(No Model.) 7 Sheets—Sheet 1.

A. W VAN DORSTON.

CUSHIONED CARRIER IRON FOR DRAW BARS.

No. 458,924. Patented Sept. 1, 1891.

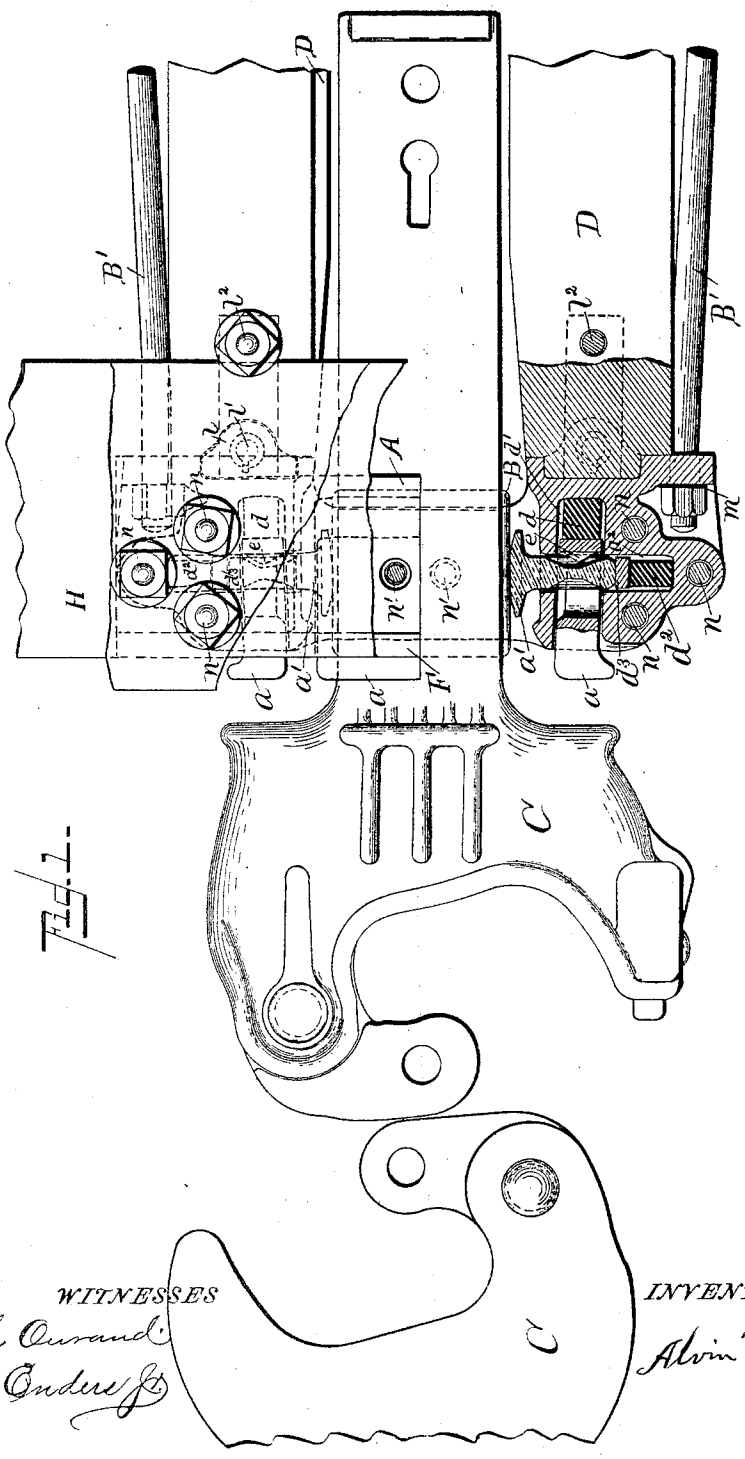


Fig. 1.

WITNESSES

F. L. Durand.

John Ordeus Jr.

INVENTOR

Alvin W. Van Dorston

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 7 Sheets—Sheet 2.

A. W. VAN DORSTON.

CUSHIONED CARRIER IRON FOR DRAW BARS.

No. 458,924. Patented Sept. 1, 1891.

