

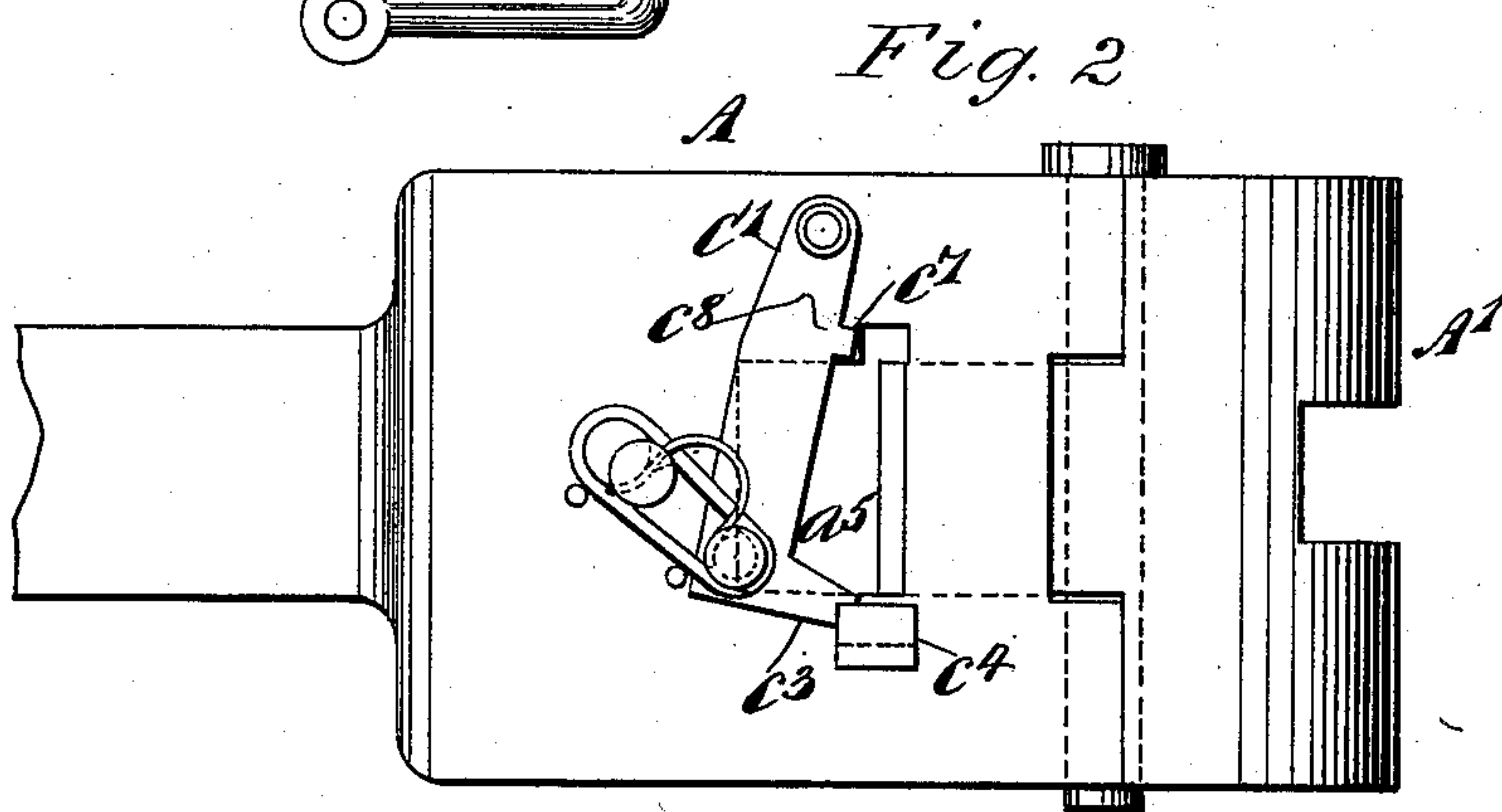
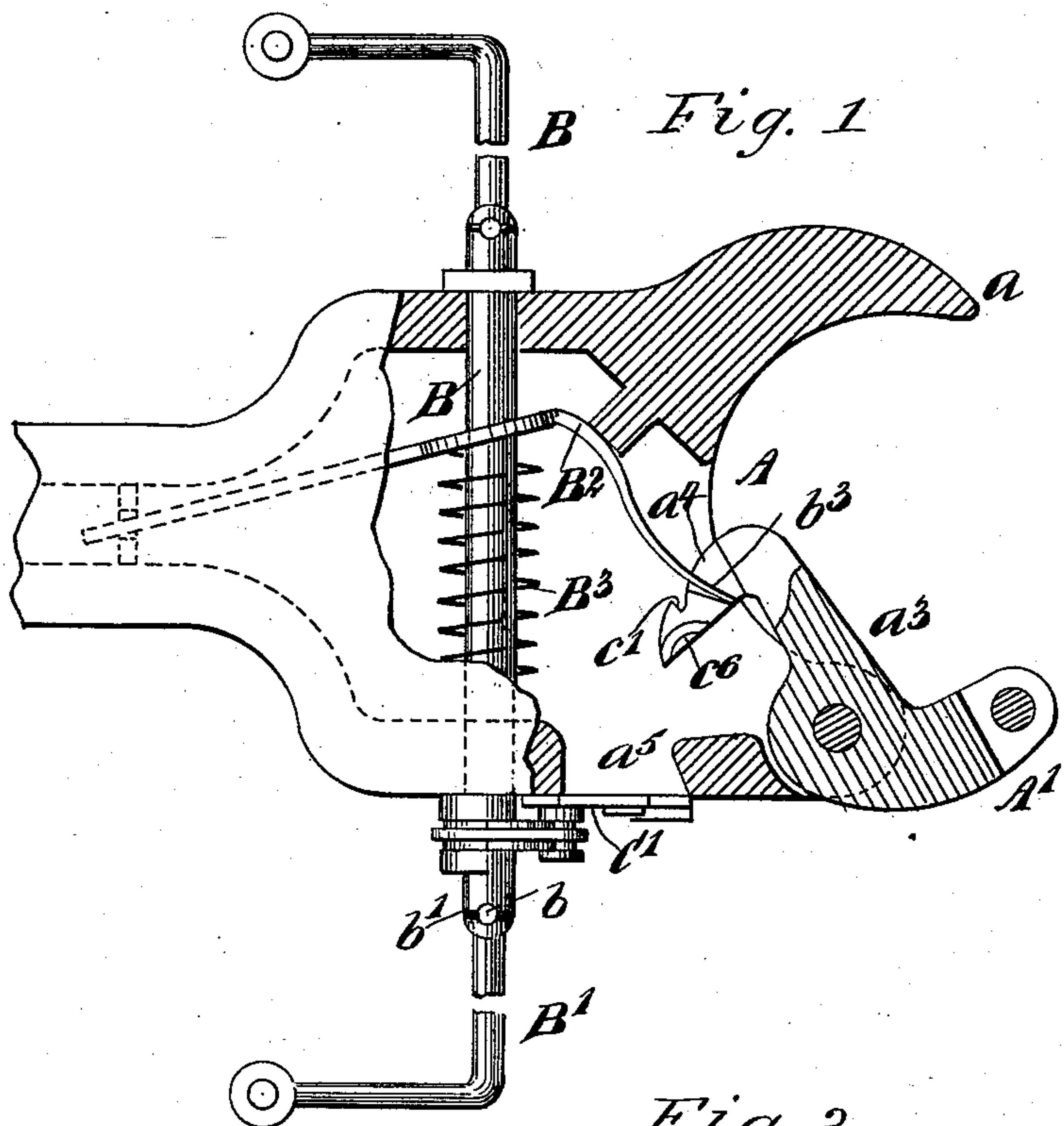
(No Model.)

