

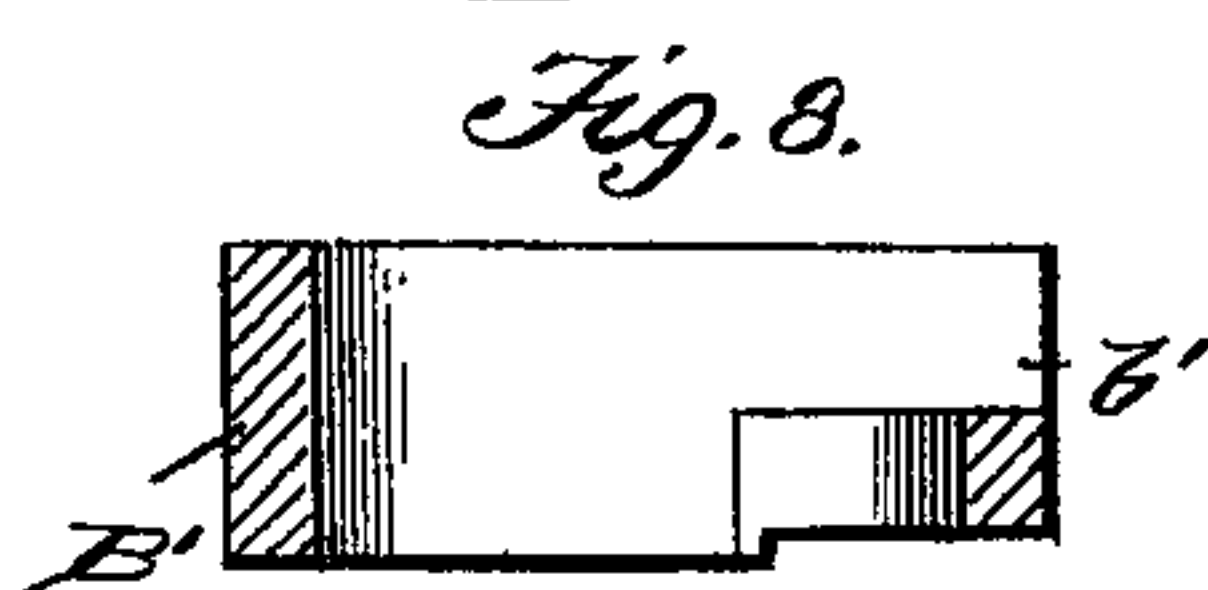
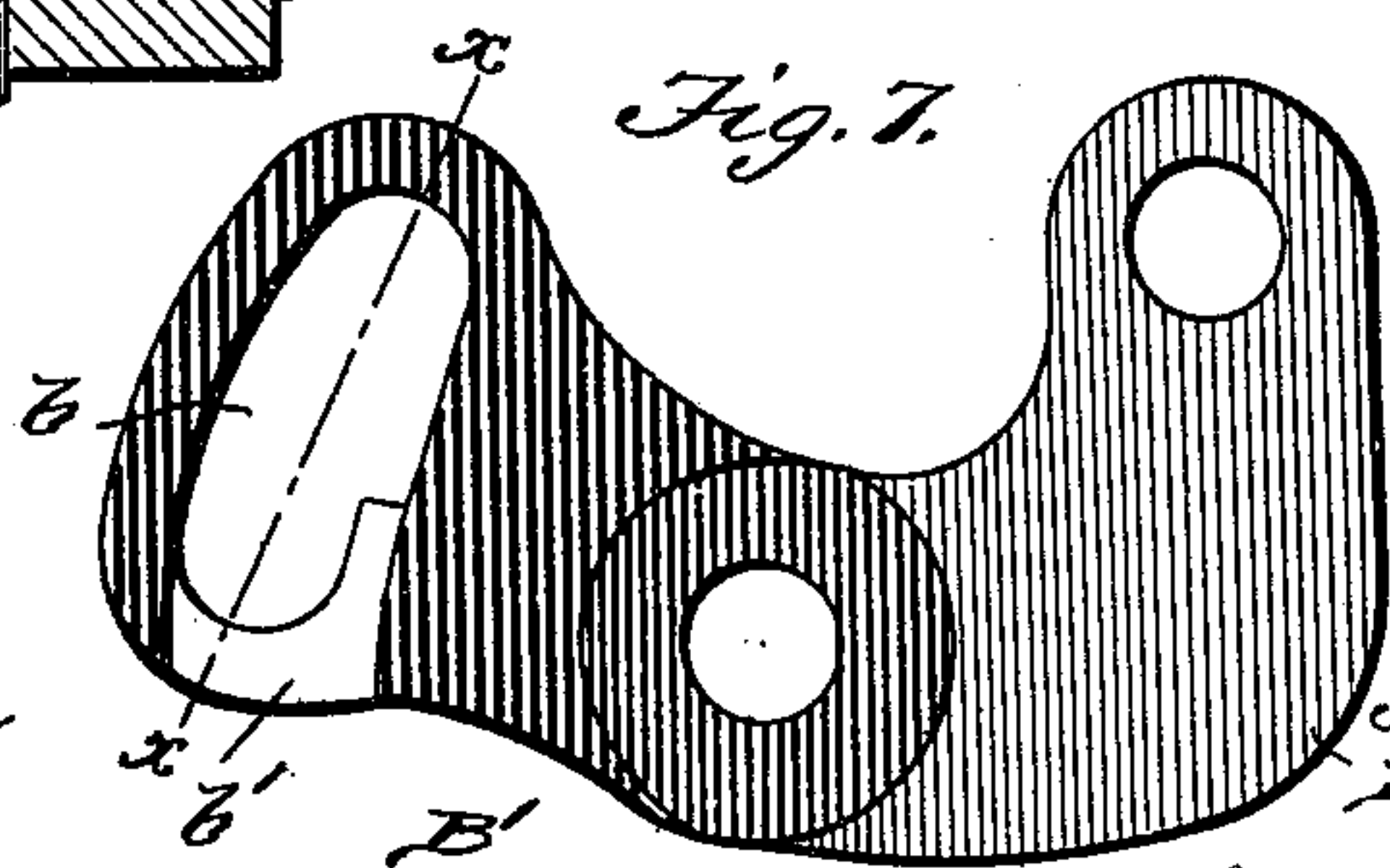
