists of a gas pipe of about 1¼" in diameter, with a slot in the lower side. The runner is a shuttle-shaped bolt with two narrow lugs, which project through the tube and carry a rectangular frame, to the lower bar of which the electric conductor to the car is attached by a slide, which causes its pull to come always on the head end of the frame, whichever way the car is moving, thus avoiding any tendency to jam the shuttle in the tube. The electric conductor to the car is inclosed in a wire rope, from which it emerges about a foot from the runner frame. The wire rope is then continued by a slack piece connected to the middle of the upper bar of the runner frame, presumably to avoid leaving the runner behind in case the electric connection parts on a down grade, where the cutting off of the current would not stop the car.

The posts are set at a maximum distance of a little over 100' on straight line—closer together on curves in proportion to their sharpness. Round these the tube bends without any particular attempt at uniform curvature, which is of course unnecessary in view of the loose nature of the connection to the car.

The conductor tube is double. The connections with the car take current from one tube and return it to the other (the tubes have no other connection than through cars). The car dynamo is placed in a locked box under the car midway between the axles, and communicates its motion to one of the latter by gearing placed outside the wheels (between them and the axle boxes), the speed of the dynamo being geared down apparently to one-seventh or one-eighth its own angular velocity by four gears, two being placed on an intermediate shaft between the main dynamo shaft and the car axle.

The turn-outs, both in the track and in the conductor, are automatic. The track is arranged as on many horse-car tracks, with a fixed switch point, so placed that a car running toward it will always go to the right. The switch in the conductor is held by a spring, so as to throw the shuttles always into the right-hand tube, the shuttle pushing the switch aside in coming out of it. The main tube has a tapering slot cut into its side deep enough to allow the switch tongue to catch the point of the shuttle.

The trains run every fifteen minutes, and consist of one and two cars alternately, which run pretty regularly full. The capacity of the present apparatus is four trains of three cars each at about eight miles per hour, or perhaps somewhat faster, if the police would permit. The cars are at present run at an average speed of 7.2 miles per hour, including stops.

The running is controlled by the driver on the front platform, who turns the current on and off with a brake handle which fits over a square head on an upright shaft like an ordinary brake shaft. The handle is kept by the driver like a key, so that the car can not be tampered with when he is absent from his place. He brakes with his right hand with a similar handle.

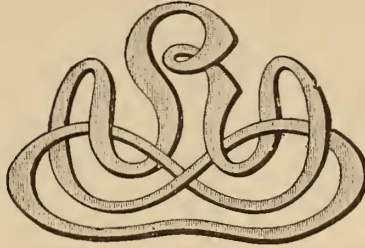
The driving station is about midway of the run. The engine is a double horizontal one of 250 H. P., of which only one-half is kept in use, developing a *maximum* of 100 H. P. to run eight cars.

The cost of the electric conductor, set up with its supports, is \$1 per foot, with ordinary day labor at 50 cents per day, skilled labor 75 cents to \$1.

The cost of operation of the electric road is said to be so great that the general opinion seems to be that it is not going to pay interest on the investment, in spite of the fact that the cars are nearly always well filled.

In regard to regularity and certainty of operations, Dr. Siemens asserts that the traffic is satisfactory in this respect. In a recent address, however, to the local technical club (apropos of another motor), the

speaker referred to the frequent interruptions of the traffic. On a recent round trip by the writer the passengers had to transfer to another car both in going and coming, on account of a crossing out of order. The road was three days out of operation for the purpose of repairs to the steam engine.



### American Street Railway Association.

OFFICERS, 1884-5.

*President.*—Calvin A. Richards, President Metropolitan Railroad Co., Boston, Mass.

*First Vice-president.*—Julius S. Walsh, President Citizens' Railway Co., St. Louis, Mo.

*Second Vice-president.*—Henry M. Watson, President of the Buffalo Street Railway Co., Buffalo, N. Y.

*Third Vice-president.*—Edward Lusher, Secretary and Treasurer the Montreal City Passenger Railway Co., Montreal, Canada.

*Secretary and Treasurer.*—William J. Richardson, Secretary the Atlantic Avenue Railway Co., Brooklyn, N. Y.

*Executive Committee.*—President, Vice-presidents and William H. Hazzard, President Brooklyn City Railroad Co., Brooklyn, N. Y.; James K. Lake, Superintendent Chicago West-Division Railway, Chicago, Ill.; Charles J. Harrah, President the Peoples' Passenger Railway Co., Philadelphia, Pa.; William White, President Dry Dock, East B. & B. R. R. Co., New York, N. Y.; B. Du Pont, President Central Passenger Railroad Co., Louisville, Ky.

**NOTICE:**—The next regular meeting of the American Street Railway Association will be held in St. Louis, Mo., the third Wednesday in October (the 21st), 1885.

### Street Railway Stock as an Investment.

President Richards sends us the following in reply to a query about the coming meeting of the Association:—

"Beyond some crude ideas, I have no formal or settled plans about the next meeting. I can say, however, that during this year I have been in correspondence with many gentlemen connected with the street railways of America, and have been exceedingly gratified to learn that they feel the deepest interest in the success and welfare of our Association, and that I can already see that its object being the promotion of a more successful and intelligent management, has been productive of great good. The intercourse with each other, that has been engendered by our social gatherings, has imparted a spirit of emulation that has given a new life to our daily duties, and kindled a higher and stronger regard for the business in which we are engaged.

"I also am more than pleased to learn that the year will undoubtedly prove to be generally successful in a financial point of view. I am also satisfied that the public have now come to consider the street railway as the most important factor in the growth and prosperity of cities and towns everywhere, and that they have adopted it

as not only a necessity in the business of the day, but also as a means of recreation and pleasure for themselves and families.

"The introduction of open cars in the summer season has been the means of promoting a desire to ride for pleasure alone, thus supplanting the old state of affairs when people only rode from necessity. A careful observer will consequently find that the stock of all the street railways in this country has been advancing steadily the past few years, and such investments now take their place amongst the most permanent of anything in this country.

"In all the principal cities of the country, this class of securities are now sought for by a class of investors who would not touch them in times past. This is also the case with many if not all of our suburban roads, many of which are now established upon a firm dividend-paying basis, that a few years since were looked upon as worthless. I can but feel when consulting an experience of many years, in my present occupation, that I do not err in judgment when I say that in my opinion an investment made to-day in any well managed street railway, will be sure to yield a sure and steady income, and will also advance in value as the city or town in which it is located increases its population, and that the day of a dull and doubtful existence for such institutions has passed away forever. It must not be overlooked in this estimate that the street railway is a home affair, and is patronized by all, rich and poor, every hour of the day. Its receipts are in small money, but every day so much cash is received, and it only depends upon what the management do with it, to solve the problem of success.

C. A. RICHARDS."

### Kurrachee Steam Tramways.

The East India Tramways Company have completed the main line of their system of tramways in Kurrachee. In view of possible military operations in Afghanistan, this new line of communication between the shipping port and the town may probably render important service in bringing up stores to the Government depôts, and to the railway station. The line is laid with steel rails weighing 70 lb. per yard, and continuously supported upon a concrete bed. The gauge is 4 ft. The engines are of the make of Messrs. Kitson and Co., of Leeds. The passenger stock consists of long bogie carriages upon eight wheels with a continuous central communication. The goods wagons, like the passenger cars, are provided with a simple form of continuous brake, all the wheels of the train being braked by a steam cylinder carried upon the footplate of the engine. Branches and sidings for the working of the goods traffic are constructed at Keamari, at the native jetty, in the goods yard of the Kurrachee terminus of the Scinde, Punjab, and Delhi Railway, and in the grain compounds of some of the principal exporting merchants.—*Engineering.*

This is the only paper devoted wholly to street railway interests. \$1.00 a year.

### An Elevator for an Elevated Railroad Station.

During the six years that the Manhattan Elevated Road has traversed that region bounded by 110th and 120th streets and Morningside Park and Fifth avenue, and placed a station at 116th street and Eighth avenue, excepting the few houses now constructing, not a single building has been erected in the vicinity of the station, and but very few improvements have been made upon the plateau which embraces lots more favorably situated for building purposes, both as to soil and proximity to Central Park, than almost any other section in the City of New York. During this same period upwards of two thousand fine dwellings, stores and flats, have been erected in the vicinity of the stations at 125th and 135th streets, a mile beyond. The price of building lots has materially risen in that section, whilst they have been neglected and unsalable at a price anything near their intrinsic value below 120th street.

The reason of this fact is obviously that the station at 116th street is too high for practical use. Women, children, and infirm persons can make use of it only at serious inconvenience and detriment to health. On stormy and windy days it is positively dangerous to ascend or descend. It is sixty-five feet above the level of the street, and involves mounting eighty-eight steps to the platform. This region, therefore, is practically not served with rapid transit. To remedy these defects, to make lots within the territory from Morningside Park to Fifth avenue as available and productive for building purposes and at least as valuable as lots beyond 120th street, it is proposed to build elevators at the stations at 116th street and Eighth avenue. To produce this desirable result of making these lots available and marketable, a number of gentlemen have associated themselves under the name of the North Central Park Improvement Company to build these elevators. They have not the slightest personal interest in relation to the business of the enterprise, nor do they receive any benefit from its management that is not entirely in common with every person from whom they ask a payment.

A circular sent in the spring of last year to property owners, resulted in a subscription of something less than \$40,000. A lot was purchased at the corner of 116th street and Eighth avenue, and property owners are now asked to complete the subscription upon the basis of \$50 a lot, so that the elevators may be built. They will be operated after their construction, free of expense to the subscribers, by the railroad. The building and elevators will cost about \$100,000.

