

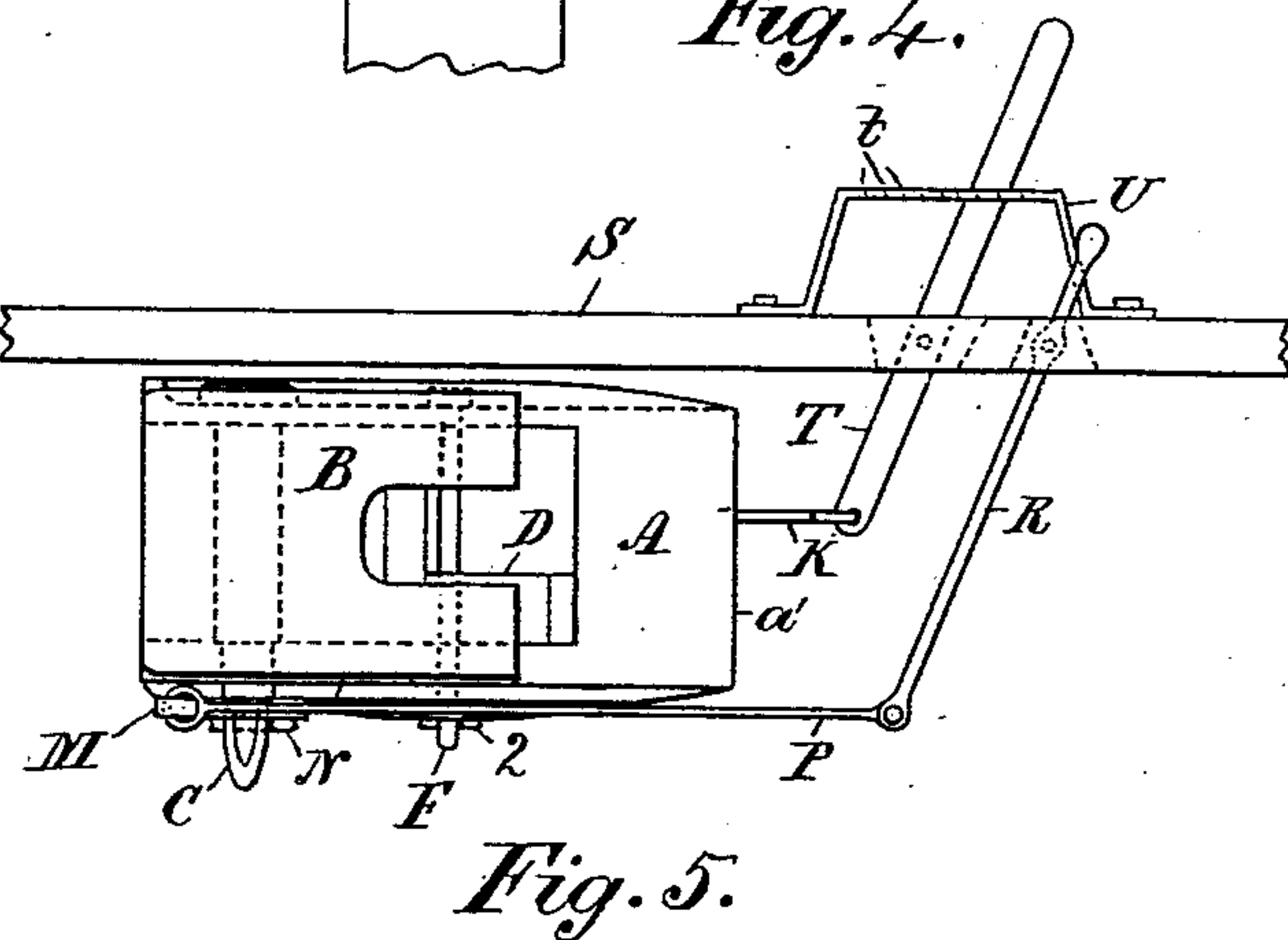
