

No. 651,898.

Patented June 19, 1900.

C. F. STREET.
DRAFT RIGGING FOR CARS.

(Application filed Jan. 20, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig 1.

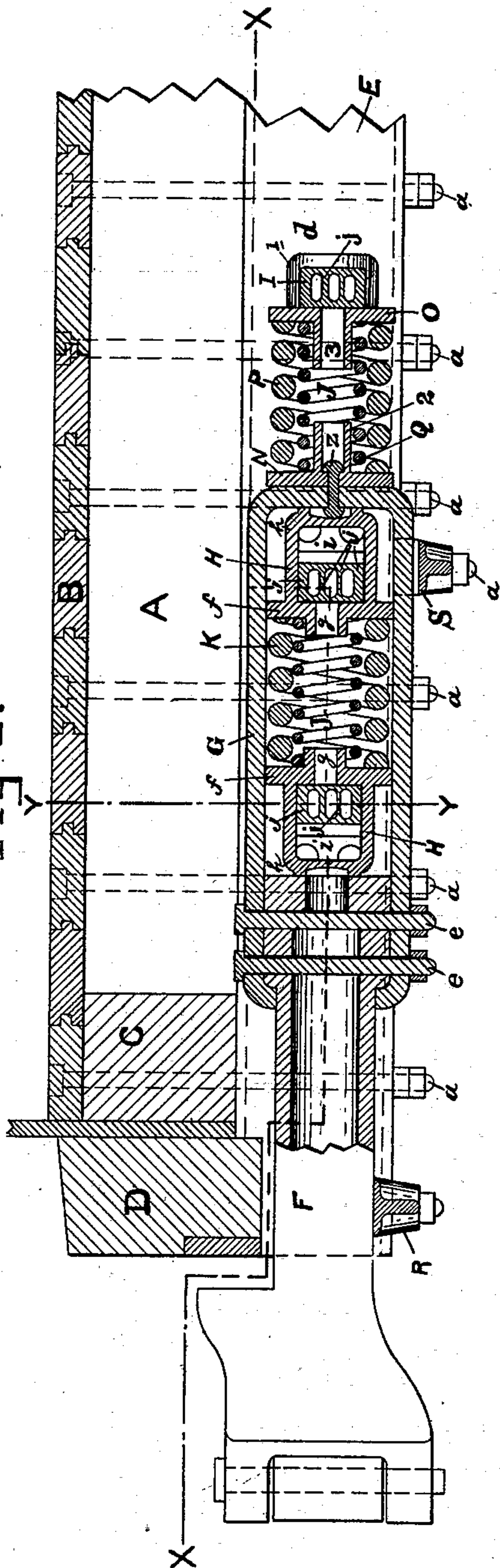
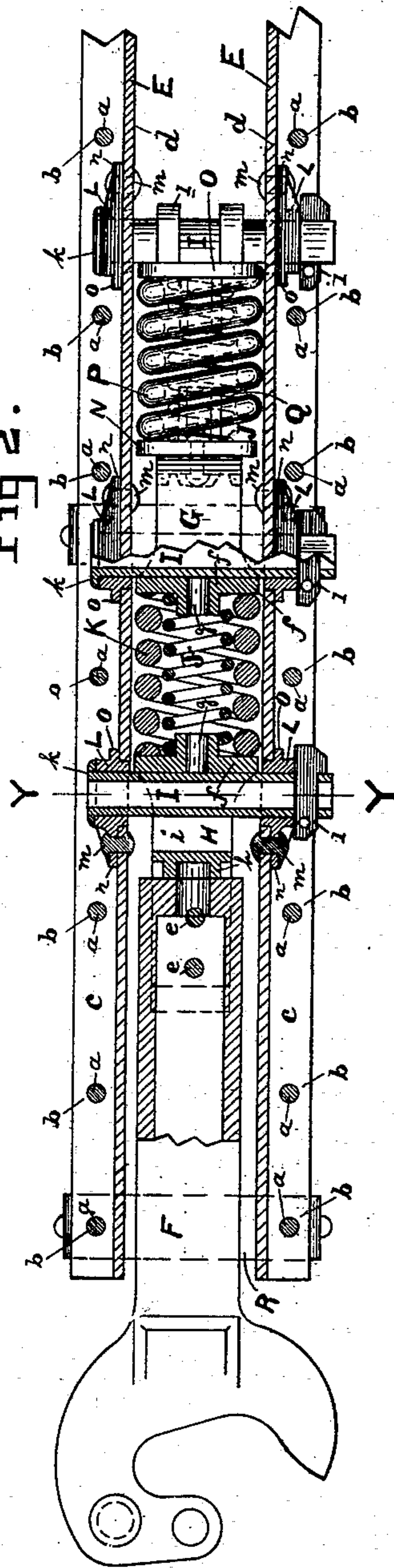


Fig 2.



Attest

E. B. Schuman

Fred. E. Keeley

Inventor

Clement F. Street
by *[Signature]*
Att'y

C. F. STREET.
DRAFT RIGGING FOR CARS.

(Application filed Jan. 20, 1900.)

(No Model.)

2 Sheets—Sheet 2.

Fig 3.

