

(No Model.)

J. P. COULTER & T. HIBBERT.

DRAFT AND BUFFING APPARATUS FOR RAILWAY CARS.

No. 251,414.

Patented Dec. 27, 1881.

Fig. 1,

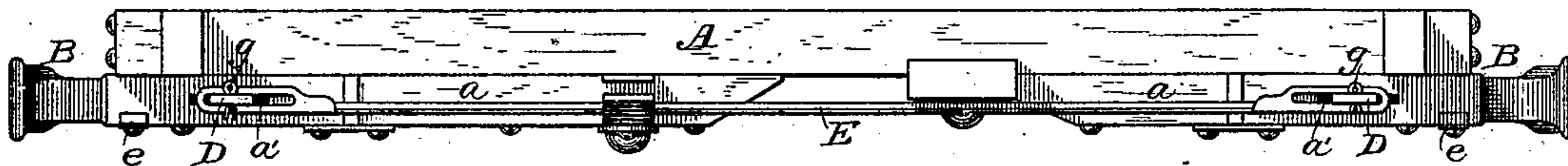


Fig. 2,

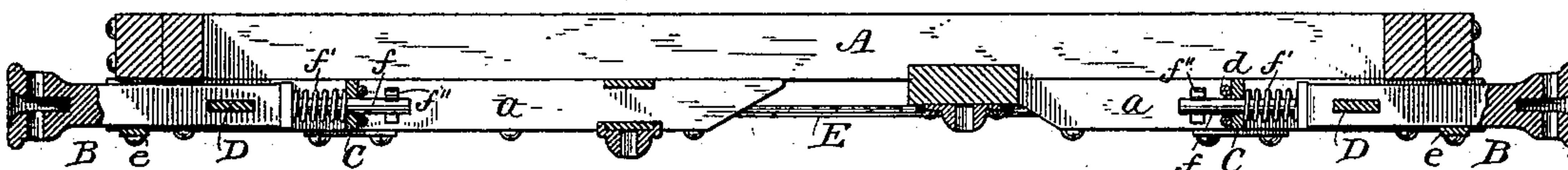


Fig. 3,

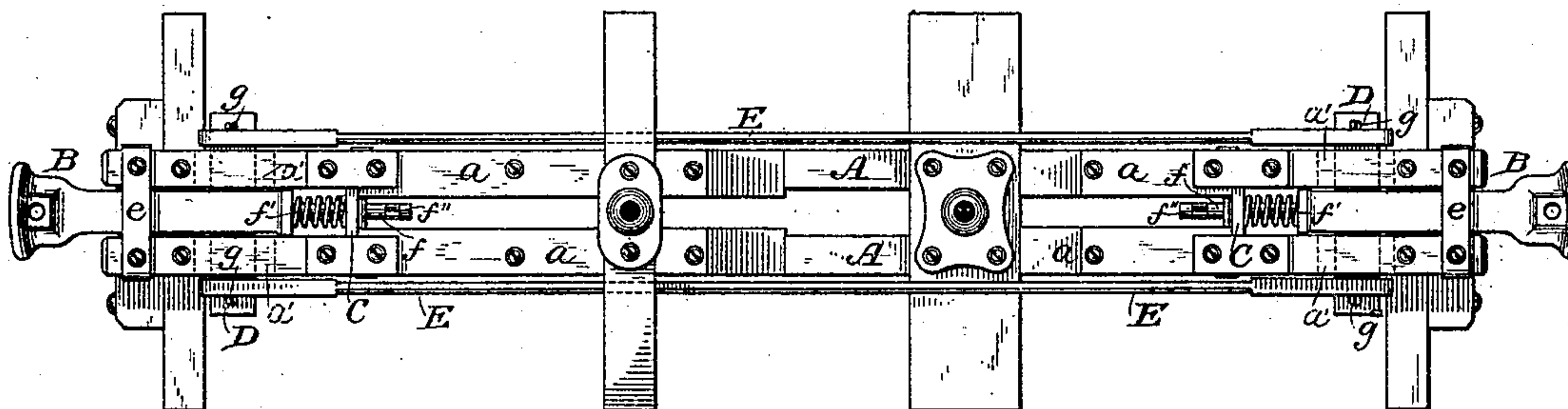


Fig. 4,

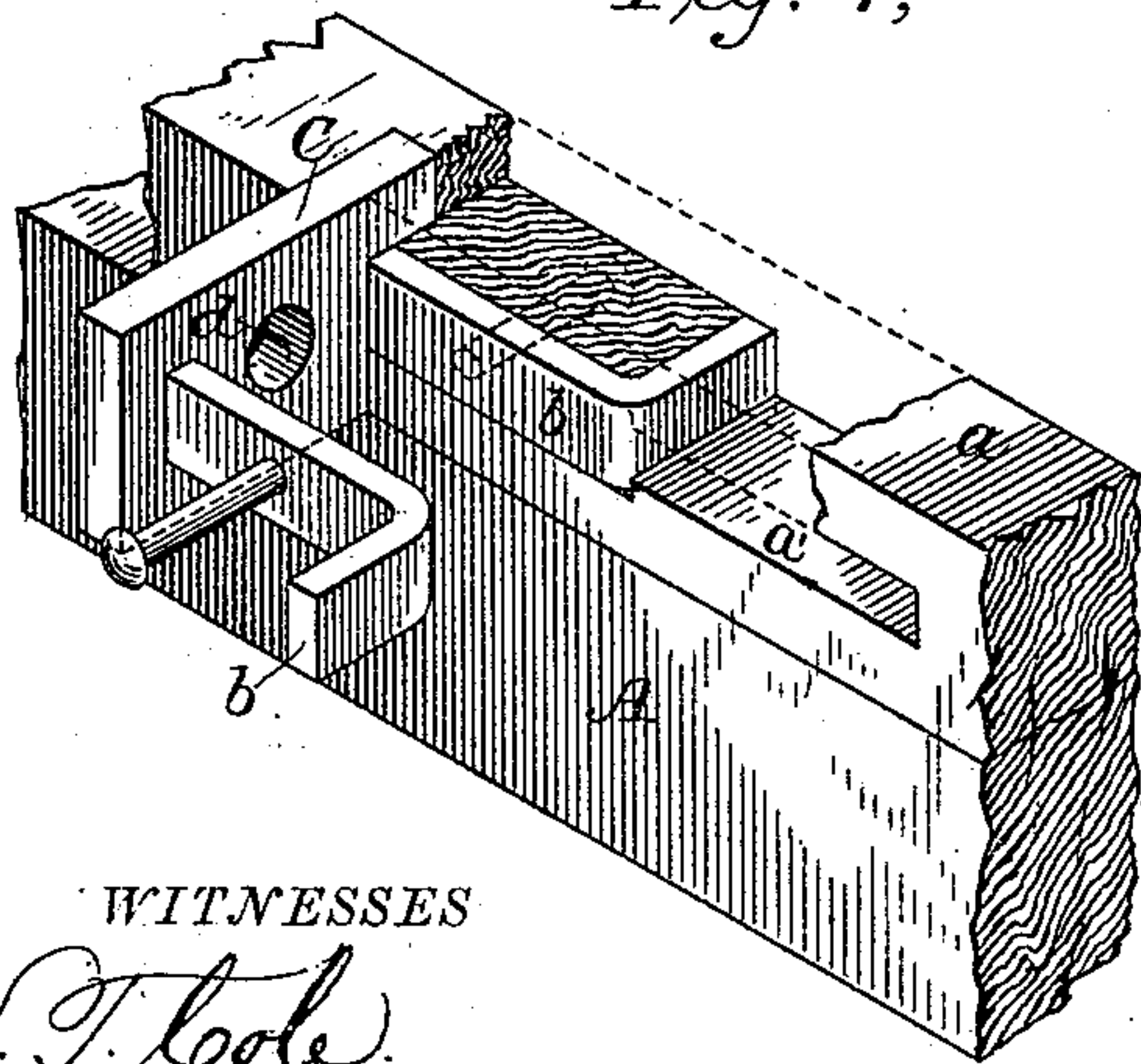
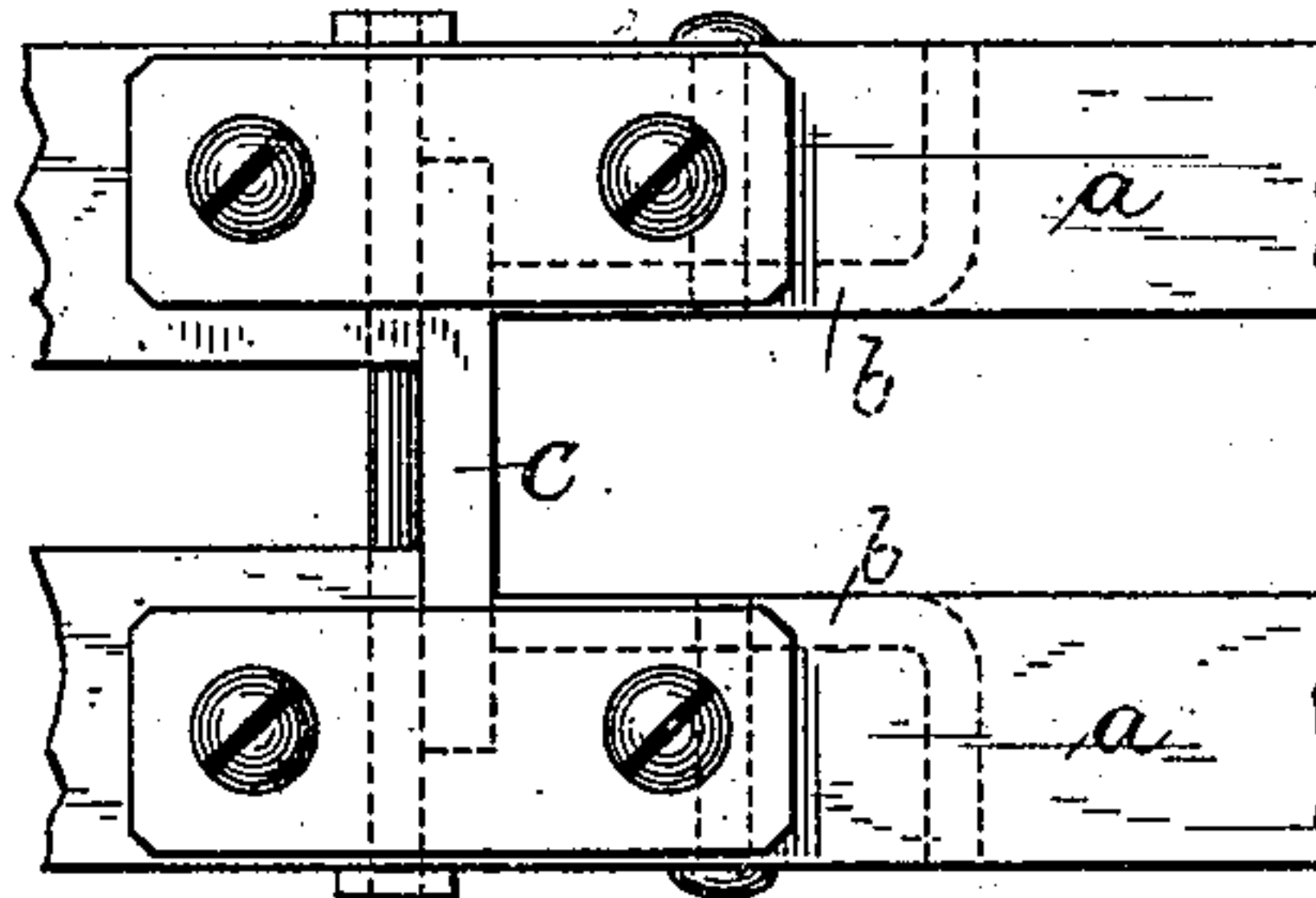


