

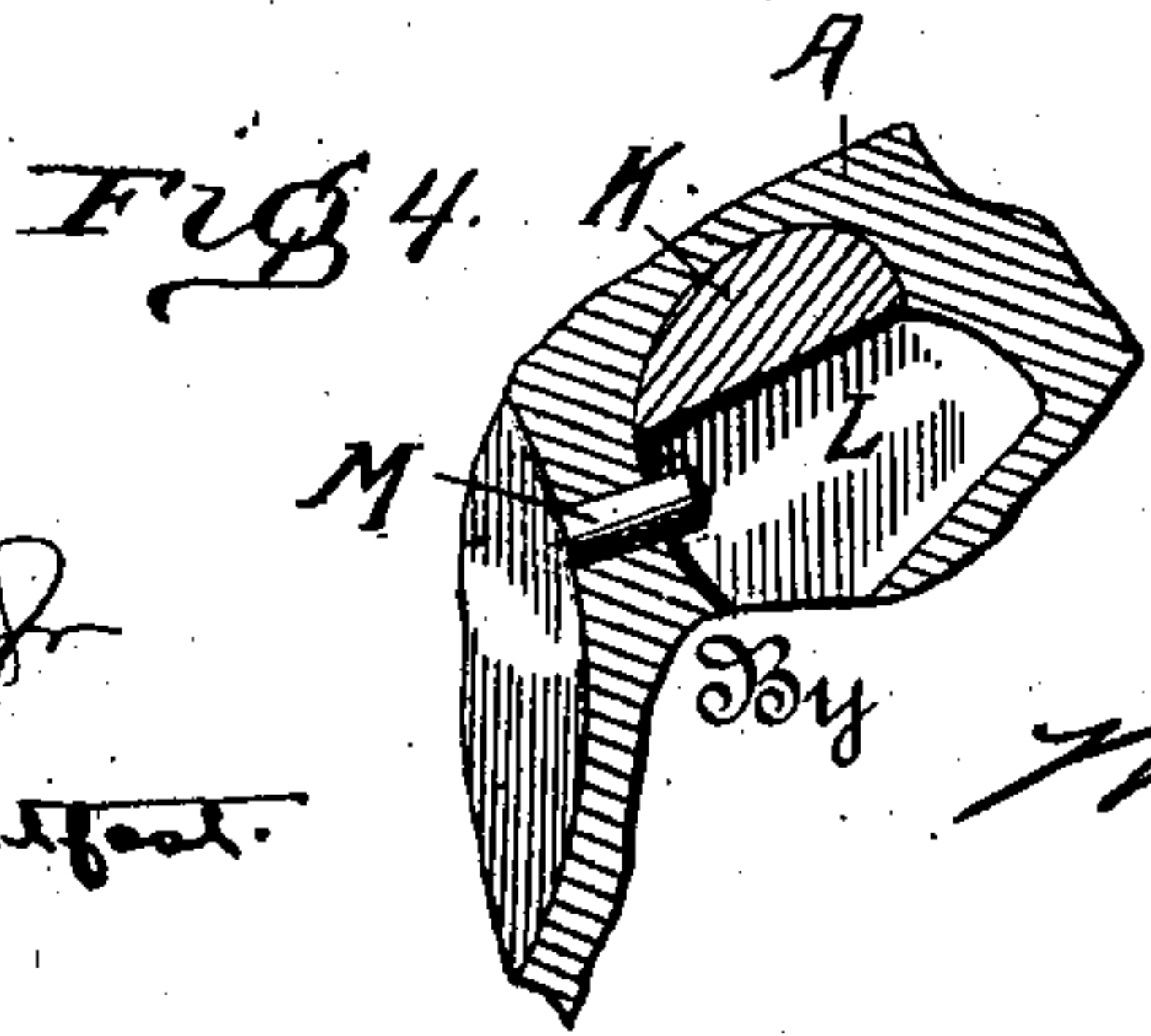