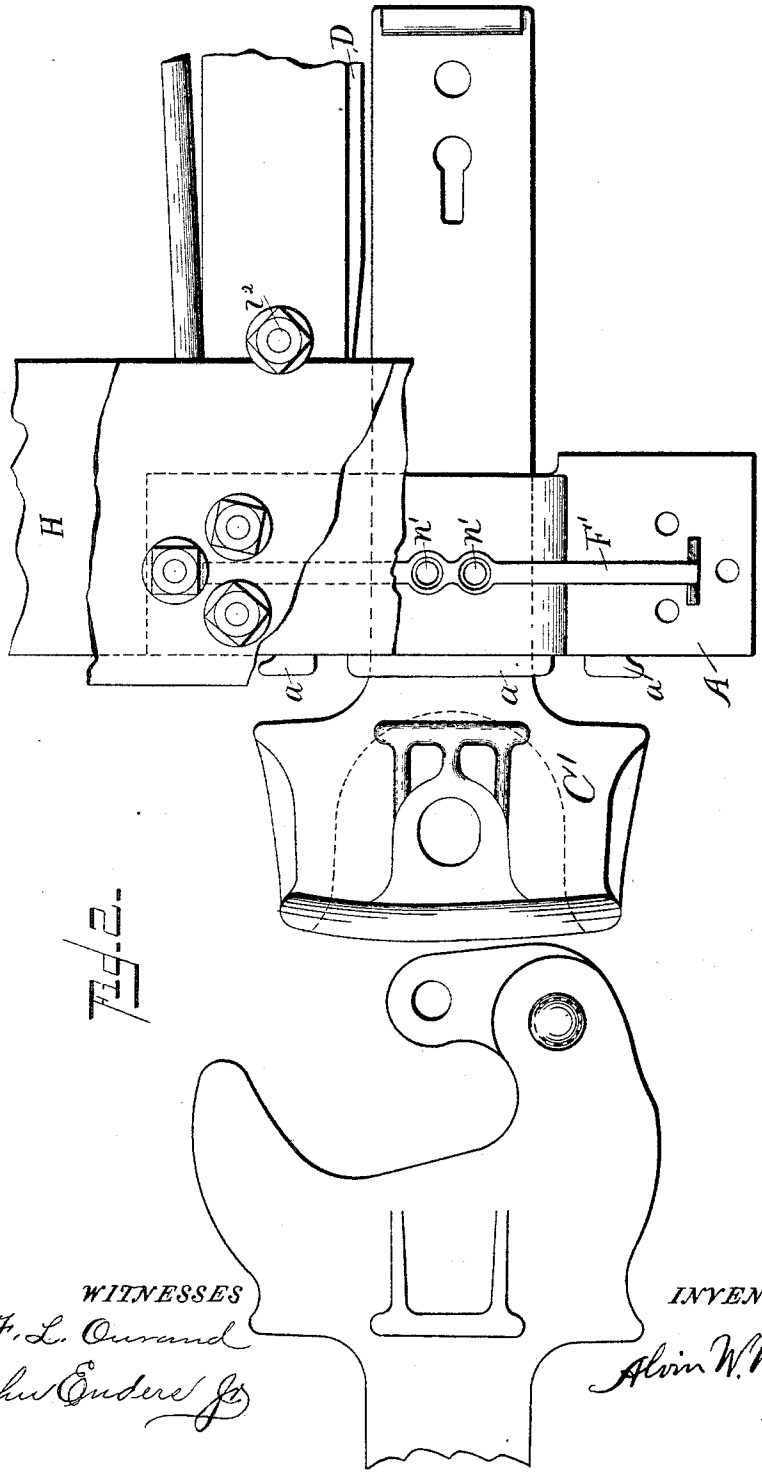


Fig. 2.

WITNESSES
F. L. Ourand
John Enders Jr.

INVENTOR
Alvin W. Van Dorston
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 7 Sheets—Sheet 3.

A. W. VAN DORSTON.

CUSHIONED CARRIER IRON FOR DRAW BARS.

No. 458,924. Patented Sept. 1, 1891.