### Steam Street Railroads.

Steam tramways are taking preference among the public over those worked by horses. The two tramways between the Hague and Scheveningen—a fashionable seaside resort some three miles from the former place—run almost side by side, the

one being a horse tram and the other worked by steam. On Whit-Monday the traffic was very great on the steam line, each tram carrying from 100 to 120 passengers, whereas the horse cars were barely filled, frequently having no more than three to six passengers per journey. A similar preference was shown on the North London tramways, and it is one that continues to exist. Both these tramways are worked by the Merryweather locomotive, having 7" by 11" steam cylinder and weighing nine tons.—*Engineering.*

### Electric Tramcars.

A paper on "Electric Tramcars" was read by Mr. A. Reckenzaun before the Institute recently. After a comparison of horse, steam, and compressed air traction, with electrical traction, the difference of the electric tramcars from electric tramways and railways was pointed out to be that, whereas in electric tramways the energy is conveyed from the generating station to the rails or other conductor communicating with the motor which turns the car-wheels, the electric car carries its own energy within itself, and is quite independent of external influence, and the car can travel over any road or rail for whatever system, ordinary or specially designed. For tramcar propulsion it is absolutely necessary that the motor should have high efficiency, and at the same time be of small dimensions and light weight.

An improved machine of the author's had these qualifications. For the car there are two motors, each capable of working up to nearly nine horse-power, and weighing 420 lbs. Each motor is carried separately upon a small bogie, in such a way that each bogie forms a small locomotive engine upon which the car rests. One axle of each bogie is a driving axle; thus are actuated four small driving wheels. The speed of the motors is high, about 1,000 revolutions per minute when the car is running at seven miles an hour. Thus it is necessary to introduce reducing gear between the motor shaft and the driving axle. The gearing employed is a worm on each motor shaft, and worm wheels on the driving axles giving a ratio of about one to twelve. This worm-gearing is cased in and the wheels work in oil, the lubrication being perfect.

The variation of speed and power is obtained by means of a compound switch, which arranges the motor circuits so that the machines shall work in series, in parallel or singly; thus the resistance of the circuit being varied, the power and speed vary accordingly; when a greater range of speed is desirable, the motor-circuits are still further divided by arranging the field-magnet wires apart from the armatures. This obviates cumbersome gearing, which would add to the weight and the expense, increasing first cost and the maintenance as well. Brake-power, both mechanical and electrical, is efficiently applied. The most economical steam tramway locomotives, burn from nine to eleven pounds of coal per mile. The coal for charging the electric tram-car batteries, amounts to four pounds

per indicated horse-power. Reckoning the coal at eighteen shillings per ton, the fuel per car mile would be less than one penny. *London Architect.*

### Ohio State Tramway Association.

A neat little pamphlet comes to us from Cleveland, O., containing the doings of the association at their last annual meeting. Fourteen companies were represented. Interesting and valuable papers were read by H. A. EVERETT, of Cleveland, on "Electricity as a Motor for Street Railways;" F. DEH. ROBISON, of Cleveland, on "The Labor and Wages of Street Railway Employees;" D. W. STROUD, of Springfield, on "The Care and Feed of Horses;" A. D. ROGERS, of Columbus, on "Taxation of Street Railway Property;" O. S. BRUMBACK, of Toledo, on "The Liability of Street Railway Companies for Negligence;" and A. J. MULLANE, of Cincinnati, on "State and City Legislation for Street Railways." All the papers except Mr. Robison's and Mr. Stroud's are printed in the volume, and Mr. Brumback's will be found especially valuable, as it cites some fifty references to authorities in Ohio State statutes and court practice.

The association resolved that "companies, upon the presentation of any decisions of lower courts or important briefs by their attorneys, shall send sufficient copies to the secretary for distribution among its members."

The officers elected for the year are: President, Geo. B. Kerper, President of the Mt. Adams & Eden Park Inclined Plane Railway Company, of Cincinnati; Vice-President, Chas. B. Clegg, President Oakwood Street Railway Company, of Dayton; Secretary, Henry A. Everett, Secretary and Treasurer East Cleveland R. R. Co., of Cleveland; Treasurer, Wm. B. Hayden, of the Consolidated Street Railway, of Columbus.

The next annual meeting will be held in Toledo, in November.

In the evening the Columbus Consolidated Street Railway Company entertained the association, during which much wit and goodfellowship was enjoyed over an elegant elaborate dinner, the menu of which would make every street railway man wish he was "from Ohio."

### Recent Patents.

The following list of patents relating to the Street Railway interests, granted by the United States Patent Office during the month of June, 1885, is specially reported by Franklin H. Hough, solicitor of American and foreign patents, 925 F street, N. W., Washington, D. C.:

ISSUE OF JUNE 2, 1885.

Car heater, street—F. S. Hunter, Fort Ritner, Ind.  
Car starter—S. Rockafellow, Muscatine, Iowa.  
Fare box—T. Raake, Baltimore, Md.

ISSUE OF JUNE 9, 1885.

Car sand-box, street—J. Gllson and J. W. Houston, Providence, R. I.  
Car starter—D. W. Copeland, Syracuse, N. Y.  
Fare register—C. E. Pratt, Chicago, Ill.

ISSUE OF JUNE 23, 1885.

Car motor tram—J. Banks and D. Barnes, Melbourne, Victoria, Australia.

## Notes and Items.

[All our readers are particularly requested to send us, at the earliest possible moment, notes concerning actual or projected improvements in street railways. It is by this means that the STREET RAILWAY JOURNAL will increase its usefulness to each one who receives it.]

CANTON, O., has a new street railway just completed.

A NEW street railway is projected in Knoxville, Tenn.

A NEW street railway is to be built in Charleston, S. C.

JACKSONVILLE, Fla., expects to have a new street railway.

THE BROOKLYN ELEVATED ROAD is now in successful operation.

THE MINERAL SPRINGS ST. RY. is a new road in Ottumwa, Ia.

THE NEW STREET RAILWAY, at Bridgeport, is reported a settled fact.

THE LEXINGTON (Ky.) STREET RAILWAY will probably be extended.

THE BUFFALO EAST SIDE RAILROAD has added a number of new cars.

THERE is a talk of extending the Chattanooga (Tenn.) street railway.

WORK is shortly to commence on a street railway in Oswego, N. Y.

TWENTY-FIVE miles of underground railway are to be constructed in Paris.

THE GENESEE & WATER ST. RY. Co., Syracuse, is building a new stable.

THE new cable road on Atlantic avenue, Brooklyn, N. Y., has been commenced.

THE HOBOKEN CABLE ROAD will be running, engineer Endris says, by Aug. 5th.

THE ONSET BAY (Mass.) STREET RAILWAY is being built by contractor Gore of Boston.

BOWLING GREEN, KY., is said to be agitating the question of building a street railroad.

THE JAMAICA & BROOKLYN (N. Y.) R. R. Co. may build four miles of new track this season.

THE FONDA (N. Y.) & FULTONVILLE STREET RAILWAY has been abandoned and the tracks removed.

THE PHILADELPHIA CITY PASSENGER RAILWAY has been leased to the West Philadelphia Railway Co.

THE CITIZENS' STREET RAILWAY Co., Memphis, Tenn., intends laying some sixteen miles of new track.

THE ORANGE BELT ROAD is complete from Longwood to Myrtle Lake (Fla.), and is being extended to Paola.

THE JACKSONVILLE (Fla.) SUBURBAN RAILROAD Co. has given out the contract for building a road  $1\frac{1}{2}$  miles long.

THE BROWNELL & WIGHT CAR COMPANY, St. Louis, is now making cars for South Bend St. R. R., South Bend, Ind.

THE METROPOLITAN STREET CAR Co. will erect a car house and workshop in Washington, D. C., to cost \$7,000.—*Ex.*

R. B. VANCE, C. M. McLeod and M. J. Fagg have obtained the privilege of building a street railroad in Asheville, N. C.

ROME, Ga., is having a new street rail-

road. Brownell & Wight Car Company, St. Louis, is building the cars for it.

THE OSWEGO STREET RAILROAD's new cars building by J. M. Jones' Sons will be equipped with the Lewis & Fowler register.

THE ROCHESTER CITY & BRIGHTON road is having ten cars built by Jones, with Randall gear, and Andrews & Clooney wheels.

THE WOLF CREEK TRAM ROAD Co. has been incorporated to operate in Pocahontas county, with office at Rowlesburg, W. Va.

SIX miles of new street railway will be built by the Elyton Land Co., in Birmingham, Ala. Stables are now building for the line.

THE ERVAY, MAINE & SAN JACINTO STREET car lines, Texas, will be extended at a cost of about \$75,000.—*Balto. Manufacturers' Record.*

THE FULTON & CORTLANDT ST. R. R. Co. have petitioned the N. Y. board of aldermen for permission to construct a new cross town line.

WATSON & STILLMAN have improved their car wheel press by the addition of a sleeve and stop to prevent wheel from going on too far.

THE BROWNELL & WIGHT CAR COMPANY, St. Louis, is now finishing up a large order for fine cars for Louisville City R. R., Louisville, Ky.

THE PIERRE (Dakota) STREET RAILWAY is being rapidly pushed forward, the rails having arrived, and it is expected to be in operation in a few weeks.

THE PATERSON CITY (N. J.) RY. Co. is enlarging its stables so as to put horses in second story. Increase of business makes the changes imperative.

THE LINCOLN STREET R. R., Lincoln, Neb., have commenced operations on its new road. Brownell & Wight Car Company, St. Louis, has contract for the cars.

THE EL PASO ST. RY. Co. (Texas) takes only American money on its trip from El Paso to Paso del Norte, Mexico. On its return trip it takes both Mexican and U. S. coin.

THE BUFFALO STREET RAILWAY COMPANY has nicely fitted up its office, opened four miles of track on Broadway, and added seven open cars. This road has excellent stock and cars.

THE BROWNELL & WIGHT CAR COMPANY, St. Louis, has recently delivered twelve cars for the new cable line in that city; and is now at work on thirty more for the same company.

THE COLUMBUS ST. R. R., Columbus, Ga., has added to its equipment cars built by Brownell & Wight Car Company, St. Louis, and shipped in thirty days after receipt of order.

BATTLE CREEK's (Mich.) entire street railway system was sold June 6th to Gotte Detevilier of Chicago for \$43,000. It consists of five miles of rail, including the road to Goguas Lake.