3 Sheets—Sheet 1.

A. S. WEAVER.
CAR COUPLING.

No. 567,527.

Patented Sept. 8, 1896.



WITNESSES:

J. B. Walker
C. R. Ferguson

INVENTOR

A. S. Weaver.

BY

Munn

ATTORNEYS.

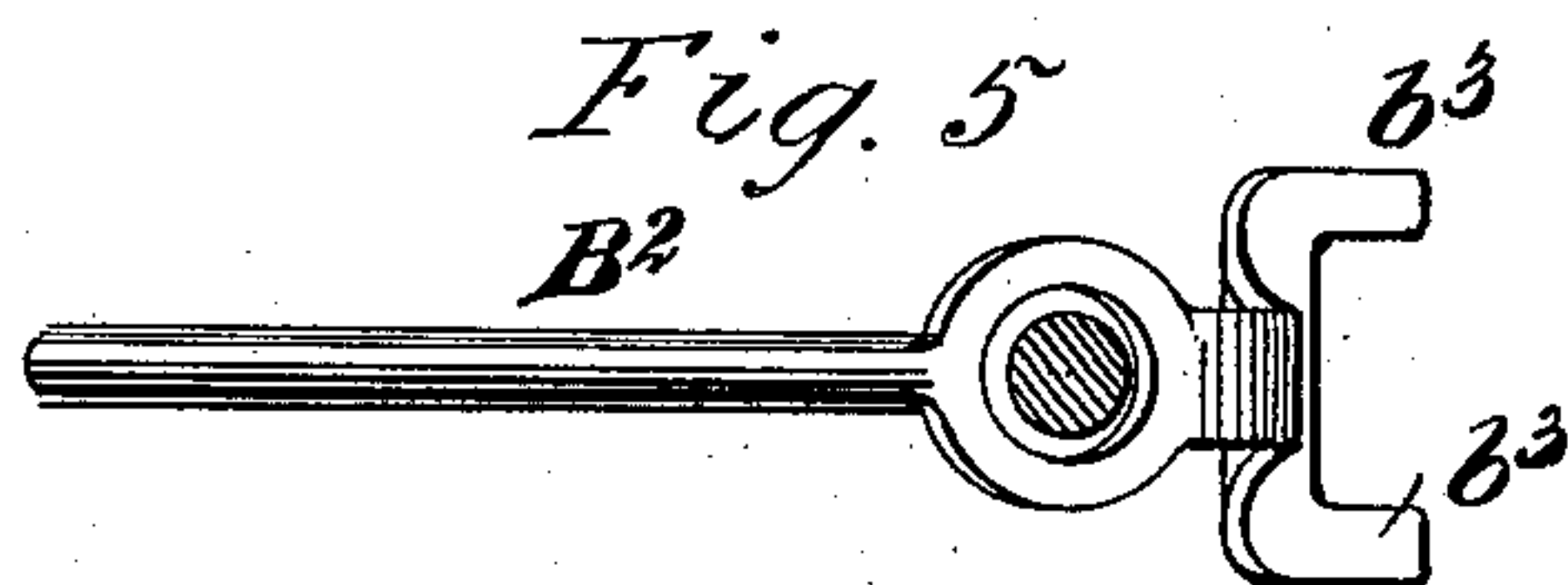
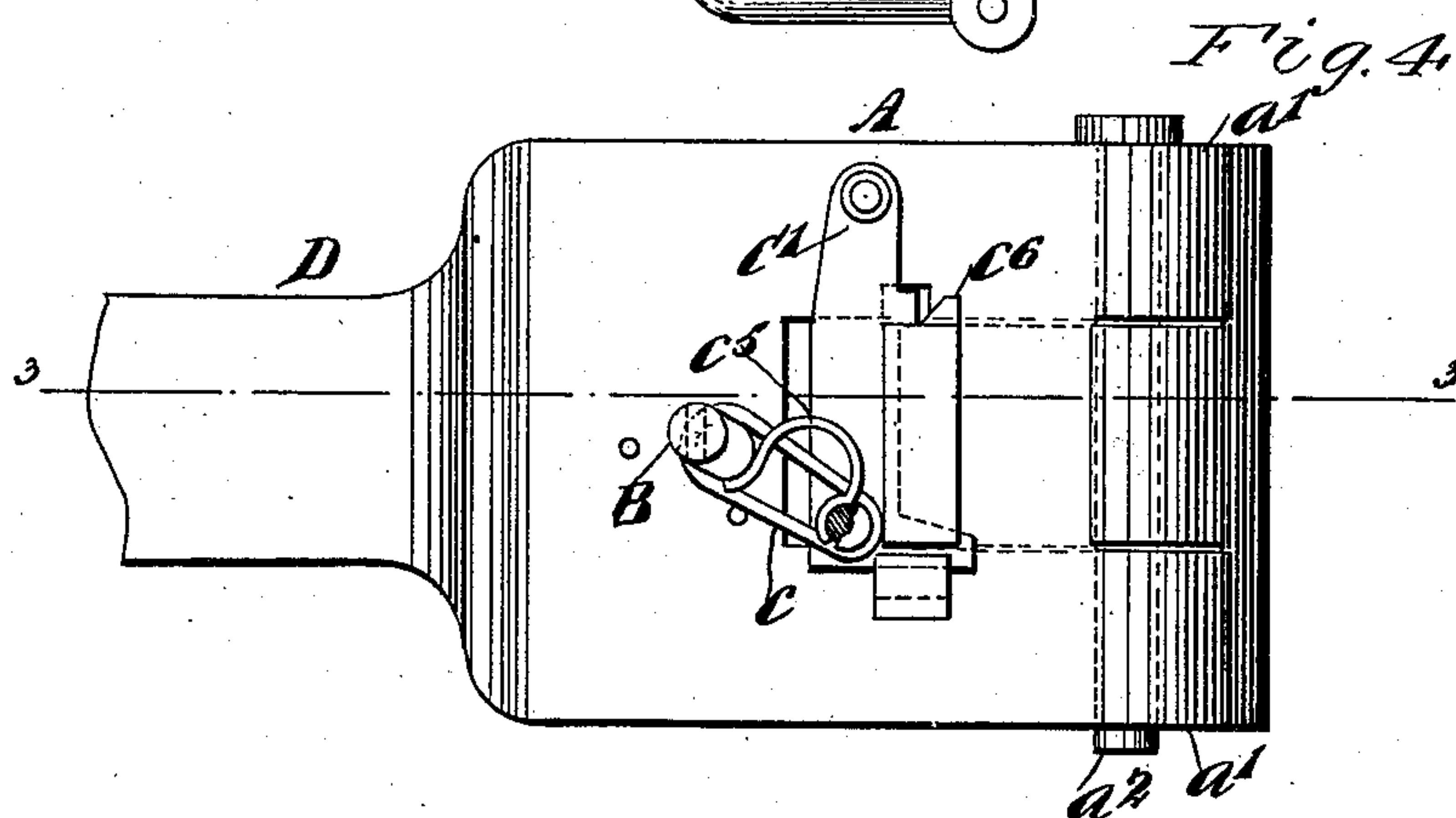
