

(No Model.)

M. MAHER.
CAR COUPLING.

No. 364,659.

Patented June 14, 1887.

Fig. 1.

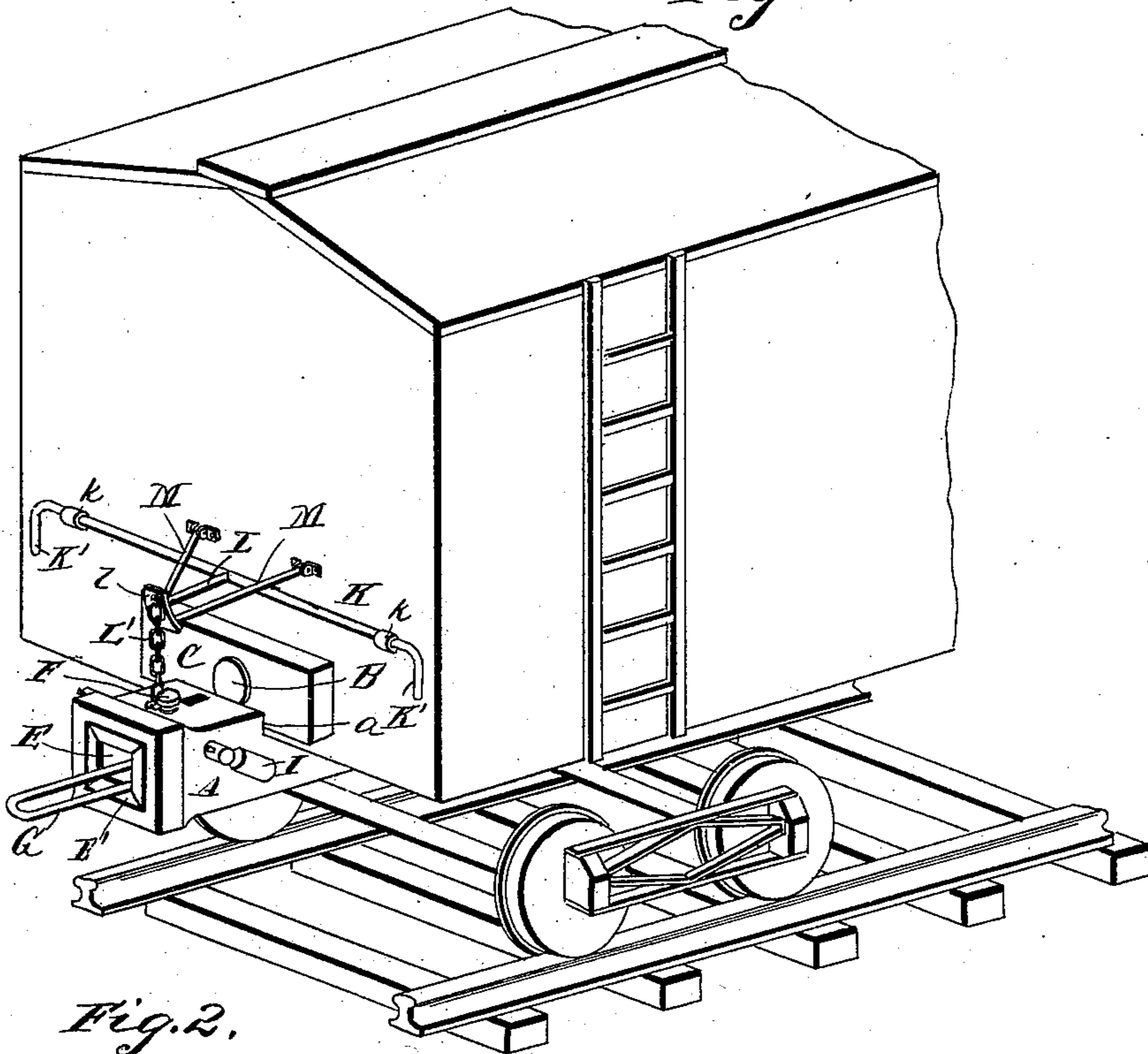
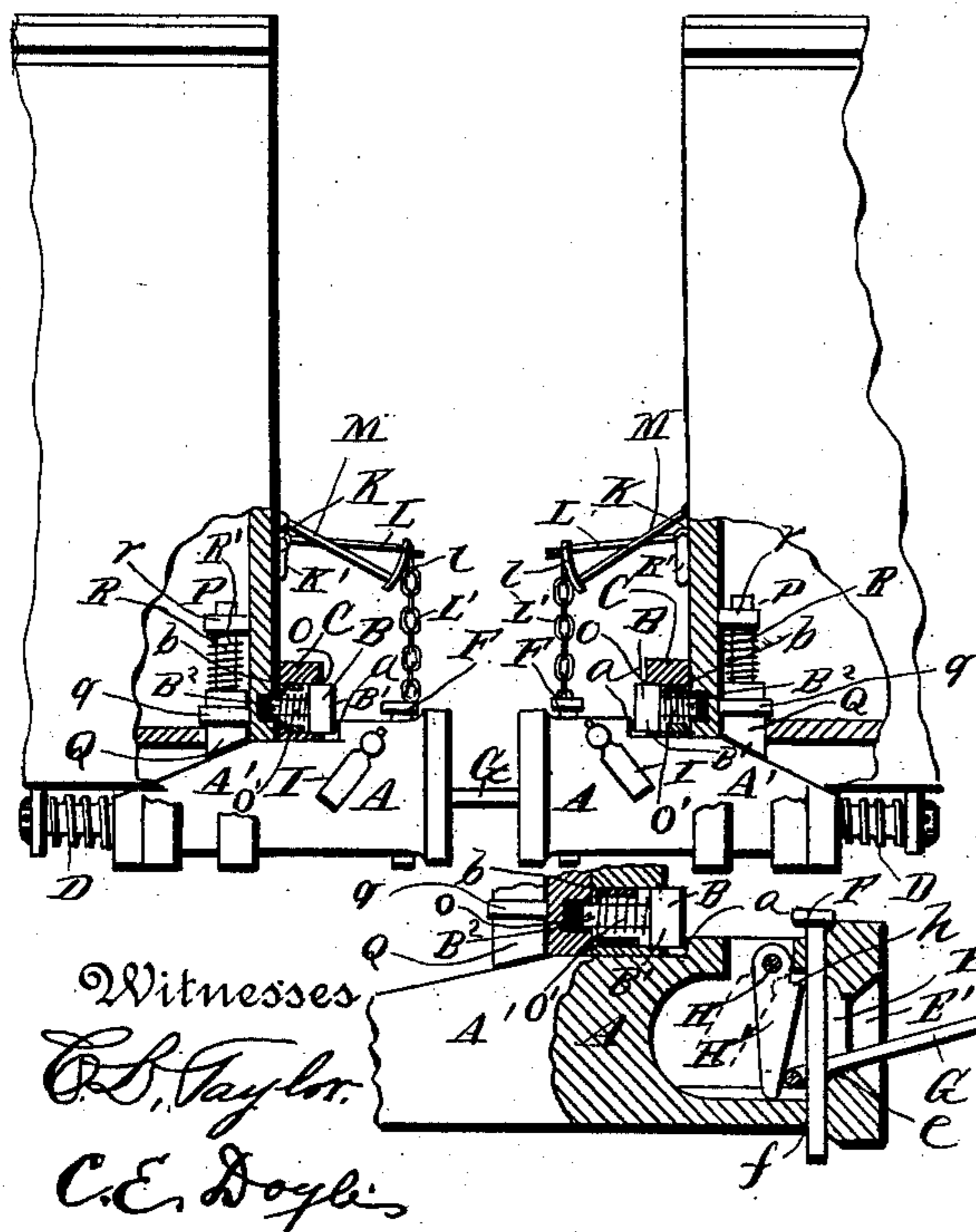


