

(No Model.)

F. W. MARSTON.
Draw Bar Apparatus for Cars.

No. 237,761.

Patented Feb. 15, 1881.

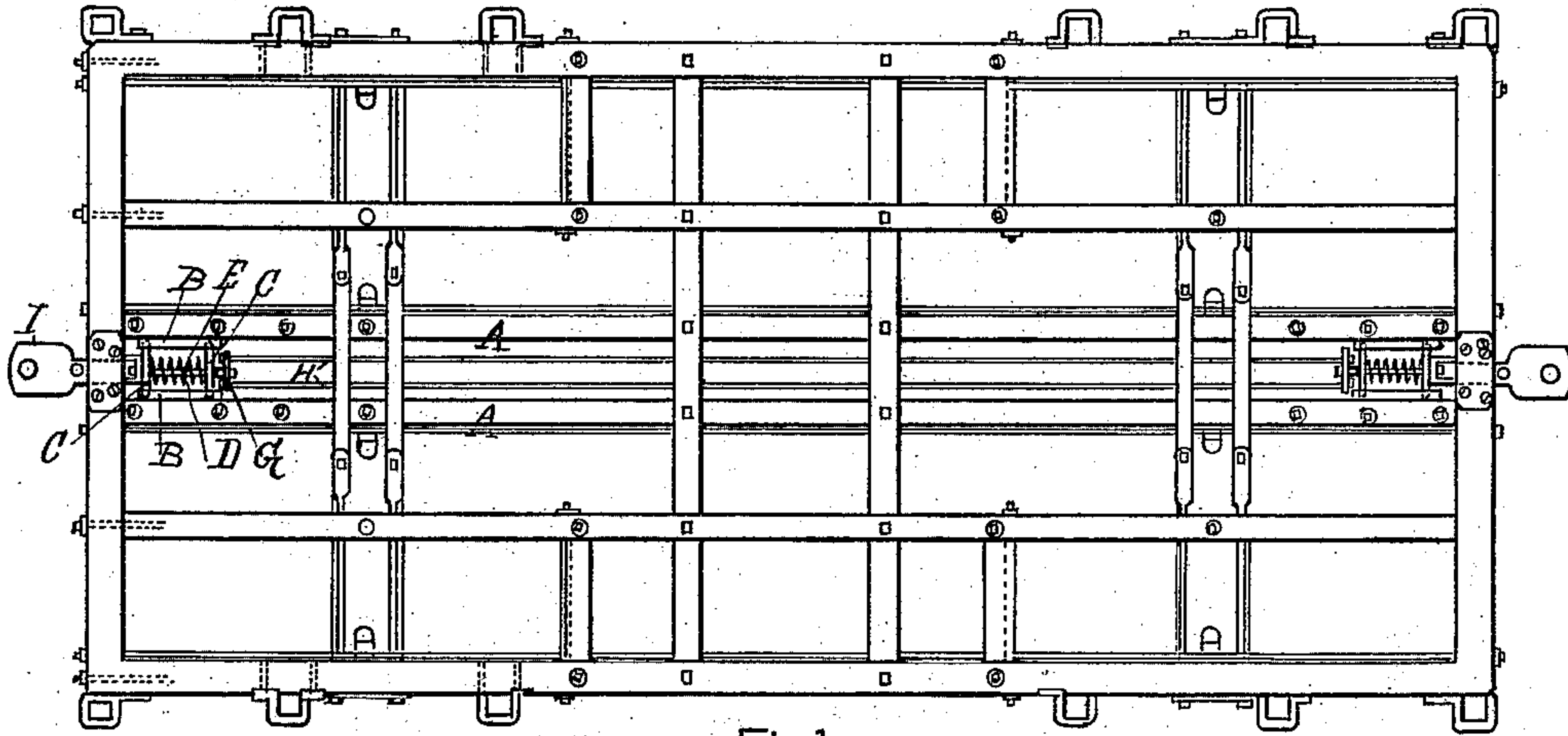


Fig. 1.