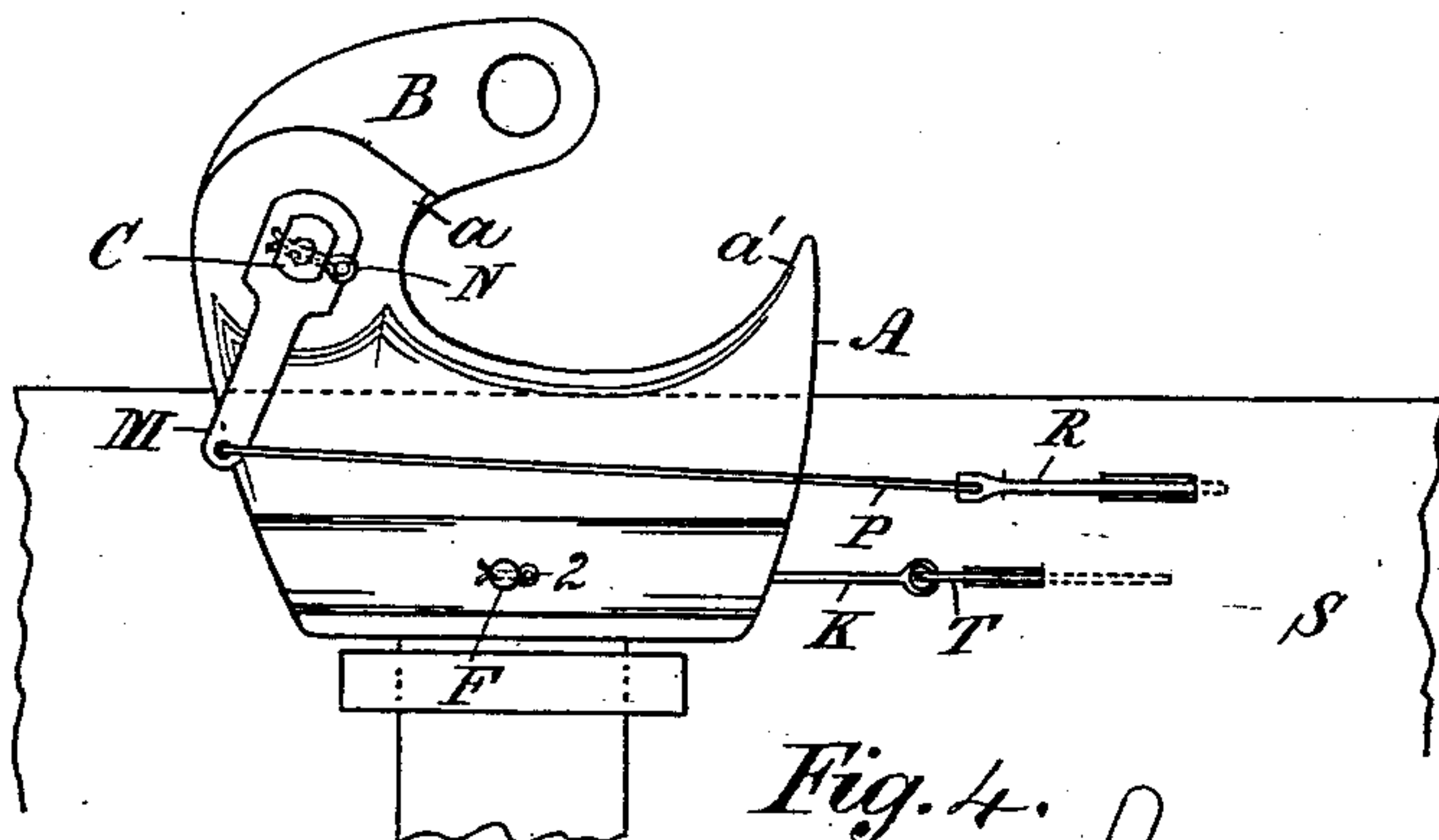
