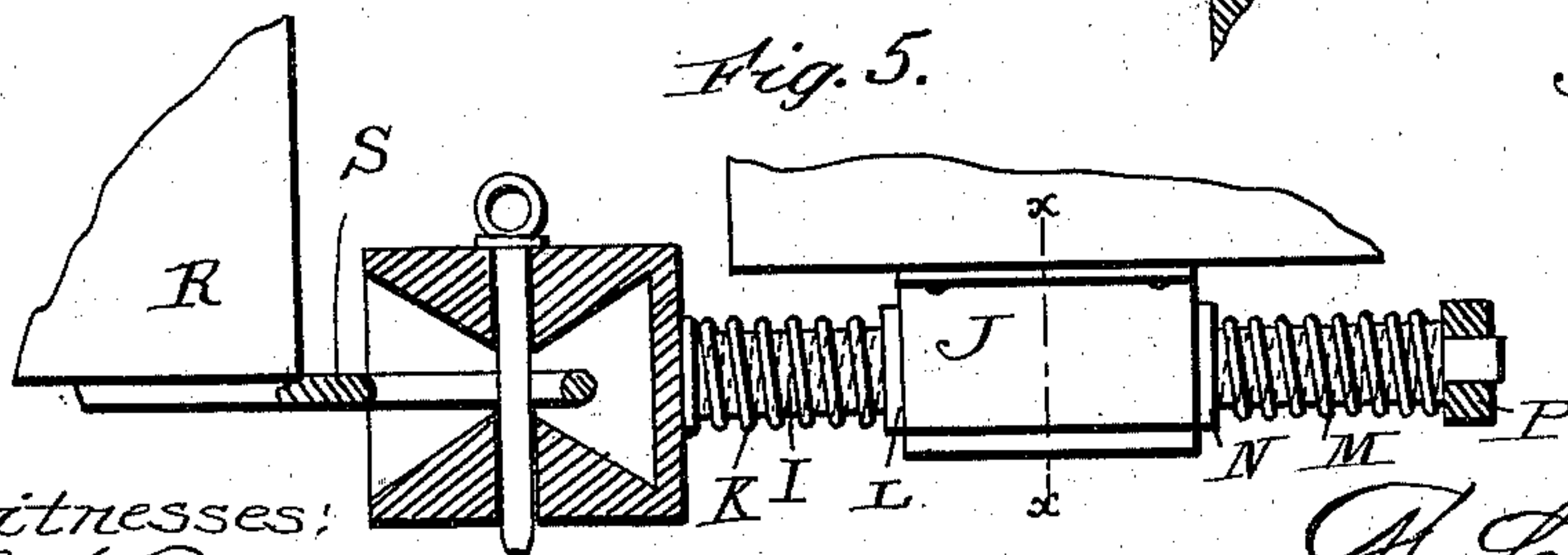
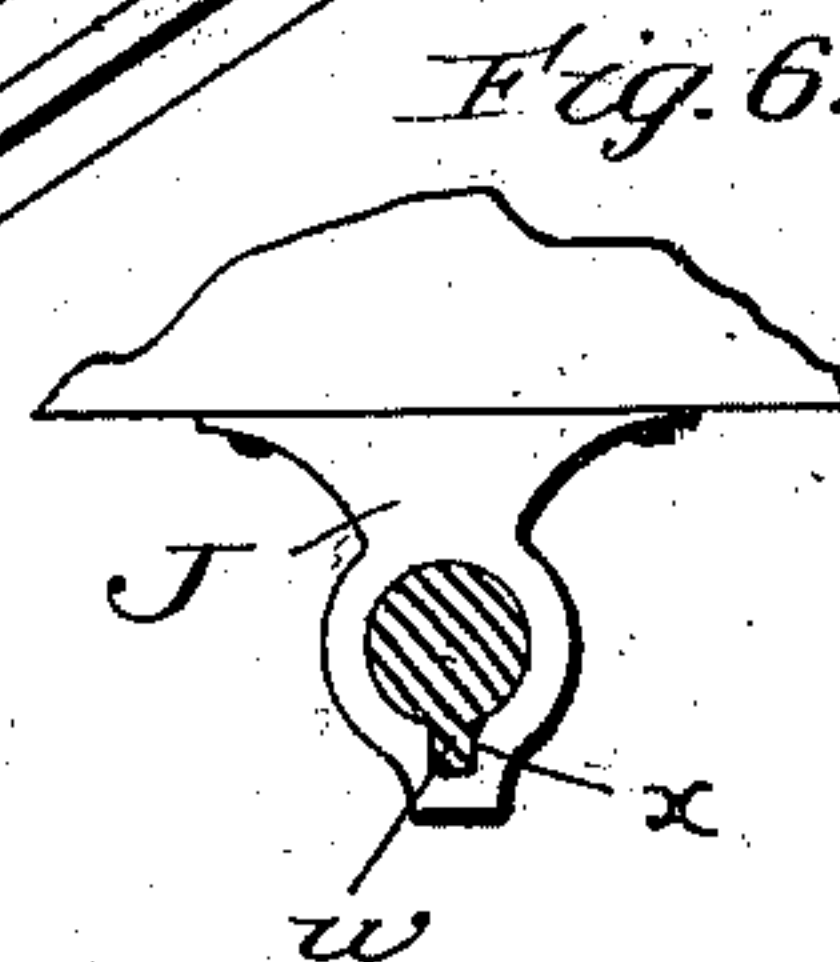
