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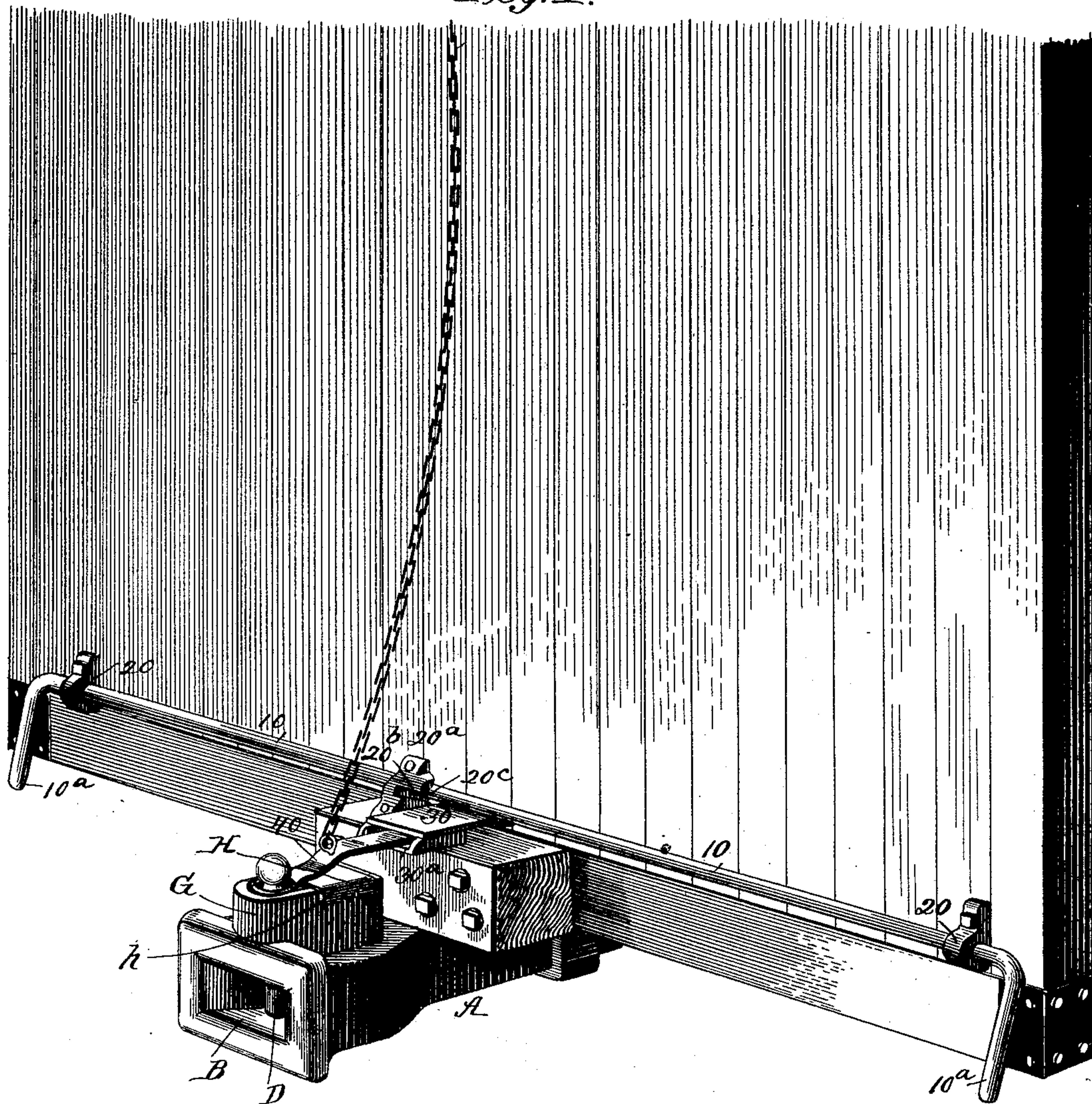
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W. H. VIOLETT.  
CAR COUPLING.

No. 481,446.

Patented Aug. 23, 1892.