SIX new cars have been added to the Putnam ave. line of the B. C. R. R. Co. Brooklyn, N. Y., from the works of the John Stephenson

company, with the new ventilating ceiling and passenger telephone.

COMMISSIONERS have been appointed by the N. Y. Supreme Court to decide whether the Bleecker street & Fulton Ferry R. R. Co. shall run its cars through Mail street from Park row to Broadway.

THE BIRMINGHAM ST. R. R., Birmingham, Ala., has completed its new line, and is now in successful operation. The new cars for the road were built by the Brownell & Wight Car Company, St. Louis.

THE vacancy caused by the death of Mr. Wm. H. Jennings, president of the Globe St. Ry. Co. of Fall River, Mass., on the 13th, has been filled by the election of Mr. Frank S. Stevens to that position.

WILLIAM RICHARDSON, president of the Atlantic Avenue Railroad Company, of Brooklyn, was recently presented with a costly gold watch and chain by the surface railroad companies of New York State.

THE METROPOLITAN STREET RAILWAY, of Boston, has broken ground, and foundation commenced for their new shops. They expect to have the building completed before winter.

THE SANDUSKY ST. R. R. Co., Sandusky, Ohio, has recently added new cars to its equipment, built by the Brownell & Wight Car Company, St. Louis, which firm, by the way, built all the new cars operated on this road.

THE GRAND STREET & NEWTOWN RAILROAD, Brooklyn, now has 250 horses and 72 cars. The new stable of the company is about 200' square and costs \$22,000. The company is laying a quantity of new 60 lb. steel rail.

THE COLLEGE CITY RAILWAY, Galesburg, Ill., commenced operations a short time ago. Their equipment was built by the Brownell & Wight Car Co., St. Louis. The company are doing nicely and will extend their system.

THE SHEPHERD AND TUSCUMBIA (Ala.) STREET RAILWAY Co. has been incorporated to build a street railroad, presumably to connect the two points named. J. N. Sampson and D. L. Duncan head the list of incorporators.

NEW BEDFORD, (Mass.) An exchange says:—"The aldermen of the city are in a quandary. Two or three years ago a board of aldermen granted a location through Union street to the New Bedford and Fairhaven Street Railway Company. Another board has since granted a location in the same street to the Acushnet Street Railway Company. It is one of the principal business streets, and is not wide enough to accommodate two tracks and leave room for general travel. Popular opinion is in favor of having only one track, but the city solicitor says the aldermen have no right to authorize one company to use the other's track unless the authority is petitioned for. This has not been done, and the aldermen are obliged to give a location to each company."

THE CHARLES RIVER RAILWAY, of Boston, has just received four new open cars made by J. M. Jones' Sons, Troy. These cars and all new ones ordered by this company are

equipped with the Bemis patent car box and gear. This makes sixteen cars now equipped with this gear.

THE first cable-car over the Ninth street incline of the new street railway in Kansas City, Mo., descended recently on its trial trip to the Union depot. The test was entirely satisfactory, and the road will shortly be opened for business.

A NEW street railway company has been organized at Ithaca, N. Y. Otis E. Wood, Freeville, N. Y. is president, and Alonzo Chase, Ithaca, N. Y., secretary. It is probable that cable will be used to propel cars up the hill to the college.

THE DE KALB AVE. (Brooklyn, N. Y.) line is being re-laid on Washington street, and the city is widening the street one foot on each side, and repairing with granite blocks. The main avenue to the bridge, when completed, will be one of the best in the city.

BROWNELL & WIGHT CAR COMPANY, St. Louis, has among other contracts one from the Bellefontaine Railway, St. Louis. From 1870 to 1880, the Bellefontaine Company bought fifty-four cars from this establishment, and the present order is the sixth it has placed with the above firm since 1880.

THE JOHN STEPHENSON Co. is delivering the new Broadway cars; is also at work on a lot of cars for Bleecker street, Fourth avenue, and Forty-second street and Boulevard (N. Y.), Queensland, and various other points.

THE NEW YORK CABLE RY. Co. met at 210 Broadway, July 18th, and elected Wm. S. Williams, president, Homer A. Nelson, vice president, Thos. W. Evans, treasurer, A. L. Earle, secretary, and Chas. P. Shaw, counsel. It expects to commence laying track inside of three months.

It is reported that the horses in the Atlantic ave., Brooklyn, (N. Y.) stables on Butler street and Van Nostrand ave., are troubled with glanders. Two have died and more are sick. Mr. Richardson and Dr. McLean of the Board of Health have the matter in charge.

J. R. MAXWELL, president of the Brooklyn & Long Island Elevated Cable Railroad Company, says:—You can depend on it that if any people can make the cable road a thorough success we can and will. We are going to build a structure strong enough to bear a Pullman car, and that is about equal to a thirty-five ton locomotive.

SENECA FALLS (N. Y.) STREET RAILWAY. The route of the projected street railway through Seneca Falls is to be along Fall street to the bridge built for the Sodus Bay road, across the river to Bayard street, Bayard to Spring street, Spring to Garden, and thence to the lake. The company will probably use dummy engines.

LIMA (Ohio) STREET RAILWAY. An exchange says:—John H. Rose of Norwalk, Conn., is negotiating with the stockholders of this road for a lease of the line for three years. If the lease is consummated, the rolling stock is to be put in thorough order and thirty-five trips a day will be run over the line. [This is *not* the Mr. Rose connected with the Demorest Register.—Eds.]

THE BROOKLYN CITY & NEWTOWN RAILROAD Co. is relaying and improving its tracks to the extent of \$8000. The Brooklyn Elevated road reduces the B. C. & N. Ry.'s earnings about \$150 per day, but the officials of the road are confident that the L. road will eventually be a benefit to the surface road.

PRESIDENT RICHARDS of the Metropolitan R.R. Co., writes us:—"Last week I obtained the consent of all the other Boston roads, and we all abolished the sale of all tickets upon our roads, our cash fares having been lately reduced to five cents. We now permit the U. S. Government to print our only ticket, viz:—the five cent nickel."

THE CENTRAL PARK, NORTH & EAST RIVER R.R. Co., (Belt line) having determined upon building a cable road on West street & Tenth ave., below 59th street, gave an audience and hearing to representatives of the different cable systems or parts of systems on Thursday the 23d. Its decision as to which one it would adopt (if it arrive at any decision) was not made known.

THE BROADWAY (N. Y.) RAILROAD's new cars building by John Stephenson Co. will be first-class in every respect. We notice on those now being delivered passenger telephone call, metal sash, drop sash in doors, and in all windows, including those behind the door when open, perforated ceiling, super gear, J. S. patent brake-handle, and various other admirable features, all of course with the best of finish.

ANDREW TRIMBILL, secretary of the Ewing Avenue Street-Railway Company, of Chicago, which has been granted an ordinance by the village trustees to construct a street railway in South Chicago, states that the company has begun work on the construction of the line. Ties are being laid along the proposed route, and the rails are on the way from Cleveland, Ohio.

THE WORCESTER STREET RAILWAY COMPANY will probably be granted permission to lay its double track in Main street. It is understood the company has in contemplation the establishment of an independent line on Front street, to run from Main street to the Union station, and that it will soon apply to the Aldermen for permission to lay a double track on the route.

THE NATIONAL CABLE RAILWAY Co. met at 142 Broadway, Saturday, July 18. The board of directors was reduced in number from thirteen to nine. President Shiner reported that twenty-seven suits had been begun against parties infringing upon the Hallidie patents: three in Cincinnati, six in Kansas City, two against the Brooklyn Bridge, six against the Third ave. Horse Ry. Co., and the rest in Philadelphia.

THE BLEECKER STREET track has been connected with the Third avenue track at Park row and Beekman street, and in a few days the Broadway cars will run to Fulton Ferry by that line, returning by way of Ann street. The Third avenue line is connected with the Broadway line below the Post office. The intention is, as soon as right of way through Mail street is secured, to leave Broadway above the Post-office and return through Ann street below the Post-office.

A POCKET MANUAL giving the streets on which the cars run, the streets they cross, how early and late they run, time of passing certain points, how long it takes to make a trip, color of cars run on each line, rates of fare, and much other valuable information relative to the Buffalo Street Railways is issued by A. J. Crafts, the advertising agent of the companies. It is a very useful and novel method of advertising, and contains the business cards of some forty firms. We believe the idea is President Watson's.

THE LYNN & BOSTON RAILROAD has built ten new open cars this season, and is building four new cars for winter use. It is building a "band car," which will be used to advertise its line to Crescent and Revere Beaches. The car is 25' long with a platform raised about 3' above that of the driver, upon which will be placed chairs for the use of the band only. The car is handsomely painted and trimmed with gilt and gold leaf, and will be decorated with flags and bunting. This company is using the Bemis box upon its new cars.

THE METROPOLITAN STREET RAILWAY Co. of Boston, will build a new car and repair shop at the corner of Bartlett and Washington streets, and change its present shops into stables. The new building will be of brick, 420 x 85', with car room, store room, machine shop, blacksmith shop, and foundry, on first floor; wood-working and painting rooms on second floor. Each floor will have centre track from the elevator with turn-tables to tracks at right angles on either side for the reception of cars. The building will be fitted with steam power.

THE BUFFALO STREET R.R. is laying steel rails in place of its iron track. Sup't Edwards in reply to a local reporter recently said:—"We are buying steel rails altogether. They are more inexpensive than iron, in the long run. Besides, we can buy them more cheaply now than ever before, and it pays us to take advantage of the low prices. The market has been very dull; there has been comparatively no demand, and rail makers have been glad enough to work up their surplus stock and sell the rails at cost, so as to get their money back."

THE WALES MANUFACTURING COMPANY, of Syracuse, N. Y., has issued a little pamphlet, the object of which is to answer the most important questions that come up on the organization and construction and equipment of street railways. It contains much that is of value and some interesting statistics. The relative merits of "The Conductors vs. Farebox System," are fully presented from the manufacturer's standpoint, and to those who are wrestling with this vexing question of fare collecting and checks on temptation to petty stealings, the book may be an acceptable solution. Send for it.