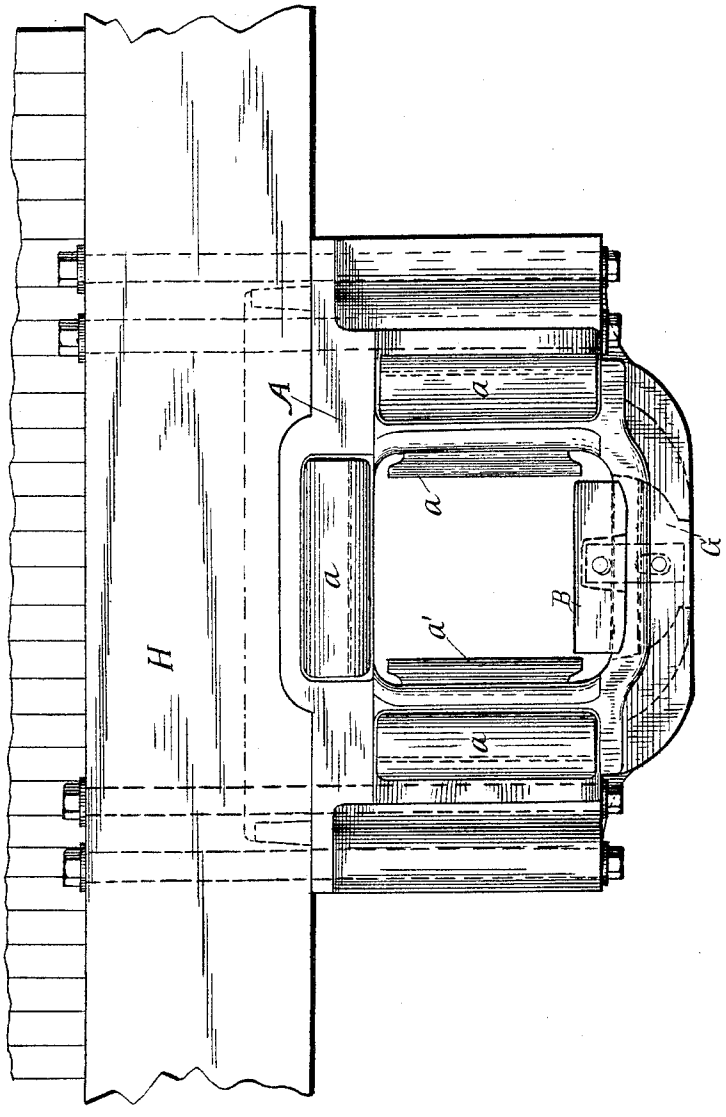


Fig. 3.

WITNESSES
F. L. Ourand.
John Enders Jr.

INVENTOR
Alvin W. Van Dorston

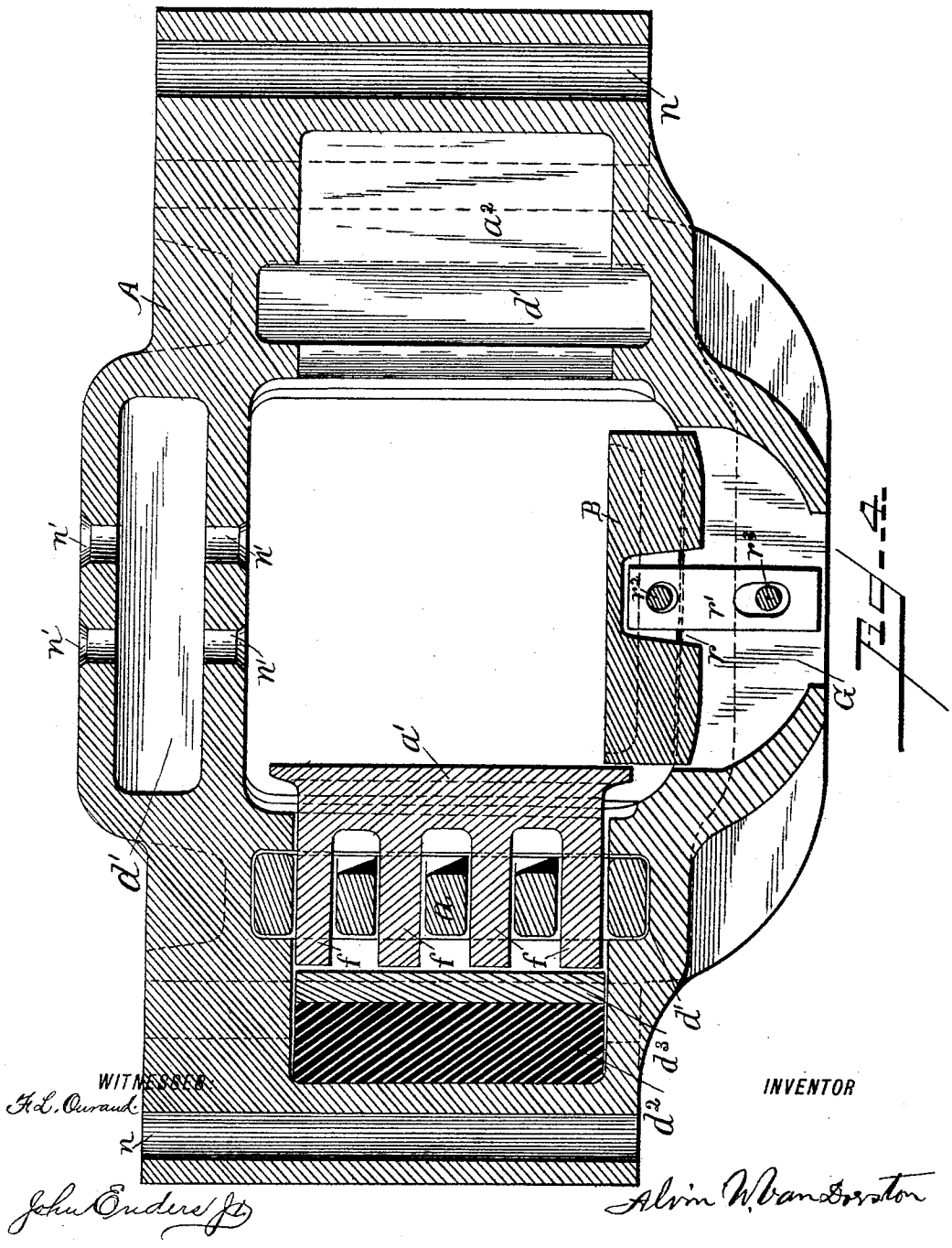
THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 7 Sheets—Sheet 4.