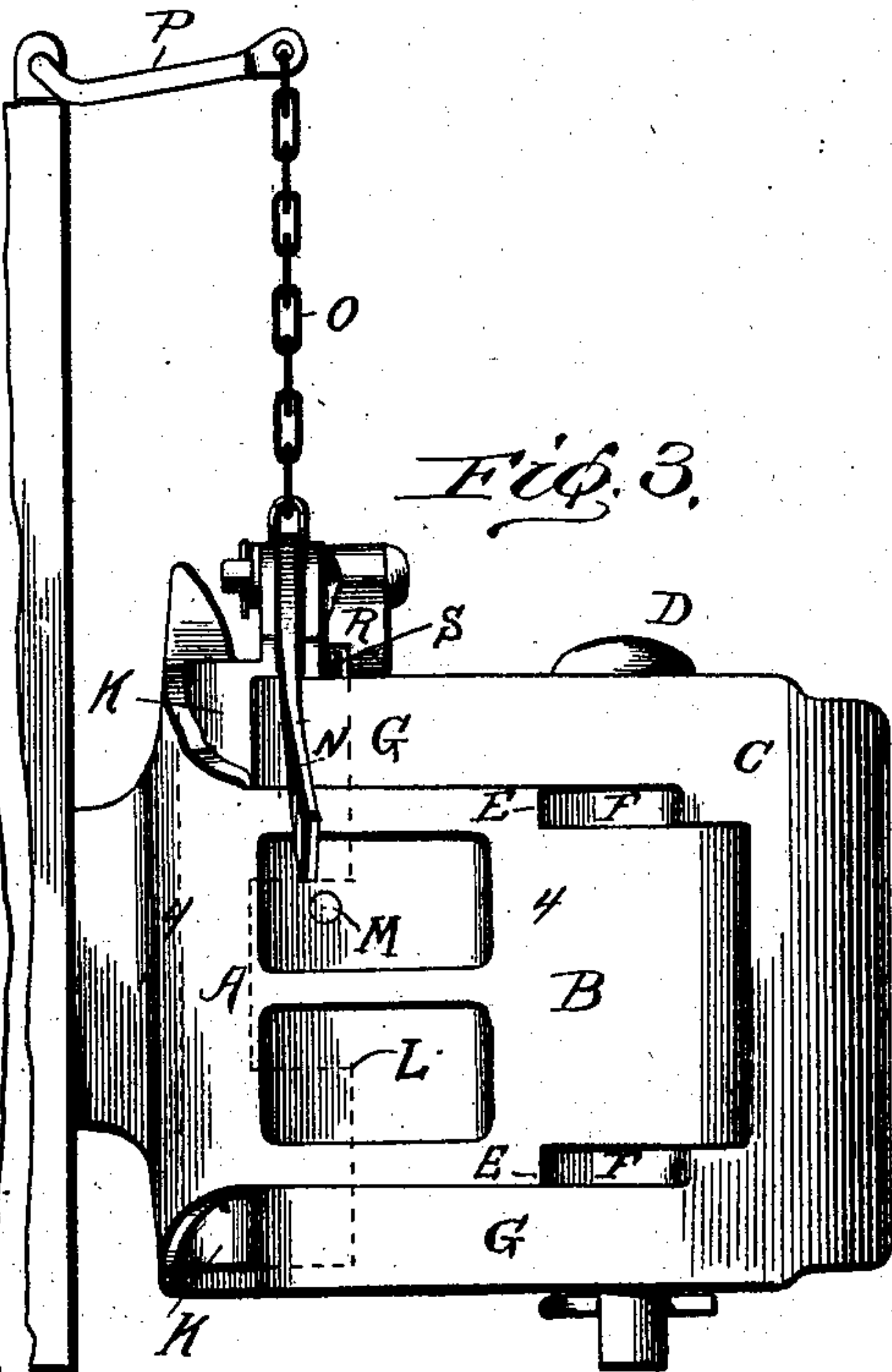
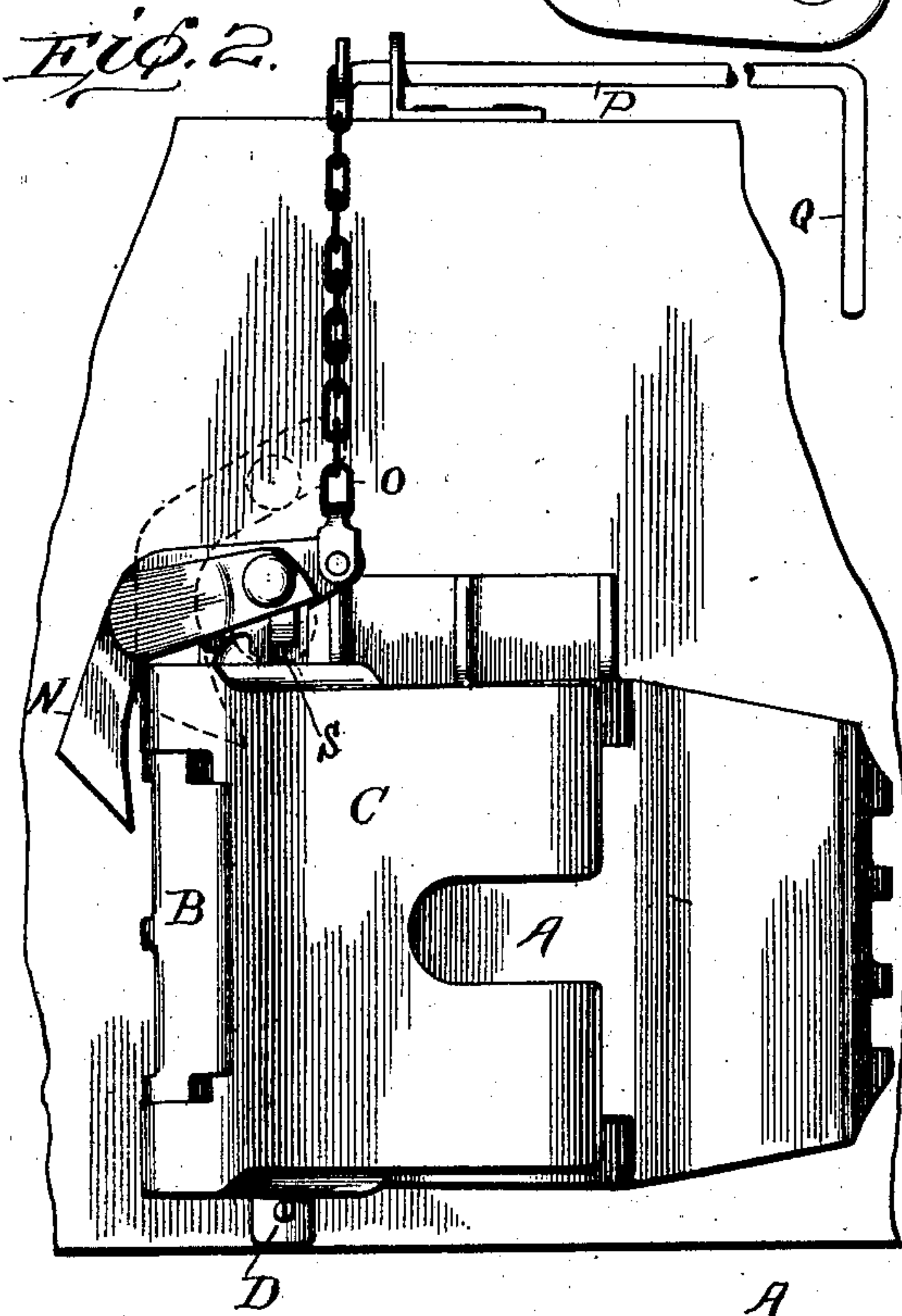