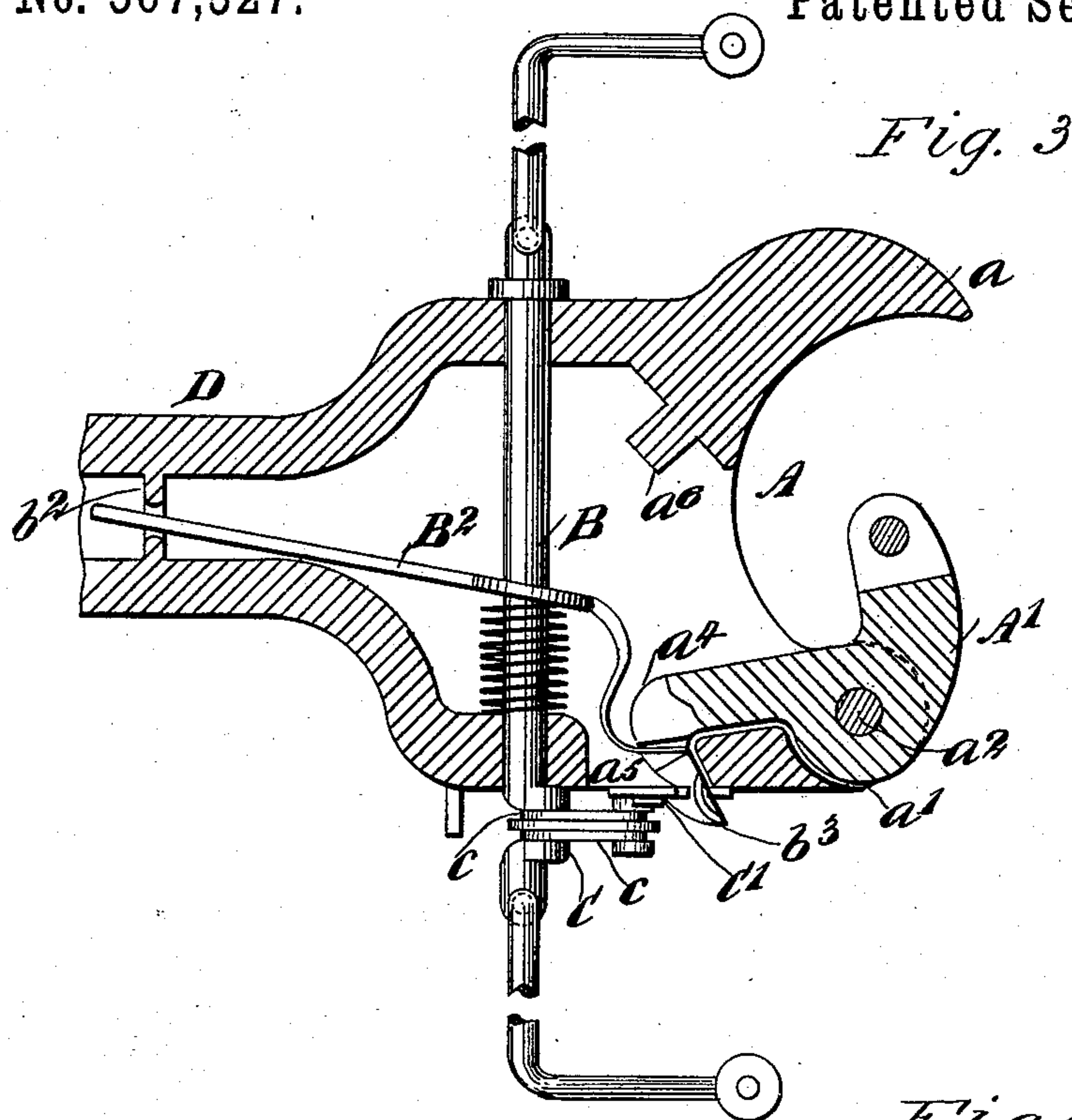
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