*Fig. 1.*



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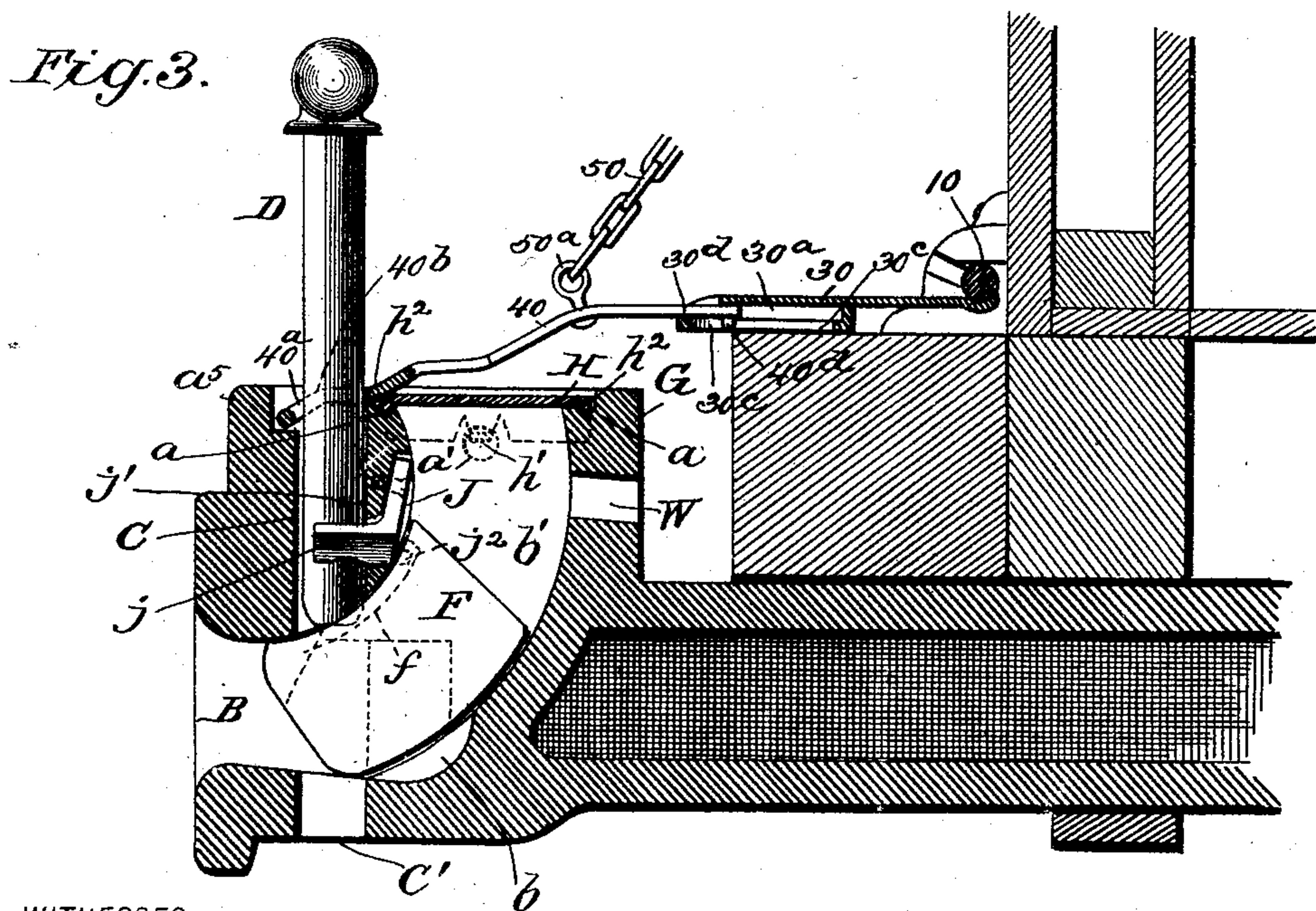