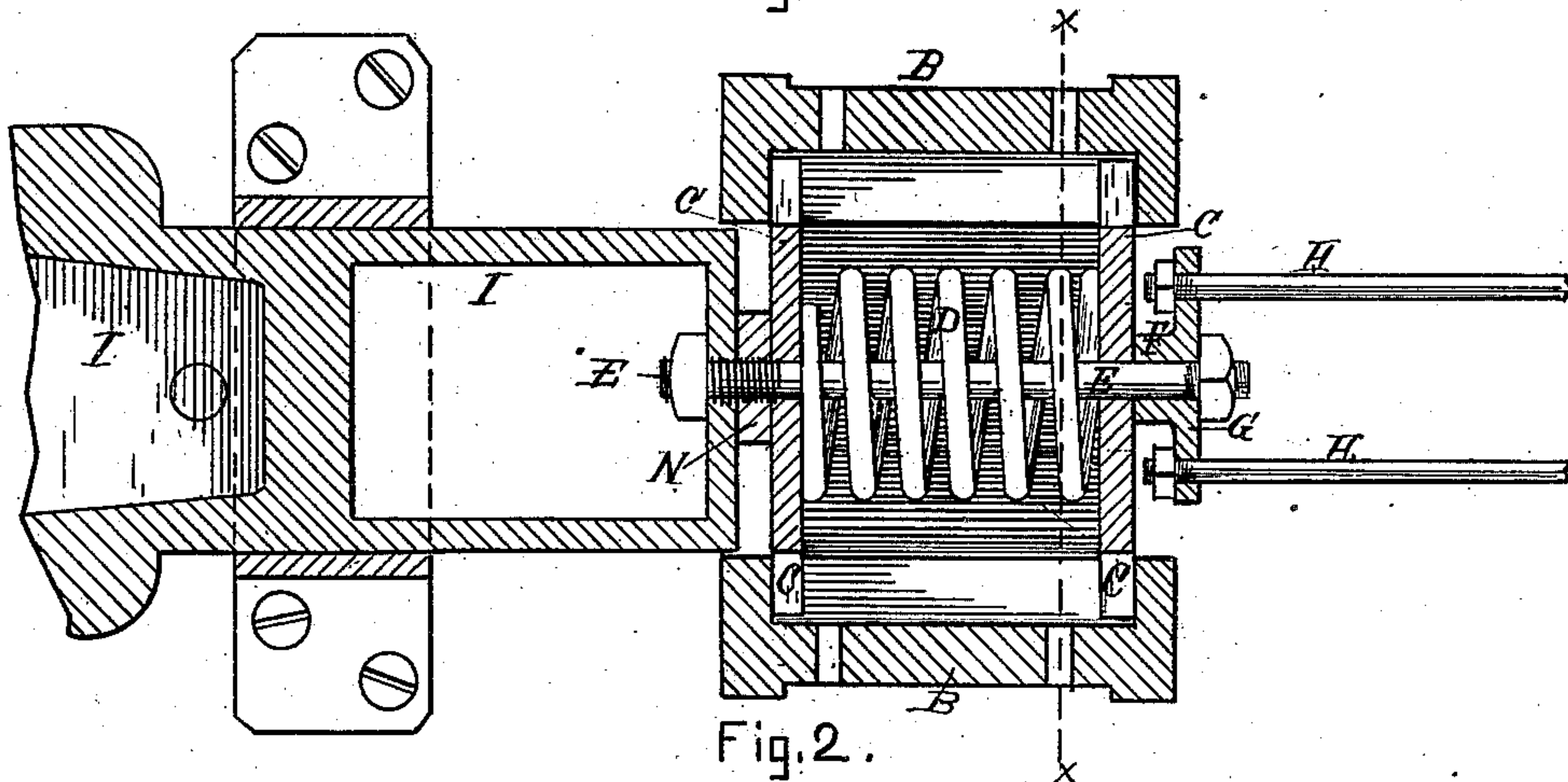


Fig. 2.