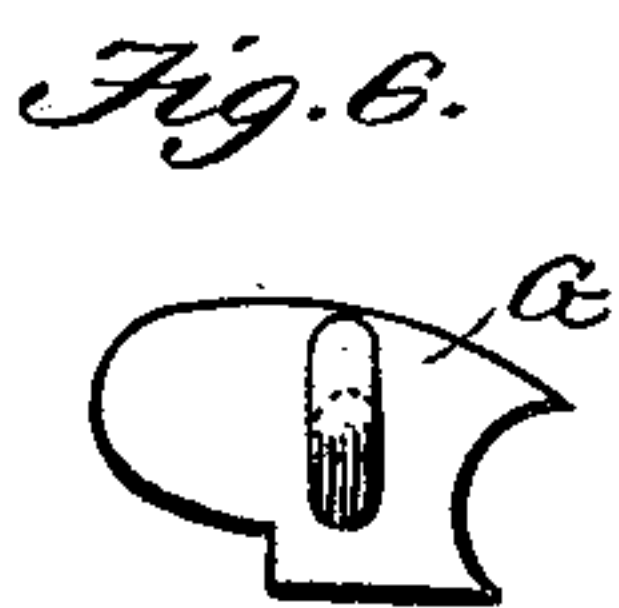
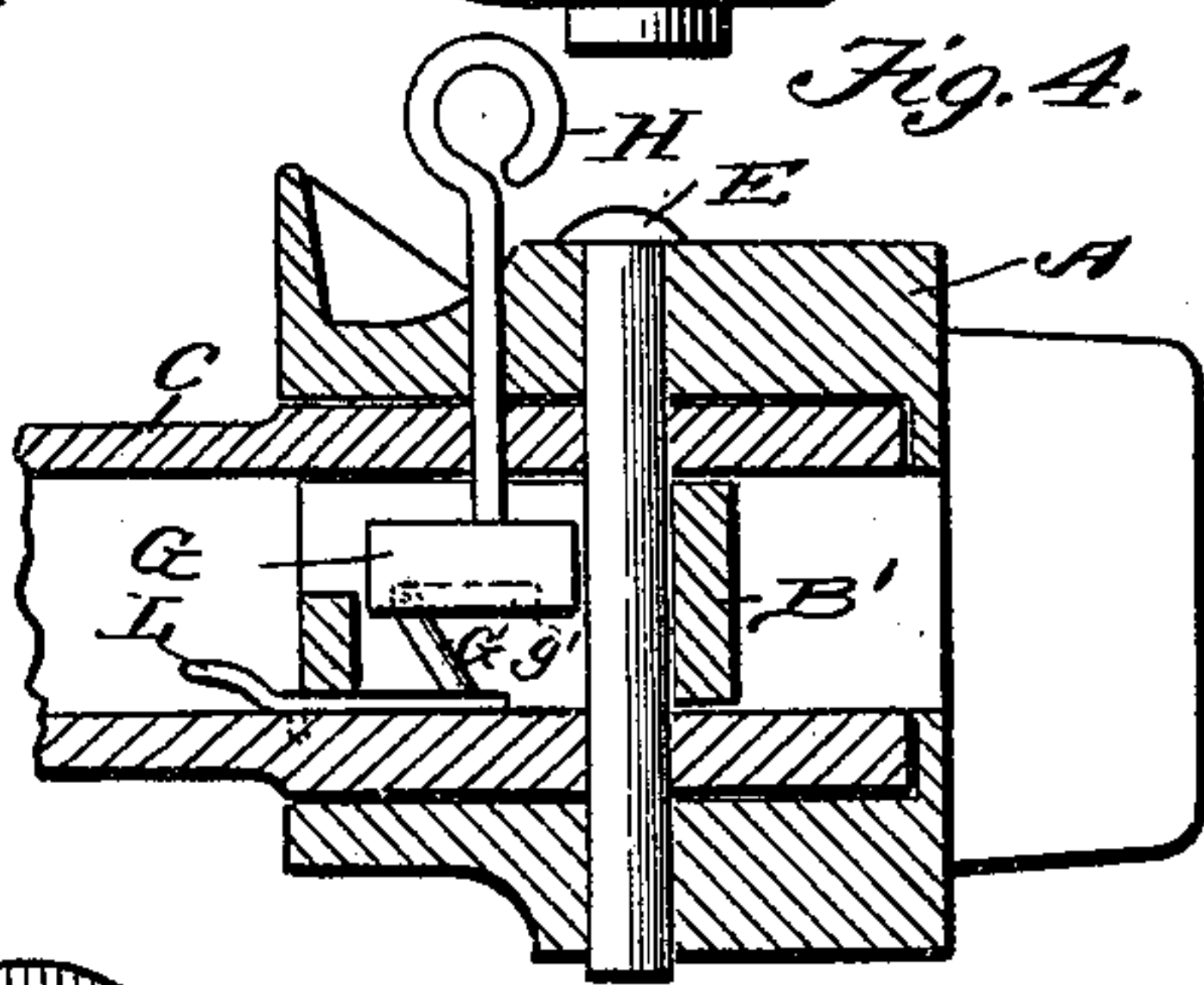