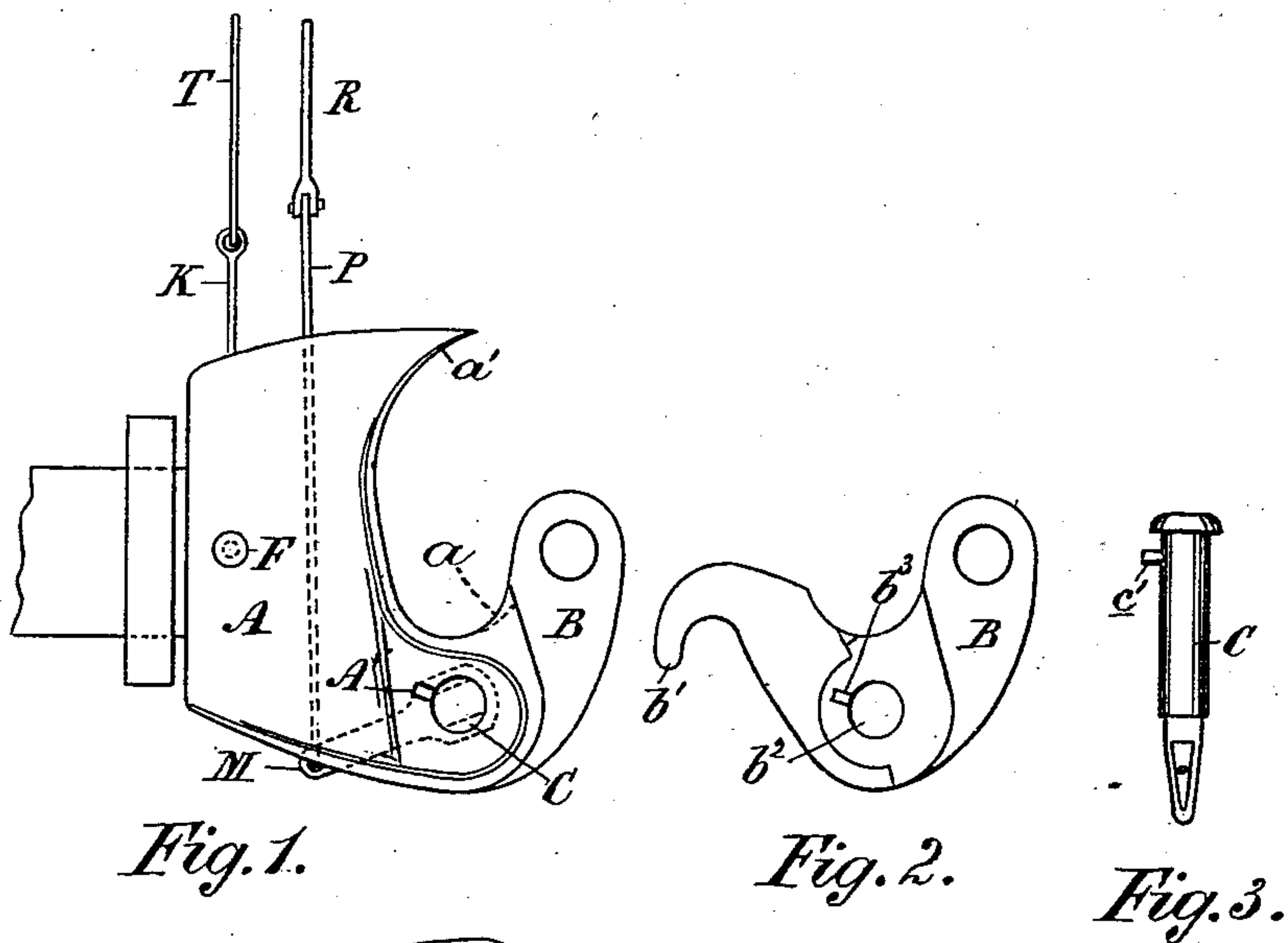
(No Model.)