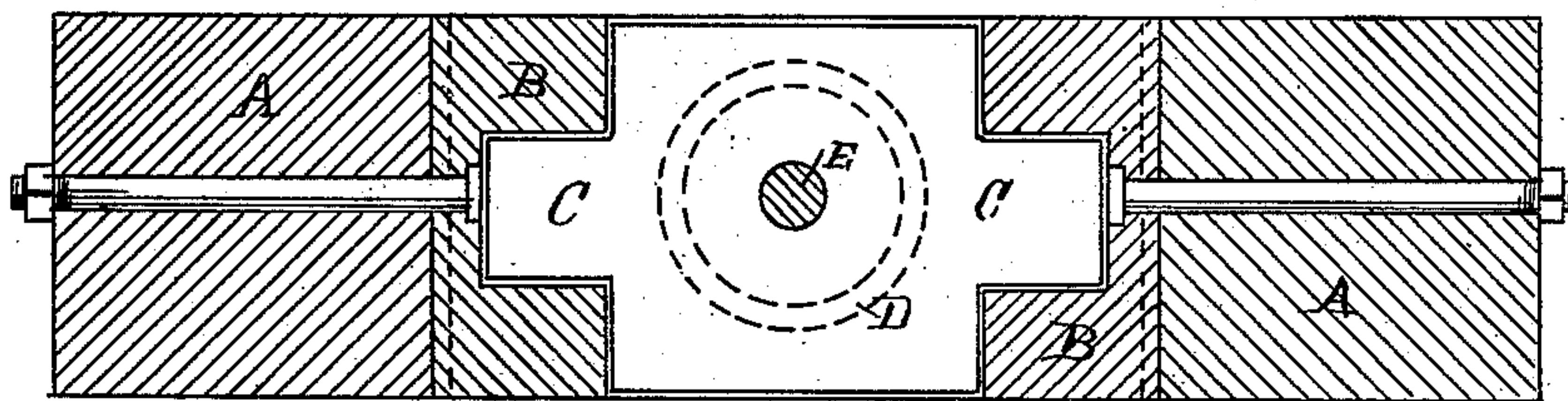


Fig. 3.

Witnesses:
S. Huntington
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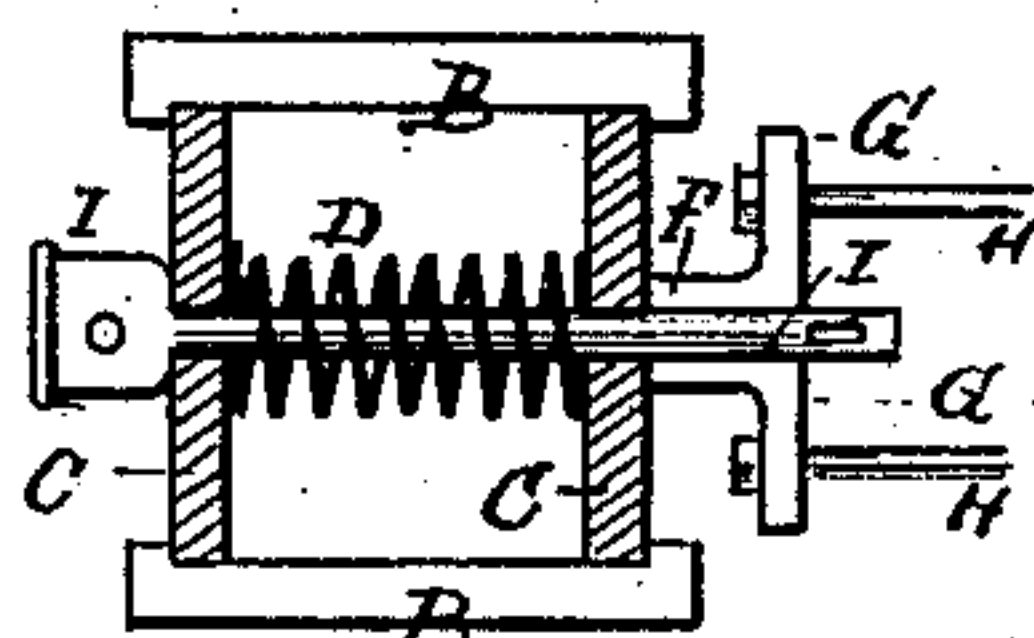


Fig. 4.