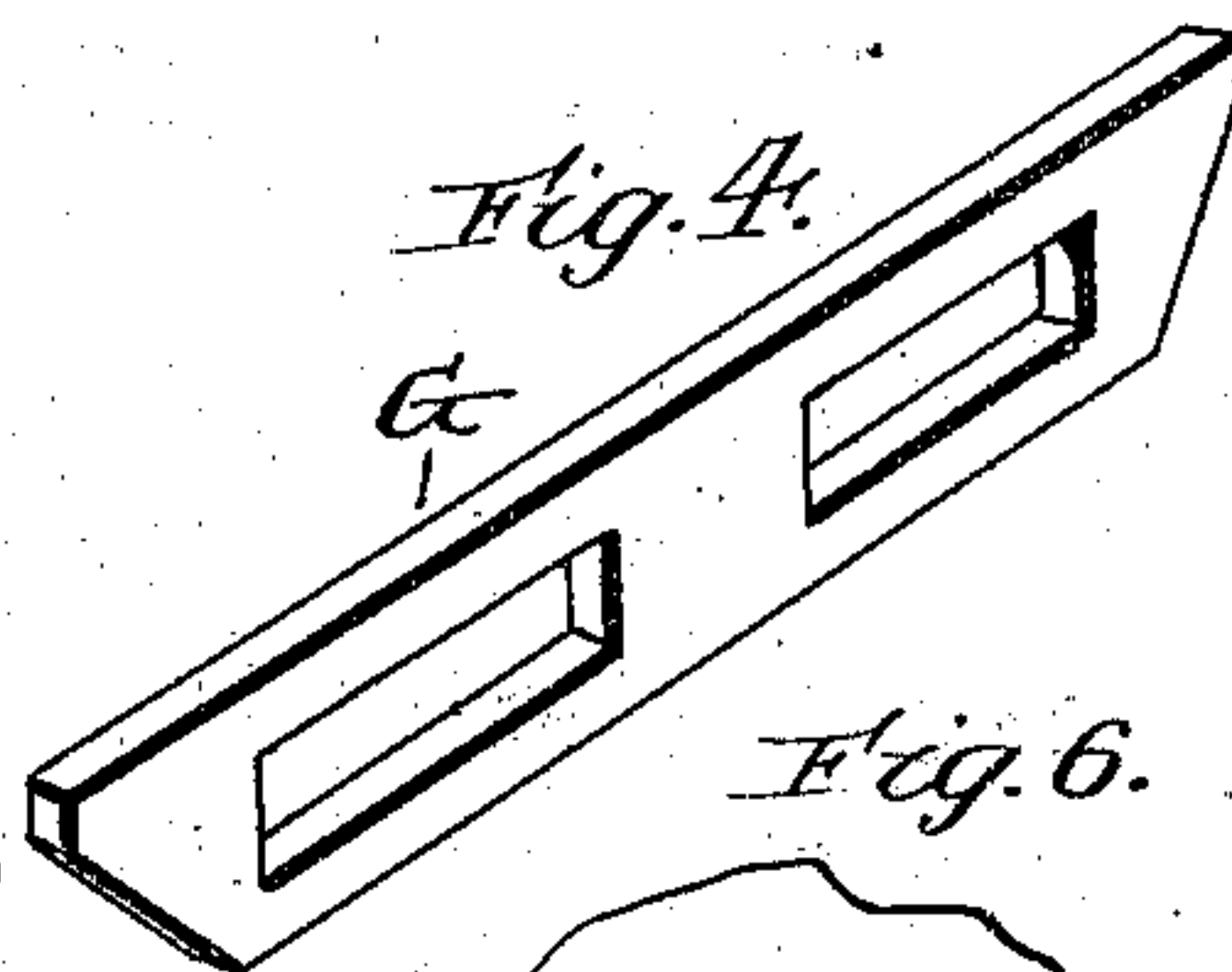