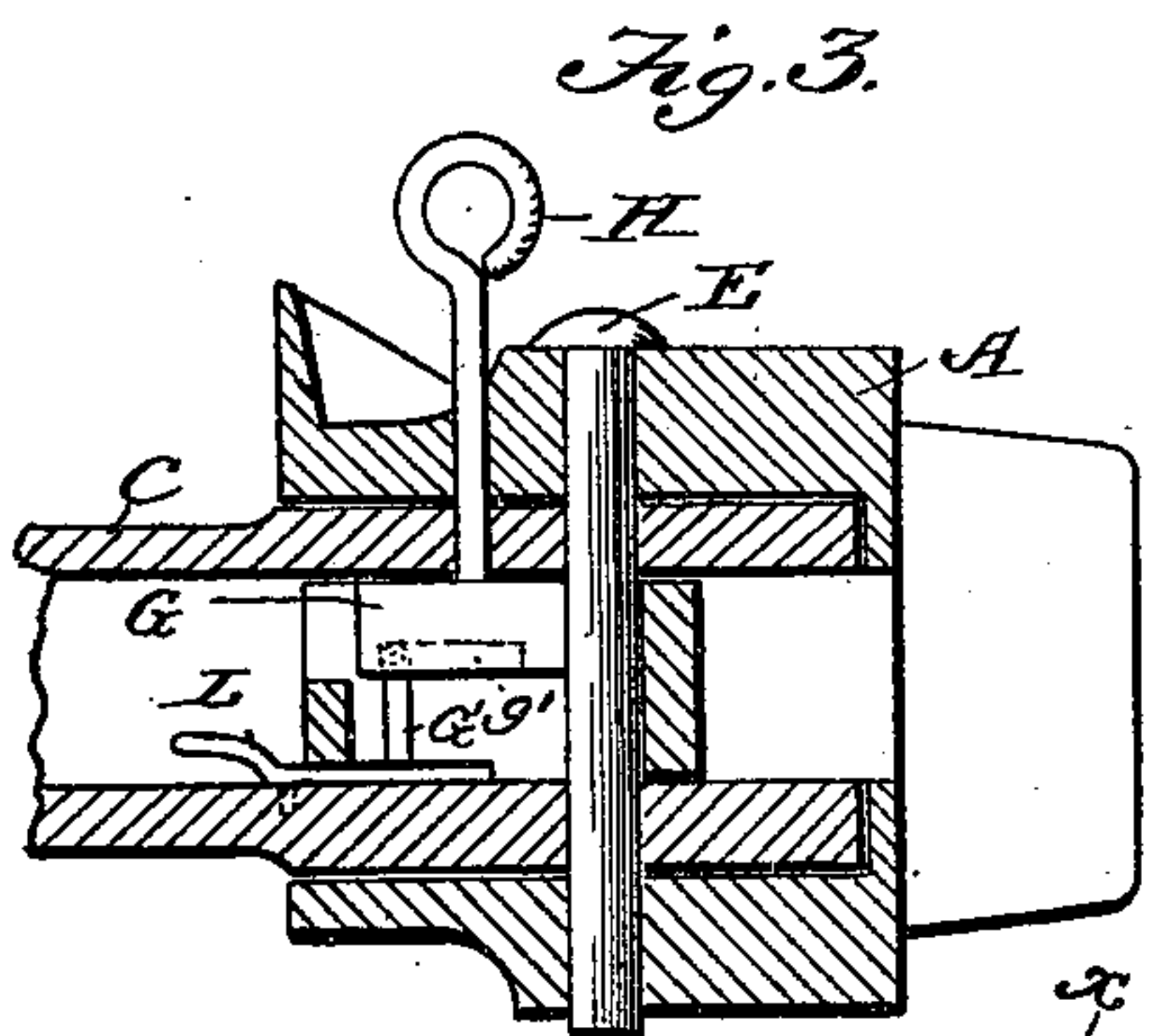