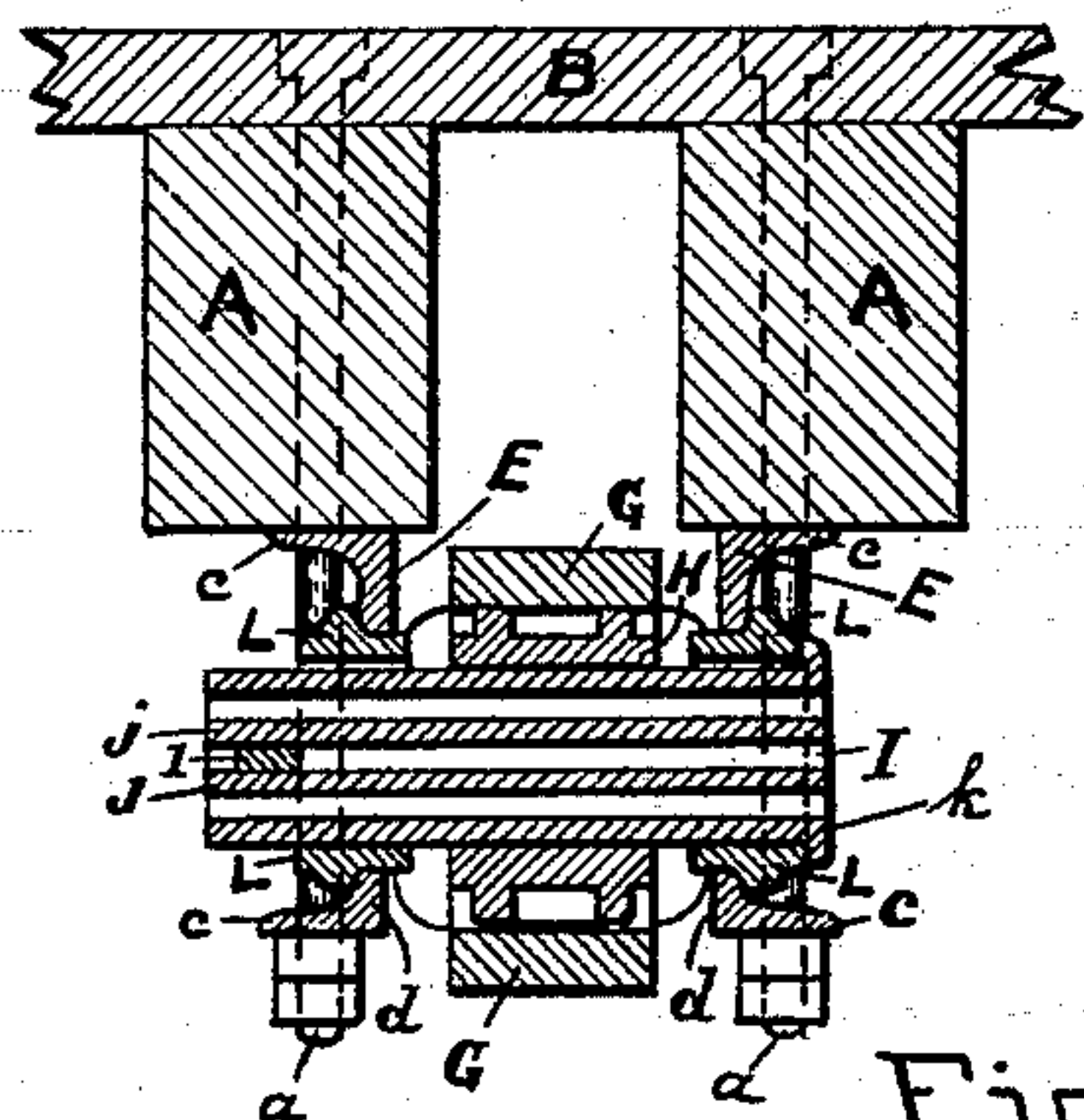


Fig 4.

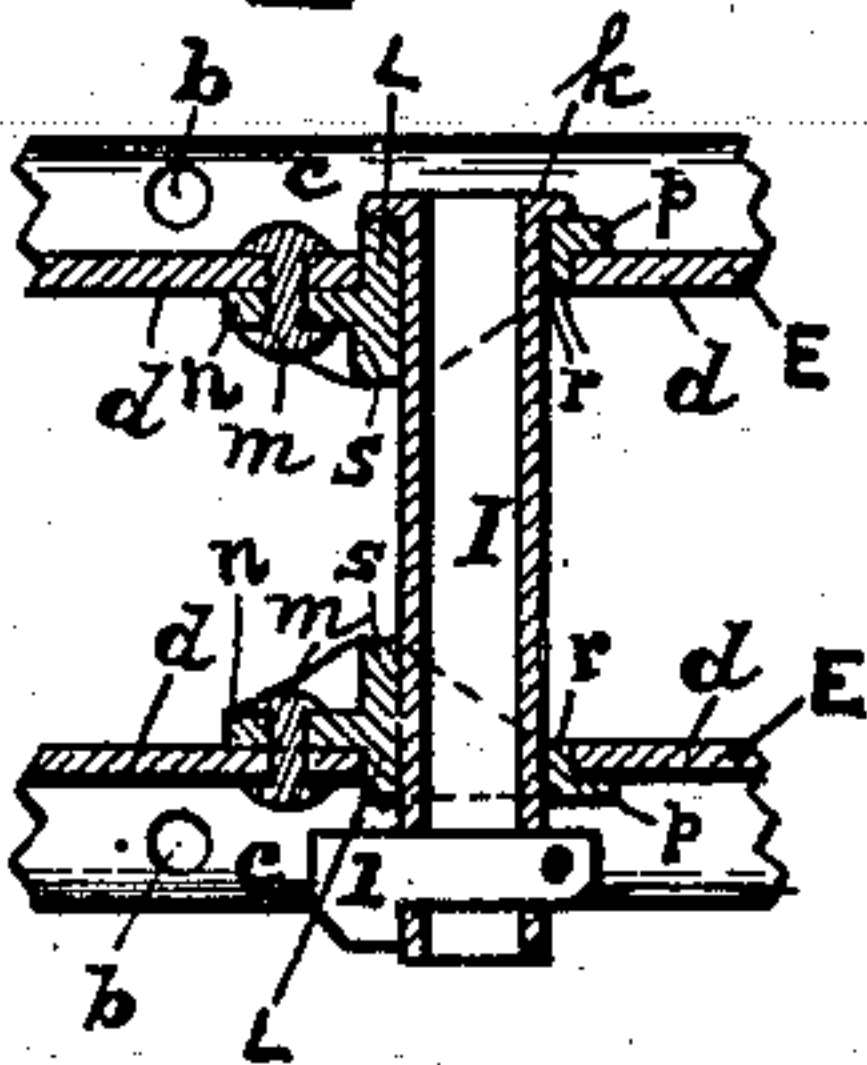


Fig 9.