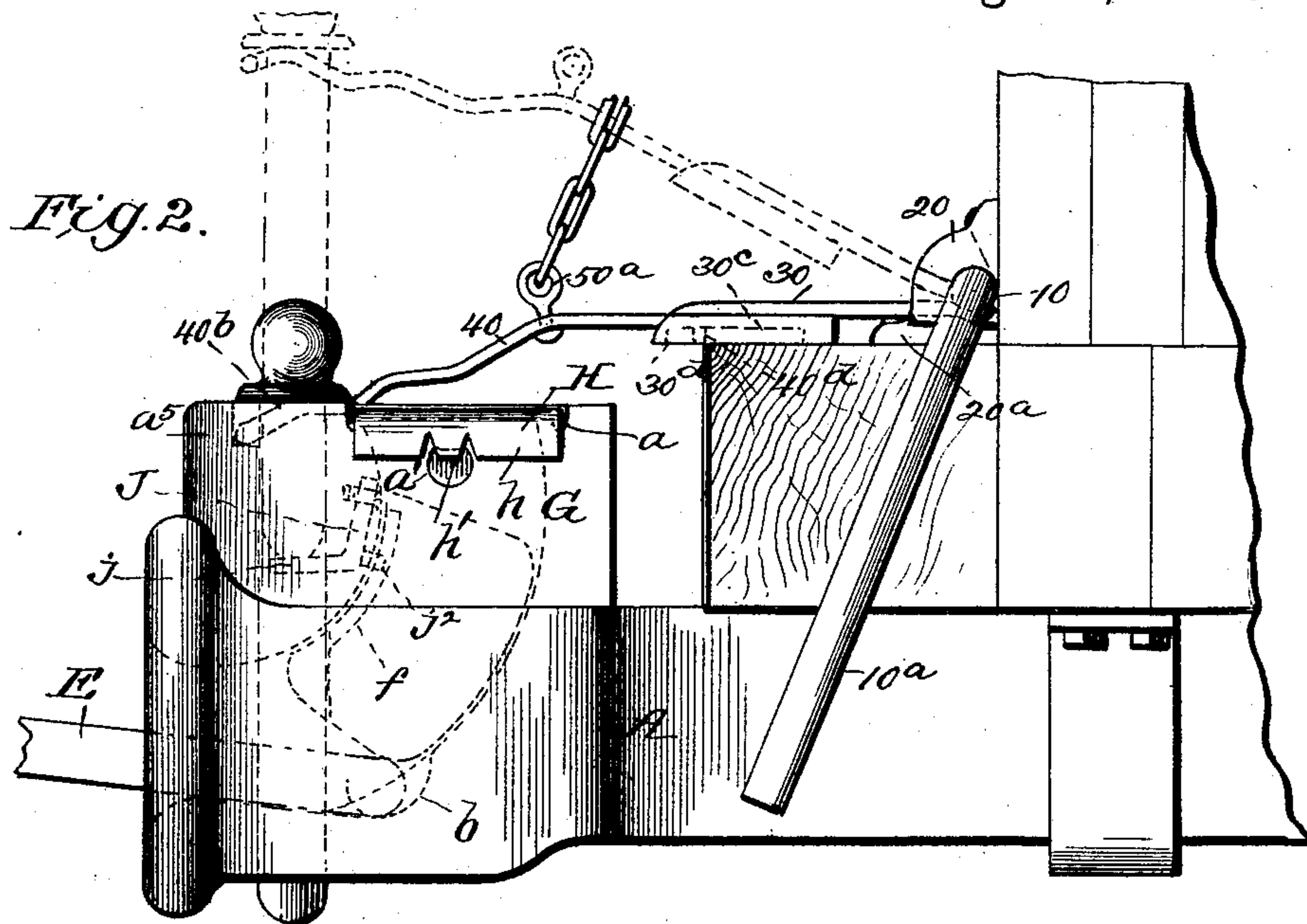
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