2 Sheets—Sheet 1.

M. J. GRADY & R. McMILLAN.
CAR COUPLING.

No. 563,166.

Patented June 30, 1896.



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(No Model.)

2 Sheets—Sheet 2.

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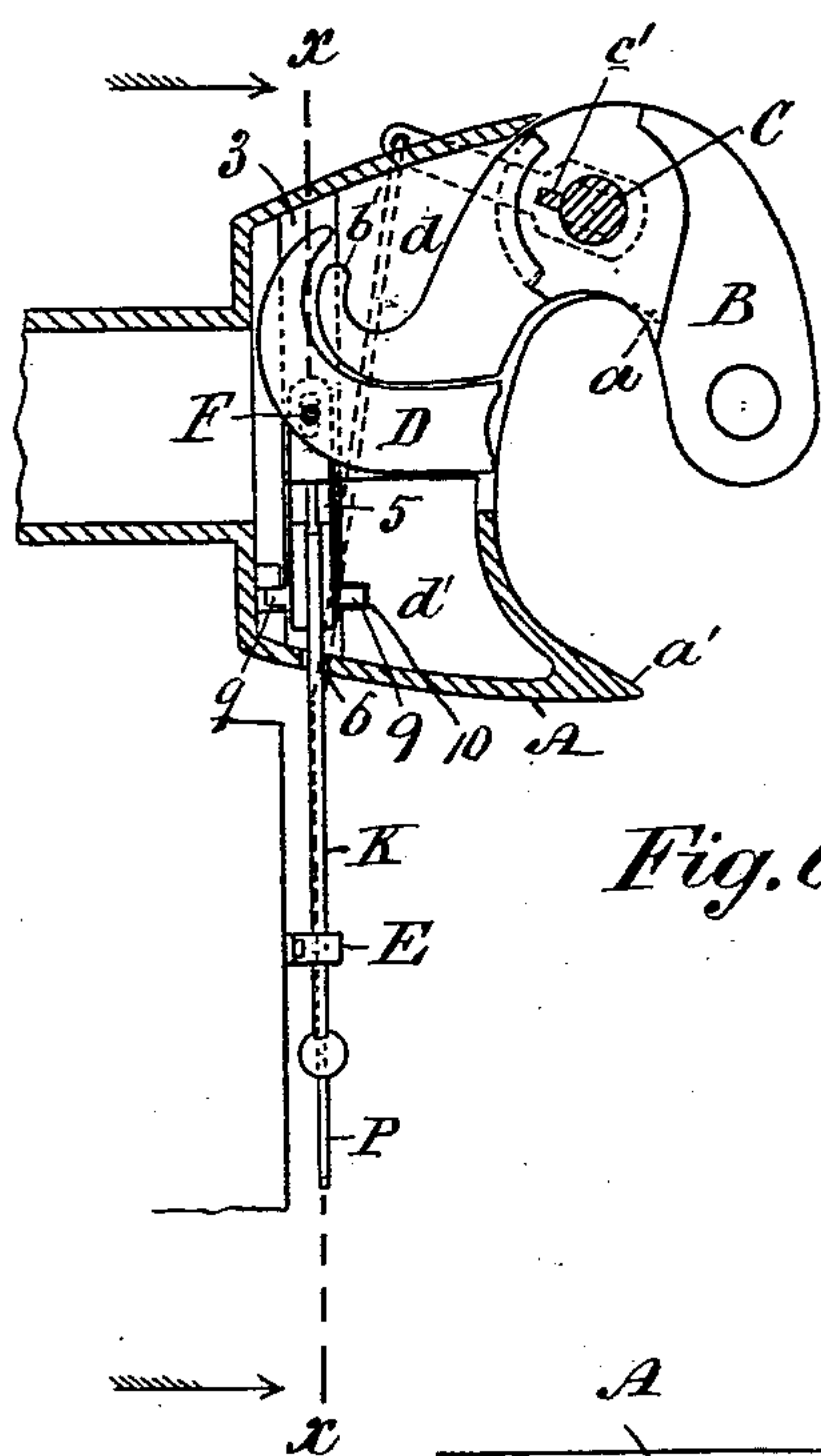


Fig. 6.