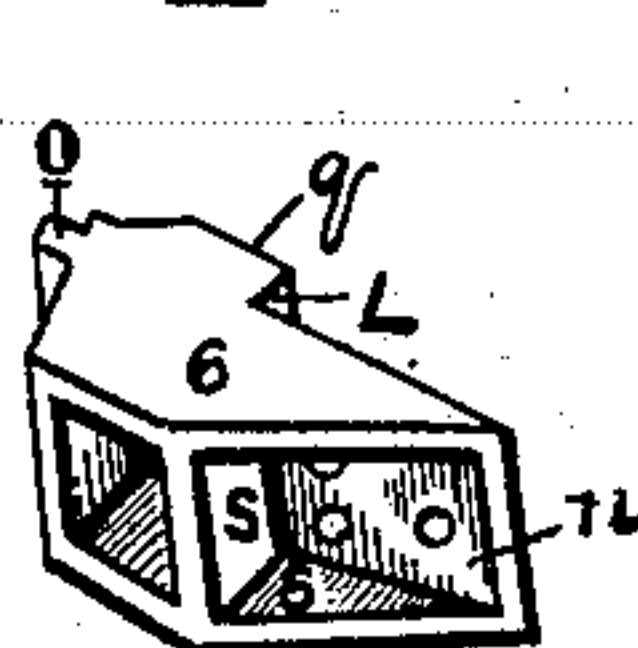


Fig 10.

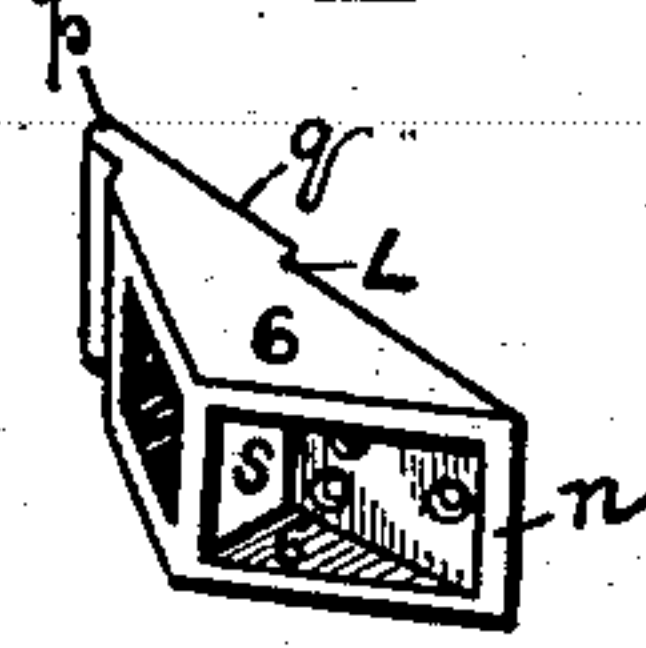


Fig 13.

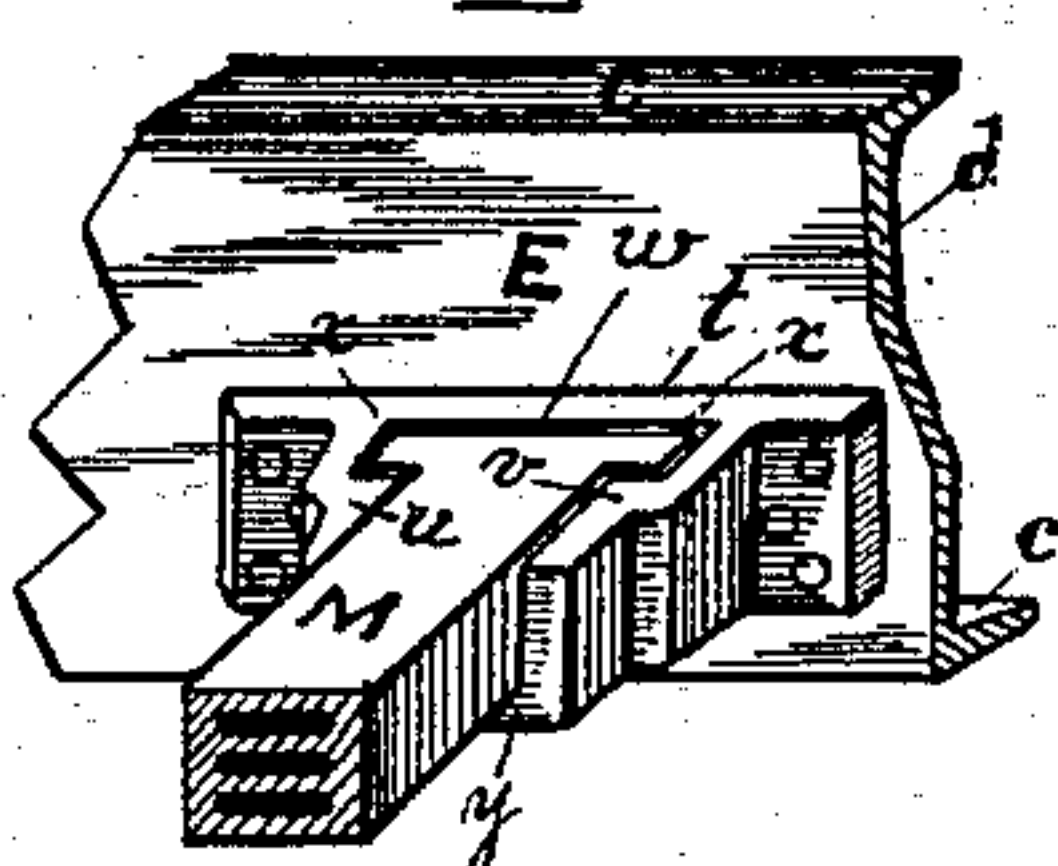


Fig 11.

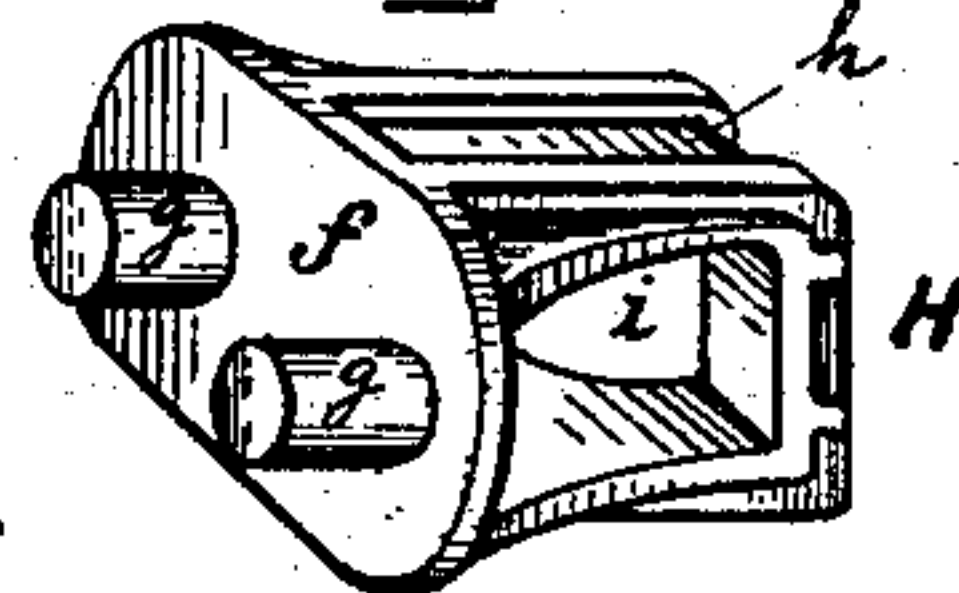


Fig 8.