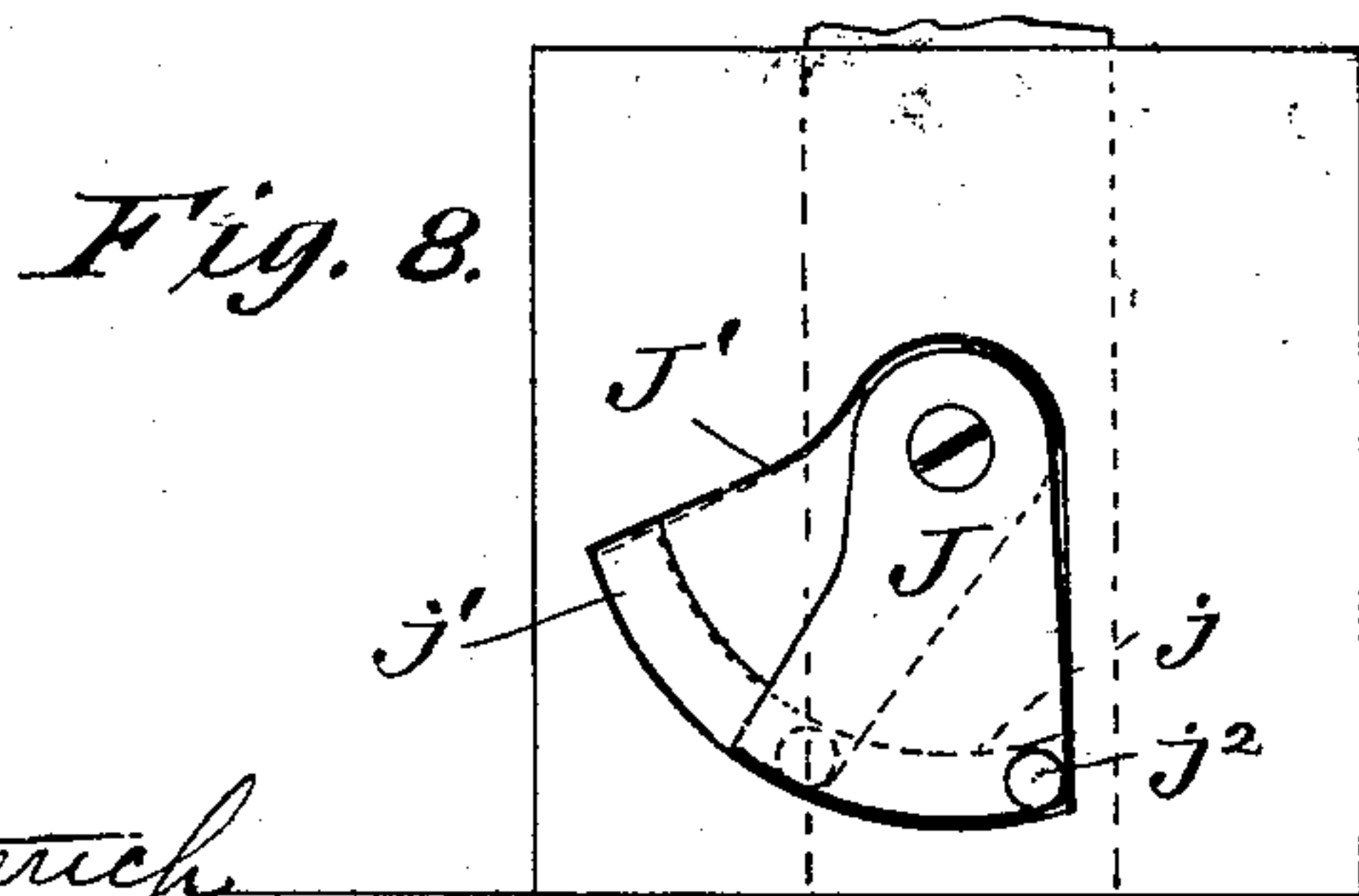
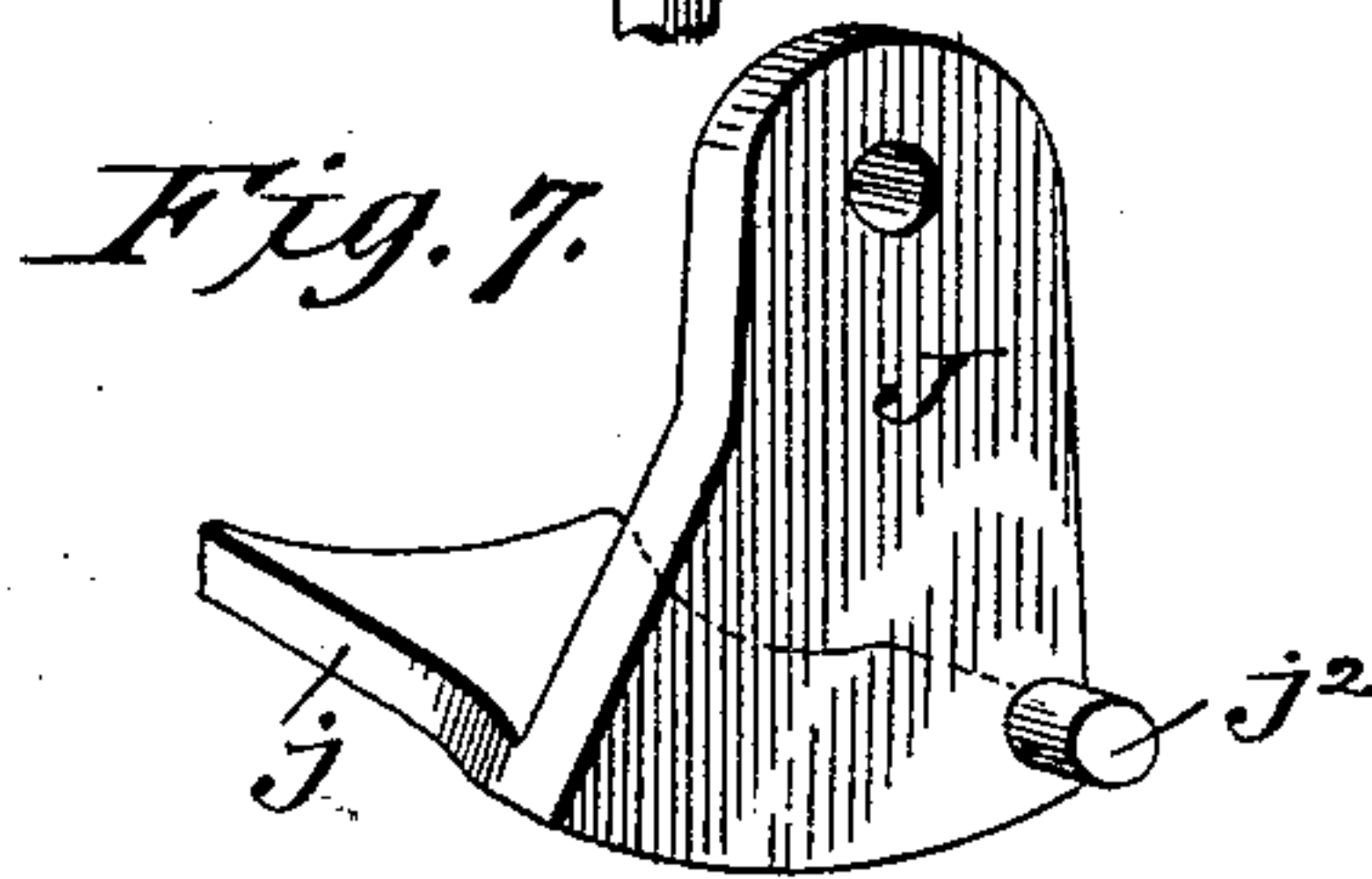