Fig. 5,



WITNESSES

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UNITED STATES PATENT OFFICE.

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DRAFT AND BUFFING APPARATUS FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 251,414, dated December 27, 1881.

Application filed October 5, 1881. (No model.)

To all whom it may concern:

Be it known that we, JAMES P. COULTER and THOMAS HIBBERT, citizens of the United States, residing at Aurora and Cochran, respectively, in the county of Dearborn and State of Indiana, have invented certain new and useful Improvements in Draft and Buffing Mechanism for Railroads, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to that class in which the bumper or yielding draw-head of each end of the car is connected with that of the opposite end by draw-bars, the connection being of such a character that tractive force applied to the car effects the compression of the spring of the rear draw-head, while when compressive force is exerted, as in the act of bumping, the spring of each draw-head is independently compressed and no strain is placed upon the draw-bars.

One object of our invention is to distribute the strain due to the exertion of a tractive force throughout the entire frame-work of the car. A second object is to give greater strength to the parts of the yielding bumper and frame-work of the car which are brought in collision in the act of bumping.

To these ends the invention is directed to improvements upon the bumper or yielding draw-head, viewed as a separate element or as a detached part of the entire structure; also, to improvements in the frame-work of the car to adapt it to suitably coact with the improved bumper; also, to the construction of the draw-bars, and also to the general combination of the bumpers, the car frame-work, and the draw-bars connecting the bumpers at the respective ends of the car.