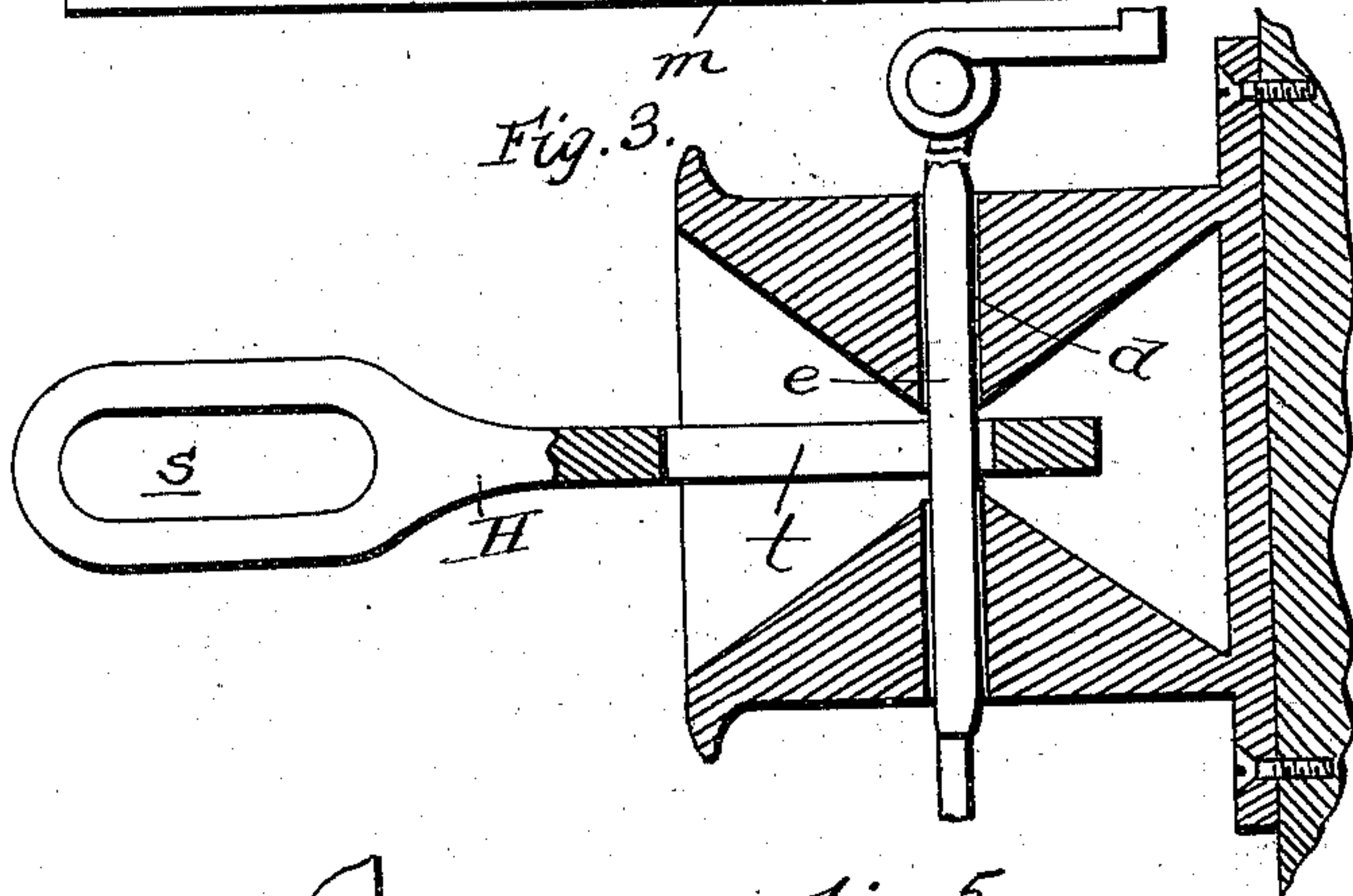
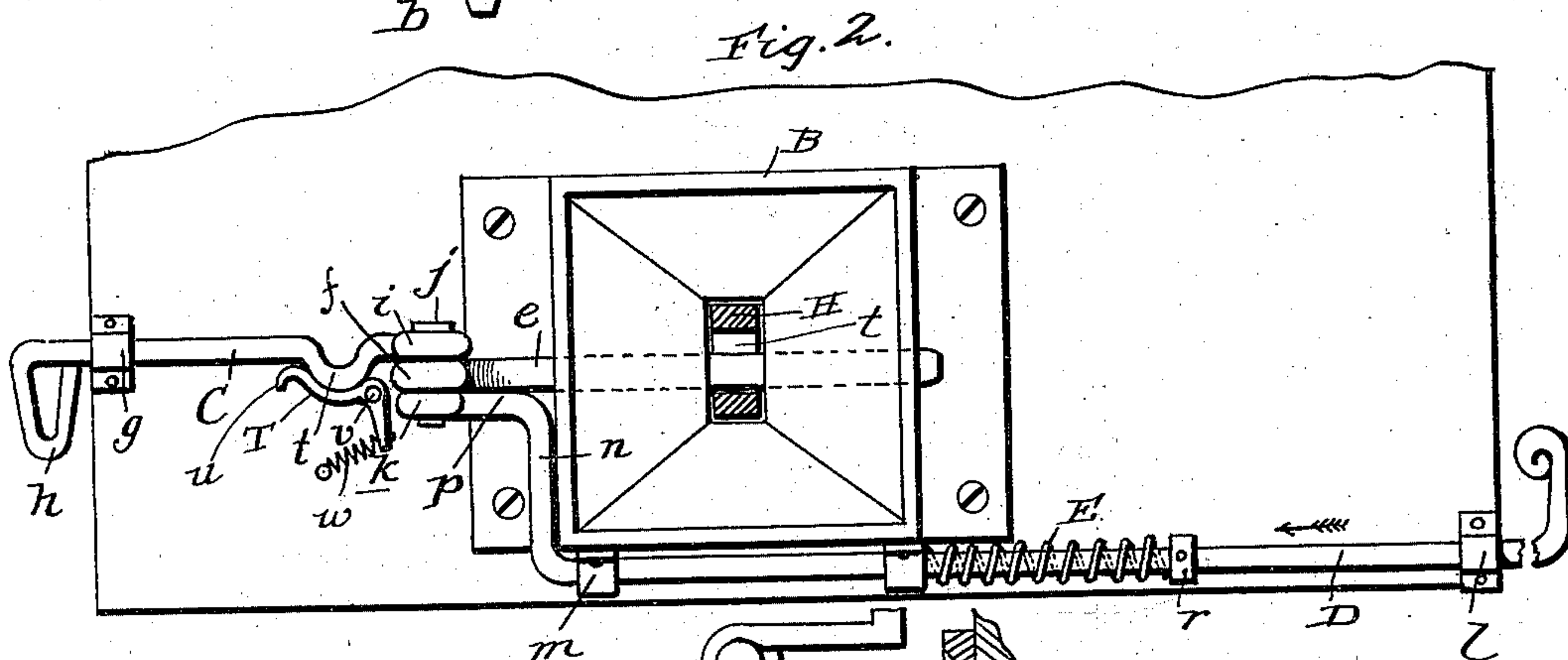