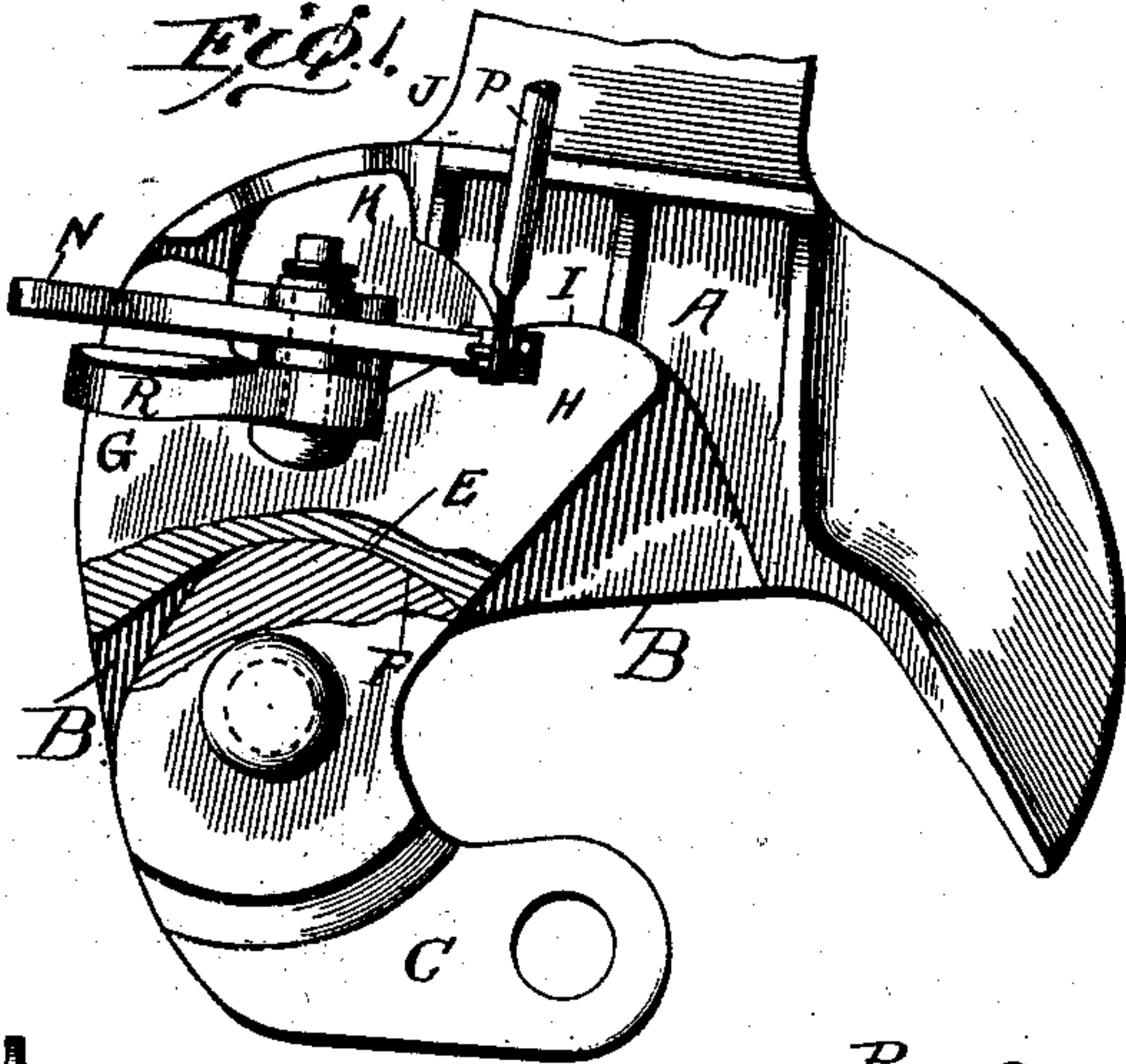
No. 732,790.

