

(No Model.)

F. W. MARSTON.

DRAFT AND BUFFING APPARATUS FOR CARS.

No. 248,940.

Patented Nov. 1, 1881.

Fig. 1.

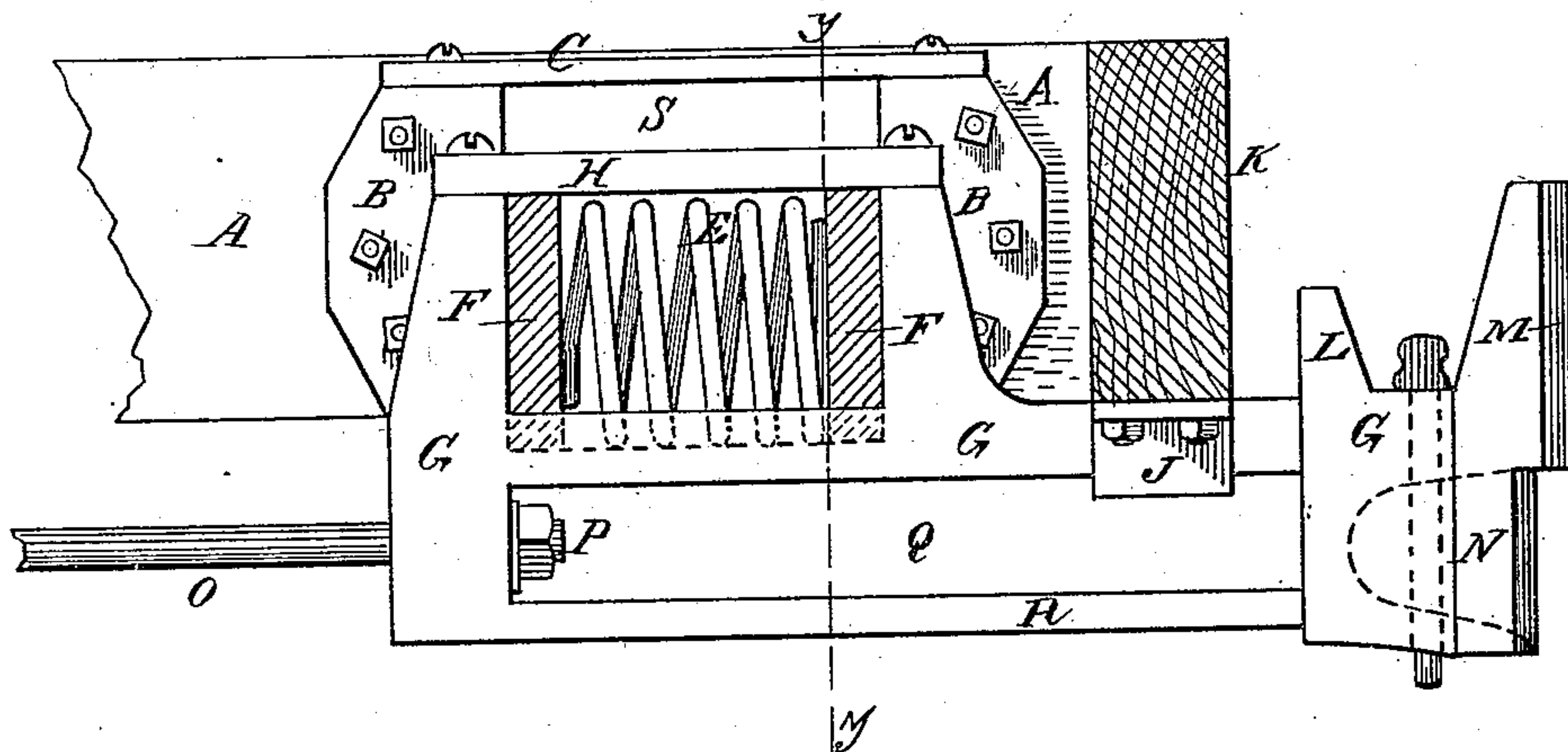


Fig. 2.