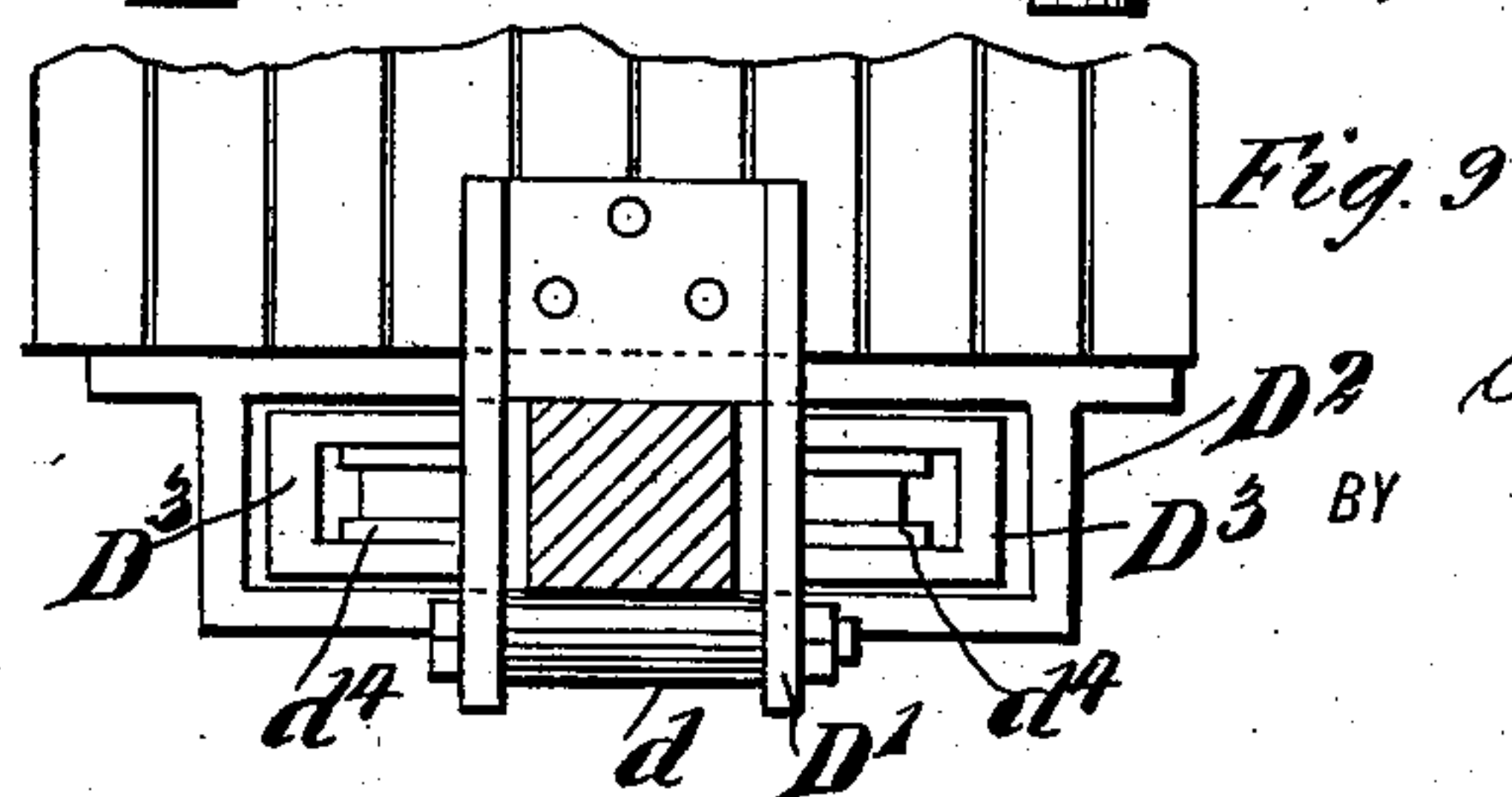
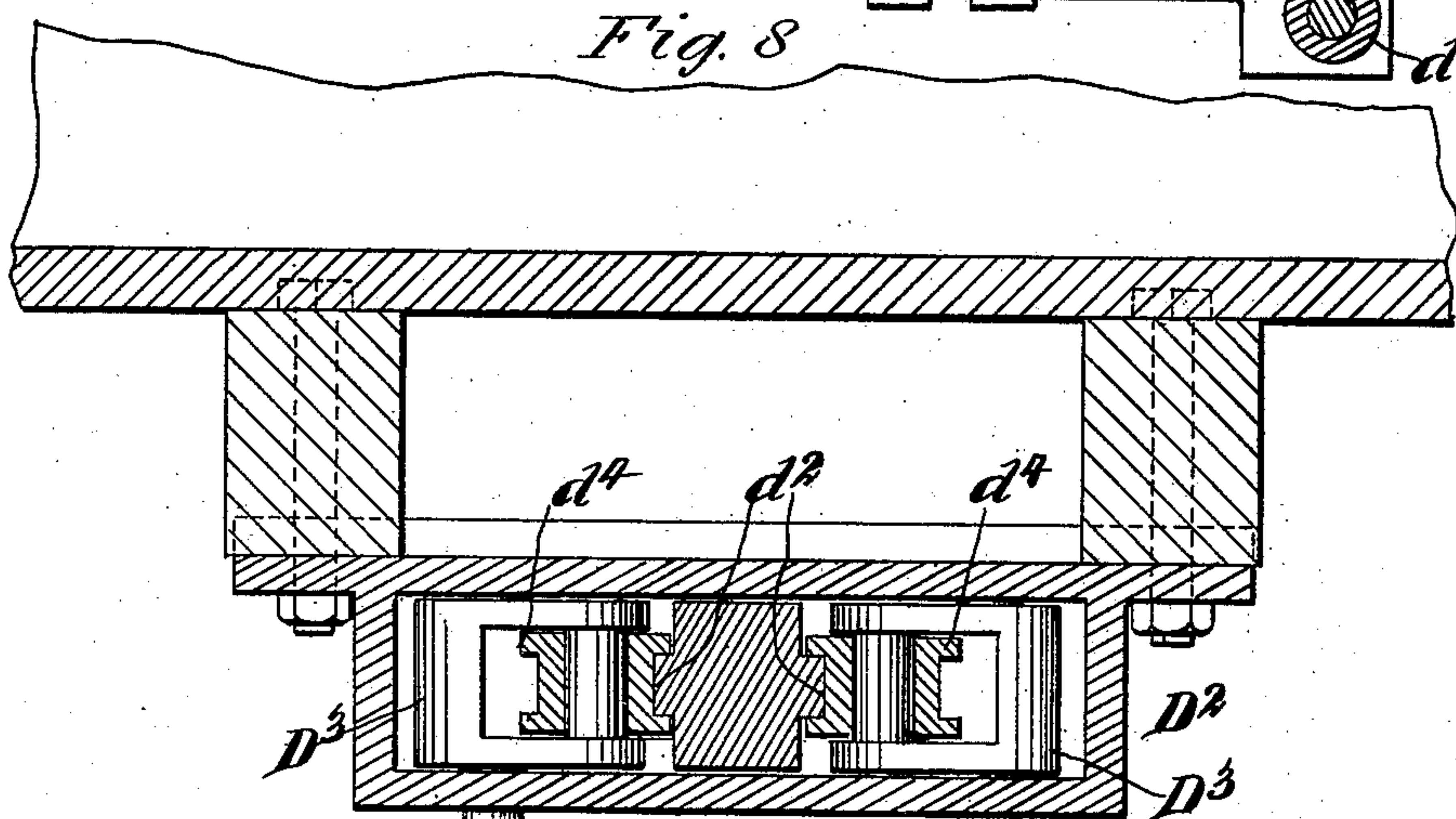
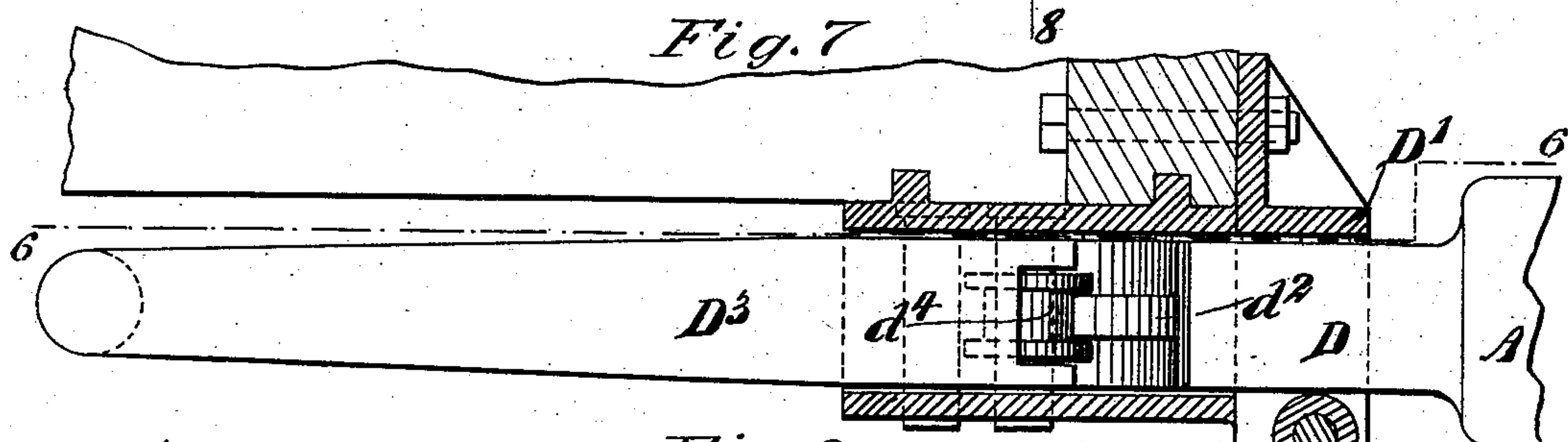