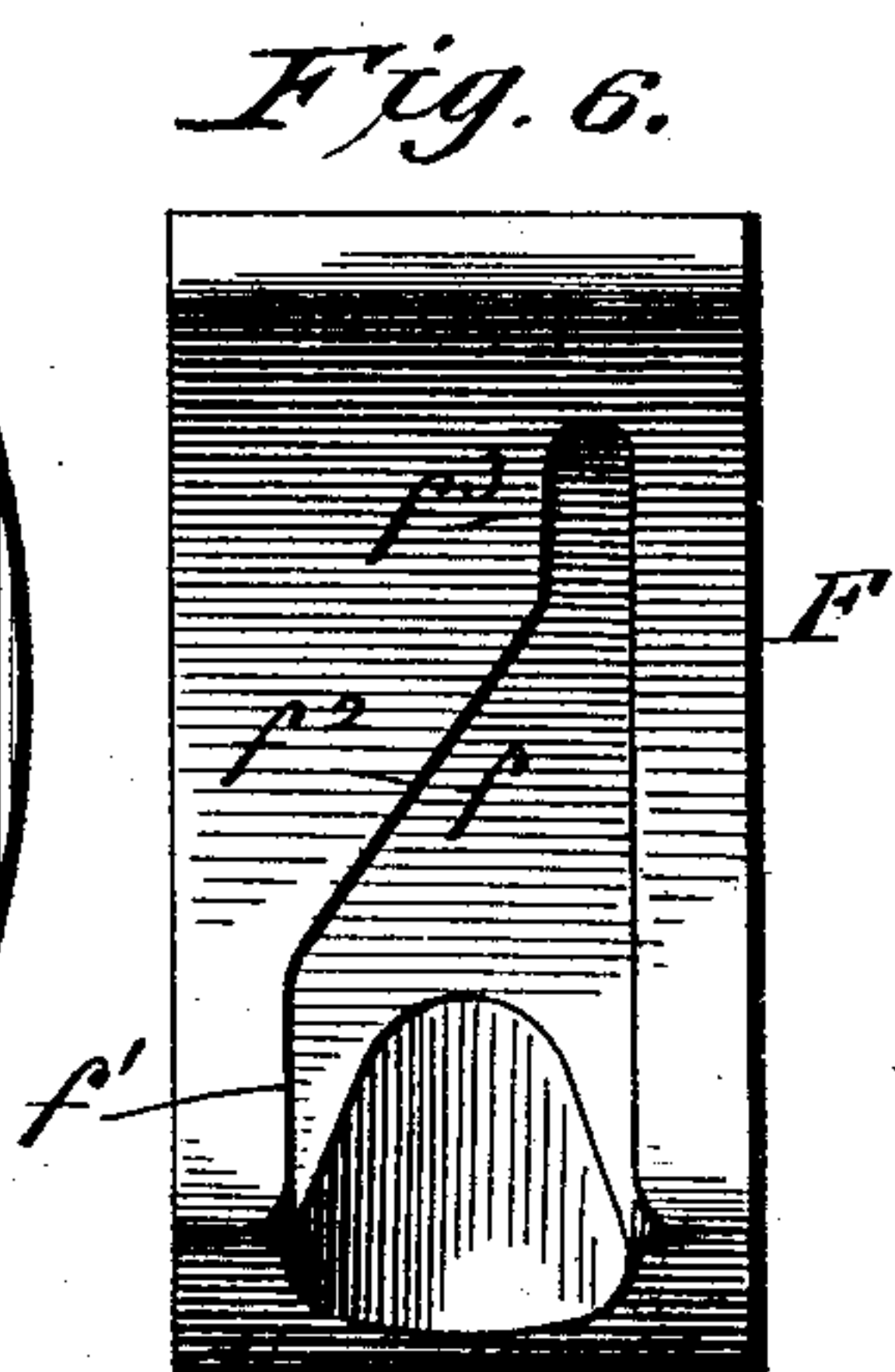
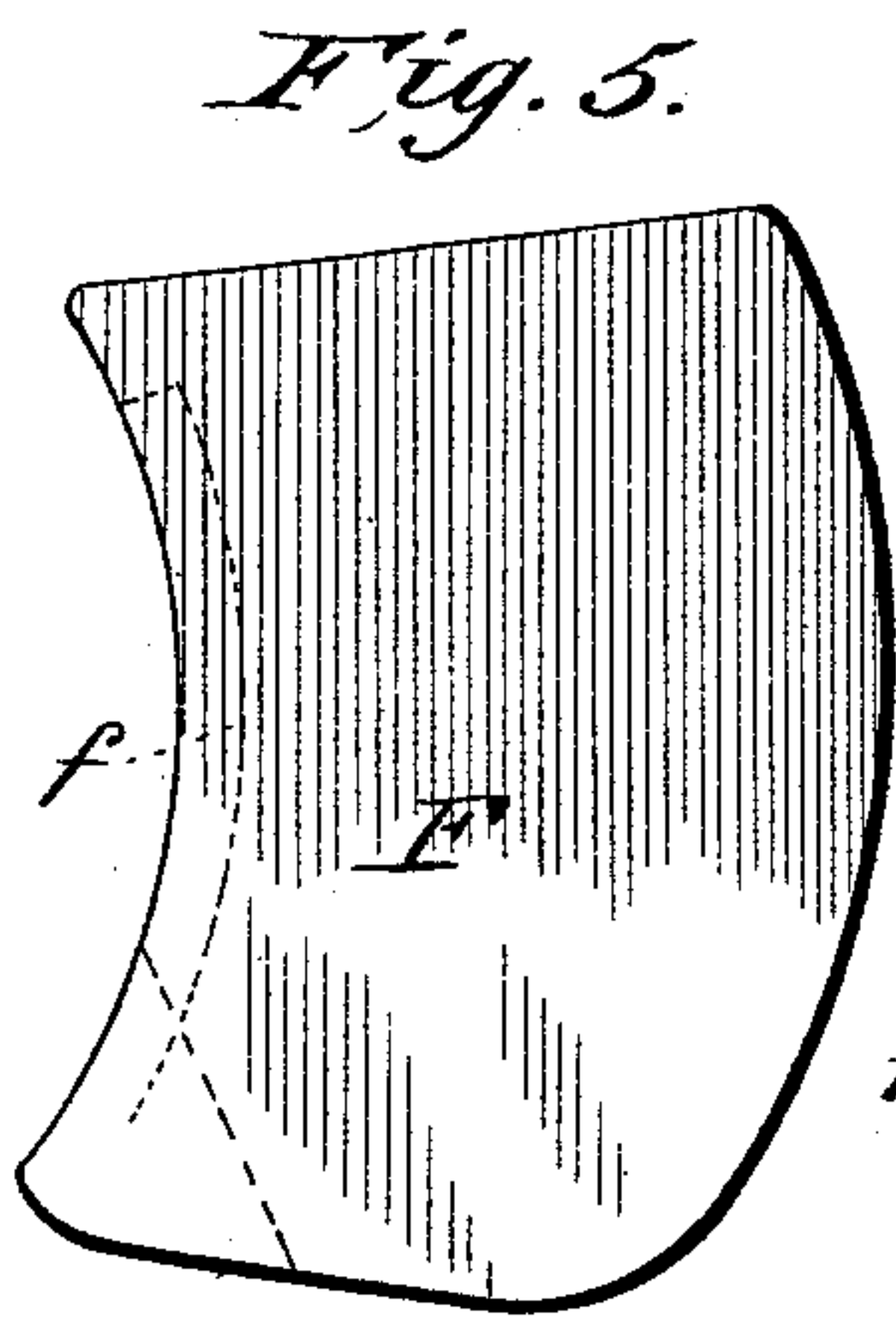
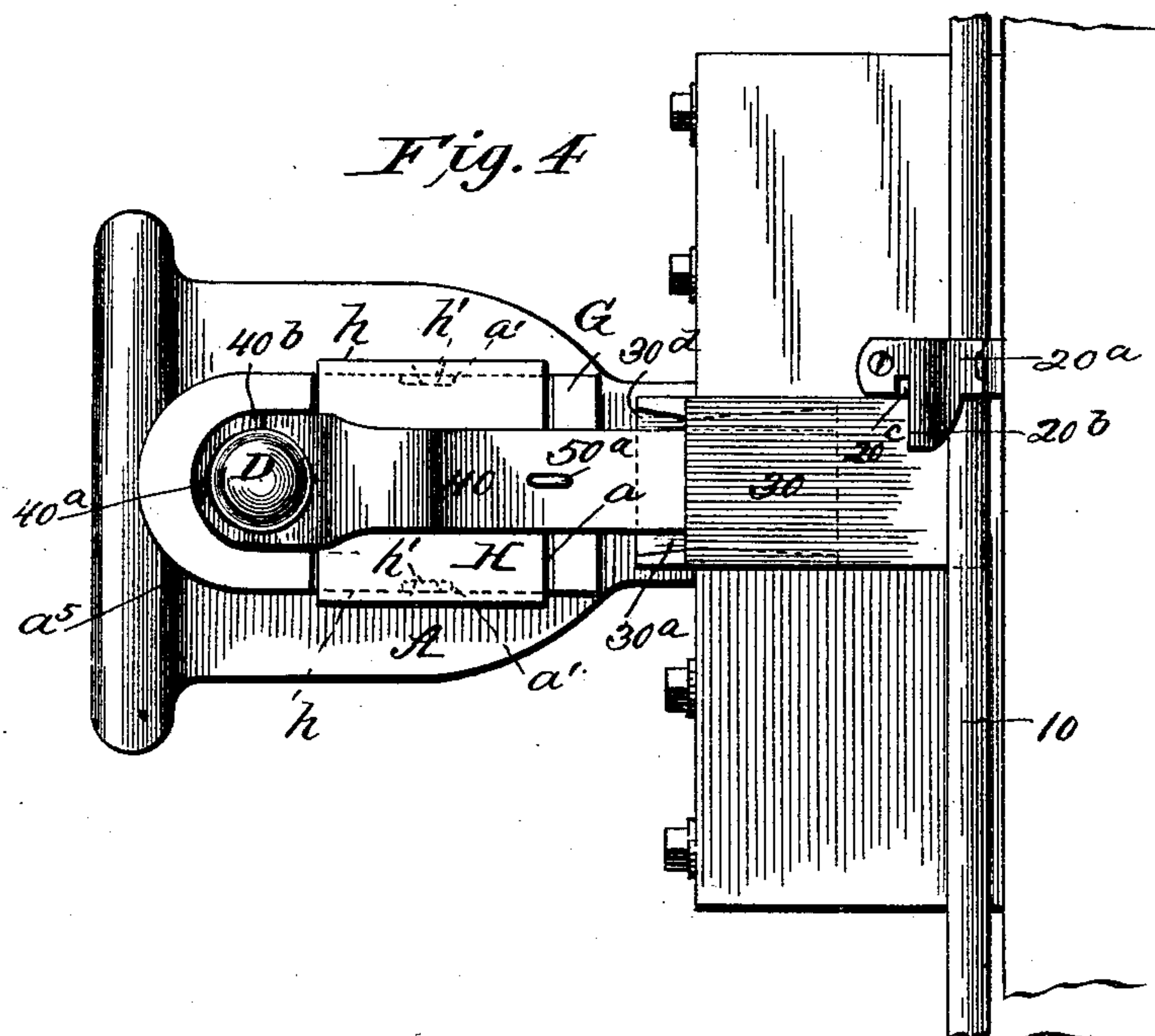
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# UNITED STATES PATENT OFFICE.