THE ALBANY RAILWAY proposes consolidating its stables, by the disposal of its property on South Pearl street, and the erection of a new stable adjoining its present one on Central avenue.

The new stable is to be of brick, three

stories high, the first or ground floor to be used entirely for car shed; the second story for stable to accommodate 160 horses; and the third story for hay, feed, &c. The stable it is presumed will cost between \$25,000 and \$30,000.

The erection of this stable will necessitate the building of some two miles of additional track which will have to be laid this fall.

MESSRS. F. W. JESUP & Co. of Liberty street, New York, whose long experience as contractors and dealers in railway supplies should render their opinion valuable, say that there is a better feeling among railroad men throughout the country. This improved tone is, they assert, growing slowly but surely, and especially in the southern and south-western states. They report an enhanced demand for rails, spikes, and street railway supplies generally, and note some street railway enterprises lately inaugurated, and others which are under discussion. Messrs. Jesup & Co. think that railway interests have seen the worst, and that henceforth they will go on improving.

THE UNION RAILROAD Co. of Providence, D. F. Longstreet, treasurer, has just completed an addition to its car house at South Providence, 45' x 159', making the building 120' x 159'; and new cast curve tracks are being laid to the main line in front of the building. At the shop this line is building twenty-one new open cars, twelve being 21 long with seven seats, six being 24' with eight seats, three are 26' with nine seats. All are being equipped with the Bemis patent car box and gear. Nearly all cars of the line are now equipped with the Bemis box, which we hear gives perfect satisfaction after trying all others.

THE BROOKLYN CITY RAILROAD COMPANY is building a model of a closed and an open car each about 23" over all, to be taken into court in cases of suit for damage, &c. They will be built to scale and a very complete *fac simile* of their standard cars. In order to readily show the inside of the car, which is complete even to mats, the roof of the car is made to take off. It would seem that an apparatus of this kind would have a tendency to prevent the giving of such verdicts for instance as allowing a driver damages for being knocked off the left side of the platform by a defective brake, when such a blow could only be given from left to right.

THE CHRISTOPHER STREET & JAMES SLIP FERRY RAILWAY COMPANY has forwarded to Albany articles of association for a new surface railroad corporation. Its proposed route, four miles with branches, extends from Christopher street at the North river down West to Spring street and through this to Mott street, with a double track. A branch running down Mulberry street from Bleeker will cross the other track and continue to Chatham street, to Roosevelt street, to James slip, and back through James street to Chatham street. The capital stock is \$500,000. The seven directors for the first year are Charles Spear, John H. Davis, Edward P. Beach, A. H. Walsh, O. S.

Cockey, S. F. Pierson, and Edward P. North. Seven million people use the James Slip Ferry annually, and there are no car conveniences for them. The consent of a majority of the property-owners along the route has been obtained for the new road.

THE THIRD AVENUE CABLE LINE. Steam was turned on and the machinery for working the cable of the Third Ave. R.R. (cable line), on Tenth avenue and 125th street, was started for the first time on Tuesday, the 21st inst., at 12.30 P. M. in the presence of president Lyons, chief engineer Miller, superintendent Robertson, and a large number of stockholders and invited guests, including some of the most prominent civil and mechanical engineers in the country.

The immense engines and working machinery moved off noiselessly, and as perfectly, in obedience to the touch of chief engineer Miller, as though they had been in motion for years, amidst the loud and prolonged cheering of the assembled company.

The engines (two of them) are of 350 H. P. each, with cylinders 24" x 48". The driving machinery outside of the engines proper weighs over 300 tons, including four pairs of driving drums, each operated independent of the other, especially arranged for the double cable system.

The cables will be placed in position on the 27th inst., and it is expected to have the road in operation by August 1st.

MORRIS AVENUE RAILROAD COMPANY. Articles of association of the Morris Avenue Railroad Company, of New York, have been filed with the Secretary of State. The road is to begin in East 134th street, near St. Clair avenue, and continue along East 134th street to Third avenue, to 137th street, to Lincoln avenue, to Morris avenue, to 149th street, to Cortlandt avenue, to 161st street, to Railroad avenue, to the New York and Harlem Railroad, westerly side; to Teller avenue, to 165th street, to Webster avenue, to Kingsbridge. Also from Morris avenue at 148th street, to Cortlandt avenue to 149th street. Also, from Lincoln avenue, at 137th street, through Lincoln avenue, to 136th street, to North Third avenue. Also, from North Third avenue, at 135th street, to Lincoln avenue, to 134th street, to the place of beginning. The capital is \$600,000, and the trustees are Messrs. Jordan L. Mott, John J. Waterbury, A. S. Rosenbaum, Walter S. Baldwin, John Holloran, Charles Jones, John Haffen, Daniel Kelly, James Kearney, Frank A. Shepherd, William H. Scott, Jr., Julius F. Chesebrough, and James B. Johnston.

LATE IN July, as a representative of the STREET RAILWAY JOURNAL jumped upon a Sixth Avenue car, in one of the cañons through which that well-managed line makes its way, he saw Mr. Superintendent Moore sitting placidly in a corner. He was perspiring freely, for the day was, as Mr. Mantalini would remark, "demnition hot and moist."

"Why are you not at Newport or Saratoga, Mr. Superintendent, or to be still more in good form, at home in your back base-

ment with the front shutters closed and the curtains drawn?" asked the writer.

"Because, in the first place, there is no law to compel us to go, and in the second place, we couldn't go if we wanted to in July, which is the worst month of the year on our poor horses."

"What, worse than August?"

"Yes, for although the weather in August is generally hotter than in July, and the flies more abundant, the hygrometrical conditions—or some other conditions—are more favorable, or perhaps the horses get more used to the heat, anyhow, they suffer more and die faster in July.

"No, not always hotter in August than in July. Seasons vary; for instance," continued Mr. Moore, "take my record of the last two years. Mean monthly temperature:—

JULY 1883.	73.3	JULY 1884.	70.1
AUG. "	70.8	AUG. "	71.5

"And this record tallies exactly with that of Mr. Eichelberger, observer in charge of the U. S. Signal office on the Equitable building."

"Continue your remarks, Mr. Moore, they are words of wisdom and experience," said the writer.

"I can't, it's too hot," was the reply, "and besides I must get off here to look after a sun-struck horse—good by."

Personal.

MR. JACOB SHARP, of the Broadway line, is at Richfield Springs.

MR. WM. J. RICHARDSON, Secretary of the American S. R. W. Assn., and of the Atlantic Ave. S. R. W., Brooklyn, has gone to Europe; expecting to be back about the middle of August.

B. A. Clooney, of Andrews & Clooney, is at Colorado Springs on his vacation.

J. S. Silver, secretary National Car Spring Co., will soon start on a western trip, going as far as San Francisco.

W. H. Hazzard, S. L. Husted, Wm. M. Thomas, and James Howe, comprising the executive board of the Brooklyn City Railroad, have been recently inspecting the new cable railroad in Cleveland.

H. H. Littell, Gen'l Manager of the Louisville City R.R. Co. of Louisville, Ky., was in this city this week, but was driven back to Louisville by the excessive heat.

Mr. Chas. B. Thurston, president of the Jersey City & Bergen R.R. Co. of Jersey City, was quite severely shaken up by an accident at the cable depot, on Tenth ave., last Saturday, the 18th, whilst viewing the cable plant with some friends. He inadvertently stepped upon a loose plank, which precipitated him into the wheel vault below, a distance of 12', cutting his left cheek open and otherwise bruising him.

Street Railroad Men on Strike.

A strike occurred at Cleveland, Ohio, July 23, on the Payne avenue street railway line, because three men had been discharged. It grew to such proportions that for five hours the strikers had command of the road, interrupting travel.











## Toledo Street R.R. Co.

**TOPEKA, KAN.**—Topeka City Ry. Co. 9 m, 4 g, 25-48 lb r, 25 c, 90 h. Pres. Joab Mulvane, V. Pres. D. W. Stormont, Sec. & Treas. E. Wildes, Supt. Jesse Shaw.

**TORONTO, CAN.**—Toronto St. Ry. Co. 18 m, 4-10 $\frac{1}{2}$  g, 30 lb r, 136 c, 670 h. Pres. Frank Smith, Sec. James Green, Supt. John J. Frankhu.

**TRENTON, N. J.**—Trenton Horse R.R. Co. 1 $\frac{1}{2}$  m, 5-2 g, 43-47 lb r, 10 c, 31 h. Pres. Gen. Lewis Perrine, Sec. & Treas. Lewis Perrine, Jr., Supt. Thomas Sillorris.

City Ry. Co. 3 m, 5-2 g, 45 lb r, 15 c, 69 h. Pres. Adam Extoir, V. Pres. W. H. Skinn, Sec. H. B. Howell, Treas. & Mang. Director Chas. J. Bramford.

**TROY, N. Y.**—Cortland & Homer Horse R.R. Co. 4 m, 4-8 $\frac{1}{2}$  g, 25-30 lb r, 2 c, —h. Pres. C. H. Garrison, Troy, V. Pres. E. A. Fish, Cortland, N. Y., Treas. Jas. M. Milen, Cortland, Sec. S. E. Welch, Cortland.

Troy & Albion Street Ry. Co. 3 $\frac{1}{2}$  m, 4 g, 35-45 lb r, 9 c, 41 h. Pres. Thos. A. Knickerbocker, Sec. & Treas. Theo. E. Haslehurst, Supt. W. R. Bean.

Troy & Lansingburgh R.R. Co. 20 $\frac{1}{2}$  m, 4-8 $\frac{1}{2}$  g, 47 lb r, 91 c, 466 h. Pres. William Kemp, V. Pres. Charles Clemishaw, Sec. & Treas. Joseph J. Hagen, Supt. Leander C. Brown.

**URBANA, ILL.**—Urbana R.R.

Urbana & Champaign St. Ry. Co. 2 m, 4-8 $\frac{1}{2}$  g, 33 lb r, 4 c, 20 h. Pres. Wm. Park, Sec. & Treas. Frank G. Jaques, Supt. W. Park.