A. W. VAN DORSTON.

CUSHIONED CARRIER IRON FOR DRAW BARS.

No. 458,924. Patented Sept. 1, 1891.



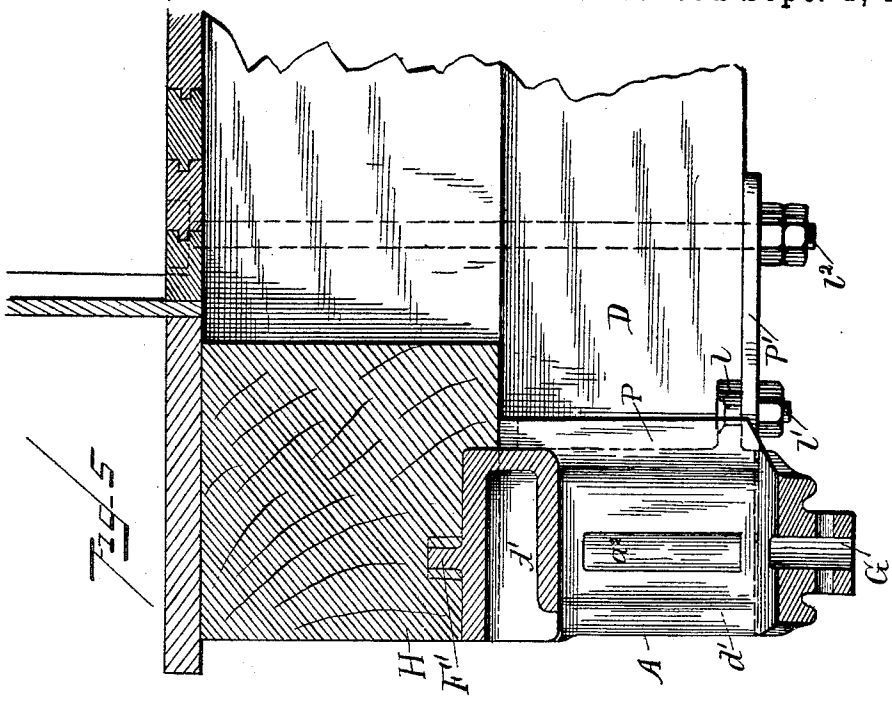
THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

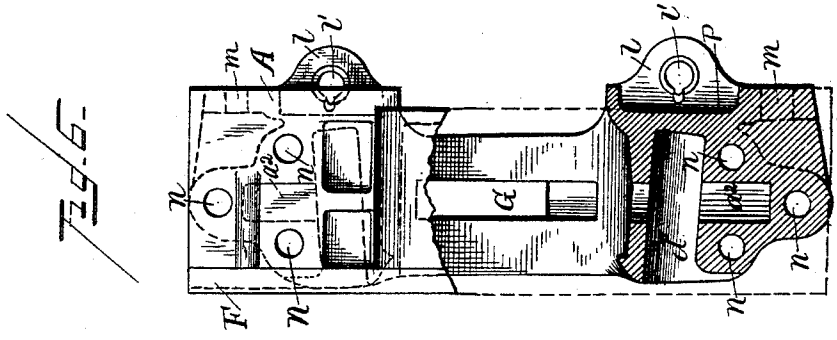
(No Model.) 7 Sheets—Sheet 5.

A. W. VAN DORSTON.

CUSHIONED CARRIER IRON FOR DRAW BARS.

No. 458,924. Patented Sept. 1, 1891.





WITNESSES

F. L. Ourand.

John Enders Jr.

INVENTOR

Alvin W. Van Dorston

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 7 Sheets—Sheet 6.

A. W. VAN DORSTON.

CUSHIONED CARRIER IRON FOR DRAW BARS.

No. 458,924. Patented Sept. 1, 1891.

Fig. 8.