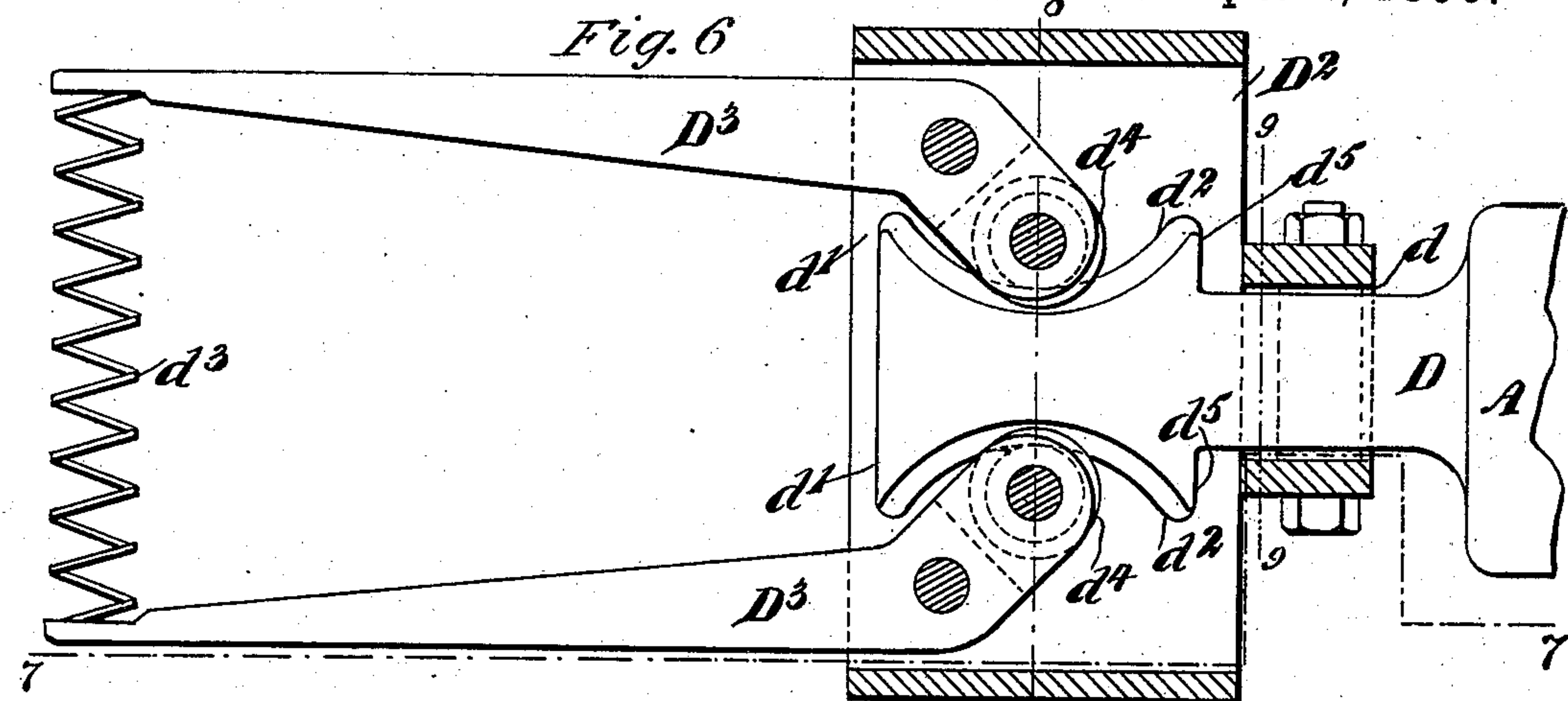
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UNITED STATES PATENT OFFICE.