**UTICA, N. Y.**—Utica, Clinton & Binghamton St. R.R. 7 $\frac{1}{2}$  m, 4-8 $\frac{1}{2}$  g, 43-56 lb r, 17 c, 82 h. Pres. Isaac Maynard, Sec. & Treas. Robt. S. Williams, Supt. Roger Rock.

The Utica & Mohawk R.R. Co. 2 $\frac{1}{2}$  m, 4-8 $\frac{1}{2}$  g, 25-40 lb r, 9 c, 5 h. Pres. Chas. W. Hutchinson, V. Pres. Nathan S. Haynes, Sec. Geo. M. Weaver, Treas. Joshua W. Church.

**VAITSBURGH, N. J.**—Newark, So. Orange, Ferry St. & Hamburg Place R.R. Co.

**VALEJO, CAL.**—Valejo St. Ry. Co.**VICKSBURG, MISS.**—Vicksburg St. Ry. Co.**VINCENNES, IND.**—Vincennes St. Ry. Co.

**WACO, TEX.**—Waco St. Ry. Co. 5 m, 4-8 g, 14-18 lb r, 9 c, 44 h. Pres. E. Rotan, Sec. & Treas. W. R. Kellum, Supt. J. W. Sedbury.

**WALTHAM, MASS.**—Waltham & Newton St. Ry. Co. 3 $\frac{1}{2}$  m, 4-3 $\frac{1}{2}$  g, 30 lb r, 6 c, 14 h. Pres. R. E. Robbins, Sec. & Treas. Henry Bond.

**WASHINGTON, D. C.**—Capital, No. O. St. & So. Washington R.R.

Anacostia & Potomac River Ry. Co. 3 m, 4-8 g, 37 lb r, 9 c, 24 h. Pres. H. A. Griswold, Sec. Edward Temple, Treas. T. E. Smithson.

Columbia R.R. Co. of the District of Columbia. 2 $\frac{3}{4}$  m, —g, —lb r, 19 c, 56 h. Pres. H. A. Willard, Sec. & Treas. Wm. H. Clayette, Supt. Thos. E. Benson.

Metropolitan R.R. Co. 21 $\frac{1}{2}$  m, 4-8 g, 38 lb r, 90 c, 400 h. Pres. George W. Pearson, V. Pres. A. A. Wilson, Sec. & Treas. William M. Morse, Supt. L. W. Emmart.

Washington & Georgetown R.R. Co. 10 m, 4-8 $\frac{1}{2}$  g, 42 lb r, 161 c, 750 h. Pres. H. Hurt, Sec. & Treas. C. M. Koonés, Gen. Supt. C. C. Sailes.

**WATERFORD, N. Y.**—Waterford & Cohoes R.R. Co. 2 m, 4-8 $\frac{1}{2}$  g, 45 lb r, Pres. Thos. Breslin, Sec. & Treas. C. B. Ormsby. (Leased by the Troy & Lansingburgh R.R. Co.)

**WEST HURON, CONN.**—New Haven & West Haven R.R. Co.

**WESTPORT, CONN.**—Westport & Saugatuck Horse R.R.

**WICHITA, KAN.**—Wichita City Ry. Co. 6 m, 8 c, Pres. J. W. Ground, Sec. & Mangr. E. R. Powell.

**WHEELING, W. VA.**—Citizens Ry. Co.

Wheeling & Elm Grove R.R. 7 m, 4-8 $\frac{1}{2}$  g, 30 lb r, 12 c, 4 Baldwin Motors. Pres. J. D. DuBois, Sec. E. J. Rutter.

**WILKESBARRE, PA.**—Wilkesbarre & Kingston Pass. R.R.

## Wilkesbarre &amp; Ashley Passenger R.R. Co.

Coalville Passenger R.R. 2 $\frac{1}{2}$  m, 4-8 $\frac{1}{2}$  g, 20-34 lb r, 4 c, 10 h. Pres. Chas. A. Milner, Sec. & Treas. George Loveland, Supt. Albert G. Orr.

**WILLIAMSPORT, PA.**—Williamsport St. R.R. Co.

**WILMINGTON, DEL.**—Front & Union St. Passenger Ry. Co.

Wilmington City Ry. Co. 4 $\frac{1}{2}$  m, 5-2 $\frac{1}{2}$  g, 45 lb r, 20 c, 82 h. Pres. W. Canby, Sec. & Treas. John F. Miller, Supt. Wm. H. Burnett.

**WINDSOR, CAN.**—Sandwich & Windsor Passenger R.R. Co.

**WINNIPEG, MANITOBA, CAN.**—The Winnipeg St. Ry. Co. 5 m, 4-8 $\frac{1}{2}$  g, 35 lb r, 13 c, 75 h. Pres. Duncan MacArthur, Sec. & Mangr. Albert W. Austin, Supt. Geo. A. Young.

**WINONA, MINN.**—Winona City Ry. Co. 4 m, 3-6 g, 27 lb r, 10 c, 39 h. Pres. John A. Mathews, V. Pres. B. H. Langley, Sec. & Treas. C. H. Porter.

**WOBURN, MASS.**—No. Woburn Horse R.R. 2 $\frac{3}{4}$  m, 4-8 g, 4 c, 4 h. Pres. & Treas. John Carter, Sec. J. G. Maguire, Supt. Dexter Carter.

**WORCESTER, MASS.**—Worcester St. Ry. Co. 5 $\frac{1}{2}$  m, 4-8 $\frac{1}{2}$  g, 45 lb r, 19 c, 100 h. Pres. Geo. H. Seeley, N. Y. City, V. Pres. Nathan Seeley, N. Y. City, Treas. & Supt. Harry S. Searis, Worcester.

**YOUNGSTOWN, O.**—Youngstown St. R.R. Co.

**ZANESVILLE, O.**—Bellare, Chillicothe & Canton. Zanesville & McIntire St. Ry. Co. 3 m, 3-6 g, 38 lb r, 12 c, 54 m. Pres. J. Bergen, Sec. W. C. Townsend, Treas. T. B. Townsend.

## The St. Louis Cable Road.

Owing to the strong and apparently organized opposition to the one year's extension of time for completion of the work sought by the St. Louis (Mo.) Cable R. R. Co., the company recently discussed the advisability of withdrawing, forfeiting their bond and disposing of the material on hand.

At a recent meeting, however, between the cable company and the Railroad Committee of the Council, a thorough understanding was come to and all differences straightened out, mutual concessions being made. Grading was done for two blocks on Franklin avenue, the power-house is nearly completed, the engine and drum are made, and the steel "yokes" are being constructed at Pulman, Ill. The cable, weighing forty-five tons, has been delivered, and the cars are now in the shops of the builders, Brownell & Wright.—*Repub.*

M. M. WHITE & Co.'s switches will be used exclusively on the new Broadway road.

## SPECIAL NOTICES

If you want to buy or sell Street Railway Property or Equipment of any sort; want men for Street Railway positions, or want a position, advertise under this head. Name kept strictly confidential when desired.

**WANTED.**—A situation with some Street Railway Co. as track foreman. Am strictly temperate and have had long experience—several years with a prominent contractor—and have good recommendations. Address, TRACK FOREMAN, Care STREET RY. JOURNAL, 32 Liberty St., N. Y.

## SECOND-CLASS STREET RAILWAY CARS FOR SALE.

**FOR SALE.**—Twenty second-class 16-foot Street Railway Cars, 5 ft. 2 in. gauge. For particulars call on or address

PEOPLE'S PASSENGER RAILWAY CO., PHILADELPHIA, PENNA.

## FOR SALE.

Four 10-foot cars; 2d hand; open platform at each end; in good condition. Will be painted and lettered as may be desired same as new.

Address ROBT. McCULLOCH, Supt. Bellefontaine Ry., St. Louis.

## Cars for Sale.

A FEW

## Two-Horse Street Cars,

IN GOOD CONDITION.

Built by John Stephenson Company.

FOR SALE

AT A LOW PRICE,

BY

SIXTH AVENUE R. R. CO.,

43d St. and 6th Ave., N. Y. City.

## FOR SALE.

25 Second-Hand

## One-Horse Street Cars,

Single and Double Enders, 14 and 16 feet over all. Running gear in good order. Lamps and fare boxes complete. Reason for selling, change to 2-horse cars.

Apply to

HUMPHREYS &amp; SAYCE,

Railway Builders, Mfrs'. Agts. for Steel Rails

All weights, T and Street Patterns,

Spikes and Track Fastenings,

No. 1 Broadway, New York.