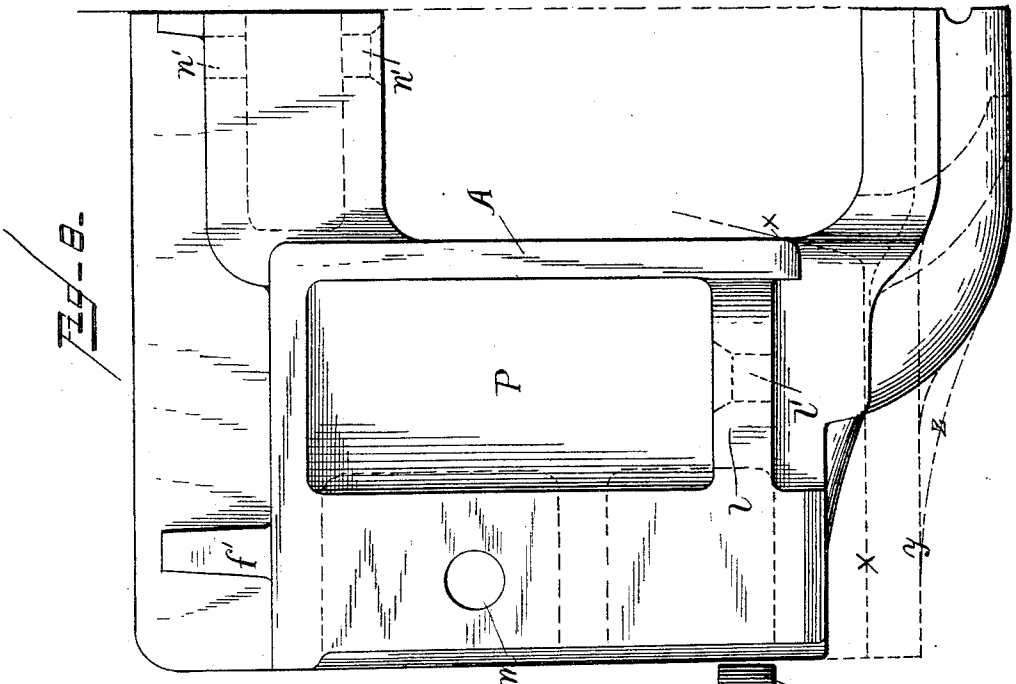
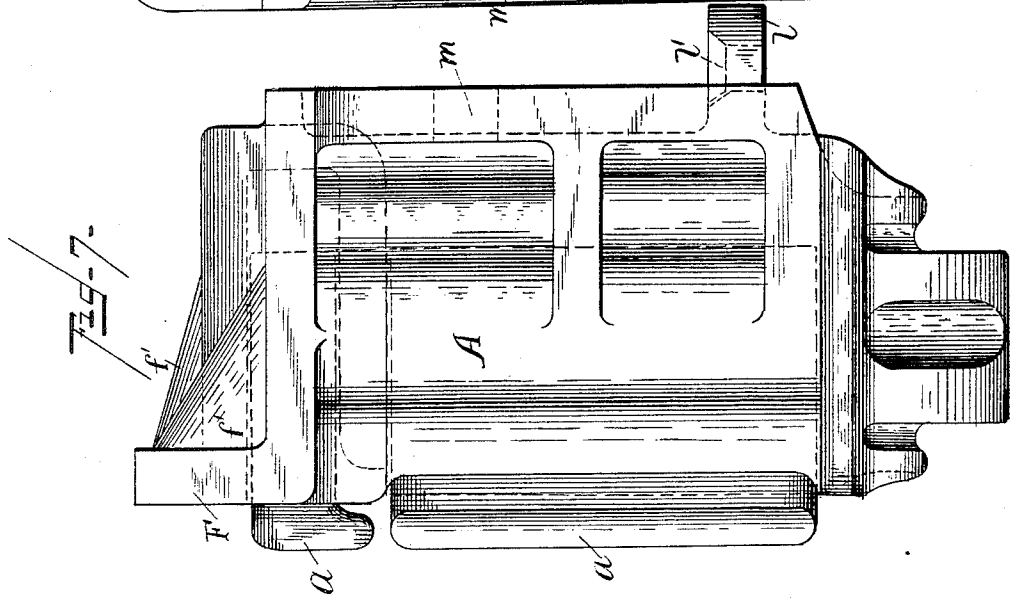


Fig. 7.



WITNESSES:

F. L. Ourand.

John Enders Jr.

INVENTOR

Alvin W. Van Dorston

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 7 Sheets—Sheet 7.

A. W. VAN DORSTON.

CUSHIONED CARRIER IRON FOR DRAW BARS.

No. 458,924. Patented Sept. 1, 1891.