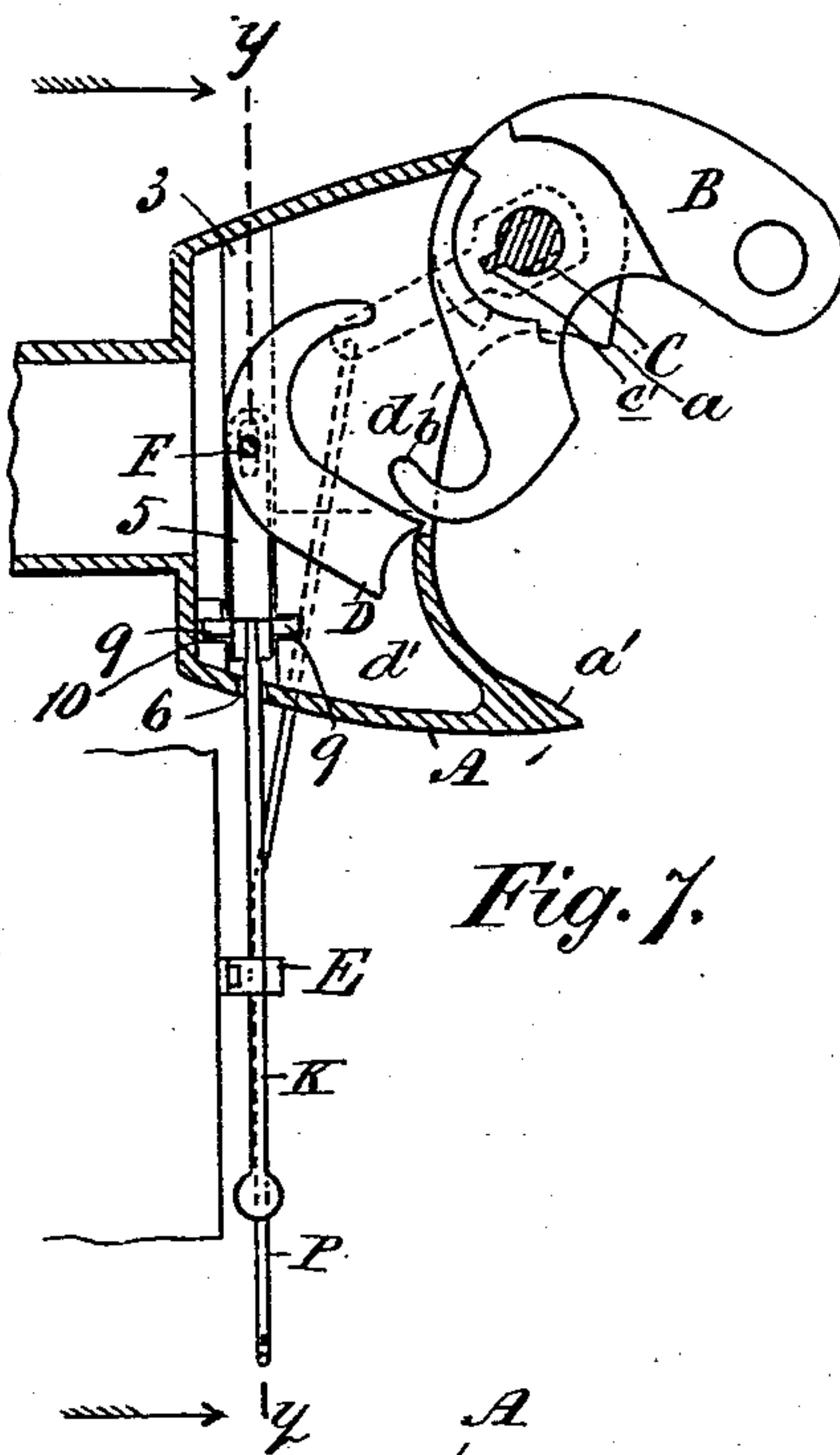


Fig. 7.