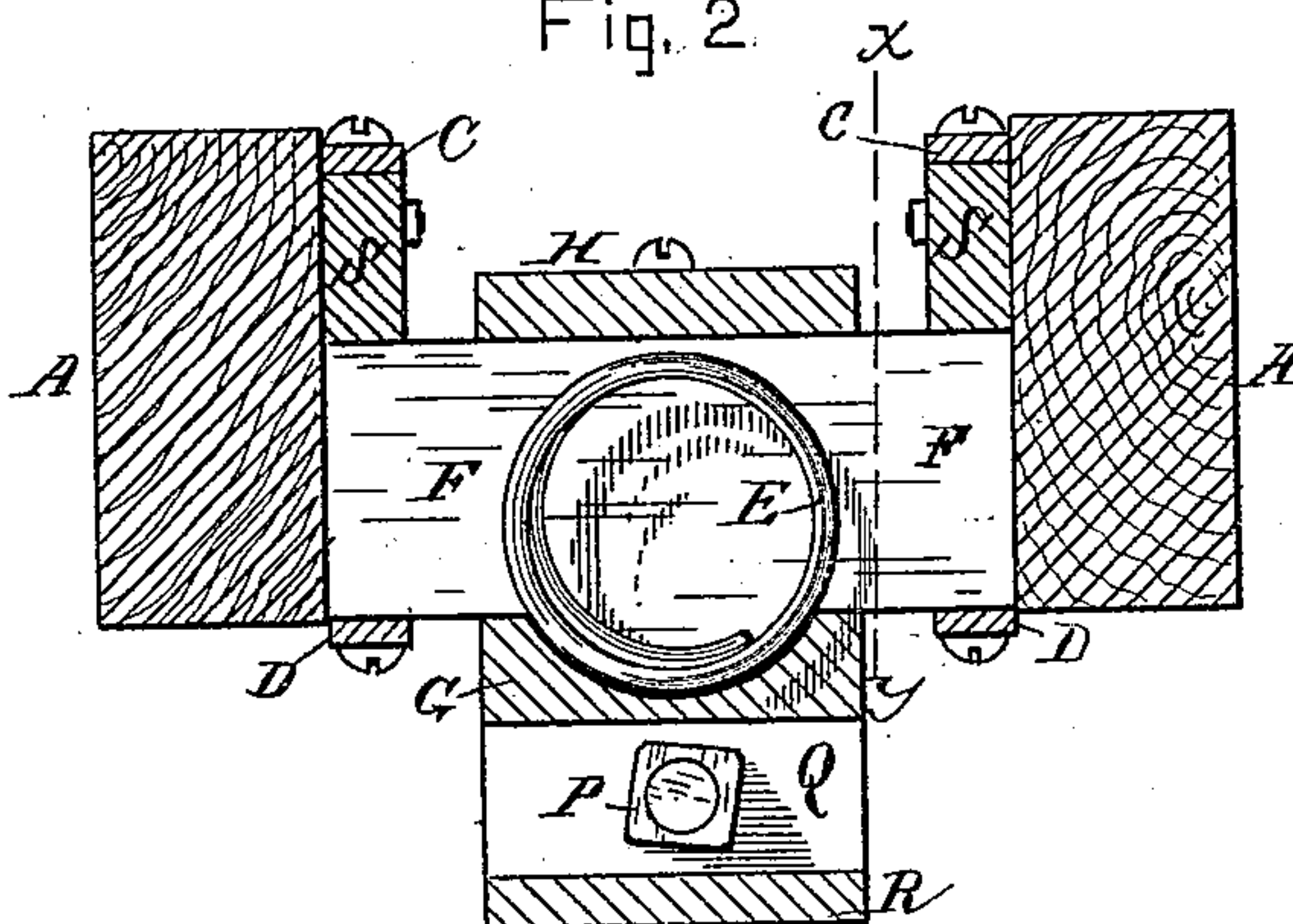


Fig. 3.