Fig. 2.



Witnesses
C. B. Taylor.
C. E. Doyle.

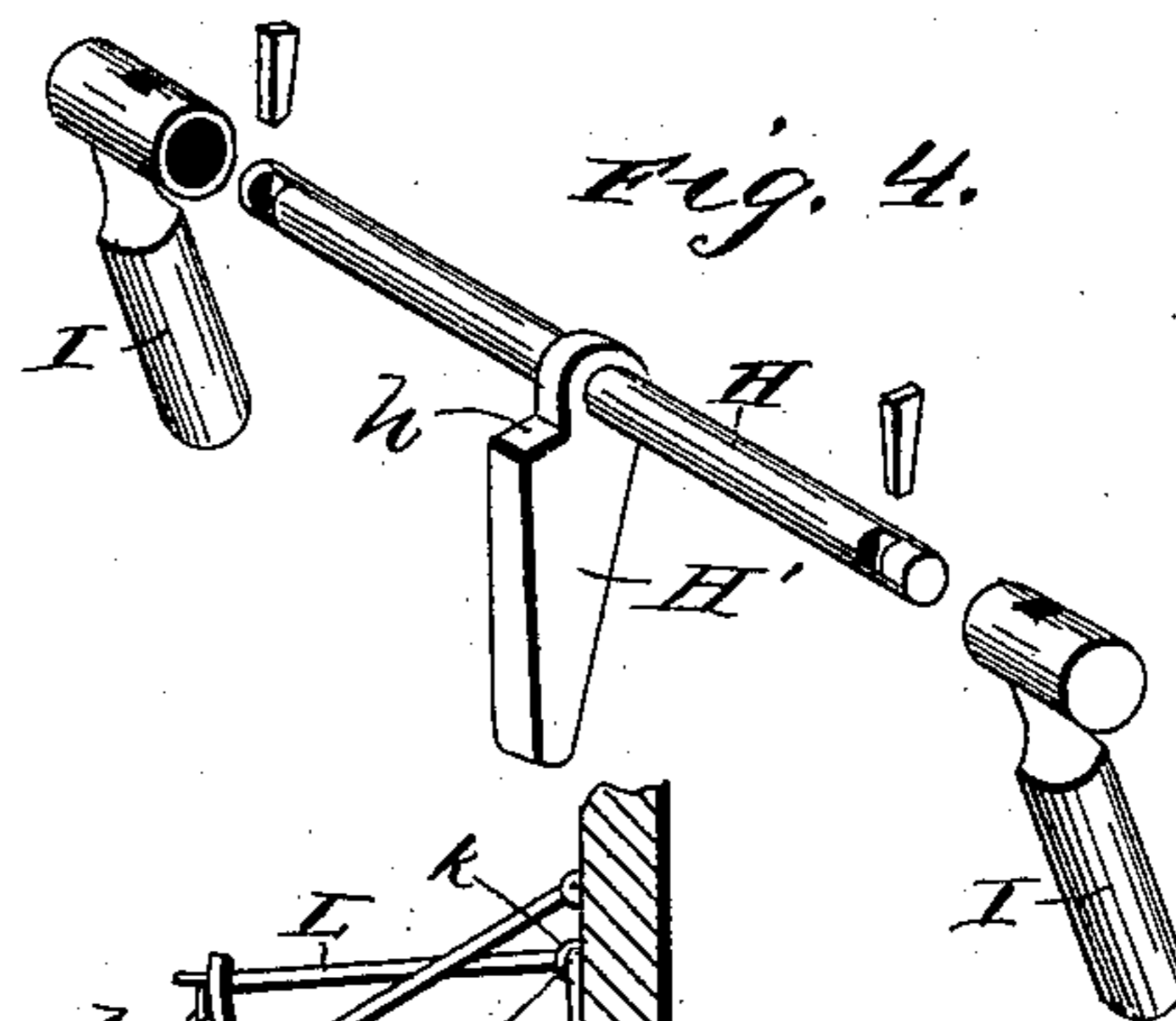
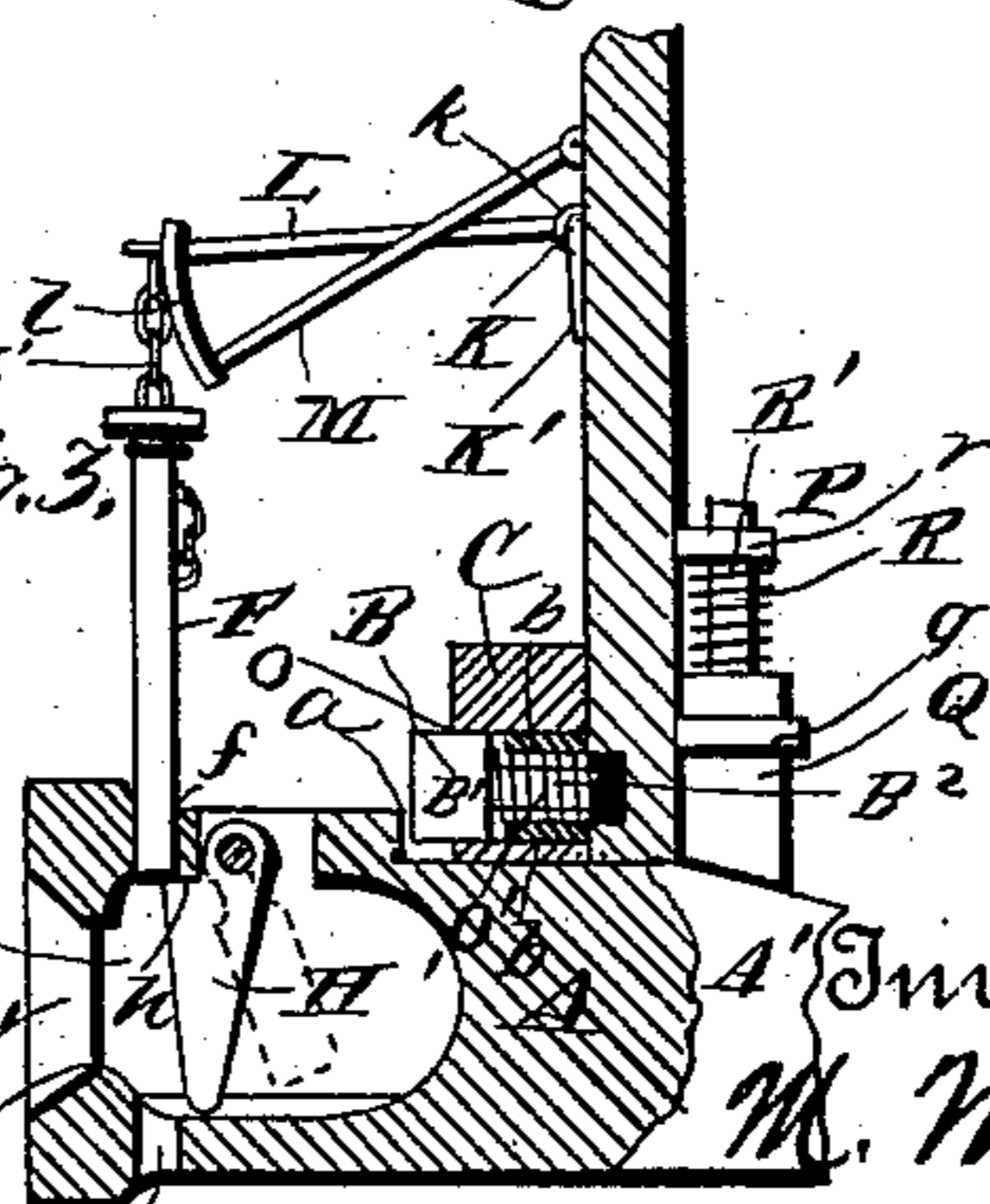