PATENTED JULY 7, 1903.

J. W. SMITH.  
CAR COUPLING.

APPLICATION FILED MAR. 7, 1903.

NO MODEL.



Inventor

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# UNITED STATES PATENT OFFICE.

JOHN WORTHINGTON SMITH, OF OTTAWA, CANADA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 732,790, dated July 7, 1903.

Application filed March 7, 1903. Serial No. 146,640. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN WORTHINGTON SMITH, a citizen of the United States, residing at Ottawa, in the county of Carleton and Province of Ontario, Canada, have invented certain new and useful Improvements in Car-Couplers; 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.

In couplers of the Master Car-Builders' type, to which this invention relates, it is desirable to have the devices such that a coupler may be set in closed position, so that it will not be engaged by an approaching coupler or may be so set that it will automatically pass into locked engagement with a companion coupler coming into proper position. It is also desirable to have the devices such that an attendant may unlock any coupler of a train and be sure that in the parting of the train the companion knuckle will leave this coupler, as before, in condition to engage the next approaching coupler. In other words, the attendant having properly set the engaged or disengaged devices he should not be compelled to return to be sure of the proper action of the coupler when another car brings a second coupler to the first.

To provide devices of the kind suggested and at the same time to relieve the knuckle-pin of shocks due to violent impact are objects of this invention.

In the accompanying drawings, Figure 1 is a plan view of the coupler. Fig. 2 is a front view of the same. Fig. 3 is a side view. Fig. 4 is a section on the line 4 4, Fig. 3.