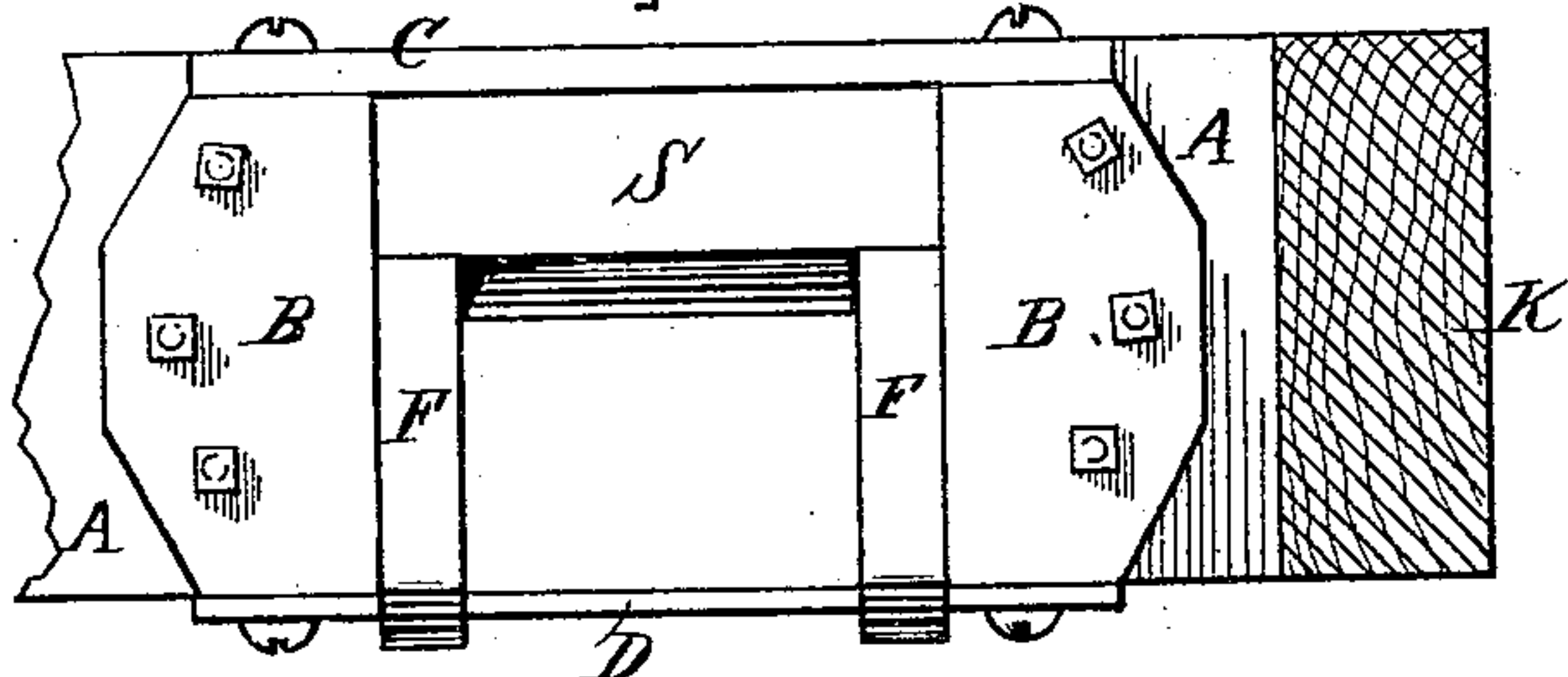