ANDRUS S. WEAVER, OF NEWARK, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 567,527, dated September 8, 1896.

Application filed January 14, 1896. Serial No. 575,435. (No model.)

To all whom it may concern:

Be it known that I, ANDRUS S. WEAVER, of Newark, in the county of Wayne and State of New York, have invented new and useful
5 Improvements in Car-Couplers, of which the following is a full, clear, and exact description.

This invention relates to car-couplers of the class employing a swinging knuckle; and the
10 main object is to provide a simple automatic means for throwing the knuckle to an open position upon releasing its locking mechanism; and a further object is to provide a strong and serviceable construction whereby
15 shock on the coupling-head is relieved while coupling cars, and also in starting a heavily-loaded train.

I will describe a coupling embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

25 Figure 1 is a horizontal section of a coupler embodying my invention and showing the knuckle as open. Fig. 2 is a side elevation thereof. Fig. 3 is a horizontal section showing the knuckle as closed. Fig. 4 is a side elevation thereof. Fig. 5 is a side elevation
30 of a knuckle-throwing lever employed. Fig. 6 is a plan view and also a section on the line 6 6 of Fig. 7 of the device employed for relieving the shock from impact on the coupling. Fig. 7 is a section through the line 7 7
35 of Fig. 6. Fig. 8 is a section on the line 8 8 of Fig. 6, and Fig. 9 is a section on the line 9 9 of Fig. 6.

Referring to the drawings, A designates a
40 coupling-head comprising a horn a at one side and the lugs a' at the opposite side, through perforations in which a pin a^2 is designed to project to engage the swinging knuckle A' . This swinging knuckle has a stem projection
45 a^3 , provided at its end with a substantially right-angled portion a^4 , adapted to pass through an opening a^5 in the side wall of the coupler-head, to be engaged by a locking device, as will be hereinafter described.

50 B is a shaft extended transversely through the coupling-head, and having bearings in its

side walls; and this shaft B is provided with extension-pieces B' , which extend to the sides of the car and are provided with weighted hand-pieces which are turned substantially
55 at right angles to the body portion. These extensions B' are secured to the ends of the shaft B by means of hooks or lugs b , extended through perforations in the shaft B, and secured by means of a key b' , which passes
60 through a perforation in the hook or lug and bears upon the upper surface of the shaft B.

B^2 is a knuckle-throwing lever arranged within the coupling-head and having its rear end extended loosely through an opening in
65 a bridge-piece b^2 , arranged in the hollow shank of the coupling-head. This lever B^2 has an enlarged opening through which the shaft B passes, and its forward end is bent laterally and then forwardly, and this forwardly-
70 extended portion is provided with fingers b^3 , adapted to engage, respectively, the upper and lower sides of the portion a^4 of the swinging knuckle, the said upper and lower sides being provided with depressions, the walls of which
75 form shoulders to be engaged by the fingers b^3 .

A spring B^3 surrounds the shaft B and bears at one end against the lever B^2 and at the other end against the inner side of the coupling-head. Within the coupling-head and
80 extended from the base of the horn portion a is a lug a^6 , against which the lever B^2 will engage when forced to its position to open the knuckle by the spring. This lug a^6 therefore serves as a stop to limit the movement of the
85 lever.

The shaft B at the outer side of the side wall of the coupling-head having the opening
 a^5 is provided with a crank portion C, which is engaged by links c , the opposite ends of
90 said links being connected with a lug extended outward from a locking-plate C' , pivoted at its upper end to the outer side of the side wall of the coupling-head, and adapted to move across the opening a^5 to engage within
95 a notch c' in the portion a^4 of the knuckle. This latch C' also has a forwardly-extended foot portion c^3 , adapted to engage in a channel in the lower side of said knuckle portion
 a^4 , and preferably this foot portion on its up-
100 per side is inclined forward and downward, and the channel in which it engages is corre-

spondingly inclined. When the latch C' is in its locking position, its lower portion will engage in a keeper c^4 , extended from the side of the coupling-head.

5 Between the links c and bearing at its ends against the crank-pin of the shaft B and against the lug extended from the plate C' is an outwardly-curved spring c^5 , which serves to allow a slight longitudinal movement of
10 the links or of the plate C' relatively to the links when the knuckle is forcibly closed to its locking position, thus relieving the shock on the links or on the operating-shaft.

In operation, when it is desired to release
15 the swinging knuckle, the shaft B is rotated, and the crank portion thereof will swing the links first upward and rearward and then downward and rearward, and these motions will draw the plate C' from engagement with
20 the portion a^4 of the knuckle, and as soon as the knuckle shall have been released the spring B^3 will force the lever B^2 longitudinally of the shaft, and this movement of the lever will automatically throw the knuckle to its
25 open position. The knuckle may be automatically closed in the act of coupling by its engagement with the horn portion of the approaching coupler-head, and as the weighted arms of the extension-pieces B' will have rotated the shaft B to throw the plate C' into its
30 locking position the curved end of the portion a^4 of the knuckle will force said plate backward until the notched portion c' shall have passed to its proper position, and then
35 the locking-plate will automatically fall to its locking position. On the upper side of the portion a^4 of the knuckle is arranged a cam-lug c^6 , designed, when the knuckle is thrown to its closing position, to pass through an opening
40 c^7 at the upper portion of the opening a^5 , and engage with a projection c^8 on the locking-plate C' and serve as an auxiliary means for forcing said locking-plate rearward. This cam-lug will prevent a lateral or outward
45 pressure on the plate.