In the views, A represents a coupler-head cut away above and below to form a hub B, upon which a forked knuckle C is mounted to swing upon a removable pin D. That portion of the hub about the pin D is further cut away to form curved shoulders E E, and the knuckle is formed with corresponding shoulders F F, fitting against the shoulders E, whereby the impact of approaching or co-acting couplers is borne by the shoulders and not by the pin D. Both the upper and lower branches of the knuckle are provided with two arms G H, the former when the coupler is closed extending rearward along the outer

margin of the head and the latter extending obliquely rearward to meet shoulders I of the medial portion of the head. Between the inner side of the arms G and shoulders J upon the head normally lies a vertically-moving non-cylindrical locking-block to prevent the arms from swinging inward as they must do when the knuckle opens, while at the same time contrary movement is prevented by the arms H, which rest against the shoulders I. The central portion of the block is cut away centrally in front to such an extent and at such a point that when the block is raised to proper height it no longer obstructs the movement of the upper arm, and this height is also such that the block is entirely above the path of the lower arm G, and hence the knuckle may now open freely. To the upper end of the block is centrally pivoted a bent lever N, whose outer arm at all times extends downward alongside the upper arm G and whose inner arm is connected, by a chain O or the like, to a free inner arm upon a rock-shaft P, mounted upon the car and actuated by a handle Q at its opposite end. When the inner end of the bent lever is drawn upward, the outer end presses toward the arm G; but as this cannot swing the lever and block are both raised bodily. At the moment when the recess in the block comes into the plane of the upper arm if the knuckle is otherwise free to open the lever swings upon its pivot and forces the arm toward the medial line of the head, and thus opens the coupler. To hold the block raised and leave the knuckle unlocked, I loosely pivot upon the upper end of the block the upper end of a normally inclined pawl R, rounded at its lower end and of such length that when the block is fully raised the pawl, which swings by gravity to vertical position and against a stop S, reaches approximately to the upper surface of the knuckle, and thus prevents the block's descent. The height to which the block may rise is limited by a stop M, which projects from the head into the recess L. If an engaging coupler prevents the knuckle from opening when the block is thus raised, the pawl swings inward against the stop in the same manner, holding the block raised and leaving the knuckle free to open. If now the engaging coupler moves



away, as in parting of the train, it swings this knuckle open without moving the pawl. In whatever way the knuckle may be opened the arms H will swing into the space that  
 5 must be occupied by a coacting coupler, and such coupler in coming into place pushes these arms back to the shoulders I and closes the knuckle. In thus swinging to closed position the knuckle carries the lower end of  
 10 the pawl outward, thus allowing the block to fall and lock the coupler securely until external force again raises the block.

What I claim is—

1. The combination with a coupler-head  
 15 cut away above and below to form a hub, of a forked knuckle embracing the hub and pivoted thereto, said hub and knuckle being provided with coacting shoulders at some distance from the knuckle's pivot to receive the  
 20 shock of impact upon the knuckle.

2. The combination with a coupler-head provided with a suitable shoulder, of a knuckle pivoted upon the head and having an arm extending rearward alongside said  
 25 shoulder, a locking-block normally filling the space between said arm and shoulder and having a lateral recess into which said arm may swing when the block is raised, a lever centrally pivoted to said block and having  
 30 one end engaging said arm to swing it when the block is raised and the lever then tilted, and means for raising the opposite end of the lever.

3. The combination with a coupler-head  
 35 and a knuckle pivoted thereon and provided with an arm extending rearwardly along the upper face of the head, of a laterally-recessed vertically-movable locking-block normally

preventing the swinging of the arm but adapted to permit such swinging when raised to  
 40 bring its recess into the arm's plane, a bent lever centrally pivoted to the block and having one end extending outward and downward alongside said arm in position to swing it inward, and means for lifting the inner end  
 45 of the lever.

4. The combination with a coupler-head and a knuckle pivoted thereon, of a vertically-movable block adapted to normally resist the opening of the knuckle and to permit  
 50 such opening when raised, means for raising the block and then opening the knuckle, and a pawl pivoted to the block and arranged to swing automatically to vertical position as the knuckle is opened and to support the block  
 55 by resting upon the knuckle's upper surface.

5. The combination with a coupler-head and a knuckle pivoted thereon and provided with a rearwardly-extending arm, of a locking-block normally preventing the swinging  
 60 of said arm and provided with a lateral recess into which the arm may swing when the block is raised, a stop projecting into the recess to limit the movement of the block, means for lifting and locking the block and opening the  
 65 knuckle, and means whereby a second coupler in passing to position for engagement closes the knuckle and releases the raised locking-block.

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

JOHN WORTHINGTON SMITH.

Witnesses:

J. D. SHORT,

T. J. LYNTON.