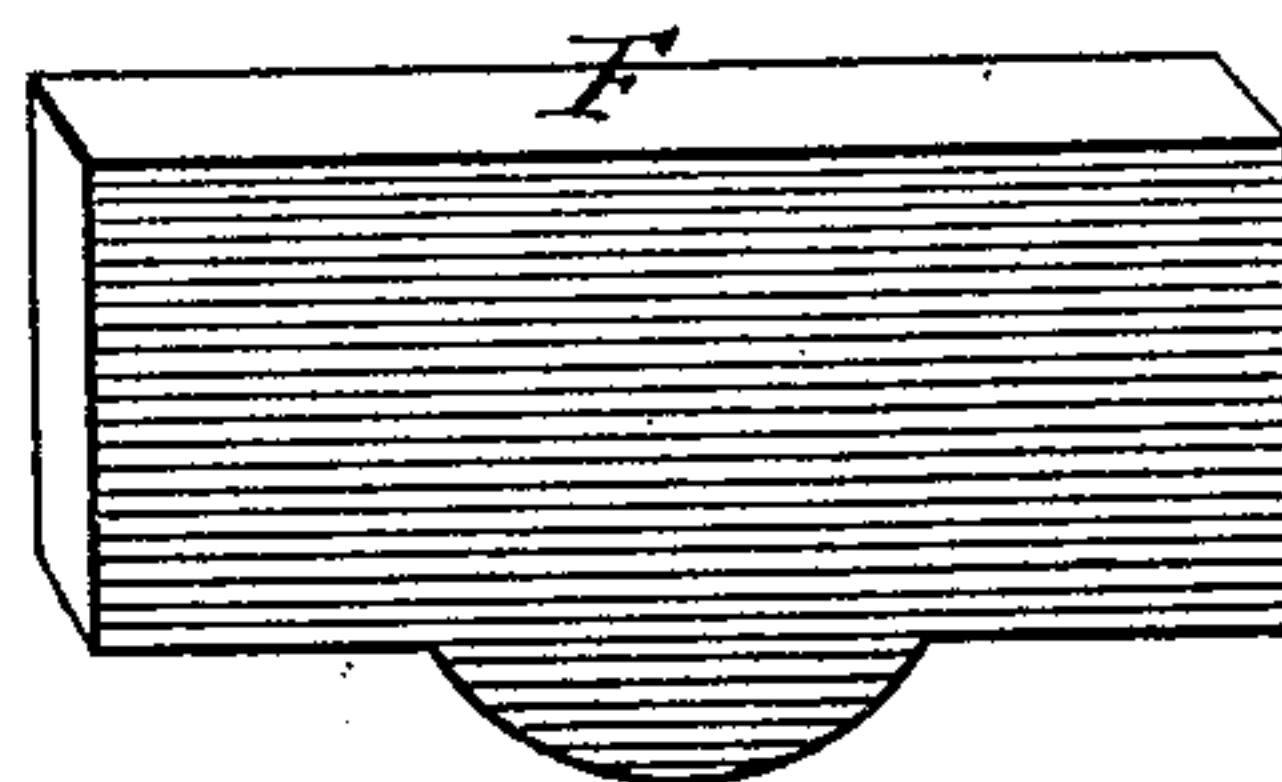