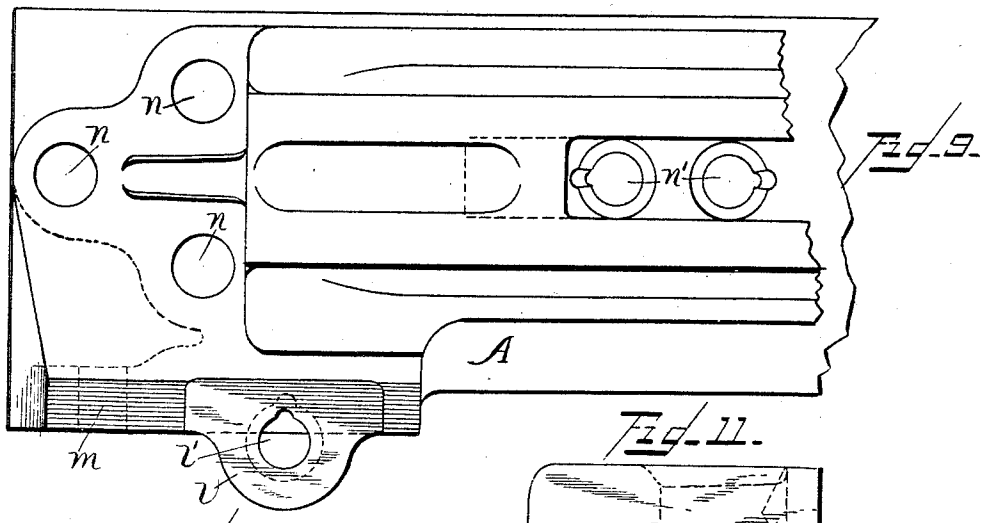


Fig. 9.

Fig. 11.

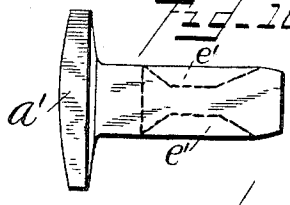
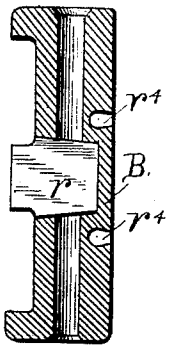


Fig. 12.



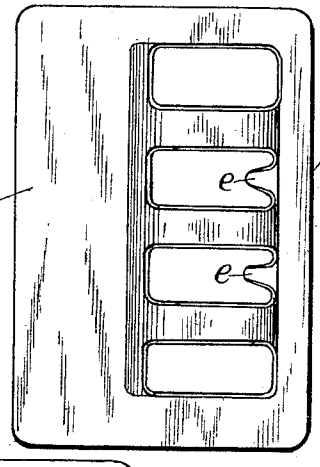


Fig. 10.

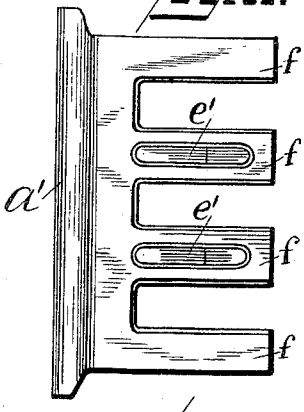


Fig. 14.

Fig. 13.

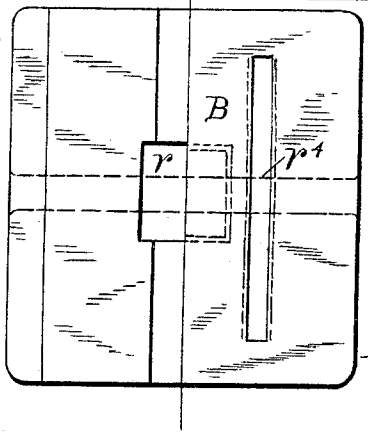


Fig. 15.

WITNESSES:
F. L. Durand
John Enders Jr.

INVENTOR
Alvin W. Van Dorston

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALVIN W. VAN DORSTON, OF WASHINGTON, DISTRICT OF COLUMBIA.

CUSHIONED CARRIER-IRON FOR DRAW-BARS.

SPECIFICATION forming part of Letters Patent No. 458,924, dated September 1, 1891.

Application filed December 27, 1890. Serial No. 376,004. (No model.)

To all whom it may concern:

Be it known that I, ALVIN W. VAN DORSTON, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Cushioned Carrier-Brackets for Draw-Bars; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My present invention relates to cushioned carrier-frames which are secured to the end sill or carrier-blocks of railway-cars, and serve to carry the couplers operating with all class of draw-gears, the several objects of which is to furnish a device consisting of a single frame made of malleable steel or gray iron, whereby the dead-blocks may be dispensed with, and wherein the carrier-frame, the couplers, the car-bodies, and draw-gears are alike protected under all conditions of service.

Other novelties of my invention consist in giving the bars the required lateral motion in curve-work of any degree or radius existing where cars can be operated. Further, valuable features in economy are also attained in the saving of draw-timber in its application to cars to the amount of two thousand running feet (or five thousand per board measure) per one thousand cars thus equipped, all of which will be hereinafter more particularly described, and pointed out in the claims.

Similar letters of reference indicate like parts.