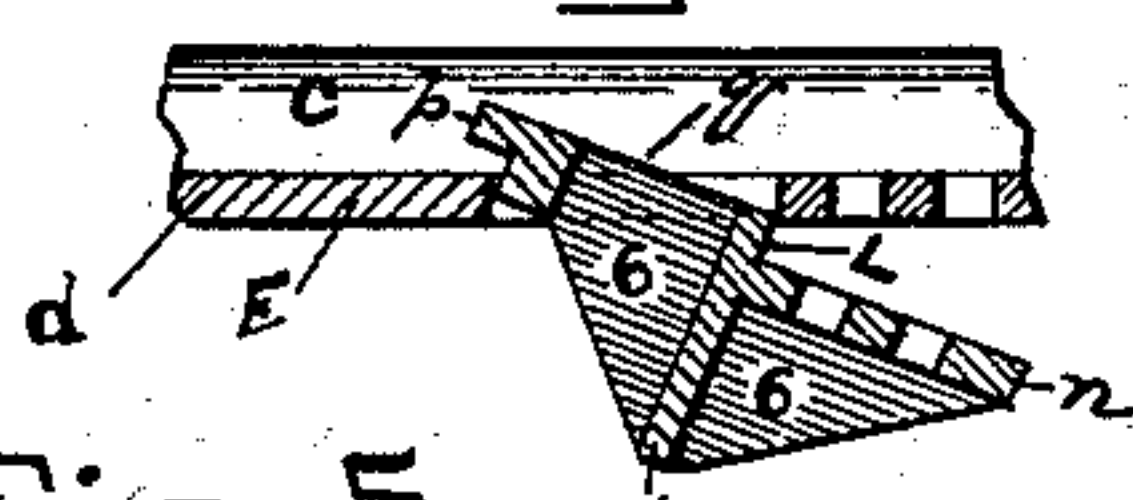


Fig 5.

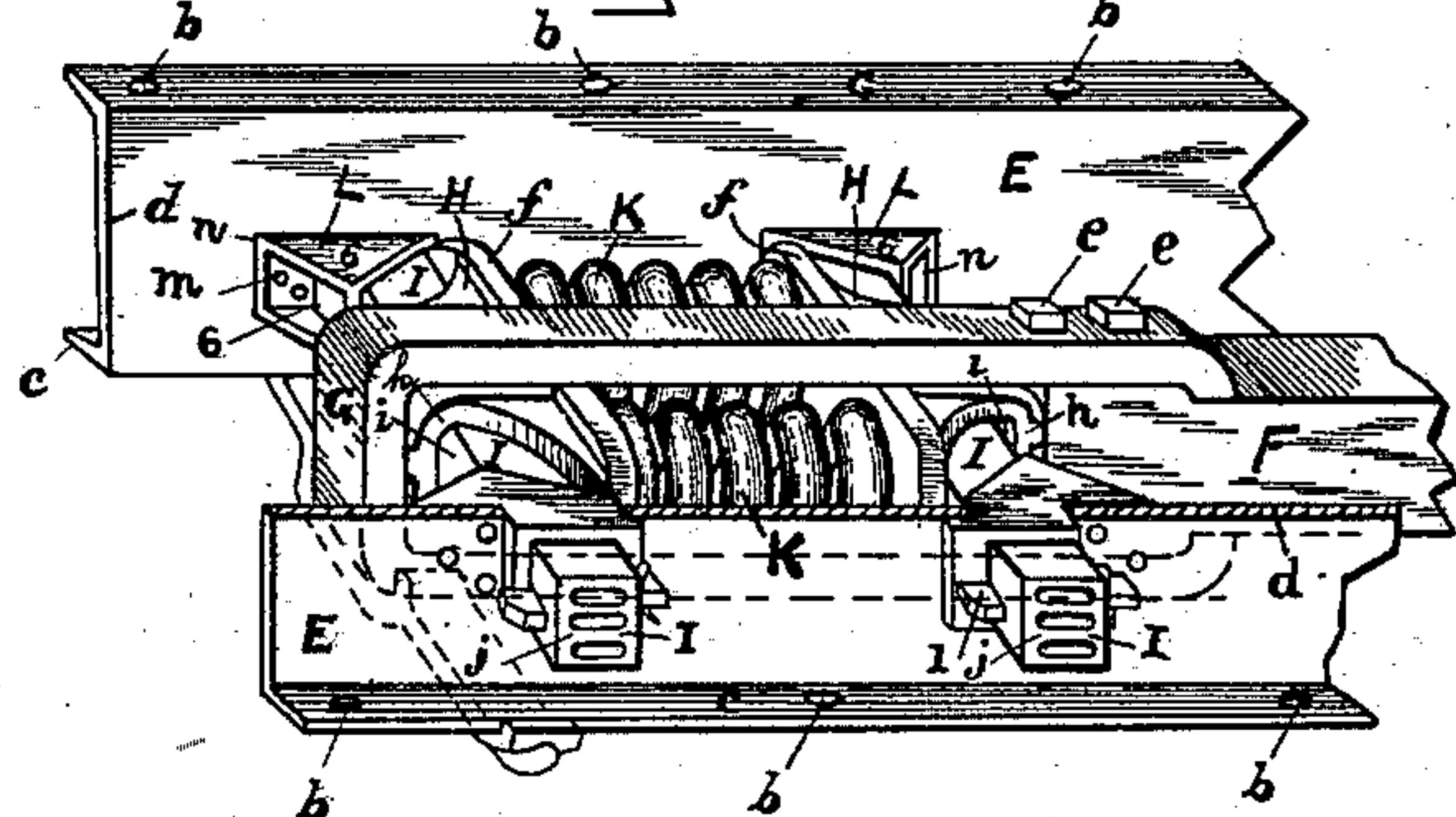


Fig 7.