Fig. 4.

Fig. 3.



By his Attorneys

C. A. Snowdon

UNITED STATES PATENT OFFICE.

MICHAEL MAHER, OF FREMONT, NEBRASKA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 364,659, dated June 14, 1887.

Application filed December 27, 1886. Serial No. 222,673. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL MAHER, a citizen of the United States, residing at Fremont, in the county of Dodge and State of Nebraska, have invented a new and useful Improvement in Car-Couplings, of which the following is a specification.

My invention relates to an improvement in car-couplings; and it consists in a certain novel construction and arrangement of parts for service, fully set forth hereinafter, and specifically pointed out in the claims.

The primary object of my invention is to provide a coupling adapted to completely deaden the shock of meeting cars.

A further object of my invention is to provide an automatic coupling which may be used in connection with the pin-and-link couplings now in general use.

In the accompanying drawings, Figure 1 is a perspective view of my improved coupling attached to a car. Fig. 2 is a side view of portions of two cars connected by my improved coupling. Fig. 3 is a detail longitudinal section of my coupling as seen when about to engage. Fig. 4 is a detached perspective view of the gravity block and weights and the shaft to which they are attached.

Referring to the drawings, in which similar letters denote corresponding parts in all the figures, A is the draw-head of my improved coupler, having a shoulder, *a*, on its upper side adapted to press against a yielding buffer, B, in the buffer-block C, secured to the end of the car. The rear extension, A', of the said draw-head is tapering, being beveled on the upper side, and has the usual connection with the coiled spring D. The tendency of this spring D is to push the draw-head out and resist the pressure of an opposing car against the outer end of the draw-head.

E is the link-opening in the draw-head, having the flared mouth E'.

F is the coupling-pin, movable in the vertical-aligned openings *ff* in the said draw-head, and adapted to engage with the link G in the usual manner.

H is a shaft adapted to rotate in a horizontal transverse opening in the draw-head above the opening E, and is provided at the center with the gravity-block H', rigidly secured thereto and adapted to swing in the said open-

ing E. The gravity-block H' has a shoulder, *h*, adapted to normally swing under the upper vertical opening, *f*, so as to support the pin F when the coupling is about to be made, and said block is tapering toward the lower end, as shown, for a purpose to be explained.

I are weighted arms rigidly pinned or keyed to the outer ends of the shaft H, outside of the draw-head A, and arranged at an angle to the gravity-block H, so that said arms are never vertical. This is to counteract the weight of the pin upon the shoulder *h* and prevent the gravity-block H' from swinging back and allowing the pin to drop before the proper time.

The gravity-block H' is extended below the edge of the mouth E' of the opening E in the draw-head, and when the link is in place, in order to raise the outer end of the link so as to make a connection with a car in which the draw-head is higher, press down upon the weighted arms I. This will cause the rear end of the said link to be depressed by the beveled or tapered portion of the gravity-block; and as the link rests upon the rounded shoulder *e* at the rear of the flared mouth of the draw-head, the outer end of said link will be raised, as shown in Fig. 3.

K is a rock-shaft extending across the end of the car, journaled in bearings *k*, and having handles or lever-arms, K', on the ends thereof. To the center of the said shaft is rigidly secured an arm, L, having the upper end of a chain-head, *l*, made in the form of an arc, pivoted to the outer end thereof. To the lower end of the said chain-head *l* are pivoted the front ends of the brace-bars M, the rear ends of which are pivotally attached to the end of the car above the shaft K. The chain L' is attached at the upper end to the upper end of the chain-head *l*, and at the lower end to the upper end of the coupling-pin F. To raise the coupling-pin, therefore, rotate the shaft K by drawing the arms K' away from the car. This will raise the outer end of the arm L and consequently the chain and the pin attached thereto. As the chain-head *l* is raised by the arm L, the brace-bars M hold the lower end of the arc away from the car, thus keeping the chain which passes over the arc always vertically over the pin F. Therefore, in raising the said pin, the motion is exactly vertical and prevents jamming.

The yielding buffer B comprises a head, B', and an integral bolt, B².

O is a recess in the buffer-block C, of sufficient size to receive the head B' of the buffer, extending almost entirely through the said buffer-block. The recess O is provided with a packing of rubber, b, having an opening there-through for the reception of the bolt B², which passes entirely through said packing and also through an opening in the rear wall of the recess O. A transverse pin, o, is passed through the end of the bolt B² to prevent said bolt from slipping out of place.

The opening in the packing is slightly larger than the bolt B², to allow of a spring, O', around the said bolt, which spring bears at one end against the rear side of the head B', and at the other against the rear wall of the recess O, around the opening therein. Said spring resists pressure exerted to press the head back into the recess O; but when said head is forced back the rear side strikes against the front end of the packing b before the head B' is entirely received in the recess. The said rubber packing now affords a cushion for the buffer, so that when cars meet each other with force the draw-head is driven back and the shoulder a thereon strikes against the buffer-head B', and it is pushed back against the action of the spring and then comes in contact with the end of the rubber packing, which completely deadens the shock.