I will now describe the draw-bar mechanism devised by me for relieving the shock on a coupler-head while in the act of coupling or in starting a heavily-loaded train, as it is
50 well understood that this severe strain is often the cause of breakage of coupler-heads. The shank portion D of the coupler-head is passed through a boxing or hanger D', secured to the sill of the car and also into a boxing D²,
55 secured to the sill or frame of the car. The portion of the shank D within the hanger D' rests its lower side on a roller d , mounted on a bolt extended through and supported by the side walls of the hanger D'. The rear end of
60 the shank portion is provided with lateral extensions d' , which at their central side portions have horizontally-extended guide-flanges d^2 , the said flanges being curved inward from end to end. D³ indicates angle-
65 levers pivoted on bolts secured vertically in the boxing D² and having their longer arms extended rearward beneath the car and held

normally separated by a strong spring d^3 , abutting at its ends against the inner sides of the respective levers D³. The shorter arms
70 of these levers D³ within the boxing D² are provided with peripherally-grooved anti-friction-rollers d^4 , which engage with the flanges d^2 .

When the parts are in a normal position, 75 the rollers d^4 will be in substantially the horizontal center of the flanges d^2 , but when two coupler-heads come together the coupler of course will be forced rearward and the rollers a^4 will ride upon the flanges d^2 toward their
80 forward ends, and of course the spring d^3 will impart a yielding motion to the levers D³, and during this motion, as the compression of the spring will gradually increase its resistance, it is obvious that the shock on the
85 coupling-head will be very light, and when starting a loaded train the coupling-head will of course be drawn forward, and this will impart the same motion to the levers D³, excepting that the rear portions of the flanges d^2
90 will be moved into engagement with the rollers mounted on the levers. Shoulders d^5 on the portion d' of the coupling-shank will prevent any possibility of the separation of the coupler from the car, as said shoulders
95 may strike against the rear side of the hanger D', which serves as an abutment for the coupler as the car is drawn along.

It will be seen that the device embodying my improvements may be readily attached to
100 any car, and that should any part of the draw-bar mechanism be accidentally broken it may be quickly replaced by a new part, and owing to its simplicity there is no danger of the device getting out of repair.
105

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

1. A coupling-head, comprising a swinging knuckle having a portion extended at an angle
110 from its shank and provided with a notch, a locking-plate pivoted to the outer side of the coupling-head and adapted to engage in said notch as it passes through an opening in said side wall of the coupling-head, a rock-
115 shaft having bearings in the opposite side walls of the coupling-head and having a crank portion, a link extended between said crank portion and the locking-plate, a swinging lever arranged within the coupling-head and
120 having a portion in engagement with a portion of the swinging knuckle, and a spring for operating said lever upon the release of the swinging knuckle, whereby said knuckle is automatically swung to an open position,
125 substantially as specified.

2. A car-coupling, comprising a coupling-head, a swinging knuckle therein having a portion extended at an angle to its shank portion and adapted to pass through an opening
130 in the side wall of the coupling-head, a cam-lug on the upper surface of said angled portion, a locking-plate pivoted to the outer side wall of the coupling-head and having a pro-

jection to engage with the cam-lug, whereby said locking-plate may be moved slightly rearward, and an operating-shaft for the locking-plate, substantially as specified.

5 3. A car-coupler, comprising a coupling-head, a swinging knuckle therein, a rock-shaft mounted in the coupler-head, a locking mechanism for the knuckle operated by said shaft, a knuckle-opening mechanism consist-
10 ing of a lever within the coupling-head having one end engaged loosely in an opening in a bridge-piece within the shank of the coupler-head, and having an opening through which the rock-shaft loosely extends, the forward end of said lever being extended later-
15 ally and then forwardly, the said forwardly-extended portion being provided with fingers to engage respectively the upper and lower sides of a portion of the swinging knuckle,
20 and a spring for moving said lever in one direction, substantially as specified.

4. A car-coupling, having longitudinally-curved projections at the rear end of its shank, pivoted angle-levers having antifriction-
25 roller engagement with said projections, and

means for providing a yielding movement to said lever, substantially as specified.

5. A car-coupling, comprising a shank portion having longitudinally-curved flanges on its opposite sides, pivoted angle-levers, anti- 30 friction-rollers pivoted to the shorter arms of said angle-levers and adapted to engage with the curved flanges, and a spring arranged between and engaging the rearwardly-extended or longer arms of the said levers, substantially
35 as specified.

6. A car-coupling, comprising a head, a shank portion having laterally-extended portions provided centrally with longitudinally-curved flanges, spring-yielding angle-levers 40 having antifriction-roller engagement with said flanges, a hanger through which the shank of the coupler extends, and a roller supported by said hanger upon which the shank portion of the coupler may move, substantially as
45 specified.

ANDRUS S. WEAVER.

Witnesses:

JNO. M. RITTER,
C. R. FERGUSON.