WILLIAM H. VIOLETT, OF GRAND JUNCTION, COLORADO.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 481,446, dated August 23, 1892.

Application filed March 22, 1892. Serial No. 426,034. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. VIOLETT, residing at Grand Junction, in the county of Mesa and State of Colorado, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention has for its object to provide an improved car-coupler having automatic pin holding and coupling devices; and it consists in the peculiar combination and novel arrangement of parts, all of which will be hereinafter fully described in the annexed specification and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved coupler as applied for use. Fig. 2 is a side view of the same. Fig. 3 is a vertical longitudinal section of the draw-head and coupling devices. Fig. 4 is a top view of the same. Fig. 5 is a detail view of the combined pin-support and link-holder. Fig. 6 is a similar view of the auxiliary pin-holder; and Figs. 7 and 8 are detail views hereinafter referred to.

Referring to the accompanying drawings, A indicates the draw-head, which may be made in the ordinary form, having the link-mortise B and the upper and lower pin-apertures C C', in which the pin D is held to operate to engage and secure the link E. The rear portion of the mortise B is extended diagonally upward, preferably curved, as shown at B', such extension being provided to receive a combined gravity pin-support and link-weight F, the construction of which is most clearly illustrated in Figs. 2 and 5 of the drawings, by reference to which it will be seen that when the link E is in position the weight F will rest upon the rear end of such link and hold its forward end elevated to facilitate its entrance into the link-mortise of a meeting draw-head.

To accommodate the different-shaped links, more especially those which have their ends welded and thickened, the lower rear end of the link-mortise has a concaved depression b, which receives such thickened ends, and the base portion of the mortise being also depressed or inclined rearward from its mouth, so as to allow for a free play of the weight F

and allow it to project well under the pin, when it acts as a pin-rest.

It will be noticed by reference to Fig. 3 that the tap of the draw-head has a vertical extension G, which serves as an abutment to receive the force of the shock, when the draw-head is forced back against the sill of the car, when the pressure is greater than the spring can sustain. The vertical portion B' of the link-mortise extends up to the top of the extension G and is held closed by a cover-plate II, which serves to keep the snow, sleat, cinders, &c., from falling into the mortise B' and interfering with the operation of the weight F and the supplemental pin-holder J, presently referred to.

Means such as shown are provided for holding the plate in place, which consist in forming the edges h with cut-out portions to form lips h', which are bent inward and enter depressions or holes a' in the sides of the draw-head, which lips can be bent out by a suitable tool when it is desired to remove the plate for repairs, &c.

At the front and rear ends of the seat portion of the extension G, on which the plate H fits, transverse grooves a are formed, in which fit flanges h<sup>2</sup> on the plate, which, in connection with the side flanges h, effectually serve to prevent the entrance of rain or snow into the mortise B'.

So far as described, it will be observed that when the pin is elevated and held up by the weight F the entrance of the link will raise the weight up into the mortise B' until its forward end passes from under the pin, which then drops and secures the link, and such weight then rests upon the rear end of the link and holds it elevated, as before stated.

The uncoupling devices, which are most clearly shown in Figs. 1, 3, and 4, consist of the rack-bar 10, journaled in bearings 20 on the front of the car-body, the ends of which extend to the side of the car and are formed into depending handle portions 10<sup>a</sup> 10<sup>a</sup>. Centrally the bar 10 is formed with an outwardly-projecting horizontal arm 30, having a socket portion 30<sup>a</sup>, in which is held for lateral and longitudinal adjustment a lifting-arm 40, the forward end of which has an elongated opening 40<sup>a</sup>, which embraces the pin below its head d, as shown.



It will be noticed by reference to Fig. 3 that the front end of the arm is bent downward, as at 40<sup>b</sup>, so that as it raises the pin its bearing-point will always be midway under the head  $d$  to insure its moving vertically, and such front end of the arm 40 is protected from breakage by the upwardly-extending portion  $a^5$  of the draw-head, as shown. By this construction it will be observed that when the draw-head is forced rearward the arm 40 will be pushed back into the socket 30<sup>a</sup>, it being formed with a guide-lug 40<sup>d</sup>, which fits and works in a slot 30<sup>c</sup> in the member 30<sup>d</sup> of the socket-plate 30, such lug also serving as a pivot for the arm 40 as it moves laterally with the draw-head, the socket 30<sup>a</sup> being of such width as to permit such lateral movement, the lug 40<sup>c</sup> also serving to hold the arm 40 from becoming accidentally detached from the arm 30.

50 indicates a lifting-chain, which is connected to the arm 40 at 50<sup>a</sup> and extends up to the top of the car, as shown.

The central bearing 20<sup>a</sup> is formed with an abutment 20<sup>b</sup>, which limits the upward movement of the arm 30 and prevents the pin being withdrawn from the upper pin-hole, and in one face of such bearing is formed a diagonal recess 20<sup>c</sup>, which is provided for the following purpose:

When it is desired to raise the pin and secure it so that it will not drop when the cars are bumped together, the arm 30, as it is swung up, is moved sidewise (by pushing the rack-bar 10 sidewise in its bearings) until it engages the recess 20<sup>c</sup>, which will serve to hold such arm 30, the lifting-arm 40, and the pin elevated until the rack-bar is again pulled back to release the arm 30 from the recess.

As it is often desired to so adjust the coupling pin or pins of a train when the cars are pushed or bumped together that the cars will uncouple when the engine pulls out, I provide a supplemental pin-support which, when the pin is lifted but the link not withdrawn, will serve to automatically adjust itself under the elevated pin and hold it so long as the link remains in the link-mortise.

Referring now more particularly to Figs. 6, 7, and 8, J indicates the pin-holder, which consists of a gravity-plate pivoted at its upper end and held in a recess J' in the front face of the mortise B' and having a horizontal member  $j$ , which operates and projects forward through a segmental slot  $j'$ , such member, when the pin is raised, extending into the upper pin-aperture and under the pin, as shown.