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**JOHN BABCOCK & CO**

BOSTON MASS

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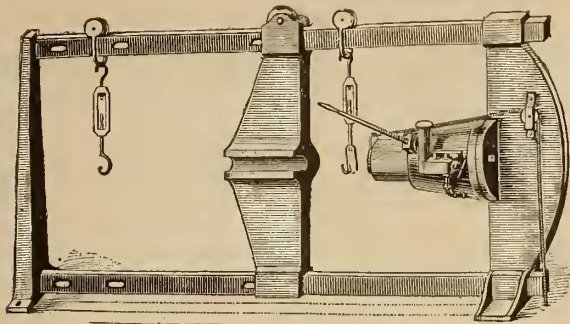
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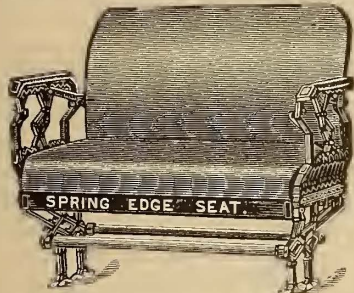
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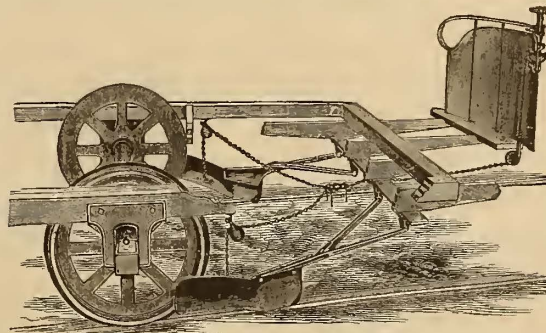
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Lowell Horse Ry., Lowell, Mass.	27 "
Grand Rapids Street Ry.	50 "

Naumkeag Street Ry., Salem, Mass.	40 pair.
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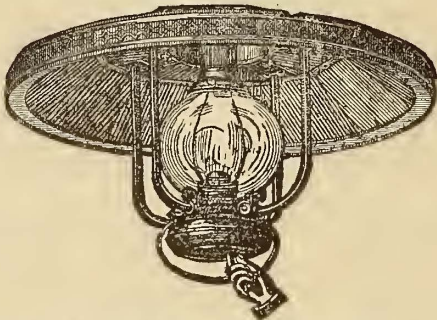
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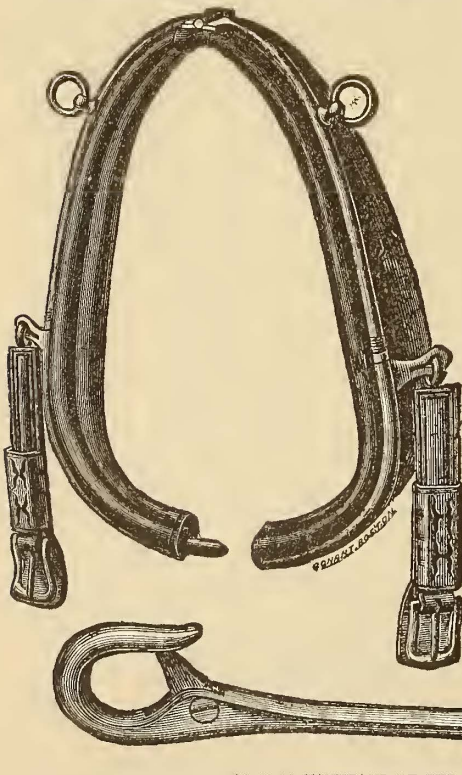
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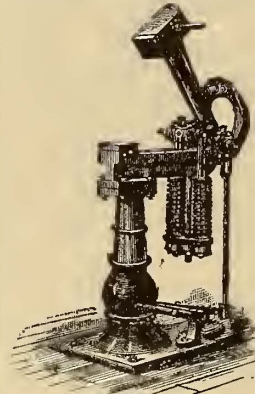
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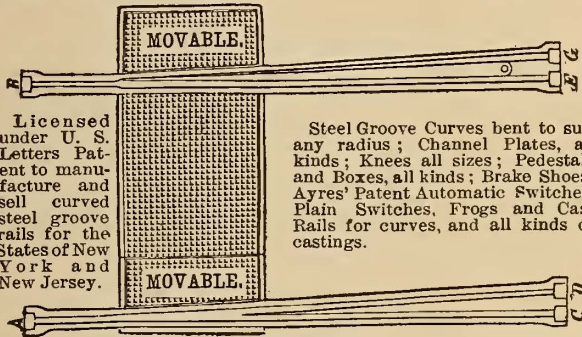
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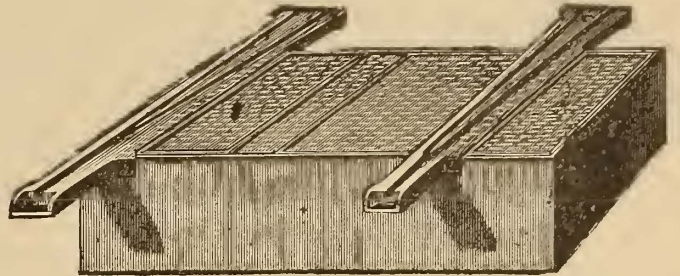
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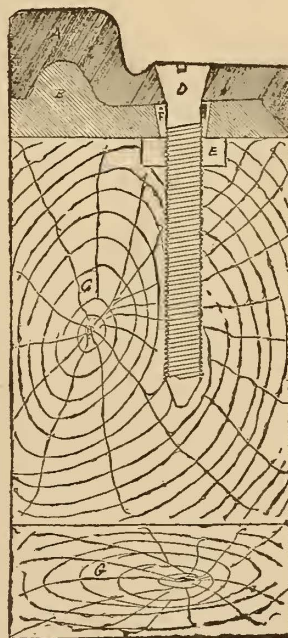
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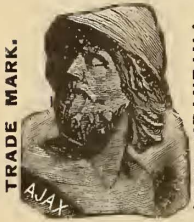


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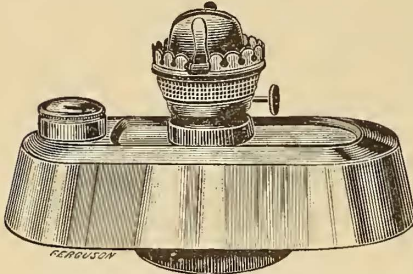
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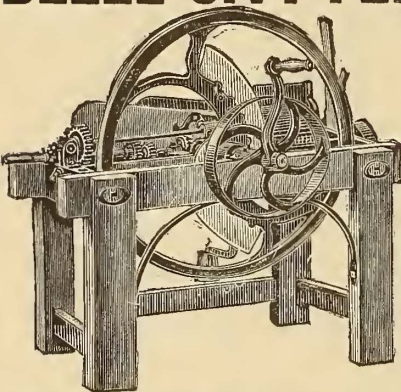
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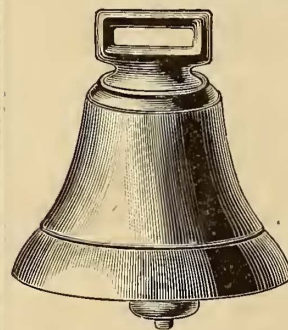
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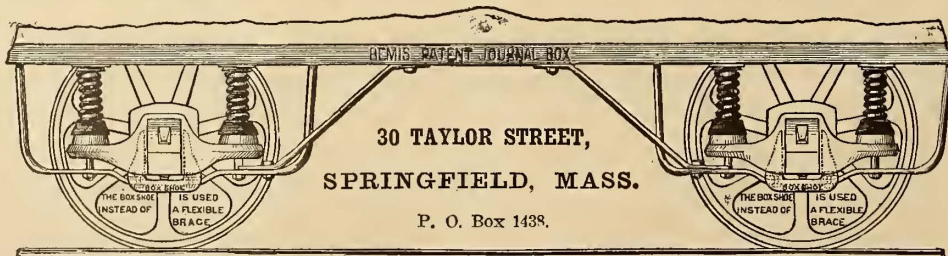
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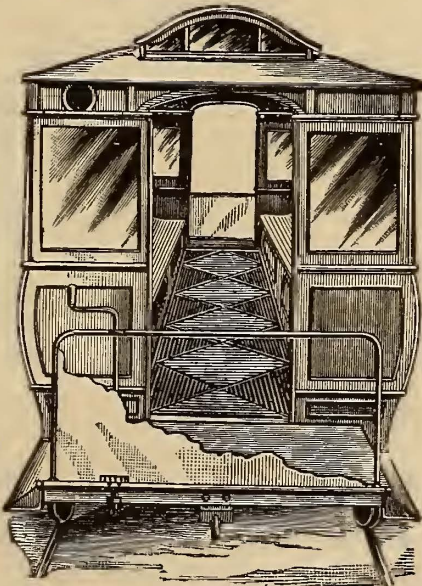
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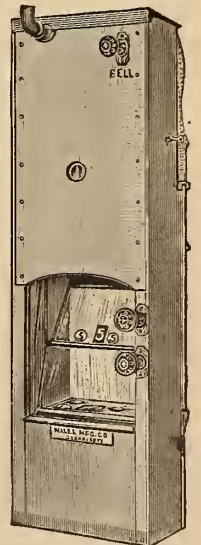
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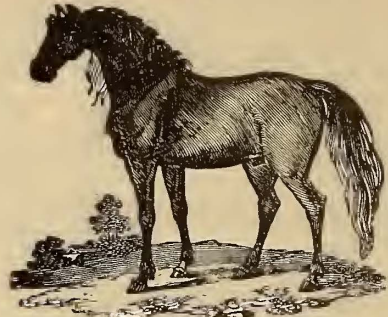
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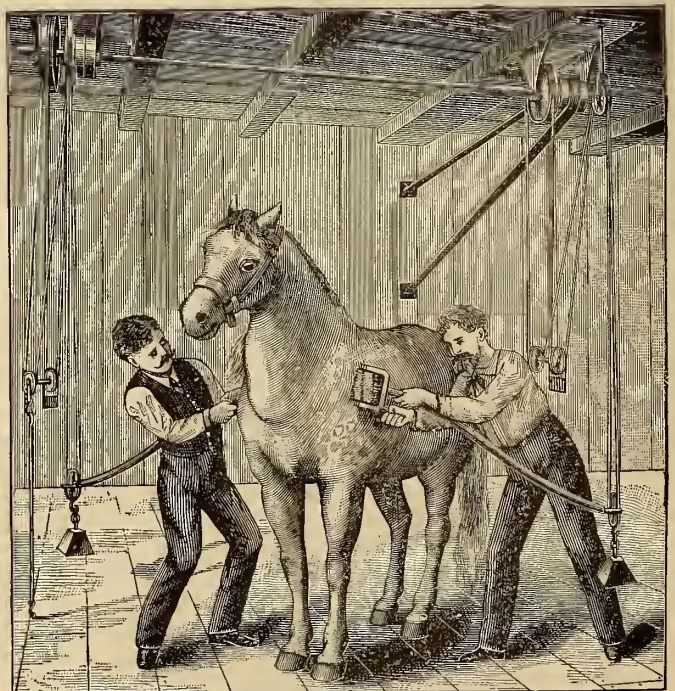
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are its ready application to Horse-Car service, or to any other purpose where cheap harness is required. It only costs about half as much as leather traces, while at the same time one set of Rope Tugs will (when used on horse cars) take the place of three or more sets of leather traces, as the Tugs remain attached to the car all day, no matter how many changes of stock are made. The relief horses having hooks attached to their hames, all that is necessary is to unhook the tugs from the working team back in the fresh horses, hook on the tugs, and the change is made. Railroad men will at once perceive their adaptability and economy from the above facts. They will also last longer than leather traces, and require but very little care. From their durability and cheapness they are also especially adapted for all kinds of farm use and heavy teaming, as farmers, etc., can easily repair them.