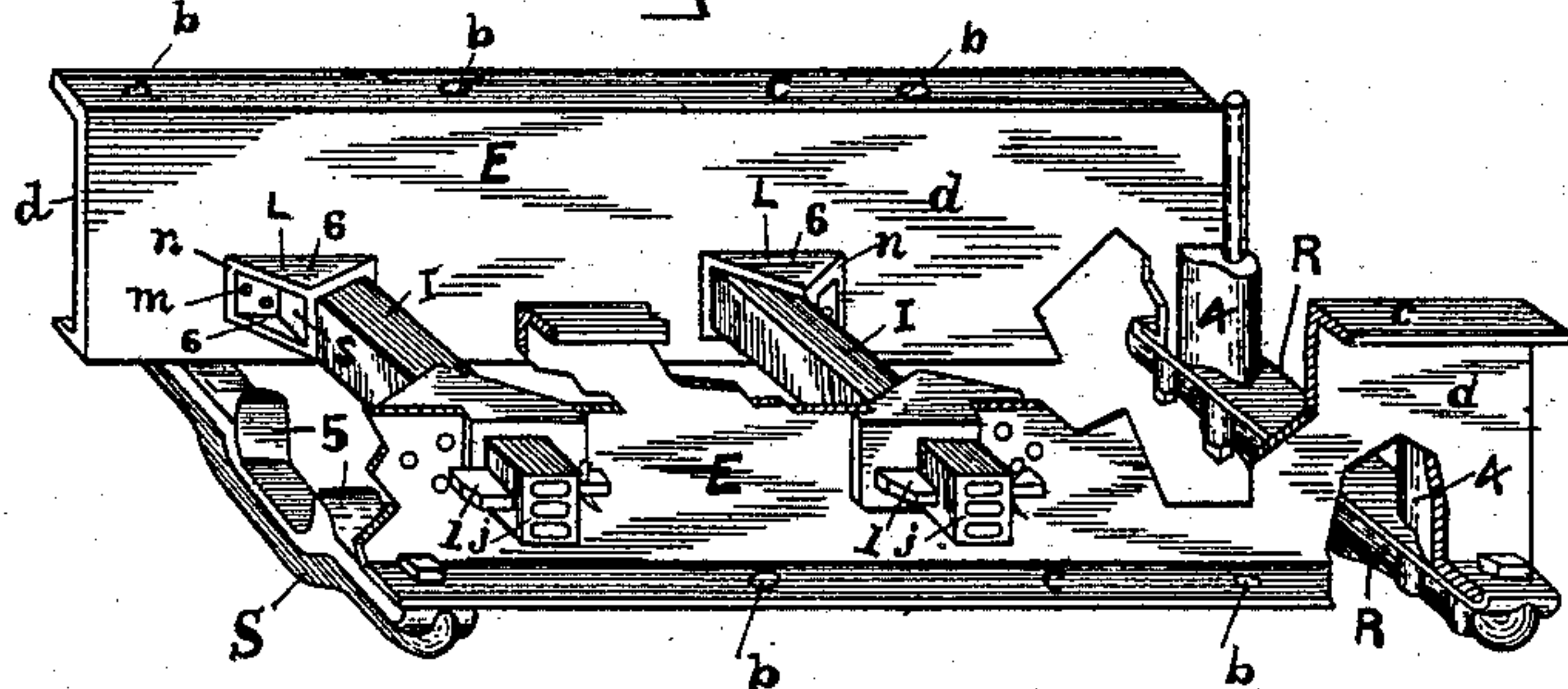


Fig 6.