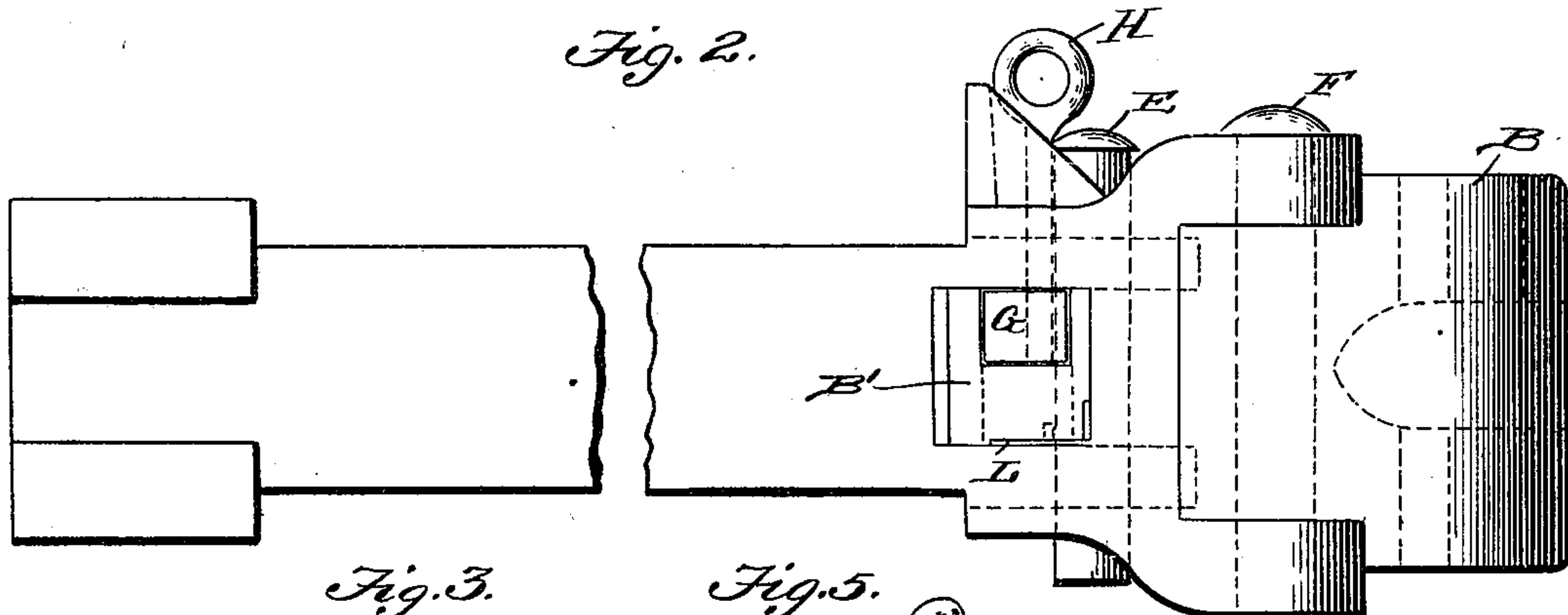
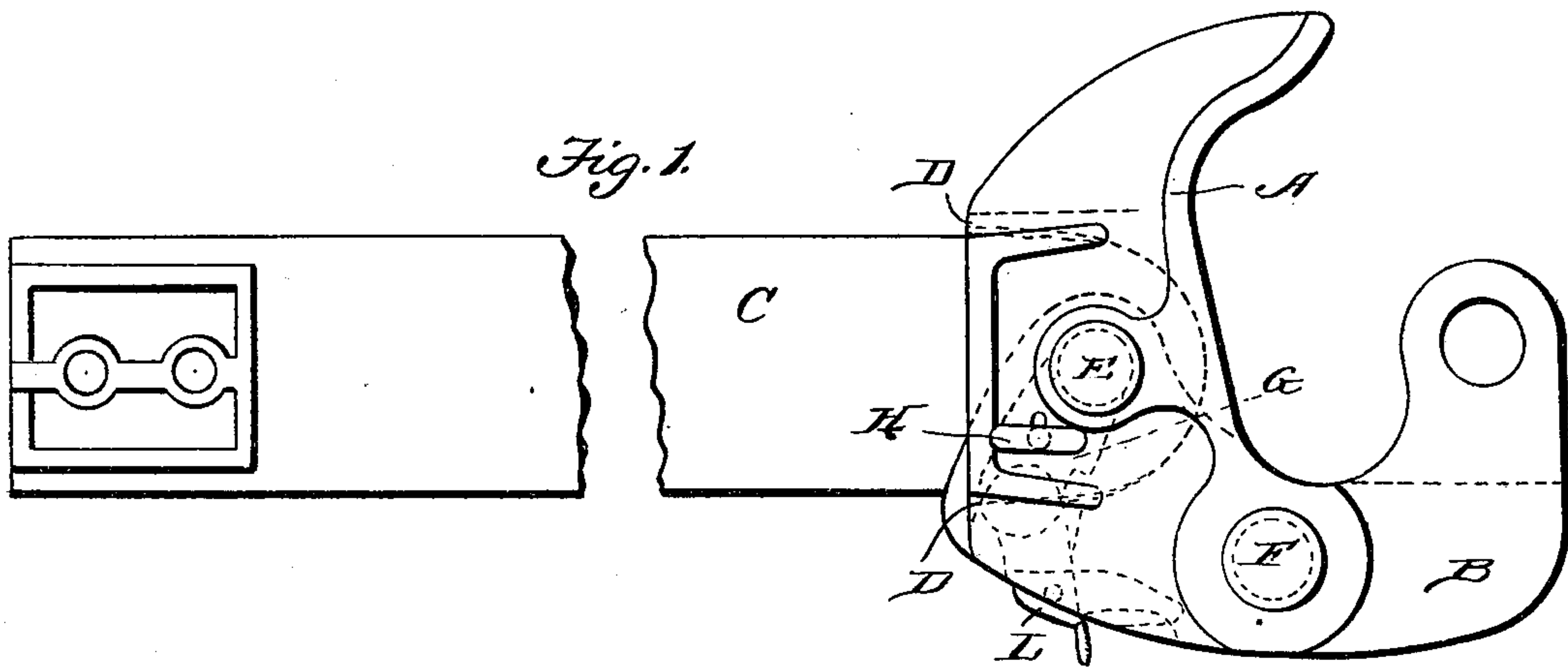
No. 675,346.