Patent No. 171,832, December 21, 1875.

In use on the Chicago West. Div. R'y.; Louisville City R'y Co.; Milwaukee City R'y; Transverse R'y Co., Pittsburg, Pa.; Citizens Street R'y Co., Pittsburg, Pa.; Pittsburg and Birmingham, Pittsburg, Pa.; Central City R'y, Peoria, Ill.; Grand Rapids R'y; Minneapolis St. R'y Co.; St. Paul City R'y; Houston City R'y, Texas; Superior Street R'y, Cleveland, O.; Cincinnati City R'y Co.; Fifth Ward Street R'y, Syracuse.; Detroit City R'y.; Ft. Wayne and Elmwood St. R'y, Detroit, Mich.; Galveston City R'y; Springfield City R'y, Springfield, Ill.; Toledo St. R'y, Toledo, O.; Adams St. R'y, Toledo, O.; Atlanta Street R'y, and others, in all on about 100 Street R'ys in United States and Canada, and a large number of other prominent Street R'y Companies throughout the Country. Send for descriptive Circular containing testimonials, prices, etc., to

LAKE & McDEVITT, 161 South Robey Street, Chicago, Ill.

## CLARK'S PATENT POWER GROOMING MACHINE, SINGLE OR DOUBLE.

Patented December 15th, 1874.

Patented January 9th, 1883.



TO STREET RAILWAY COMPANIES AND OTHER STOCK OWNERS.

This machine for grooming may be driven by any known power, and can readily be placed for use in any stable or out-building. It can be operated by an ordinary groomer; its work is perfect; its action simple and effective. Stock owners will readily realize the importance of the machine. The perfection and rapidity of its work, and the benefits derived by its use, commend it to those interested in the care and use of all classes of thoroughbred and work stock. The most vicious animal readily submits to its use. Machine Grooming is found to be less expensive than hand grooming, saving in food and medicines, and materially increasing the value of the animal.

The Curry Comb and Hand Process Superseded! Economy of Labor! Perfection of Work!

Three Hundred Head of Stock Thoroughly Groomed with Each Machine every Ten Hours.

This Grooming Machine is in daily use in some of the largest Street Railway Companies' stables, and has always given perfect satisfaction. Among those using it are the City R'y Co., Chicago, Ill.; Detroit City R'y Co., Detroit, Mich.; Central City R'y, Peoria, Ill.; M. W. Dunham, Wayne, Ill.; West Division Street R'y Co., Chicago, Ill.; Lindell Street R'y Co., St. Louis, Mo.; Pleasant Valley R'y Co., Allegheny City, Pa.; Marshall, Field & Co., Chicago, Ill.; Leroy Payn, Chicago, Ill.; Saginaw City R'y, Saginaw, Mich.; Pittsburg and Birmingham R'y Co., Pittsburg, Pa.; and a number of others who have given testimonials as to the perfect working of the machine. For prices, circular and other information apply to

161 SOUTH ROBEY STREET, CHICAGO, ILL.

# The Goodenough System

OF

# HORSE-SHOEING.

*The Goodenough System of Horse-Shoeing, of which the GOODENOUGH HORSE-SHOE is the exponent, is an endeavor to take from the hand of unthinking and barbarous method, the important art of farriery.*

*In the correct use of the system and proper application of the shoe, the sole bars and frog of the horse's foot are never cut, the rasp and knife being applied only to the wall of the foot, and no fire is used in the fitting.*

*The shoe is very light and narrow (Army pattern), easily worked cold and allowing frog bearing, without which there can be no good horse-shoeing.*

## FROG PRESSURE

*is as important a factor to the health of the horse's foot as air is to the lungs or food to the stomach. It is the*

## KEY-STONE OF THE ARCH.

The advantages of the Goodenough System are, first and foremost, **SOUND HORSES**; Secondly, **CHEAP HORSE-SHOEING.**

*Horse railroads using the system in its entirety not only buy much less iron and pay for much less labor, but have also much more serviceable stock.*

*Said a horse railroad superintendent of now the largest road in the United States:*

*"We don't wear iron nowadays, we wear frogs and cobble stones; nature provides frogs and Boston finds cobble stones."*

*To those who desire to read further upon the subject we will send upon application free of cost our pamphlets entitled,*

**"HORSE-SHOEING," and "FACTS FOR HORSE-OWNERS."**

# THE GOODENOUGH COMPANY,

156 and 158 East Twenty-Fifth Street,

NEW YORK.

J. W. FOWLER, President.

THE

DAN'L F. LEWIS, Treasurer.

# LEWIS & FOWLER M'F'G CO.

P. O. BOX 102.

BROOKLYN, N. Y.

Patentees and Manufacturers of

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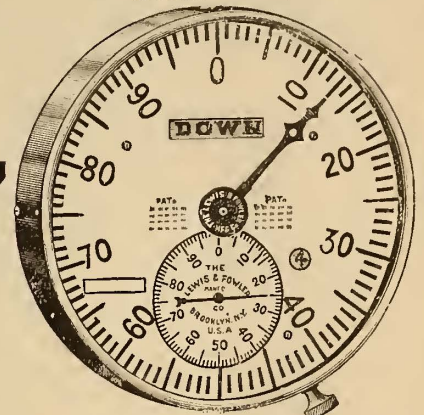
## "ALARM"

PASSENGER REGISTER.

—SOLE AGENTS AND MANUFACTURERS—



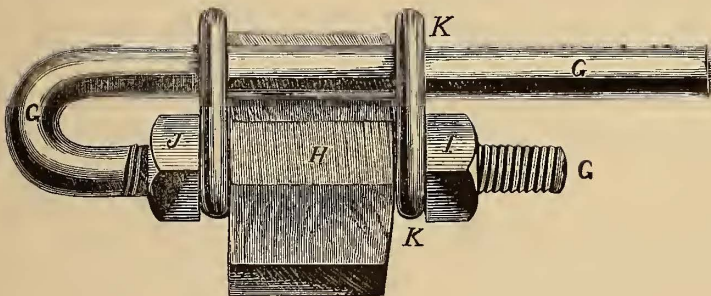
HIGHEST PRIZE.



SILVER MEDAL, CHICAGO, 1883.

### VAN TASSEL'S Patent Brake Rod

FOR STREET CARS.

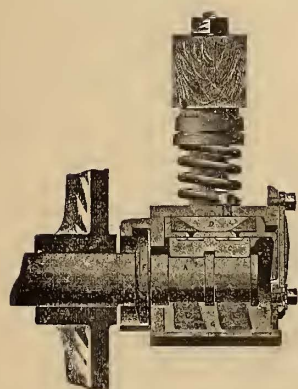


### SMALL'S Automatic Fare Collector.

FOR FARE BOX CARS.

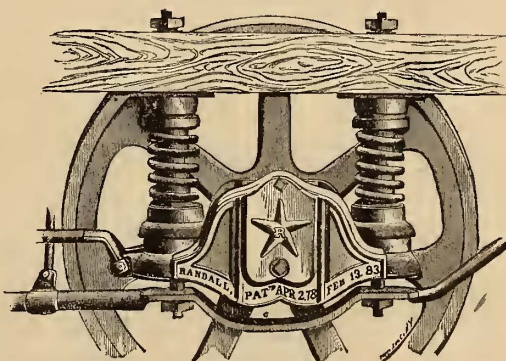


### "RANDALL'S" PATENT CAR AXLE AND BOX.



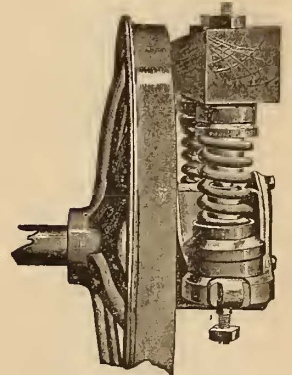
SECTIONAL VIEW.

DUST  
TIGHT.



FRONT VIEW.

ANTI-  
FRICTION



END VIEW.

Agents for ORIENTAL METAL for Street Car Journal Bearings.

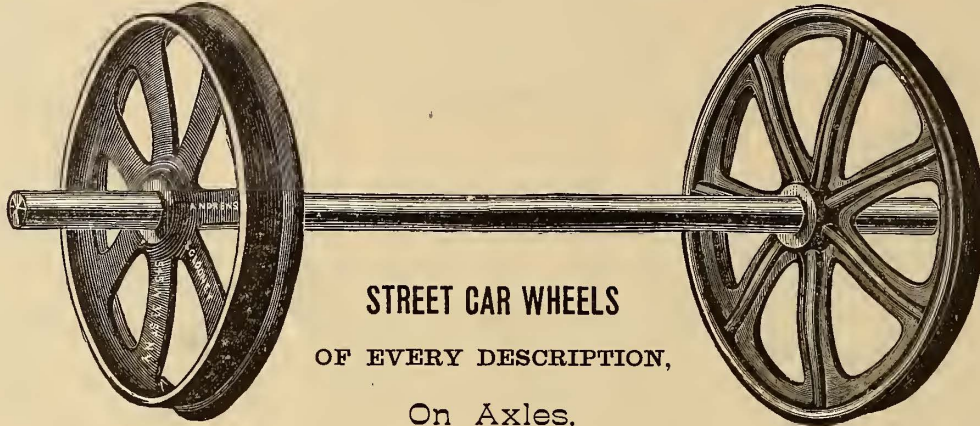
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STREET CAR WHEELS  
OF EVERY DESCRIPTION,  
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West 34th St.,  
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Manufacturers of



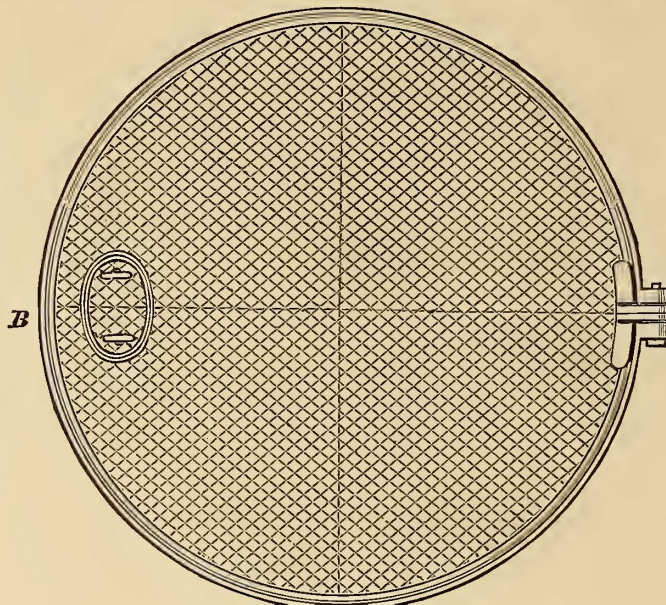
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Engine

## SPRINGS

Of Every Description.