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DRAW-BAR APPARATUS FOR CARS.

SPECIFICATION forming part of Letters Patent No. 237,761, dated February 15, 1881.

Application filed May 26, 1880. (No model.)

To all whom it may concern :

Be it known that I, FRANK W. MARSTON, of Boston, Massachusetts, have invented certain Improvements in Draw-Bar Apparatus for Railway-Cars; and I do hereby declare that the following specification is a full, clear, and exact description of my invention, and the accompanying drawings, an illustration thereof.

Railway draft apparatus has heretofore been employed having a continuous draw-bar, or a series of draw-bars directly connected with each other from end to end of the car, and so arranged as to apply the immediate strains of traction to a spring at the rear end only of the moving car, such strains being communicated by said spring to the car-frame. In other words, each car so furnished is pushed forward by a spring at or near its rear end, such spring receiving its impulse from a draft-rod running back to it from the coupling-head at the front end of the car.

An apparatus has also been devised consisting of a draw-bar in two parts, united centrally by a double spring-coupling, to enable the bar to be elongated under strain. Each half of this extensible bar is connected to the car by a spring; but it is obvious that the car must advance by a pull upon its forward part when the elasticity of the first spring is exhausted, while the rear part is not impelled by the draft-rod until its own spring and the two springs of the central coupling have been compressed. Great strain is therefore brought upon the frame of each car of a connected train, tending to draw the front and rear parts of such car asunder, as is the case where no continuous draw-bar is used.

I am aware of the device of Lombaert, patented March 12, 1861, of continuous rigid bars connecting the draw-heads and forming both draft and buffing apparatus, with eight springs, through which strains of draft and buffing are applied to the car, not simultaneously, but half of them lying dormant while the others are in action.

My invention differs from all these in that I provide a non-extensible draft apparatus, through which the strains of traction are applied simultaneously and equally to the only two springs of each car when being drawn in either direction. I conjoin the independent draft and buffing apparatus found at each end

of existing cars and bring them into co-operation as a single non-extensible draft mechanism, which, however, is not a continuous buffing apparatus, since the draw-heads or the cross-heads may approach each other by sliding on the draft-rods, exerting no strains thereon in buffing. In case of breakage of the draft-rods the strains are borne temporarily by the springs and resistance-pieces.

A material advantage of this construction and arrangement is that, the power being applied simultaneously and equally to both the front and the rear half of the car through a separate spring applied to each half of the car and adapted to exert its impelling force directly upon that half, (instead of upon a spring at one end only, or through an elastic coupling in the draw-bar, as heretofore,) much wear and strain upon the parts are saved, the springs and metallic connections may be lighter, and in the event of injury to or failure of one spring or the attachments thereto the other one would serve for the time being.

By employing the specific form in which I have illustrated my invention I am enabled to utilize very largely the existing draw-bar apparatus, and by additions comparatively inexpensive to give it the new capabilities which characterize my improved mechanism.

I elongate the bolts which at each end of the car pass through the traction-spring, provide said bolts each with a cross-head having a neck or collar, through which the bolt passes, of such dimensions as to bring its shoulder to bear against the follower-plate of the spring, and I connect these cross-heads from end to end of the car by two parallel draft-rods passing one on each side of the king-bolts.

Referring to the drawings, Figure 1 represents the under side of a car-frame provided with my improvements; Figs. 2 and 3, enlarged longitudinal and transverse sections of my draft apparatus placed at each end or under each half of the car. Fig. 4 shows the cross-head and collar applied directly to the shank of the draw-head which passes through the traction-spring.