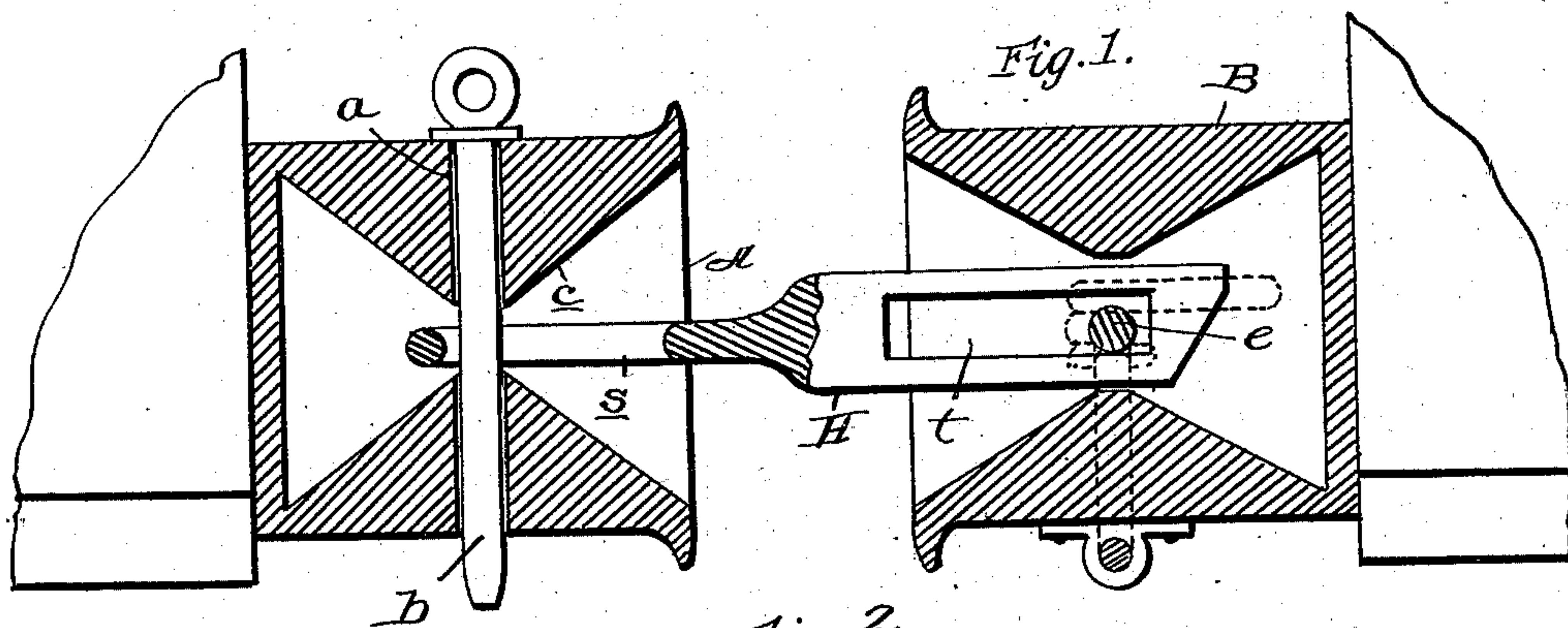