Fig. 4.



Witnesses.
H. H. Jewett
C. S. Reyes

Inventor.
F. W. Marston

UNITED STATES PATENT OFFICE.

FRANK W. MARSTON, OF BOSTON, MASSACHUSETTS.

DRAFT AND BUFFING APPARATUS FOR CARS.

SPECIFICATION forming part of Letters Patent No. 248,940, dated November 1, 1881.

Application filed October 25, 1880. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. MARSTON, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Draft and Buffing Apparatus for Railway-Cars; and I do hereby 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 letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to a peculiar draw-head adapted by its shape to receive and transmit buffing-strains in the plane of the floor-sills and train-strains of traction in the plane of the coupling-mouth, which is integral with the buffer-head.

The improvements embodied in this invention enable me to dispense with the usual draft-timbers and their bolts and to apply directly to the longitudinal floor-timbers of the car-frame all buffing-strains and the strains of traction incident to the movement of a single car, while train-strains, due to the traction of a series of connected cars, are borne by the draw-heads and one or more draft-rods, which connect them in a direct line without passing through the buffer-spring. Said spring occupies a recess, of suitable form to retain it, in the upper part of the draw-head, between the central sills, and is thus placed in a direct line with the buffer-heads, to better resist their strains.

Another feature of my improvements is that the buffer-face is advanced beyond the coupling-mouth, with which it is integral, and thus receives the buffing-blow and protects the hand in guiding the coupling-link into its place. The follower-plates are enlarged centrally to correspond with the recess in the draw-head, which is thereby held midway between the sills, since the ends of the plates extend laterally into contact with the sills. The draw-head has an elongated opening in its lower part to receive the end of the draft-rod in buffing, and it also may receive the hanger which supports the outer end of the draw-head.

My invention consists in the devices and com-

bination of devices set forth in the appended claims.

The drawings illustrate the various features of my invention, Figure 1 being a longitudinal section of the apparatus at *x x*, Fig. 2, cutting the follower-plates and end sill, and showing a side view of the draw-head and parts connected therewith. Fig. 2 is a transverse section of the mechanism at *y y*, Fig. 1. Fig. 3 shows the resistance-pieces secured to the floor-timber and the follower-plates in position, while Fig. 4 represents one of the follower-plates.

In the drawings, A A are the central floor-timbers of the car-frame, between which the draft apparatus is placed, and to which its strains are applied.

B B are the resistance-pieces or cheek-pieces, secured to the inner faces of said sills, and forming abutments for the follower-plates F F to bear against in the movement of the car. These resistance-pieces are connected at their upper and lower edges by metal bars C D, which enable both the resistance-pieces B B to act in withstanding strains from either direction. The bars D also serve to support the inner end of the draw-head and as bearings for the limited movement of the follower-plates under strains which compress the spring E.

G is the draw-head, preferably a casting of the form shown, recessed in its upper part to receive the spring E and follower-plates F F, and provided with a cap, H, which is bolted down to retain them in position. The bottom of said recess is concave, to correspond with the curvature of the spring placed within it, and the bottom of each follower-plate has a convex central enlargement, as indicated in Fig. 4, to occupy this concavity, so as to press upon the end coil of the spring. The ends of the plates F extend through the open sides of the recess to or nearly to the sills A A. (See Fig. 2.) Hence the enlargement of the plates and the corresponding concavity of recess serves to retain the draw-head in a central position between the sills, and it would be so retained were said parts of a hexagonal or other proper form. In case the follower-plates are of less width than the resistance-pieces a space-piece, S, will be inserted to fill the vacancy.

The outer end of the draw-head is loosely supported by a hanger, J, bolted to the end sill,

K, and passing through a slot running nearly the entire length of the casting. The hanger may, however, pass beneath the casting. Through this strap, and upon the bars D D, the draw-head moves back and forth as far as the yielding of the spring permits until the stop L comes into contact with the cross-sill K. This stop prevents overstraining of the spring, and in case of accident carries the car forward.

The extreme outer end of the casting G constitutes the buffer-head M, extending vertically high enough to bring its working-face into line with the axis of the spring E, so that, without cutting through the cross-sill K, the buffing-blow may be in a direct line with the spring, which resists it. Hence there is no wrenching of the parts by an indirect blow, but the resistance is in the same horizontal plane as is the buffing-strain to be resisted. The same is true of the tractional strains arising in the movement of a connected train of cars. The mouth N of the coupling is at standard height to receive the coupling-link, while from the other end of the draw-head G, and in the vertical and horizontal plane of the mouth N, a draft-rod, O, provided with a head, nut, or pin, P, extends to the draw-head at the opposite end of the car, thus forming a direct, rigid, or non-extensible connection from end to end of the car, and for any number of cars in a train.