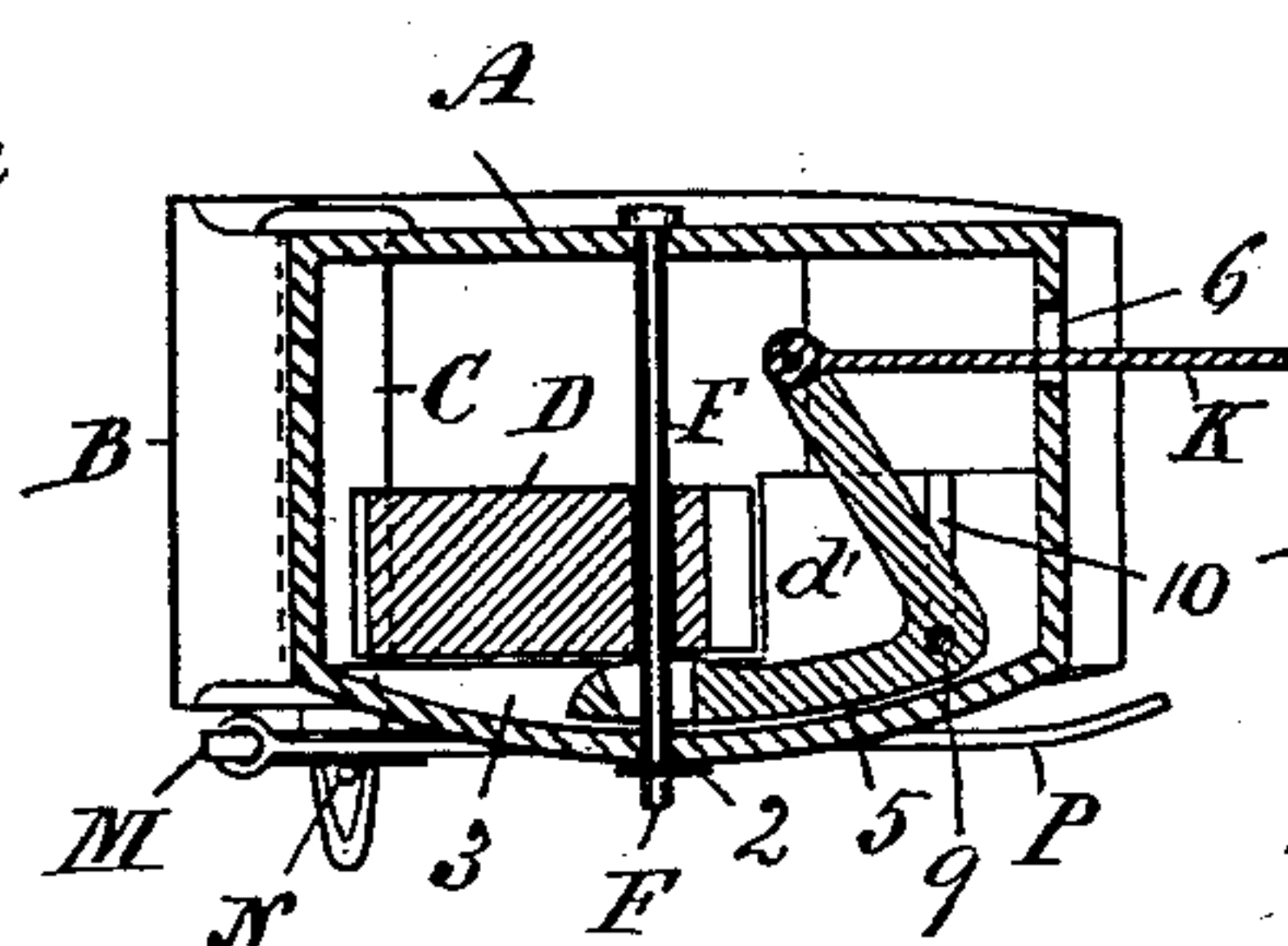


Fig. 8.