Street Railway Turn-table.

Car Wheels,  
Axles,  
Brake Shoes,  
Pedestals,  
Boxes,  
Brass Bearings  
AND  
Castings

of all Descriptions where great  
Strength is Required.

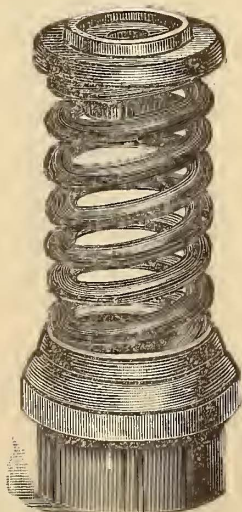
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SWEEPERS, SNOW PLOWS,

TURN-TABLES,

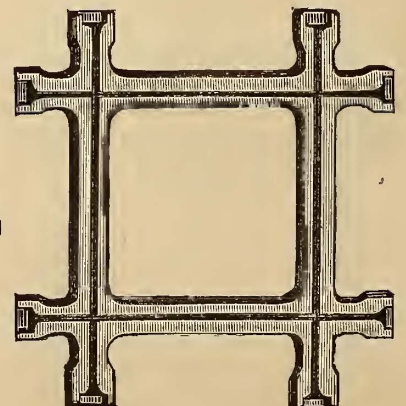
Track Work, Automatic Switches, Etc.

STEEL GROOVE RAILS AND MACHINERY



Street Car Springs.

SEND FOR ILLUSTRATED CATALOGUE,



Street Railway Crossings.

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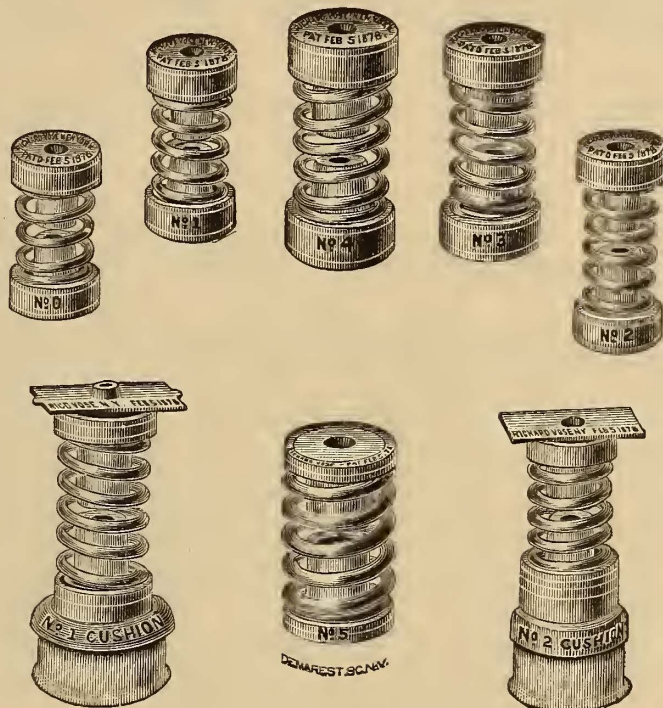
PATENTEE AND MANUFACTURER OF

## Graduated Street Car Springs.

### RUBBER CONE.

Patented, April 15th, 1879.

ADAPTED TO THE  
 STEPHENSON,  
 BEMIS,  
 RANDALL,  
 HIGLEY,  
 BRILL,  
 JONES,  
 BALTIMORE,  
 —AND—  
 ALL OTHER BOXES.



No. 0, for 10-ft. Light Cars.  
 No. 1, for 10-ft. Cars.  
 No. 2, for 12-ft. Cars.  
 No. 3, for 14-ft. Cars.  
 No. 4, for 16-ft. Cars.  
 No. 5, for 16-ft. Cars.  
 (Single Pedestal.)  
 No. 1, Cushion, for 16-ft. Cars.  
 No. 2, Cushion, for 12 and 14-ft. Cars.

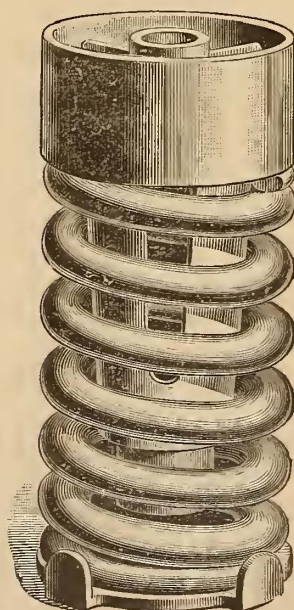
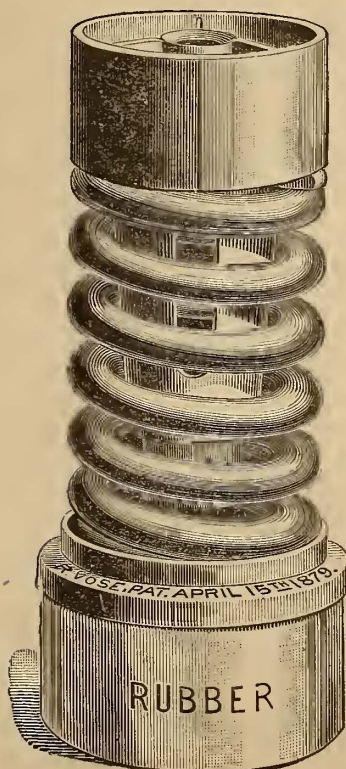
### STEEL CONE CITY CAR SPRING.

Patented April 15, 1879—August 5, 1884.

The unprecedented popularity of the

“VOSE GRADUATED RUBBER CONE SPRING”

for HORSE CARS has induced the inventor to bring this class of Springs as near perfection as possible, and after a series of experiments and tests now presents for favor what he claims to be the *MOST PERFECT SPRING FOR HORSE CARS* ever offered. It is exceptionally *SOFT AND EASY* with the *EMPTY CAR* or with the *GREATEST LOAD*. It is believed to be the *MOST DURABLE*, being constructed upon a principle that seems to insure that the Spring must *ACTUALLY WEAR OUT*. The very *Finest Quality of Crucible Cast Steel* will always be used in these Springs.



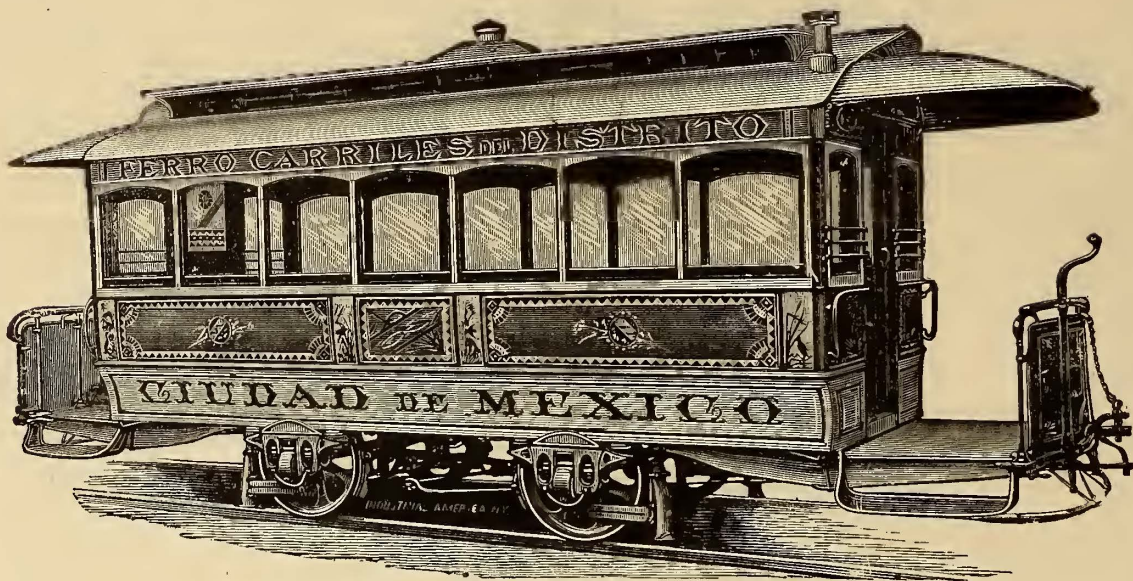
# JOHN STEPHENSON COMPANY

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**New York.**

## TRAMWAY CARS

MEDAL OF FIRST CLASS, WORLD'S INDUSTRIAL COTTON EXPOSITION, NEW ORLEANS, 1885.



**LIGHT ELEGANT, DURABLE.**

*Every Description.*

*Best Materials.*

*Minimum Prices.*

ORDERS QUICKLY FILLED. CAREFUL ATTENTION TO SHIPMENTS.

**All Climates Suited.**