The rod O may be made in sections, provided with a turn-buckle for adjusting its length, and may be slotted to pass the king-bolts of the car; or two parallel rods may be used, one on each side of the king-bolts.

The heads or nuts on the rods O are located in an elongated opening in the casting G, and when the draw-heads of a car approach each other in buffing the rods simply penetrate farther into the opening, without any tendency to spring or buckle. Said opening also receives the hanger J, which supports the outer end of the draw-head.

The draw-head G has been designated as a casting; but it is obvious it may be forged from wrought-iron, if preferred. In such case I omit the part R lying below the slot Q in the drawing. For various reasons, however, I prefer to cast it in the general form shown.

Draft-strains arising from the movement of the train being excessive as compared with those due to the traction of a single car, there is no danger of the draw-head being pulled out of line, any tendency in that direction being counteracted by the non-extensible rod O, connecting the opposite draw-heads.

The operation of this double mechanism will be readily understood. Each end of the car is provided with the independent draft and buffing apparatus described, by means of which all strains on said car are applied directly to the floor-timbers. Connecting such apparatus by the draft rod or rods insures the application of traction-strains simultaneously at both ends of the car, and provides a draw-bar to take the

traction-strains of the train, and thereby to relieve the springs and car-frame materially. Should these rods break, the train will not disconnect; but the traction-strains will then come upon the springs and floor-timbers. Should the springs, follower-plates, or resistance-pieces of any car fail, the rods, draw-heads, and stops L will keep said car in proper position in the train. With such continuous draft apparatus as applies tractional strains to each car at the rear end only, the outer follower-plate will be dispensed with.

I am aware that in the well-known Miller coupling and buffing mechanism the buffing blow is received in the plane of the floor-timbers and transmitted to such timbers direct by cutting through the end sills of the car, the buffing apparatus being entirely disconnected from the draft apparatus and requiring a separate spring. I make no claim to such mechanism.

I claim as of my invention—

1. An integral draft and buffing apparatus for car-frames having the resistance-pieces applied directly to the inner faces of the central longitudinal floor-timbers and the integral coupler and buffer-head extending outward beneath the end sill of the car, and a buffing-face extending upward into the plane of said floor-timbers, substantially as and for the purpose set forth.

2. A draw-head having a recess for a spring and follower-plates formed on the upper part of its inner end, and at its outer end a buffing-face extending up into the same plane with said recess, and a coupling-mouth in a lower plane of said head, substantially as and for the purpose set forth.

3. A car-frame having resistance-pieces applied directly to its central longitudinal floor-timbers, in combination with an integral coupler and buffer-head located beneath the end sill of the car, having a buffing-face extending upward into the plane of the floor-timbers and a spring mounted in a pocket at its rear end, in the same horizontal plane.

4. The described improvement in draft and buffing apparatus, consisting in two integral coupler and buffer heads located beneath the end sills of a car, having their buffing-faces extended upward into the plane of the floor-timbers, provided each at its inner end and in the same horizontal plane as said timbers with a spring, follower-plates, and resistance-pieces, and connected in the plane of the coupling-mouth by one or more non-extensible draft-rods.

5. An integral coupler and buffer-head located beneath the end sill of a car, having at its outer end a buffing-face extended upward into a higher and more advanced plane than the coupling-mouth, substantially as and for the purpose set forth.

6. In a railroad-car, a draft and buffing apparatus constructed with draft and buffing heads integral and adapted to receive strains

of buffing directly in the line of the floor-timbers and strains of traction in a lower plane, and transmit them to said timbers, in the manner substantially as described, and for the purpose set forth.

5 7. The improved draw-head herein described, consisting of the body G, having in its upper part a recess for the spring E and follower-plates F, and provided with a stop, L, a buff-

ing-face, M, and a coupling-mouth, N, in a lower plane than the buffing-face M.

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

FRANK W. MARSTON.

Witnesses:

A. H. SPENCER,
C. G. KEYES.