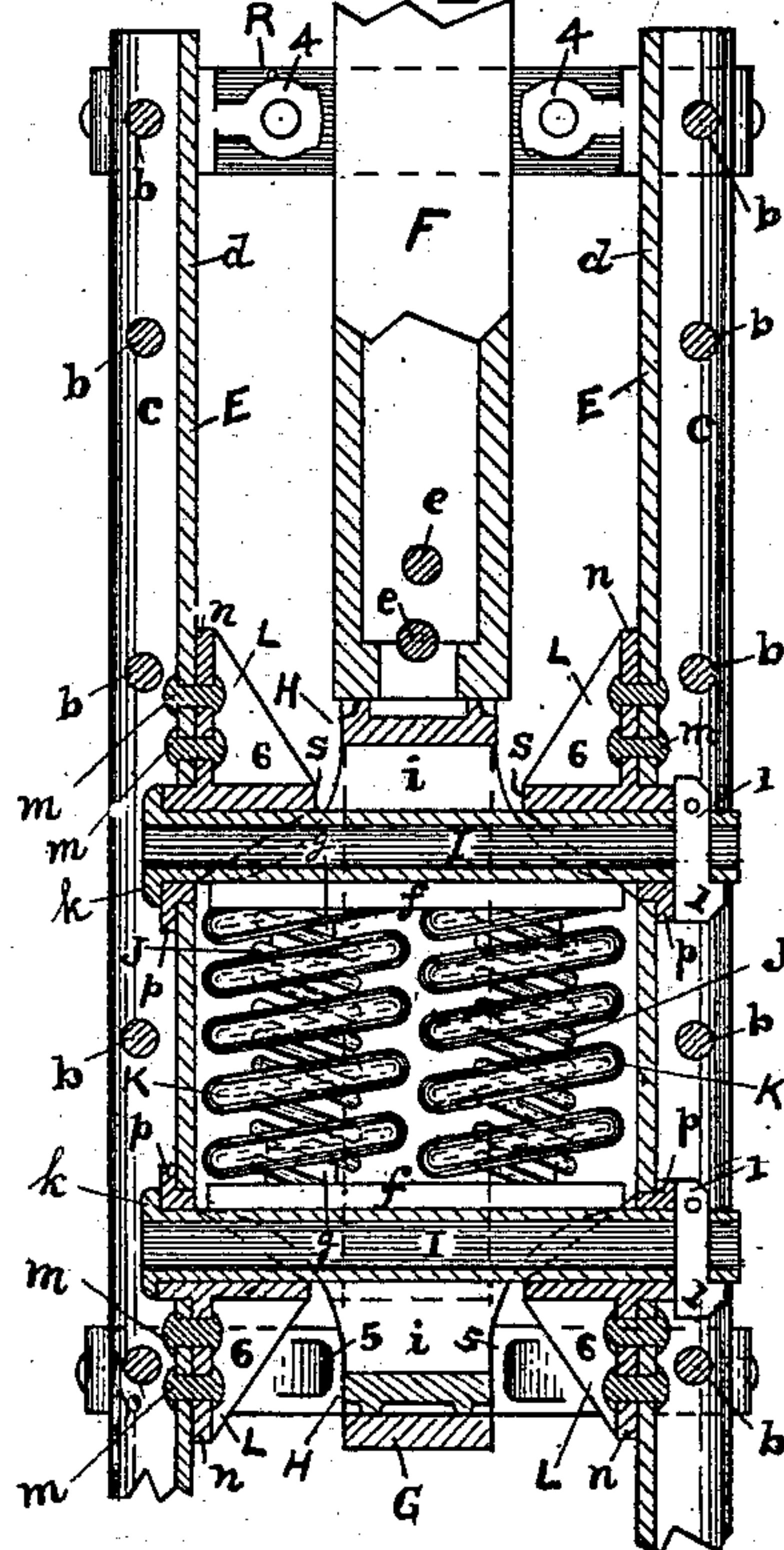
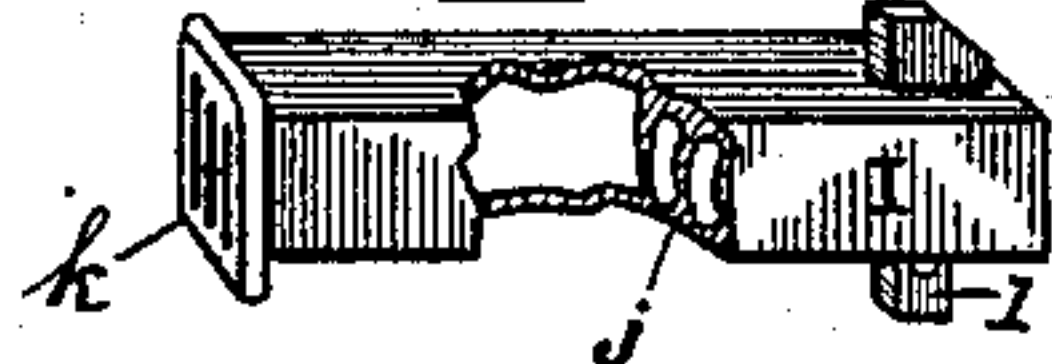


Fig 12.



Attest
E. B. Lehman
Fred E. Keeler.

Inventor
Clement F. Street
by *W. H. H. H.*
His Atty

UNITED STATES PATENT OFFICE.

CLEMENT F. STREET, OF DAYTON, OHIO, ASSIGNOR TO THE DAYTON
MALLEABLE IRON COMPANY, OF SAME PLACE.

DRAFT-RIGGING FOR CARS.

SPECIFICATION forming part of Letters Patent No. 651,898, dated June 19, 1900.

Application filed January 20, 1900. Serial No. 2,134. (No model.)

To all whom it may concern:

Be it known that I, CLEMENT F. STREET, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Draft-Rigging for Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of draft-rigging employing a tail-strap united to the tailpiece of the draw-bar and which communicates the pulling and buffing strains to the spring mechanism contained within said tail-strap or partially exterior thereto and which is supported on followers and stop-bars, the latter of which are carried by metallic sills which form a part of the framework of the car; and it has for its object the provision of an improved draft-rigging of this character of simple, inexpensive, and reliable construction, so that it may be readily assembled and put together or taken apart and will afford a perfect resiliency to both pulling and buffing strains.

The novelty of my invention will be hereinafter more fully set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a central longitudinal view, partially in elevation and partially in section, of a draft-rigging embodying my invention with springs arranged in tandem. Fig. 2 is a horizontal partial sectional view of the same on the dotted line X X of Fig. 1. Fig. 3 is a transverse section on the dotted line Y Y of Fig. 1 looking to the left. Fig. 4 is a sectional detail plan view of opposite portions of the metal beams with an interposed stop-bar between them, showing one manner of uniting the parts. Fig. 5 is a broken perspective view showing the application of my invention to twin-spring mechanism located side by side. Fig. 6 is a horizontal sectional view through the center of Fig. 5, the springs being shown in full. Fig. 7 is a longitudinal broken perspective view of the metal beams with the stay-lugs, draw-bar carrier-iron, and tail-strap guide attached thereto and stop-bars in position, the draw-bar mechanism being removed. Fig. 8 is a sectional detail showing

the manner of introducing one of the stay-lugs for supporting the stop-bar in its position in the sill. Figs. 9 and 10 represent in perspective two forms of stay-lugs detached from the beams. Fig. 11 is a perspective view of one of the followers detached from the draft-rigging mechanism. Fig. 12 is a broken perspective view of one of the stop-bars with key inserted in the end thereof. Fig. 13 is a broken perspective view showing a modification of the stop-bar and stay-lug.

The same reference letters and numerals are used to indicate identical parts in all the figures.

Referring now to Figs. 1, 2, and 3 of the said drawings, I will describe the application of my invention where tandem springs are employed.

A represents the longitudinal parallel sills under the floor B of the car.

C is the end sill or interior end cross-beam, and D the exterior dead-wood or buffing block. Flanged metal beams E are secured to the under side of the sills A by means of bolts *a*, which pass through said sills and through the perforations *b* in the flanges *c* of said beams, which beams may extend the entire length of the sills A, or they may extend only such portion thereof as may be necessary to perform the function above ascribed to them. These beams may be rolled, pressed, or cast into shape, the webs *d* of which carry the draft-rigging mechanism between them in the manner hereinafter described. The said draft-rigging mechanism may consist of the usual or any suitable draw-bar F, whose forward end has a coupler of any desired construction attached to it and whose tailpiece is bolted by bolts *e* to a strap-frame or tail-strap G, occupying a vertical position between the said beams, as seen in Figs. 1 and 3.