Patented May 28, 1901.

A. J. BEARD.
AUTOMATIC CAR COUPLING.

(Application filed Oct. 24, 1900.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

ANDREW J. BEARD, OF EASTLAKE, ALABAMA, ASSIGNOR OF SEVENTH EIGHTHS TO ALFRED EUBANK, OF EYLTON, ALABAMA.

AUTOMATIC CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 675,346, dated May 28, 1901.

Application filed October 24, 1900. Serial No. 34,185. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. BEARD, a citizen of the United States, residing at Eastlake, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Automatic Car-Couplings, of which the following is a specification.

My invention relates to improvements in automatic car-couplings of the Janney type.

One object of my invention is to provide a recessed coupling-head with an automatic gravity lock-nut wholly contained therein and adapted to lock the knuckles by blocking the swing of the tail-wing.

A further object of my invention is to provide an automatic mechanism to support the lock-nut in an elevated position, so that the cars are set for uncoupling, and also to provide means for manually controlling the return of the lock-nut to its lowered position to recouple the cars.

With these objects in view my invention consists in the novel features of construction hereinafter fully described and claimed, and illustrated by the accompanying drawings, in which—

Figure 1 is a plan view of my improved coupler in its closed or coupled position. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section through Fig. 1, showing the lock-nut set for uncoupling, with the supporting-pin resting on the trip-lever. Fig. 4 is a similar view showing the manner of relocking the coupling by tripping the supporting-pin. Fig. 5 is a detail view of the trip-lever, and Fig. 6 is a detail of the lock-nut. Fig. 7 is a plan of the knuckle and its tail-wing. Fig. 8 is a section along xx , Fig. 7.