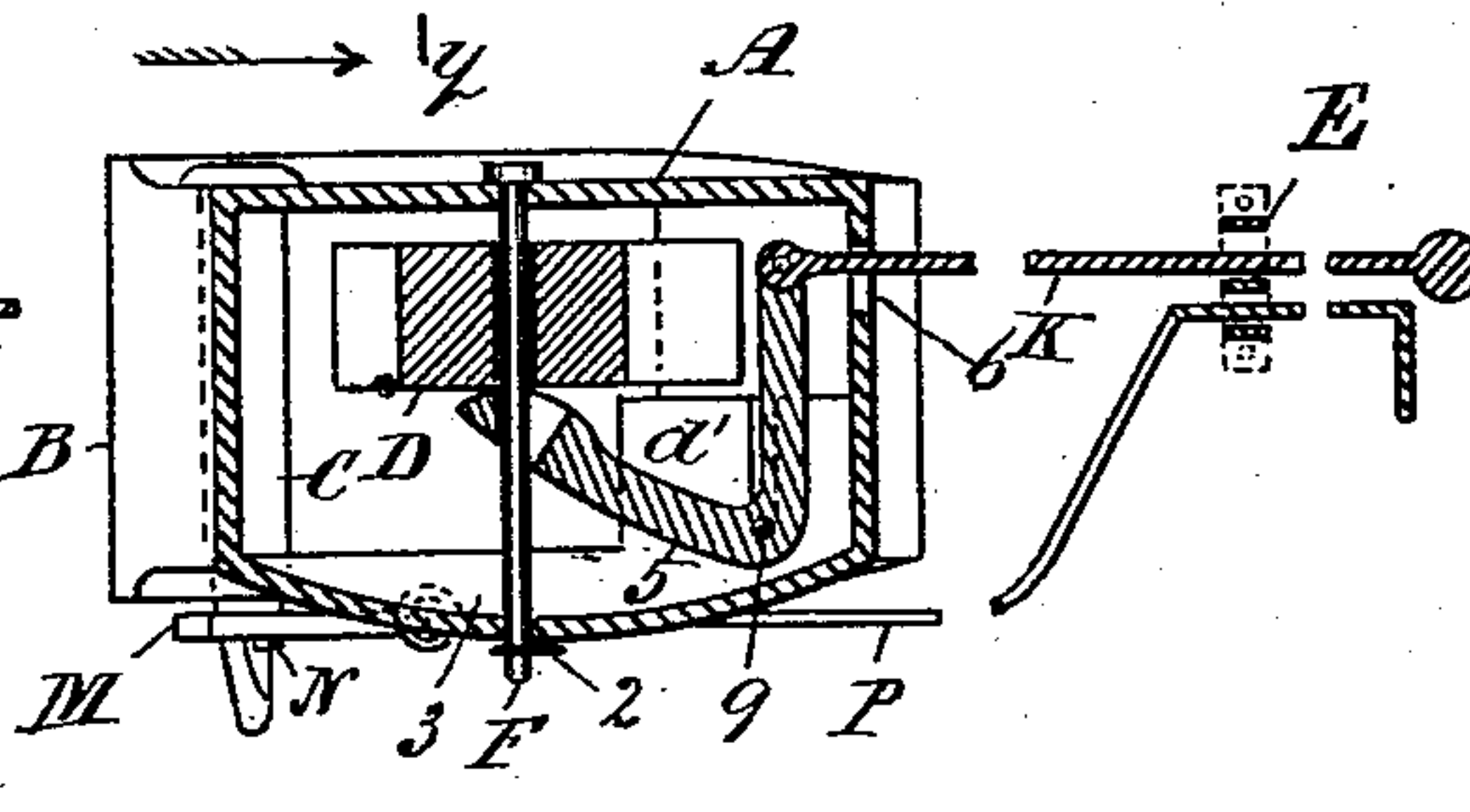


Fig. 9.

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UNITED STATES PATENT OFFICE.

MICHAEL JOHN GRADY AND RICHARD McMILLAN, OF KINGSTON, CANADA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 563,166, dated June 30, 1896.

Application filed April 30, 1896. Serial No. 589,637. (No model.)

To all whom it may concern:

Be it known that we, MICHAEL JOHN GRADY and RICHARD McMILLAN, of the city of Kingston; in the Province of Ontario, in the Dominion of Canada, have invented certain new and useful Improvements in Car-Couplings; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan of a draw-head embodying our improvement. Fig. 2 is a top view of the knuckle detached to show the radial recess in the pintle-hole. Fig. 3 is a view of the pintle or pin to show the radial fin or stop-pin fitting into said recess. Fig. 4 is a plan of the draw-head inverted to show clearly the lever connected to said pintle for operating the knuckle outwardly. Fig. 5 is a front elevation of Fig. 4 to show hand-levers fulcrumed to the end platform of a passenger-car. Fig. 6 is a horizontal section of our improved coupling as applied to a freight-car, the knuckle shown in the position as when coupled. Fig. 7 is a like section showing the knuckle in position ready to couple. Fig. 8 is a section on line *xx*, Fig. 6; and Fig. 9 is a section on line *yy*, Fig. 7.

Our present invention relates to improvements in a car-coupling for which we obtained Letters Patent of the United States dated November 12, 1895, and numbered 549,566; and our invention has for its object to operate the V-shaped knuckle by a lever to open outwardly, to receive the knuckle of the opposite draw-head, thereby dispensing with the inclined face-striking lug within the draw-head.

Our invention consists in connecting the pin or pintle of the knuckle to the knuckle itself by a radial fin or stop-pin projecting from said pin and attaching to the pin a lever operated by a pull or push rod extending to the side of freight-cars or to a lever fulcrumed to the end platform of passenger-cars, to swing the knuckle outwardly into position for coupling by the partial axial rotation of the pin or pintle, and the heel of the knuckle when the locking-block is lifted moves said block, so that one end will be turned to rest in the recess in the side wall of the draw-head ready to couple, and when the knuckle

is struck by the knuckle of the incoming draw-head the locking-block is reacted and falls to effect coupling.