A A are two of the longitudinal floor-timbers, and B B are cheek-pieces let into and secured to such timbers or to stout blocks bolted firmly thereto. The cheek-pieces are recessed centrally to permit movement of the follower.

plates C C in the direction of the length of the car in the usual manner.

D is the spring compressed between the plates C C, and serving to transmit to the car-frame the impelling force applied to the draw-heads in either direction of movement of the car.

E is the bolt passing through the spring D and plates C C, and prolonged far enough beyond the inner plate to pass through a neck or collar, F, and cross-piece G, preferably formed integral, as shown. I sometimes make the bolt E to project rigidly from the draw-head by providing it with a shoulder bearing against the outer end of the draw-head, or by interposing a nut, N, between said end and the outer plate, C. The bolt E engages with the draw-heads I I, and is provided with a head at one end and a nut or key at the other, so as to retain the spring under tension and enable such tension to be increased or the spring to be compressed under the strains of traction applied from either end.

The cross-heads G G are connected with each other lengthwise of the car by parallel draft-rods H H, which are provided at one or both ends with screw-threads and nuts to adjust their length. They pass each side of the king-bolts which connect the car-body to its trucks, and preferably between the truck-bolsters and the car-bolsters. They form a continuous inflexible and non-extensible double draft-bar, united at each end to the draw-head, so that the several cars of a connected train may be drawn by means of power applied to the draft apparatus described, the portion of such power required to move each separate car being directly transmitted to such car through two distinct springs acting simultaneously and equally, one beneath each half of the car. The several cars of a connected train are therefore drawn forward by a non-extensible chain of draft apparatus, of which chain the springs D D form no part, said springs being connected with said apparatus merely as mediums through which the power required in the traction of any one car is applied to that car and to no other. With this apparatus no tractional strains come upon the frame of any car by reason of other cars following it in the train.

I claim as of my invention—

1. A non-extensible draft apparatus for railway-cars in which the draw-heads may approach each other under pressure, in combination with two traction-springs placed one under each half of the car, and so connected to the car-frame and the draft apparatus as to bring the strains of traction to bear simulta-

neously and equally on both springs in both directions of movement, substantially as and for the purpose set forth.

2. The combination, with the frame of a railway-car, of two independent draft and buffing mechanisms, located beneath the opposite ends of the car, and a rigid connection between said independent devices, whereby both sets of apparatus receive strains of draft simultaneously, equally, and conjointly, without any elongation or extension of the entire apparatus, substantially as and for the purpose set forth.

3. A draw-head, spring, and resistance-plates, located beneath each half of a car and forming two independent draft and buffing devices for such car, in combination with a rigid connection between said independent apparatus, whereby both sets of mechanism are joined for co-operation and caused to act simultaneously and equally under strains of traction without extension or elongation of the draft apparatus, while buffing strains are transmitted to the frame of the rear car of a train through the buffing apparatus at one end only, and to the other cars of the train through both of said independent attachments without strain upon the rigid connecting-rods between them, substantially as and for the purpose set forth.

4. The rigid connecting-rods H H, in combination with the draft and buffing apparatus secured to the longitudinal sills of the car-frame and adapted to serve as distinct and independent buffing mechanism at all times, and as two independent sets of draft apparatus in case of breakage or removal of the connecting-rods, for the purpose set forth.

5. A car-frame and two sets of independent draft and buffing apparatus secured thereto, in combination with a rigid connection between said independent sets of apparatus, whereby one complete non-extensible draft mechanism is produced without impairing the efficiency or independence of action of the buffing apparatus, for the purposes set forth.

6. The combination of two parallel draft-rods, H H, two cross-heads and collars, G F, and two draw-heads, I I, with two traction-springs adapted to operate simultaneously and equally in the movement of the car, and each provided with means of transmitting the strains of traction to the car, but forming no part of the chain of draft apparatus for the cars following in the train, substantially as set forth.

FRANK W. MARSTON.

Witnesses:

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