The same letters of reference apply to the same parts throughout.

A represents the draw-head, provided with a central horizontal slot or recessed portion to receive the knuckle B and the head of the draw-bar C. The recesses in the slotted draw-head which receive the draw-bar C are provided with tapering sides, as indicated at D D in dotted lines, Fig. 1, so that the draw-head is capable of a limited horizontal swing on the pivot-pin E, which connects it to the draw-bar C.

The knuckle B is pivotally mounted by the

pin F in the slotted end of the draw-head A, its tail-wing B' normally resting within the recess formed in the draw-head, in which it swings freely when unaffected by the locking device. This tail-wing B' is provided with a curved slot b near its end, through which the pivot-pin E passes and by means of which the tail-wing can swing around the said pin when the jaw B swings to couple or uncouple. In continuation of this slot and extending from its rear end to the side of the tail-wing is a curved groove or cut-away portion b' , of a sufficient size and depth to permit the gravity lock-nut G to ride freely therein as the locking-jaw B is swung open. A stem H, passing through suitable openings in the draw-bar and draw-head, is screwed into the lock-nut and provides a means for lifting it, as well as to prevent its movement when the tail-wing swings under it. To uncouple, it is necessary to raise the lock-nut out of the slot by its stem until the grooved portion of the knuckle can pass under it, when the lock-nut will rest in the groove, and the slot being open the tail-wing can swing around the pin E.

The forward end of the lock-nut, which bears against the pin E when the nut is seated in the groove, is provided with a curved bearing-surface g , grooved out to correspond with the rounded surface of the said pin, as best seen in Fig. 6. This curved bearing-face always rests against and around the pin E and serves to hold the lock-nut securely against the said pin when under great strain.

The operation of these parts of my invention is as follows: When the parts are in an uncoupled position, the pin E will be at the rear end of the slot b and the lock-nut G is raised and rides in the groove b' . The knuckle of the opposing coupling entering between the open jaws strikes the tail-wing B' of the knuckle B, which projects from the recess in the coupling-head when the knuckle is in its open position and forces it inward to close and lock the knuckles together. This movement causes the tail-wing B' to swing around the pin E, moving the slot b under the lock-nut G, which is held against movement by the stem H until so much of the slot is exposed under the lock-nut that it will drop automatically therein by gravity, and

by thus closing the slot and preventing any movement of the tail-wing the knuckles will be firmly and securely locked together.

Practical tests of the above-described coupler have demonstrated the need of improvements which will obviate the danger attendant upon the manual attention required for the coupling-pin at the time of uncoupling or shifting. To obviate this difficulty, I employ the following mechanism: I provide the gravity lock-nut G on its under face with a longitudinally-disposed recess g' , in the rear end of which is pivoted a supporting-pin G', adapted to swing up into said slot and normally lie flush with the bottom surface of the nut. It is evident that when the lock-nut is raised to lift it out of the slot preparatory to uncoupling the knuckles the pivoted supporting-pin G' will swing down by gravity and hold said nut supported above the slot and in a position to enter the grooved portion of the tail-wing as it swings around in uncoupling. This swing of the tail-wing moves the rear end of the slot around until it strikes the supporting-pin G', folding it up flush with the lock-nut, which slips into the groove as the movement of the tail-wing continues until the cars are fully uncoupled. This pin G' does not interfere with the ordinary automatic action of the coupler, for in the concussion of the coupling the movement of the tail-wing is so swift that the lock-nut falls into the slot before the pin has swung down sufficiently to support it. The weight also of the lock-nut will cause it to fall in place by gravity against the support of the pin and fold it up into its recess unless the pin has assumed substantially a vertical position. This it will not do in the regular coupling actions of the tail-wing, but only when lifted manually. The benefits of such an arrangement are apparent, for when the nut has been once lifted the brakeman can leave it set while the engine is moving the cars preparatory to shifting them, for the cars are uncoupled as long as the supporting-pin holds the nut out of its operative position, although the knuckles remain in the same position as when coupled.