(No Model.)

H. L. BOYER.
CAR COUPLING.

No. 559,097.

Patented Apr. 28, 1896.



Witnesses:

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UNITED STATES PATENT OFFICE.

HARRY LAWRENCE BOYER, OF MONROE, MICHIGAN.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 559,097, dated April 28, 1896.

Application filed February 25, 1896. Serial No. 580,624. (No model.)

To all whom it may concern:

Be it known that I, HARRY LAWRENCE BOYER, a citizen of the United States, residing at Monroe, in the county of Monroe and State of Michigan, have invented certain new and useful Improvements in Car-Couplers; and I do 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.

My invention relates to improvements in car-couplers; and its novelty and advantages will be fully understood from the following description and claims when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a view, partly in elevation and partly in vertical section, illustrating portions of two cars and two draw-heads connected thereto and embodying my invention, one of said draw-heads being provided with the ordinary vertically-disposed pin and the other being provided with a horizontally-disposed pin. Fig. 2 is a front elevation of a coupler embodying my invention and provided with a horizontally-disposed pin and means for moving the same. Fig. 3 is a detail horizontal section of the draw-head illustrated at the right of Fig. 1. Fig. 4 is a perspective view of the link for connecting two draw-heads having horizontally-disposed pins. Fig. 5 is a detail view, partly in elevation and partly in vertical section, illustrating a draw-head having a peculiar draw-bar connected in a peculiar and advantageous manner with the locomotive and designed to take up the shock and jar incident to the starting of a train. Fig. 6 is a vertical cross-section of Fig. 5.