Figure 1 represents a general plan of my invention as attached to the front car-sill with a coupling inserted therein, and in which view a part of the car-sill is broken off about the center, exposing a sectional view of the carrier-frame at one end, the construction of which is alike at both ends. Fig. 2 is a similar view to Fig. 1, but representing a link-coupler operating within my improved carrier-iron frame, which of course is arranged with buffing-faces adapted thereto. Fig. 3 is a front elevation of the carrier-iron as it appears secured underneath and against the bottom of the end car-sill. Fig. 4 is a vertical transverse section of the carrier-bracket; Fig. 5, a longitudinal section of same as it appears secured to the front sill and draw-timbers with the couplers, the buffers, and chafe-plate removed; Fig. 6, a top plan, partly shown in section, with the buffers and cushions removed. Fig. 7 represents an end elevation when completed and ready for attachment to the car; Fig. 8, a rear elevation showing one end of the car-bracket as arranged for the reception of the ends of the draw-timber; Fig. 9, a bottom plan of the carrier-bracket frame; Fig. 10, an inner side plan view of the two outer buffers, the same being used for the buffer operating above the draw-bar. Fig. 11 represents the end view of said buffer; Fig. 12, an end view of the transverse buffers; Fig. 13, a side elevation of the transverse buffers, being alike constructed on both sides. Fig. 14 represents a longitudinal section of the bottom chafe-plate upon which the bars operate. Fig. 15 represents a bottom and top plan of the chafe-plate placed between the bottom of the draw-bar and carrier-frame.

Referring to Fig. 1, A represents the bracket-frame, which is partly shown in section and provided with buffers *a a a*, operating longitudinally and against the rubber cushions *d*, located and interposed between the buffers and rear wall of the socket *d'*, and which serves to furnish an elastic resistance to the draw-bars of a capacity ranging from two hundred and fifty thousand to that of three hundred thousand pounds, without injury to the car-bodies, the draft-rigging, or the couplers C when coming together in the manner as shown in Figs. 1 and 2 under heavy shocks and the couplers driven back in contact with said buffers, and which also avoids injury to the knuckles in and under all conditions, whether in coupling or in a closed position, as shown. The inner transverse buffers *a'*, located in the socket a^2, serve as lateral buffers to the side of the bar, by means of which the bar is allowed to operate in its lateral motion against an elastic medium with sufficient resistance to prevent any rigid action from the use of rigid car-trucks against the couplers when operating upon straight track under high speed or when rounding curves. It will also be seen that these buffers allow the bar

to shift laterally sufficient to operate upon all curve-work where cars can be operated without binding upon the couplers and causing them to become broken, which is the difficulty encountered in the present construction of cars in the absence of my present invention. The elastic medium against which the buffer a' operates consists of a rubber cushion d^2, which has a plate d^3 interposed between the end of the fingers f and said cushion, as shown in Figs. 4 and 13, and which is also shown in Fig. 1. In the construction of said carrier-iron A and the buffers a, which are alike at both ends, it will be seen that the side sockets d' for the longitudinal buffers are located at a slight angle with the carrier-frame, or which may be located in a square position, but preferably as shown, while the inner side buffers a' operate transversely through the openings of the buffers a, as shown in Fig. 4, and both of which are secured within their respective places by means of the lips e, provided within the openings of the buffer a and operate in the grooves e', located in each side of the two inner fingers $f\,f$ of the buffer a' and serve to retain the inner buffer a' and to prevent the buffer a from becoming lost in the removal of the coupler or the chafe-plate B.

The chafe-plate B, as will be observed, is provided with a socket r in the center and under side, suitably arranged for the reception of the retaining-bar r', which is inserted through the opening G and secured in the plate B and frame A by means of the rivet r^2 and the rivet r^3, inserted through the lower portion of the frame A, as shown in Figs. 4 and 14.

Other novelties in the construction of the chafe-plate B consist in providing the same with grooves $r^4\,r^4$, which are filled with a lubricating compound of a solid nature, and which serves to lubricate the bottom side of the bar when sliding back and forth upon said chafe-plate and in the lateral motion of the same, thus preventing the cutting out of the bottom side of the bars as now caused in the present systems in the application of the bars. In long-continued service of the chafe-plate, causing it to wear out of level with the frame, owing to the couplers being heavier on one side than the other, it will be seen that it can be readily removed and replaced with a new one without the removal of the coupler.

In the application of the carrier-iron frame it will be observed that each end of the frame is provided with the bolt-holes n, and through those bolts are inserted to secure the frame to the car-sill. The openings n' in the upper portion and near the center of the frame A serve to secure the upper longitudinal buffer a in its respective place by means of rivets or bolts, which may extend from the frame A to the top of the car-sill H and then secured by burrs.

Referring to Fig. 7, it will be observed that the frame A is provided with a front flange F, having rib-braces f', which flange is set in flush with the front face of the sill.