Within the tail-strap are two followers H, their forms being more clearly indicated in Fig. 11. These followers consist of follower-plate *f*, provided with studs *g* on the face side thereof, and with loop extensions *h*, forming openings *i* at the back of said plates. Stop-bars I pass through the said openings *i*, the horizontal dimension of which is sufficient to provide for the necessary forward-and-backward movement of the followers, which op-

erate within the tail-strap and which are engaged by one or more sets of coiled springs J K, one within the other, the inner of said springs being retained in position between the follower-plates by means of the studs *g* and the ends of both of said springs bearing against the said plates, the two springs being reversely coiled, as shown. The stop-bars I are arranged between the beams E, near the forward and rear ends of the tail-strap G. These bars are preferably formed hollow, of rectangular shape, with one or more horizontal division-webs *j* to strengthen them against the strains of pulling and buffing, and they pass through stay-lugs L, secured to the webs *d* of said beams, being held in place therein by means of heads or flanges *k* at one end and keys *l*, which pass through perforations in the bars at the opposite end, as clearly indicated in the drawings. The stay-lugs L may be of either of the forms shown in Figs. 9 and 10 and may be riveted or bolted, as at *m*, either to the interior or exterior of the webs *d*, as seen in Figs. 2 and 4, in which former case the lug shown in Fig. 9 is employed, the flange *n* and lip *o* being on the same side of the web. The lugs employed in Fig. 4 are of the type shown in Fig. 10 and in which the flange *n* and lip *p* are on opposite sides of the web. Both of said types of lugs (shown in Figs. 9 and 10) are provided with projecting members *q*, which are adapted to be inserted into corresponding openings formed in the webs *d* of the beams E to give additional strength and partially relieve the strain from the fastening bolts or rivets. These projections are perforated at *r* for the passage of the stop-bars, and the lugs are also provided with outwardly-extending brackets *s*, which afford larger bearing-surfaces for the stop-bars and strengthening-webs *6*, and they are preferably formed in a single piece. When the form of lug shown in Fig. 10 is employed, the manner of insertion into the openings in the webs is indicated in Fig. 8, and the lug is then turned so that its flange *n* and lip *p* embrace both sides of the web, when the said flange is secured to the web by bolts or rivets, as hereinbefore described. I consider this form of lug superior to that shown in Fig. 9 for the reason that the flange *n* and lip *p* engaging, as they do, opposite sides of the web the stop-bar must be withdrawn from the lug before it can be removed from its opening in the web, which is an important feature, as the parts are not liable to become displaced in case of breakage or removal of the bolts or rivets by which the fastening of the lug to the web is accomplished.

In Fig. 13 of the drawings I have shown a modification of the stop-bar and stay-lug hereinbefore described and in which there is no perforation either in the metal beam or the lug, the latter being made with a plate portion *t*, by which it is secured to the inside of the web of the beam and from which plate portion extend offset members *u v*, which form a

pocket *w*, adapted to receive heads or flanges *x* at each end of the stop-bar M, which rests on the bottom part *y* of the lug and which is inserted in the said pocket from the top side of the lug. While I have shown only a portion of one of the beams, with one lug attached thereto and one end of one of the stop-bars in position in the lug, it will readily be understood that the construction at the opposite side is the same and that all the lugs and stop-bars may be similarly constructed.

The outer ends of the followers bear the one against the rear end of the tail-strap and the other against the rear end of the draw-bar, while the back sides of the follower-plates bear against the stop-bars, as clearly indicated in Figs. 1 and 2. Secured to the rear end of the tail-strap by rivet or bolt *z* is a rearwardly-projecting follower N, and just in rear of this follower is a spring-bearing plate O, having a loop 1 strung upon a third and rearmost stop-bar similar to the other two before-mentioned stop-bars and secured to the beams in the same manner. Between the inner flat faces of the follower N and spring-bearing plate O there is confined a pair of coiled springs P Q, which surround and are retained in position by studs 2 and 3. It results from this construction that all pulling strains are transmitted through the tail-strap and rear follower H to the springs J K, which are compressed as the draw-bar is pulled forward against the follower H, which is held from forward movement by its stop-bar, and the rear springs P Q are not affected, as the follower N is simply drawn forward by the tail-strap; but in buffing strains, where the draw-bar is pushed backward, the intermediate and rear stop-bars arrest their followers, while under the backward movement of the tail-strap the forward follower H and the follower N compress both sets of springs, as will be readily understood.

Where it is desired to have two sets of springs to receive both the pulling and buffing strains, they may be arranged side by side, as seen in Figs. 5 and 6, where the metal sills E set farther apart and but two stop-bars of sufficient length are arranged between them in the manner heretofore described with reference to the construction of Figs. 1 and 2. The loops of the two followers H surround the stop-bars, as in the former construction, and they each have two studs *g* on their adjacent faces to receive and retain the two pairs of coiled springs, which occupy positions side by side and bear against the face sides of the followers. When at rest, the followers are pressed away from each other, so as to bear against the stop-bars, as clearly indicated in Figs. 5 and 6, and when a pulling strain is exerted on the draw-bar the forward follower remains stationary in contact with its stop-bar, while the rear follower is carried forward by the tail-strap and compresses the springs, as before stated. In the backward movement of the tail-strap under buffing

strains the rear follower remains stationary, arrested by its stop-bar, and the forward follower is pressed backward away from its stop-bar and puts the springs under compression, as will be readily understood.

One of the important features of my present invention, whether tandem or side-by-side springs are used, consists in the employment of the metal sills with vertical webs and flanges or other means for securing the same to the sills A or directly to the floor or other part of the car and in the combination with these metal sills, which support the draft-rigging, of stay-lugs so secured to the sills as to afford bearings for the stop-bars.

The forward end of the draw-bar mechanism is supported by means of a transverse carrier-iron R, provided with upwardly-projecting studs 4, which act as guides for retaining the draw-bar in line, and at the rear end of the draw-bar mechanism there is a transversely-arranged strap S, secured at each end to the lower flanges of the beams E and having guide-lugs 5 for retaining the said rear end in line, the said rear end being supported on the stop-bars, which in turn are supported by the metal beams E.