P is a friction-block, secured on the inside of the end of the car and comprising the head Q, held from lateral play by the strap q, and the vertical rod or bolt R, encircled by the spiral spring R', said bolt passing at the upper end through the collar or sleeve r, against the lower side of which the spring R' presses.

It will be seen that the action of the spring is to press the friction-head down upon the inclined rear end of the draw-head. This, as will be readily seen, aids in resisting the force which tends to push the draw-head back under the car, as the friction caused by an inclined surface moving laterally to force a block vertically by the contact of the said inclined surface with the block is very great. Thus it requires great force to drive the draw-head back against the resistance of the said frictional contact. Thus I provide three means of resisting the shock caused by cars meeting each other to couple, and also the shock caused by a sudden stopping of the train—namely, the spring D on the rear end of the draw-head, the inclined upper surface of the draw-head combined with the friction-block P, and the buffer B, as described. These means employed are all powerful, individually; but when combined to act together, as I have described, the effect is to entirely deaden the shock.

To couple two cars provided with my improved coupler, raise the coupling-pin by rotating the shaft K, as described, and the gravity-block H' will be forced under the said pin by the weighted arms I, so that the pin will rest on the shoulder h. The approaching car

has the coupling-pin, and as said link enters the flared mouth of the opening in the draw-head it strikes the lower end of the gravity-block and forces it back, thus releasing the coupling-pin, which drops within the link and completes the coupling.

It will be seen from the foregoing that the means which I employ, although very simple, are very strong and effective. I dispense with all unnecessary complication, and design to provide a coupling which may be operated very easily, which is very unlikely to get out of order and very easily repaired when injured, which may be used to couple to cars having the old form of coupler, and which will prove a great advantage over the present forms of coupling devices now in general use in simplicity, durability, effectiveness, and cheapness.

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

1. In a car-coupling, the draw-head having the tapered portion A', combined with the friction-block P, to press upon said beveled portion and resist the shock of coupling cars, substantially as described, for the purpose set forth.

2. In a car-coupling, the draw-head having the tapered portion A', beveled on the upper side, combined with the friction-block P, comprising the head Q, and bolt R, having spring R', to force said head vertically down upon the beveled portion A', substantially as described, for the purpose set forth.

3. In a car-coupling, the yielding buffer B, having a head, B', bolt B², and spring O' around said bolt, combined with a recess, O, having rubber packing b, adapted to surround the spring O' and serve as a cushion for the head of the buffer when forced back, substantially as described, for the purpose set forth.

4. In combination with the draw-head, the yielding buffer to be acted upon by the draw-head, said buffer comprising the bolt B², the rubber packing b, surrounding the bolt, and the head B' on the bolt, adapted to abut against the front end of the rubber packing, as set forth.

5. In a car-coupling, the draw-head A and coupling-pin F, combined with the rock-shaft K, and an arm, L, provided with a head, l, made in the form of an arc and having secured thereto the upper end of the lifting chain or rope L' for the coupling-pin, and pivoted brace-arms M for the head l, substantially as described, for the purpose set forth.

6. In a car-coupling, the uncoupling device comprising the rock-shaft K, having a lever-arm, L, provided with a chain-head, l, made in the form of an arc and having the upper end thereof pivoted to the end of the arm L, and the chain L', combined with the brace-bars M, pivoted at the rear ends to the car at a point above the rock-shaft K and at the front ends to the lower end of the arc l, to force the lower end of the said chain-head out

and cause the chain L' to act vertically upon the coupling-pin to raise it, substantially as described.

7. In a car-coupling, the draw-head A, having the opening E, with a rounded shoulder, e, the pin F, and coupling-link G, combined with the gravity-block H', tapered toward the lower end and adapted, when pressed against the inner end of said coupling-link, to depress said inner end and elevate the outer end, the

link riding over the rounded shoulder e, substantially as described, for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

MICHAEL MAHER.

Witnesses:

N. H. BELL,
T. F. QUIRK.