To enable the cars to be recoupled after the lock-nut has been set without having to separate and jam them together, I provide the tripping-lever L (shown in detail in Fig. 5) and pivot it to the draw-head, so that its inner flattened end will swing in the recessed portion thereof. The lever is provided with a handle which projects from the rear side of the draw-head within easy reach of the trainmen. The inner flattened end normally lies beneath the slot in the tail-wing when the knuckle is in its closed position, so that the supporting-pin of the lock-nut rests upon it when said nut is set. After the lock-nut has been set, with its supporting-pin resting upon the tripping-lever, and it is desired to relock the coupling the moving of the tripping-lever handle back, as shown in Fig. 4, will move the flattened end in the draw-head forward,

and this in turn will carry the supporting-pin forward until the lock-nut will fall in place in the slot by gravity, folding the pin up into the recess g . The under face of the tail-wing is cut away sufficiently to prevent it striking or otherwise interfering with the tripping-lever as it moves back and forth over it. The slot b is cut out, so that a shoulder (shown in Fig. 7) is obtained. The lock-nut G is provided with a similar offset or shoulder, so that it corresponds in shape with the slot. When strain is brought to bear upon the nut in its locked position, this shoulder in the slot, against which the offset on the nut bears, will support the greater part of the strain and relieve the web forming the rear wall of the slot, which would otherwise have to sustain the entire draft-pressure. This construction I consider of great advantage, since it almost doubles the strength and draft power of my coupler and renders it practically proof against breakage at this point.

The principal advantage of my invention resides in the effectiveness of the special locking mechanism, which is simple in construction, not readily injured or broken, and safe against loss or the danger of being tampered with, because it is wholly contained within the recessed portion of the draw-head and can only be taken out when the knuckle itself has been removed.

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

1. In a car-coupling the combination with a draw-head, of a knuckle pivoted to said draw-head and provided with a tail-wing, a slot in said tail-wing, a projection on the draw-head extending into the said slot, and means to automatically lock said tail-wing by blocking the slot, substantially as described.

2. In a car-coupling the combination with a draw-head, of a knuckle pivoted intermediate its ends to said draw-head and provided with a tail-wing, the said tail-wing being provided with a curved slot and a curved groove in extension of said slot, a projection on the draw-head extending into said slot, and a gravity lock-nut adapted to rest in said groove and automatically drop into said slot, to block it and lock the tail-wing, substantially as described.

3. In a car-coupling the combination of a draw-bar, a draw-head pivotally secured to said draw-bar by a pin, a knuckle pivoted to said draw-head and provided with a tail-wing, a slot in said tail-wing through which the said pin passes, and means to automatically lock said tail-wing by blocking the said slot, substantially as described.

4. In a car-coupling the combination of a draw-bar, a draw-head pivotally secured to said draw-bar by a pin, a knuckle pivoted intermediate its ends and provided with a tail-wing, a curved slot in said tail-wing through which the said pin passes, a curved groove in extension of said slot, and means to automat-

ically lock said tail-wing by blocking the said slot, substantially as described.

5. In a car-coupling the combination of a draw-bar, a draw-head pivotally secured to said draw-bar by a pin, a knuckle pivoted at its center and provided with a tail-wing, a curved slot in said tail-wing through which the said pin passes, a curved groove in extension of said slot, and a gravity lock-nut adapted to rest in said groove and drop into said slot to lock the tail-wing, substantially as described.

6. In a car-coupling the combination with a draw-head, of a knuckle pivoted intermediate its ends and provided with a tail-wing, the said tail-wing being provided with a curved slot and groove, a projection on the draw-head extending into said slot, and a curved gravity lock-nut adapted to rest in said groove and to automatically drop into said slot, to block it and lock the tail-wing, substantially as described.

7. In a car-coupling the combination with a draw-bar, a recessed draw-head and their pivot-pin, of a knuckle provided with a slotted tail-wing which swings around said pivot-pin and within a recess in said draw-head, and locking mechanism wholly contained within said recessed portion of the draw-head which automatically drops into the said slot and locks the tail-wing, substantially as described.

8. In a car-coupling the combination with a draw-bar, a recessed draw-head and their pivot-pin, of a pivoted knuckle provided with a slotted and grooved tail-wing, which swings within the recessed draw-head and around said pivot-pin which passes through said slot, an automatic gravity lock-nut contained within said recess, the said nut riding in said groove when the knuckle is open and dropping into the said slot when the knuckle is closed to lock the same, substantially as described.

9. In a car-coupling the combination with a draw-bar, a draw-head, their pivot-pin, and a slotted tail-wing, of a gravity lock-nut conforming in contour with the slot and having its forward bearing-face grooved out to correspond with the curved surface of the pivot-pin against which it bears, and a stem for said nut passing up through a slot in the draw-head, substantially as described.

10. In an automatic car-coupling the combination of a draw-head, a knuckle pivoted thereto and provided with a tail-wing, a shouldered slot in said tail-wing and a projection on said draw-head passing through the slot, a lock-nut conforming in contour with the slot and having its forward bearing-face grooved out to correspond with the surface of the projection against which it bears, a shoulder on said nut to engage the shoulder of the slot so that the rear wall thereof will be largely relieved of the draft strain, and means for lifting said nut to uncouple, substantially as described.