Referring by letter to said drawings, A indicates a draw-head embodying my invention and having a vertically-disposed pin-aperture *a* to receive an ordinary coupling-pin *b*, as illustrated. This draw-head A has the inner sides *c* of its upper and lower and opposite side walls flared from its middle to its opposite ends, as shown, so as to afford play-space for the coupling-link when the cars are going around a sharp curve, and thereby prevent damage to the couplers.

B indicates a draw-head embodying my invention. This draw-head is similar in construction to the draw-head A, with the ex-

ception that it is provided with a horizontally-disposed aperture *d* for the reception of a horizontally-movable coupling-pin *e*. The pin *e* takes through the draw-head B at the reduced portion of the chamber in said head, and it is provided at its outer end with an eye *f* for the connection of the slidable rods C D, through the medium of which it may be moved to couple or uncouple cars by a person standing at either side of the cars.

The rod C takes through a guide *g* on the front of the car-body, as shown, and it is provided at its outer end with a handle *h*, and at its inner end it has an eye *i* for the reception of the connecting-bolt *j*, which also takes through the eye *f* of the pin *e* and through the eye *k* at the inner end of the rod D, as shown. The said rod D extends through a guide *l* on the front of the car-body and guides *m* on the bottom of the draw-head, and at its inner end it is provided with the upwardly-extending angular branch *n* and the horizontal branch *p*, which is formed into the eye *k* before described.

The coupling-pin *e* may be moved in the direction to release the coupling-link by moving the rods C D in the direction indicated by arrow and may be moved in the opposite direction to engage and hold the coupling-link by moving the rods D C in the direction opposite to that indicated. In consequence of this a person standing at either side of the cars may quickly and easily couple or uncouple the same without the objectionable necessity of going between them and subjecting himself to the danger of being crushed when they come together.

In order to normally hold the coupling-pin *e* in a position to engage and hold the coupling-link, I provide the coiled spring E, which surrounds the rod D and is interposed between a collar *r* on said rod and one of the guides *m*, as illustrated. This spring, as will be readily observed, will securely hold the pin *e* in the position illustrated in Fig. 2 and will effectually prevent a casual disconnection of the cars incident to the pin working out of its position and yet will not interfere with the pin being moved when it is desirable to couple or uncouple two cars. Again, it will be seen that the spring, when the rod C or the rod D is released, will return the pin to the position

illustrated in Fig. 2, so as to enable it to engage and hold a coupling-link.

When it is desired to couple two cars equipped with the improved coupler, (shown in Figs. 2 and 3,) a coupling-link G, such as shown in Fig. 4, which has its ends beveled to facilitate its entrance into the draw-heads, is employed. When a draw-head such as shown in Fig. 2 is to be coupled with a draw-head such as shown at the left of Fig. 1, or with an ordinary draw-head having a vertically-disposed pin, a coupling-link H, having a vertically-disposed opening or loop *s* and a horizontally-disposed opening or loop *t*, is employed.

In Fig. 5 I have shown a coupler which is designed for coupling a locomotive with its tender and is designed to take up the shock and jar generally incident to the starting of trains. This coupler has a draw-head A, similar to that shown at the left of Fig. 1, and a draw-bar I, which is connected to the head and extends through a bracket J on the locomotive and is provided with a spline or feather *w* to engage a groove *x* in the bracket, as shown, so as to prevent the bar and also the draw-head from turning. A coiled spring K surrounds the bar I and is interposed between the draw-head and a washer L, loosely mounted on the draw-bar and adapted to bear against the rear end of the bracket J, and a coiled spring M also surrounds the draw-bar and is interposed between a washer N, adapted to bear against the forward end of the bracket J, and a nut P on the forward end of the draw-bar.

The tender R (shown in Fig. 5) is provided with a link S, which is designed and adapted to receive the pin of the draw-head on the locomotive, as shown.

The construction shown in Fig. 5 reduces to a minimum the jerk, shock, and jar so generally incident to the starting of trains, and such construction may therefore and preferably is embodied in those of my improved couplers which are connected to passenger-cars.