To provide for automatically disengaging the pin-support when the link is pulled out, I arrange such holder with a rearwardly-projecting lug  $j^2$ , which engages a cam-groove  $f$  in the main pin-support F, such groove being of the construction shown in Fig. 6, by reference to which it will be seen that it has a straight portion  $f'$ , an inclined wall  $f^2$ , and an upper seat portion  $f^3$ .

In operation, when the pin is elevated and the link remains in the mortise, the main support F is elevated, bringing, as it were, the enlarged part of its cam-groove in line with the lug  $j^2$  on the holder J, which holder, so soon as the bottom of the pin passes the flange J', will swing under the pin and hold it so long as the weight F remains in its up position. When the link is withdrawn, the weight F drops under the upper pin-aperture, and in such movement the inclined portion of its cam-groove engages the lug  $j^2$  and swings the support J laterally from under the pin, which then drops and is held on the main weight or holder F, the lug  $j^2$ , when the said support F is in its lowermost position, being in engagement with the upper seat part  $f^2$  of the groove, which thereby holds the supplemental support to one side to allow a free movement of the pin in the upper pin aperture.

W indicates a hole in the rear wall of the extension G, in line with the pivot-screw of the holder J, such hole being for the purpose of admitting a drill or other tool necessary to adjust the said screw in place.

By arranging the link-mortise as described it will be seen that the movement of the link in the mortise is limited by the solid inclined rear wall, and by providing the depression at the rear portion provision is made for accommodating the thick end of the link, thereby always insuring the elevation desired for its front end.

From the foregoing description, taken in connection with the drawings, it will be seen that my improved coupler presents many advantages, in that the main and supplemental pin-supports are operated by gravity, are both constructed so that all their parts are protected from the weather, and the use of springs is entirely avoided.

The operation of the supports is entirely automatic, the relation of the main and supplemental supports being so simple that the danger of breaking and defective operation is reduced to the minimum.

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

1. An improved car-coupler having a draw-head, a coupling-pin, a main pin-support operating in the link-mortise, a gravity-pin holder operating in the upper pin-aperture, adapted to swing under the pin when elevated and arranged to be swung out of such position by the main support as it drops under such pin-aperture, substantially as and for the purpose described.

2. The combination of the draw-head, a gravity-pin support operating in the link-mortise, formed with a cam-groove, a pin-holder operating in the upper pin-aperture, having a projection fitting the groove in the main pin-support, the said holder adapted to swing under the pin when elevated, its projection adapted to be engaged by the main support when the said support drops to its



lowermost position to support the pin, substantially as and for the purpose described.

3. In a car-coupling, the combination of the draw-head formed with the usual pin-apertures and with an upwardly-projecting portion forming an abutment, the link-mortise having an upwardly and rearwardly inclined portion opening through the top of the projecting portion of the draw-head, said portion having depressions in its sides, and a cover-plate formed with lateral flanges having finger portions adapted to be bent into engagement with the said depressions, all arranged as shown, and for the purpose described.

4. The improved car-coupling herein described, comprising the draw-head, the coupling-pin, a main gravity-pin support, a supplemental gravity-pin holder arranged to drop by gravity in one direction and to be swung back by the main support as it drops by gravity, all substantially as and for the purpose described.

5. The improved car-coupling herein described, comprising a draw-head having the usual pin-apertures, the coupling-pin, and formed with a link-mortise having an upwardly and rearwardly extending portion, the main pin-support arranged to operate by gravity in said mortise and formed with a cam-groove, a swinging pin-holder having a body portion operating in said mortise transversely to the main pin-support, said holder having an arm projecting in the upper pin-aperture when down in its operative position, and with a projecting lug arranged for engagement with the cam-groove in the main support, substantially as and for the purpose described.

6. The combination of the draw-head, the coupling-pin, and the pin-lifting mechanism, including a lifting-arm expansible longitudi-

nally and movable laterally and vertically, substantially as shown and described.

7. In a car-coupling substantially as described, a pin-lifting arm expansible longitudinally, substantially as shown and described.

8. The combination, in a car-coupling, with the car-body, the draw-head movable longitudinally, and the coupling-pin, of a lifting-arm hinged to the car-body, its front end connected with the pin, said arm formed of a rigid rear member, and a front member movable longitudinally in the rear member, substantially as and for the purpose described.

9. The combination, with the car-body, the draw-head, and the coupling-pin, of a rock-shaft journaled on the car-body, a pin-lifting arm secured to such shaft, an abutment for limiting the upward movement of the lifting-arm, said arm having its front portion formed extensible and adapted to be moved laterally, substantially as and for the purpose described.

10. In a car-coupling substantially as described, the combination, with the car-body, the movable draw-head, and the coupling-pin, of a rock-shaft journaled on the car-body and movable sidewise in its bearings, one of such bearings formed with an abutment and an upwardly-inclined recess, said shaft having an outwardly-extending rigid arm formed with a socket portion at its end, a pin-lifting arm connected with the pin at its front end, its rear end fitting the socket of the rigid arm and having a pivotal bearing longitudinally movable in such socket, and means for rocking the shaft to lift the pin-arm, all arranged substantially as shown and described.

WILLIAM H. VIOLETT.

Witnesses:

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JOHN B. MANN.