11. In an automatic car-coupling the combination of a recessed draw-head, a knuckle pivoted thereto and provided with a tail-wing, a recessed gravity lock-nut operating to block the movement of said tail-wing and lock the knuckle in a coupled position, and a supporting-pin pivoted at one end in said recess of the lock-nut and adapted to swing down by gravity when the nut is lifted, to support and retain it out of locking position until the cars are uncoupled, said lock-nut and supporting-pin being wholly contained within the recess in the draw-head, substantially as described.

12. In an automatic car-coupling the combination of a draw-head, a knuckle pivoted thereto and provided with a tail-wing, a gravity lock-nut operating to block the movement of said tail-wing and lock the knuckle in a coupled position, the said lock-nut provided with a longitudinally-disposed recess in its under face, a supporting-pin pivoted at one end in said recess and normally lying therein flush with the under face of said lock-nut, the said supporting-pin being adapted to swing down by gravity when the lock-nut is lifted to support and retain it out of locking position until the cars are uncoupled, substantially as described.

13. In an automatic car-coupling the combination of a recessed draw-head, a knuckle pivoted thereto and provided with a tail-wing, a lock-nut operating to block the movement of said tail-wing and lock the knuckle in a coupled position, a supporting-pin pivoted to said lock-nut and adapted to swing down when said lock-nut is lifted, to support and retain it out of locking position until the cars are uncoupled, the said lock-nut and supporting-pin being wholly contained within the recess in the draw-head, and additional means for tripping said supporting-pin to return said lock-nut to its locking position and recouple the cars, substantially as described.

14. In an automatic car-coupling the combination of a draw-head, a knuckle pivoted thereto and provided with a tail-wing, a lock-nut operating to block the movement of said tail-wing and lock the knuckle in a coupled position, a supporting-pin pivoted to said lock-nut, and adapted to swing down when said lock-nut is lifted, to support and retain it out of locking position until the cars are uncoupled, and a trip-lever pivoted to the draw-head and adapted to trip the supporting-pin of the lock-nut to return said lock-nut to its locking position and recouple the cars, substantially as described.

15. In an automatic car-coupling the combination of a draw-head, a knuckle pivoted thereto and provided with a tail-wing, a gravity lock-nut contained wholly within the recess in the draw-head, a supporting-pin pivoted at one end in a recess in the under face of said lock-nut and adapted to swing down by gravity and to be engaged and tripped by the opening movement of the tail-wing, and an additional tripping-lever engaging the lower

end of the pin in its supporting position and adapted to trip the supporting-pin and relock the cars before uncoupling, substantially as described.

5 16. In an automatic car-coupling the combination of a draw-head, a knuckle provided with a tail-wing, a slot in said tail-wing, a gravity lock-nut to block the movement of the tail-wing, a supporting-pin pivoted to the underface of said lock-nut, a tripping-lever pivoted to the coupling-head and having its inner end disposed beneath the slot in the tail-wing so that the said supporting-pin rests thereon when the lock-nut is lifted out of the
10 slot and may be tripped thereby to relock the cars before uncoupling, substantially as described.

17. In an automatic car-coupling the combination of a draw-head, a knuckle pivoted thereto and provided with a tail-wing, a gravity lock-nut contained wholly within the recess in the draw-head, a supporting-pin pivoted at one end in a recess in the under face of said lock-nut, a curved slot in said tail-wing within which the said supporting-pin swings down when the lock-nut is raised and whose rear wall trips the said pin when the knuckles uncouple, and additional means for tripping said supporting-pin to relock the cars
20 before uncoupling, substantially as described.

18. In an automatic car-coupling the combination of a draw-head, a knuckle pivoted

thereto and provided with a tail-wing, a curved slot and groove in said tail-wing, a projection on the draw-head passing through
35 said slot, a gravity lock-nut adapted to rest in the groove and drop into said slot to lock the tail-wing and knuckle from movement by blocking the said slot, a recess longitudinally disposed in the under face of said lock-nut, a
40 supporting-pin pivoted at one end in said recess and normally lying therein flush with the under face of said lock-nut and adapted to swing down by gravity when the lock-nut is lifted, to support and retain it out of locking position while the cars remain uncoupled, a trip-lever pivoted to the draw-head and so disposed beneath the tail-wing that its inner end passes under the slot and supports the supporting-pin of the lock-nut when the pin
45 is in its lowered or operative position, and a handle for said lever for throwing it by hand to trip said supporting-pin and return the lock-nut to its locking position, recoupling the cars, substantially as described. 55

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ANDREW J. ^{his} × BEARD.
mark

Witnesses:

AZELIA SMITH,
D. D. TRIMBLE.