The invention, more particularly considered, consists, first, in a yielding draw-head provided at its rear end with a transverse slot, and a bar passing through said slot, which bar serves the double purpose of limiting the inward movement of the draw-head when compression is exerted thereon and of receiving the draw-bars which connect the bumpers of the respective ends of the car; secondly, in the frame of a railroad-car transversely slotted for the reception of the transverse bar of the

draw-head, combined with plates or abutments at the rear end of the slots in the frame, against which plates the inner edge of the transverse bar is caused to abut when compression is exerted upon the draw-head, and which slots serve, further, as guides for the transverse bar and permit of the longitudinal reciprocation of the draw-head when a compressive or a tractive strain is exerted thereon; thirdly, in two parallel longitudinal beams of the car-frame, transversely slotted, combined with stop-plates or abutments inserted within said beams, and with a transverse support perforated to receive the pin or cylindrical portion of the yielding draw-head; fourthly, in the combination, with the frame of a railroad-car having a transverse plate inserted therein, of a draw-head provided with a cross-bar sliding in and guided by slots in the car-frame, and further provided at its rear end with a pin or cylindrical portion, surrounded by a spring confined between said transverse plate and the front or larger part of the draw-head; fifthly, in the combination, with the frame-work of a car, of a yielding draw-head provided with a transverse slot at its rear end, and having a bar passed through the same, the frame being furnished with stop-plates or abutments, against which the rear edge of the transverse plate of the draw-head is caused to abut when compression is exerted upon the draw-head; sixthly, in a draw-bar whose ends are slotted longitudinally, and thus adapted to fit over and slide upon the transverse bar of the draw-head; seventhly, in the draw-head having a transverse bar extending beyond the support-beams, combined with draw-bars, each having an elongated slot fitting over an end of said transverse bar; eighthly, in the frame of a railroad-car transversely slotted for the reception of the transverse bar of the draw-head, combined with said transverse bar and draw-bars having slotted ends fitting over the transverse bar, the slots in the frame-work being carried forward and back of the position occupied by the front and rear edges of the transverse bar when in its normal position, and the slots of the ends of the draw-bars being carried beyond the rear edge of the transverse bar when in said position; ninthly, in the combination, with the frame of a rail-

road-car, slotted as described, of two yielding draw-heads or bumpers, each provided with a transverse bar and intermediate draw-bars, each having elongated slotted ends fitting over the respective ends of the transverse bar; tenthly, in the combination, with the frame of a railroad-car, slotted and provided with plates or abutments, as described, of two yielding draw-heads or bumpers, each provided with a transverse bar and intermediate draw-bars, each having elongated slotted ends fitting over the respective ends of the transverse bar, all as more particularly hereinafter described.

In the accompanying drawings, Figure 1 is a side elevation of the lower part of a car-truck embodying our invention. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is an inverted plan view of the same. Figs. 4 and 5 are detached views, showing details of the invention.

The same letters of reference indicate the same parts in the several figures.

A A are longitudinal sills of the car-frame. Secured underneath these sills are beams *a*, which serve as supports or ways for the yielding bumpers or draw-heads B. The beams *a* are transversely slotted at *a' a'*. Placed at the rear end of each of the slots *a' a'* is the transverse member of an angle-iron, *b*, the longitudinal member of which is let in flush with the inner surface of its beam *a*. The arrangement of the angle-irons *b b* with reference to the frame-work is shown in perspective in Fig. 4.

A transverse plate, C, is placed at the rear of the longitudinal members of the angle-irons *b*, and is perforated or provided with a central opening, *d*.

Fig. 5 is a view of a portion of the under side of the beams *a a*, with the transverse plate C, angle-irons *b b*, and strap-irons which confine the plate C to the beams. The yielding draw-head B is placed between the beams *a a*, the sides of the rear part of the draw-head being in contact with the longitudinal members of the respective angle-irons *b b*.

The beams *a a* are tied together by an iron strap, *e*, which serves as a lower support for the draw-head. The rear end of the draw-head consists of a pin or cylindrical portion, *f*, which passes through the perforation *d* of the transverse plate C. A spiral spring, *f'*, surrounds the pin *f*, being inserted between the square end of the draw-head and the transverse plate C. The end of the pin *f* is provided with a pin or key, *f''*. The rear part of the square portion of the draw-head is transversely slotted, and receives a plate, D, which passes also through the slotted beams *a a*. The ends of the transverse plate D extend beyond the outer surfaces of the beams *a a* and receive the looped or elongated slotted ends of the draw-bars E, which ends are retained in place by means of keys or pins *g* passing through the transverse plate D.