In Fig. 2 the flange F is dispensed with and a rib F′ is provided and let into a corresponding groove in the under side of the sill, the latter construction being preferable, inasmuch as the frame A may be set flush with the front face of the car-sill or set back from two to three inches, if so desired, and which will admit of interchange in locating said frames on cars that may have the frames A differently located.

Other features of securing the frame A to the car-body consist in providing said frame with lugs $l\,l$ at the rear side and near each end of said frame, and above the lugs are provided shallow sockets P P for the reception of the end of the draw-timbers D D, (or iron draw-plates,) as shown in Figs. 1, 5, and 8, the timber or iron plates being shaped to conform with the pockets and the lugs $l\,l$, and which timber extends down flush with the bottom side of said lugs, and having secured to its under side an iron tie-plate P′, as shown in Fig. 5, and secured by the bolts $l'\,l^2$. Said plate may also extend back far enough to admit of several bolts being inserted through the plate. Further means in securing the frame A to the draw-timbers D are attained by the bolts B′ B′ being inserted through the openings $m\,m$, and thence to and through the bolster of the car-body and secured therein. By this means it will be seen that an effectual device is provided and substantially secured to the car-timbers to absorb the shocks in the longitudinal motion of the cars in effecting connections with the couplers or otherwise, and that a saving in draw-timbers is attained to the capacity of two thousand running feet per one thousand cars thus equipped, and that the same can be applied to the construction of iron cars where iron is substituted for the draw-timbers with as much convenience as where timbers are used.

I may, if found desirable, make the frame A in two parts by dividing it at and through the dotted line x, (shown in Fig. 8,) the dotted line y showing the thickness of the bottom portion of the frame carrying the chafe-plate B, and couplers Z being a center brace to same.

I am also aware of the fact that the carrier-frame A may or can be changed to the accommodation of spiral springs to receive the shock, but which would not prove effectual, and therefore have only shown in the illustrations the use of rubber as the preferable elastic medium for use in my invention.

Having thus described my invention as new and useful, what I desire to secure by Letters Patent of the United States is—

1. A cushioned carrier-iron-bracket frame for draw-bars, with a central opening for the reception of the stem of the draw-bar and constructed alike at both ends, said carrier-iron being also provided with longitudinal

and transverse sockets, in combination with longitudinal and transverse buffers and cushions for the same for the purpose of absorbing longitudinal and transverse shocks, substantially as described.

2. In a cushioned carrier-frame for draw-bars in railway-cars, the combination of the carrier-frame secured to the car-sill and draw-timbers and the longitudinal and transverse buffers with a self-lubricating bottom plate, substantially as and for the purpose specified.

3. A cushioned carrier-iron frame for draw-bars, having arranged near each end a socket with longitudinal buffers secured therein, in combination with an elastic medium and transverse buffers in like manner provided and having a plate interposed between the cushion and the inner end of the buffer-fingers, substantially as set forth and described.

4. A cushioned carrier-frame for draw-bars, constructed in one or two parts, arranged with cushioned buffers operating longitudinally and transversely to receive the shocks in either direction under the various conditions in car service, substantially as and for the purpose set forth and described.

5. A cushioned carrier-iron for railway-cars, having a central opening suitable for the reception of draw-bar stems and provided with buffers at each side and top, against which the draw-bar head is allowed to strike for the purpose of absorbing the rigid shocks, substantially as and for the purpose set forth and described.

6. In a carrier-iron for draw-bars, the buffers operating in contact with cushions adapted to the longitudinal and lateral motion of the buffers arranged in said carrier-iron, as and for the purpose set forth and described.

7. In a carrier-iron frame for railway-cars and draw-bars, the frame A, having a chafe-plate B arranged upon its lower portion and secured thereto by means of rivets r^2 and r^3 and a tie-bar r', and said chafe-plate provided with grooves r^4 r^4 for lubricating compounds for serving as a self-lubricating carrier-plate to the draw-bars operating thereon, substantially as and for the purpose set forth and described.

8. In a carrier-iron frame, the buffer a, provided with openings for the reception of the fingers f of the buffer a', operating transversely therein to receive the longitudinal and lateral shocks occurring thereon and to retain each other within their respective places by means of the lips e e and grooves e' e', substantially as and for the purpose set forth and described.

9. In a carrier-iron frame, the combination of the frame A, the rib F′, the sill H, the draw-timber D, lug l, and tie-plate P′, forming a substantial structure, with cushioned mediums adapted therewith to receive and absorb all shocks occurring thereon, substantially as and for the purpose set forth and described.

In testimony whereof I affix my signature in presence of two witnesses.

ALVIN W. VAN DORSTON.

Witnesses:

EUGENE K. STEWART,

JOHN ENDERS, Jr.