While I have shown the stop-bars as hollow and preferably rectangular in cross-section, they may be solid, if desired, and of any shape in cross-section that suits the idea of the constructor, and instead of the end fastenings for the stop-bars which I have illustrated and described they may be fastened at their ends by any other means, such as nuts screwed on threaded ends of the stop-bars.

Other modifications in structural details may be made without departing from the spirit of my invention.

Having fully described my invention, I claim—

1. In a draft-rigging, the combination of draft-beams secured to the under side of a car, a draw-bar arranged between said beams, a tail-strap connected to the rear end of said draw-bar, stop-bars arranged transversely of and carried by said beams one near each end of said tail-strap, followers supporting between them one or more coiled springs within the tail-strap, one of said followers bearing against the rear stop-bar and the rear end of the tail-strap, and the other of said followers bearing against the forward stop-bar and the rearward end of said draw-bar, a third stop-bar in rear of the first two mentioned stop-bars supported between the beams, a follower secured to or carried by the rear end of said tail-strap, spring-bearing plates carried by the third and rearmost stop-bar, and one or more coiled springs carried by and interposed between said followers and spring-bearing plate, whereby, in pulling strains only the spring within said tail-strap is compressed, and whereby, in buffing strains both sets of springs, those within the tail-strap and those in rear thereof, are compressed, substantially as set forth.

2. In a draft-rigging, the combination of metal beams secured to the under side of a car, a draw-bar arranged between said beams, a tail-strap connected to the rear end of said draw-bar, stop-bars arranged transversely of and carried by said beams, stay-lugs secured to said beams and adapted to contribute strength to said stop-bars one near each end of said tail-strap, followers supporting between them one or more coiled springs within the tail-strap, the one of said followers bearing against the rear stop-bar and the rear end of said tail-strap, and the other of said followers bearing against the forward stop-bar and the rear end of said draw-bar, a third stop-bar in rear of the first two mentioned stop-bars supported between the beams, a follower secured to the rear end of said tail-strap, a spring-bearing plate carried by the third and rearmost stop-bar, and one or more coiled springs carried by and interposed between said follower and spring-bearing plate, whereby, in pulling strains only the springs within the tail-strap are compressed, and whereby, in buffing strains both sets of springs, those within the tail-strap and those in rear thereof, are compressed, substantially as set forth.

3. In a draft-rigging, the combination of metal beams secured to the under side of a car, a draw-bar arranged between said beams, a tail-strap connected to the rear end of said draw-bar, stop-bars arranged transversely of and carried by said beams, stay-lugs secured to said beams and adapted to contribute strength to said stop-bars one near each end of said tail-strap, said lugs having bearings in openings in the webs of said beams and having flanges bearing thereon and secured thereto, followers supporting between them one or more coiled springs within the tail-strap, the one of said followers bearing against the rear stop-bar and the rear end of said tail-strap, and the other of said followers bearing against the forward stop-bar and the rear end of said draw-bar, a third stop-bar in rear of the first two mentioned stop-bars supported between the beams, a follower secured to the rear end of said tail-strap, a spring-bearing plate carried by the third and rearmost stop-bar, and one or more coiled springs carried by and interposed between said follower and spring-bearing plate, whereby, in pulling strains only the springs within the tail-strap are compressed, and whereby, in buffing strains both sets of springs, those within the tail-strap and those in rear thereof, are compressed, substantially as set forth.

4. In a draft-rigging, the combination of metal beams forming a part of the framework of a car, a draw-bar located between said beams, perforated lugs inserted through and having bearings in openings formed in the webs of said beams, said lugs having flanges which overlap said openings and by which they are secured to said beams, and

stop-bars arranged transversely of said beams and which engage perforations in said lugs and are carried thereby, the said stop-bars supporting the rear end of said draw-bar, substantially as set forth.

5. In a draft-rigging, the combination of longitudinal wooden sills forming a part of the framework of a car, flanged metal beams having vertical webs secured to the under side of said sills, a draw-bar located between said beams, perforated lugs inserted through and having bearings in openings formed in the webs of said beams, said lugs having flanges which overlap said openings and by which they are secured to said beams, and stop-bars arranged transversely of said beams and which engage perforations in said lugs and are carried thereby, the said stop-bars supporting the rear end of said draw-bar, substantially as set forth.

6. In a draft-rigging, the combination of metal beams, draw-bar mechanism arranged between said beams, perforated lugs inserted through and having bearings in openings formed in the webs of said beams, said lugs having flanges which overlap said openings and by which they are secured to said beams, and hollow metal stop-bars which engage the perforations in said lugs and are carried thereby, the said stop-bars supporting the rear end of said draw-bar, substantially as set forth.

7. In a draft-rigging, the combination with metal draft-beams having perforations therein, of stay-lugs, each of which is provided with a flat portion or flange adapted to bear against and which is secured to one of the sides of said webs, a projecting member engaging said perforation and substantially filling the same, a lip or extension at one end of the lug opposite the said flat portion or flange and which lip or extension engages the opposite side of said web, a bracket projecting from and at right angles to said flat por-

tion or flange, and strengthening-webs for contributing strength to the lug, the said projecting member being provided with a perforation to receive a stop-bar adapted to pass therethrough, and the whole being formed in a single piece, substantially as set forth.

8. In a draft-rigging, a pair of metal draft-beams arranged parallel with each other, perforations in said beams leaving continuous unbroken portions above and below said perforations, stay-lugs secured to said beams and having laterally-projecting brackets and openings which register with said perforations, stop-bars which pass through said perforations and said openings and which bear against said brackets, in combination with draw-bar mechanism arranged between said beams and having operative connection with said stop-bars, substantially as set forth.

9. As an article of manufacture for the use and purpose described herein, a stay-lug consisting of the flat portion or flange n , projecting member q having perforation r for the passage of a stop-bar, lip p at one end of said lug, outwardly-extending brackets s , and strengthening-webs 6 , the whole being arranged as shown and described and formed in a single piece, substantially as set forth.

10. As an article of manufacture for the use and purpose described herein, a stop-bar having a flanged head at one end and a slot or opening adapted to receive a key or other similar fastening at the opposite end, the said stop-bar being formed hollow with longitudinal strengthening-webs extending therethrough, substantially as set forth.

In testimony whereof I hereunto subscribe my name this 17th day of January, A. D. 1900.

CLEMENT F. STREET.

Witnesses:

J. KIRBY, Jr.,
N. EMMONS, Jr.