The arrangement at each end of the car is the same, and it will be seen that when com-

pression is exerted upon one of the draw-bars its transverse plate D is forced against the transverse members of the angle-irons *b b* at that end of the car, which serve as stops or abutments, the plate sliding in the looped ends of the draw-bars, thus relieving the bars from the compression. The act of bumping independently compresses or forces in both the draw-heads, bringing the transverse plate of each in contact with the angle-irons of its end of the car, the draw-bars being prevented from receiving compressive strain, as before stated. A tractive strain, being placed upon either draw-head, will be transferred, through the medium of the transverse plate and the draw-bars, to the opposite end of the car, where it will be received by the transverse members of the angle-irons *b b* at that end of the car.

It is necessary to the operation of this invention that the slots *a' a'* in the beams *a a* shall be extended forward of the position normally occupied by the front edge of the transverse plate D of each draw-head, in order that the draw-head shall be free to slide on tractive force being applied, and thus transmit (through the medium of the draw-bars and the plate D of the other draw-head) the strain to the opposite end of the frame-work of the car. It is also necessary that the slots *a' a'* shall extend back of the rear edge of the plate D of each draw-head, in order that the draw-head shall be free to move inward when compression is exerted upon it; and, further, that the slot in the end of the draw-bar shall also be extended back of the said rear edge of the plate D, that no buckling of the rod shall ensue on the exertion of a push upon the draw-head.

It will be seen that the springs are prevented from receiving undue compression by the limitation of the inward movement of the draw-heads through the medium of their plates D and their abutments.

Having described our invention, we claim—

1. A yielding draw-head provided at its rear end with a transverse slot, and a bar passing through said slot, which bar serves the double purpose of limiting the inward movement of the draw-head when compression is exerted thereon and of receiving the draw-bars which connect the bumpers of the respective ends of the car, substantially as specified.

2. The longitudinal sills or beams of a railroad-car, transversely slotted as described, combined with plates or abutments at the rear ends of the slots, substantially as and for the purposes specified.

3. The longitudinal sills or beams of a railroad-car, transversely slotted as described, combined with angular plates, the transverse member of each of which is placed at the rear of a slot of a sill or beam and its longitudinal member let in flush with the inner surface of said sill or beam, substantially as and for the purposes specified.

4. Two parallel longitudinal beams of a car-frame, transversely slotted as described, com-

5 bined with stop-plates or abutments inserted within said beams, and with a transverse support or plate having a central perforation or opening, substantially as and for the purposes specified.

10 5. The combination, with the slotted frame of a railroad-car having a transverse centrally-perforated plate inserted therein, of a draw-head provided with a cross-bar supported and guided by the slots of the frame, and further provided at its rear end with a pin or cylindrical portion supported and guided by the transverse plate, the said pin being surrounded by a spring confined between the said
15 transverse plate and the front or larger part of the draw-head, substantially as and for the purposes specified.

20 6. The combination, with the frame-work of a railroad-car, of a yielding draw-head provided at its rear end with a transverse slot and a bar inserted therein, the frame being furnished with stop-plates or abutments at the rear ends of the slots, substantially as and for the purposes specified.

25 7. A draw-head having a transverse bar extending beyond the support-beams, combined with draw-bars, each having an elongated slot fitting over an end of said transverse bar, substantially as specified.

30 8. A draw-head having a transverse bar extending at each side beyond its outer limits, combined with draw-bars, each having an elongated slot adapted to fit over an end of the transverse bar, substantially as and for the
35 purposes specified.

9. The frame of a railroad-car, transversely slotted as described, combined with a yielding draw-head having a cross-bar, and draw-bars having slotted ends fitting over the cross-bar, the said bar, when in its normal condition, occupying a central position in the slots of the frame, and the slots of the ends of the draw-bars being extended beyond the rear edge of the cross-bar when in said position, substantially as and for the purposes specified. 45

10. The frame of a railroad-car, slotted as described, and two yielding draw-heads or bumpers, each provided with a transverse bar, combined with intermediate draw-bars, each
50 having elongated slotted ends fitting over the ends of the respective transverse bars, substantially as and for the purposes specified.

11. The frame of a railroad-car, slotted as described, and having plates or abutments, 55 and two yielding draw-heads or bumpers, each provided with a transverse bar, combined with intermediate draw-bars, each having elongated slotted ends fitting over the ends of the respective transverse bars, substantially as
60 and for the purposes specified.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES P. COULTER.
THOMAS HIBBERT.

Witnesses:

ROBERT N. McCONNELL,
JOHN S. McCONNELL.