A is the body of the draw-head having arms *aa'*, at the front, which receive immediately the approaching coupling. The draw-head has an internal cavity *d* in front, and the top of one side is extended horizontally to make a shelf or recess *d'* to lodge the locking-block or keeper D at the raised or unlocked or uncoupled position.

B is a V-shaped knuckle having a curved heel *b*, and hinged to arm *a* by a pintle C, passing through the elbow and through jaws on the arm.

D is a curve-shaped keeper or locking-block in the cavity *d*, and in thickness less than one-half the height of the cavity, and said block is pivotally secured in the draw-head by a guide-pin F, passing loosely through the block and through the top and bottom of the draw-head.

The pin F extends below the bottom of the draw-head to a sufficient distance only to apply a cotter-key 2 to prevent it rising when the block is lifted, and the draw-head internally is provided with a transverse depression 3.

5 is an elbow-lever within the cavity of the draw-head and is fulcrumed at the elbow by trunnions 9, bearing in vertical grooves 10 in the walls of the draw-head. One arm of said lever rests in the depression 3 and under the locking-block D, so that said block will be flat against the bottom of the draw-head to engage the knuckle B in coupling. The lever 5 is connected to a pull-rod K, which extends through a slot 6 in the side of the draw-head, and is provided with a stop or bend to engage a staple E, fixed to a freight-car to hold the rod stationary when said lever is operated from the ground, but when used on passenger-cars said lever 5 is connected to a lever T, fulcrumed to the end platform.

When rod K is pulled, lever 5 lifts the keeper or locking-block D to a plane with the recess *d'*, and the knuckle swings outwardly by the pull of the opposite coupling. In uncoupling, the curved heel *b* will swing one end of the locking-block into the recess to lodge the block in the raised position, ready to be dislodged to effect coupling.

When the knuckle of the approaching draw-head strikes the face of knuckle B, the knuckle swings inwardly and the curved heel *b* engages the curved heel of the locking-block and dislodges it from the recess *d'*, so that when the two couplings are in coupling-position the locking-block D falls by gravitation below the plane of the recess and intervenes the heel of the knuckle B and the internal side wall of the cavity *d* of the draw-head, and thereby locks the knuckle so that it will retain the knuckle of the opposite draw-head interlocked and coupled.

To swing knuckle B outwardly into position for coupling, the pin-hole *b*² is provided with a radial groove or depression *b*³, and the pintle C is provided with a fin or stop-pin C', which seats in said depression after passing through a radial slot A', extending from the pintle-hole through the top of the draw-head, so connect the pintle and knuckle to move together. The lower end of the pintle is flattened or squared and on it fits the eye of a lever M and is held from dropping by a cotter-key N, passing through the pintle. P is a pull or push rod connecting the operating end of said lever to the lower end of a vertical lever R, fulcrumed to the end platform S of a passenger-car, so that when the locking-block is lifted to uncouple, as aforesaid, by operating the lever T, lever R will, when moved by the hand or foot, cause a partial rotation of the pintle and swing the knuckle B outwardly to receive the knuckle of the approaching draw-head.

U is a standard fixed to the platform of a car close to lever T, and said standard is provided with a notch at *t*, with which the lever engages when so placed by hand to re-

tain the locking-block D at the raised position to permit knuckle B to swing inoperatively or without coupling.

Prior to coupling, lever T is placed at the locked position to lift the locking-block D level with the recess *d'*. Lever R is then moved to swing knuckle B outwardly and move one end of the locking-block into the recess. Lever T is then loosened and the knuckle of the approaching draw-head interlocks and swings knuckle B inwardly, its heel moving the locking-block to effect gravitation and falls between the wall of the draw-head and the knuckle to effect coupling.

We claim as our invention—

The combination with the draw-head having an internal side recess *d'*, of the curved and gravitating locking-block D, sliding on a vertical guide-pin F, passing through the draw-head, an elbow-lever 5, fulcrumed within the cavity of the draw-head and connected to a pull or push rod K, to lift said locking-block, a V-shaped knuckle B, provided with a curved heel *b*, engaging said locking-block and having a pintle-hole provided with a depression or recess *b*³, a pintle C, having a fin or pin C', fitting into said recess, a lever M, connected to the lower end of said pintle and a pull or push rod P, attached to said lever, whereby the heel of the knuckle moves the locking-block to effect coupling, and the knuckle swings outwardly by the operation of the rod to a position for coupling, as set forth.

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I. B. McIVER.