It will be seen from the foregoing that with all of its advantages my improved coupler is very simple and cheap and is thoroughly capable of withstanding the shocks and strains to which car-couplers are ordinarily subjected.

It will also be seen that with my improved couplers a coupling may be quickly and easily effected without subjecting the trainmen to danger, and that when the cars are coupled there is no danger of their being casually uncoupled, which is an important advantage. They may, however, be readily uncoupled when desired without the necessity of the trainman going between the cars.

It is desirable when cars come together to have the pin *e* out of the path of the link when it enters the draw-head, so as to prevent breakage or bending of the pin or link. To this end I provide the rod C at an inter-

mediate portion of its length with the curved portion *t*, and in conjunction with said rod I provide the locking or keeper lever T, which is curved for a portion of its length to conform to the portion *t* of the rod C, is provided with the beveled rear end *u*, and is fulcrumed at *v* and backed by a spring *w*, as shown.

The lever T is arranged as shown with respect to the rod C, and therefore it will be seen that when the pin *e* and rod C are in the position shown in Fig. 2 said lever T will hold the rod C and also the pin against outward movement, and when the rod is pulled outward the end *u* of the lever will engage the curved portion *t* of the rod and will hold said rod and the pin in their outer position, so as to permit a link to enter the draw-head without engaging the pin. When it is desired to return the rod C and the pin to their normal operative positions, it is simply necessary to press the rod C inwardly, when the rear end of the lever T will give downwardly and the portion *t* of the rod will seat in the curved portion of the lever T, as illustrated.

When the lever T is employed, the spring E and the rod D may, if desired, be omitted. I prefer, however, to use the spring E in conjunction with the rod D and the lever T in conjunction with the rod C, as illustrated in Fig. 2.

Having described my invention, what I claim is—

1. In a car-coupler, the combination of a car, a draw-head connected with the car and having a horizontally-disposed pin-aperture, a pin arranged in said aperture and adapted to move in a horizontal plane, the rod C, loosely connected with one end of the pin and extending through a guide on the car to one side thereof, the rod D, extending through guides on the car and at the bottom of the draw-head and having the upwardly-extending branch *n*, at its inner end and the branch *p*, loosely connected with the end of the coupling-pin and further having a collar *r*, and a coiled spring surrounding the rod D, and interposed between the collar *r*, and one of the guides on the draw-head, substantially as specified.

2. In a car-coupler, the combination of a bracket adapted to be connected with a locomotive or car and having an aperture and also having a spline-groove, a draw-head having a bar extending through the aperture of the bracket and provided with a spline to engage the spline-groove in said bracket, washers loosely mounted on the bar and adapted to bear against the opposite ends of the bracket, a coiled spring surrounding the draw-bar and interposed between the draw-head and one washer on the draw-bar and a second coiled spring surrounding the draw-bar and interposed between the other washer and a nut at the end of the draw-bar, all substantially as specified.

3. In a car-coupler the combination of a pin, a draw-head connected with the car and having a horizontally-disposed pin-aperture,

a pin arranged in said aperture and adapted to move in a horizontal plane, the rod C, loosely connected with one end of the pin and entering through a guide on the car to one side thereof and having the curved portion *t*, at an intermediate point of its length the spring-backed lever fulcrumed at an intermediate point of its length and having the curved portion adapted to receive the curved portion of the rod C, substantially as specified.

4. In a car-coupler the combination of a car, a draw-head connected with the car and having a horizontally-disposed pin-aperture a pin arranged in said aperture and adapted to move in a horizontal plane, the rod C, loosely connected with one end of the pin and extending through a guide on the car to one side thereof and having the curved portion *t*, at an intermediate point of its length the

spring-backed lever fulcrumed at an intermediate point of its length and having the curved portion adapted to receive the curved portion of the rod C, the rod D, extending through the guides on the car and at the bottom of the draw-head and having the upwardly-extending branch *n*, at its inner end and the branch *p*, loosely connected with the end of the coupling-pin and further having a collar *r*, and a coiled spring surrounding the rod D, and interposed between the collar *r*, and one of the guides on the draw-head substantially as specified.

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

HARRY LAWRENCE BOYER.

Witnesses:

JAMES J. PEGLER,
WILLIE PEGLER.