

No. 656,984.

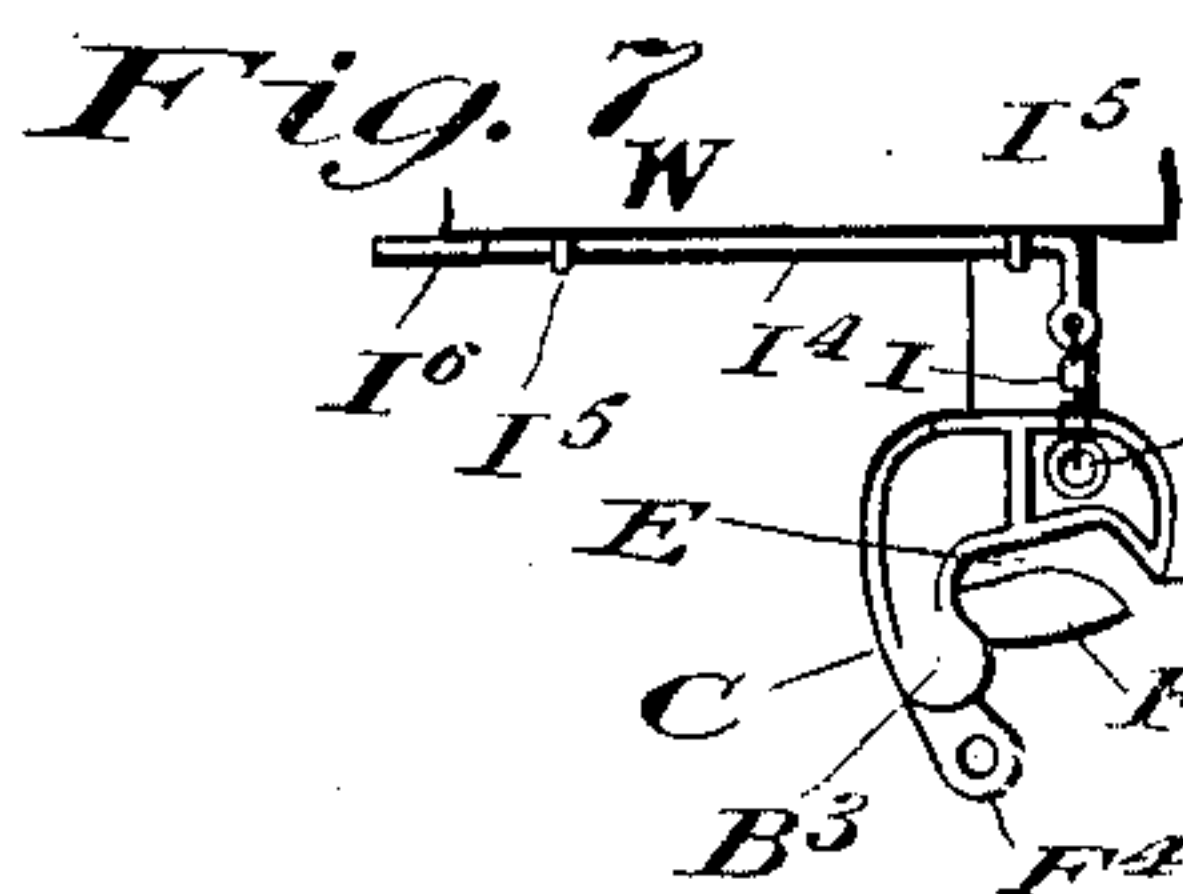
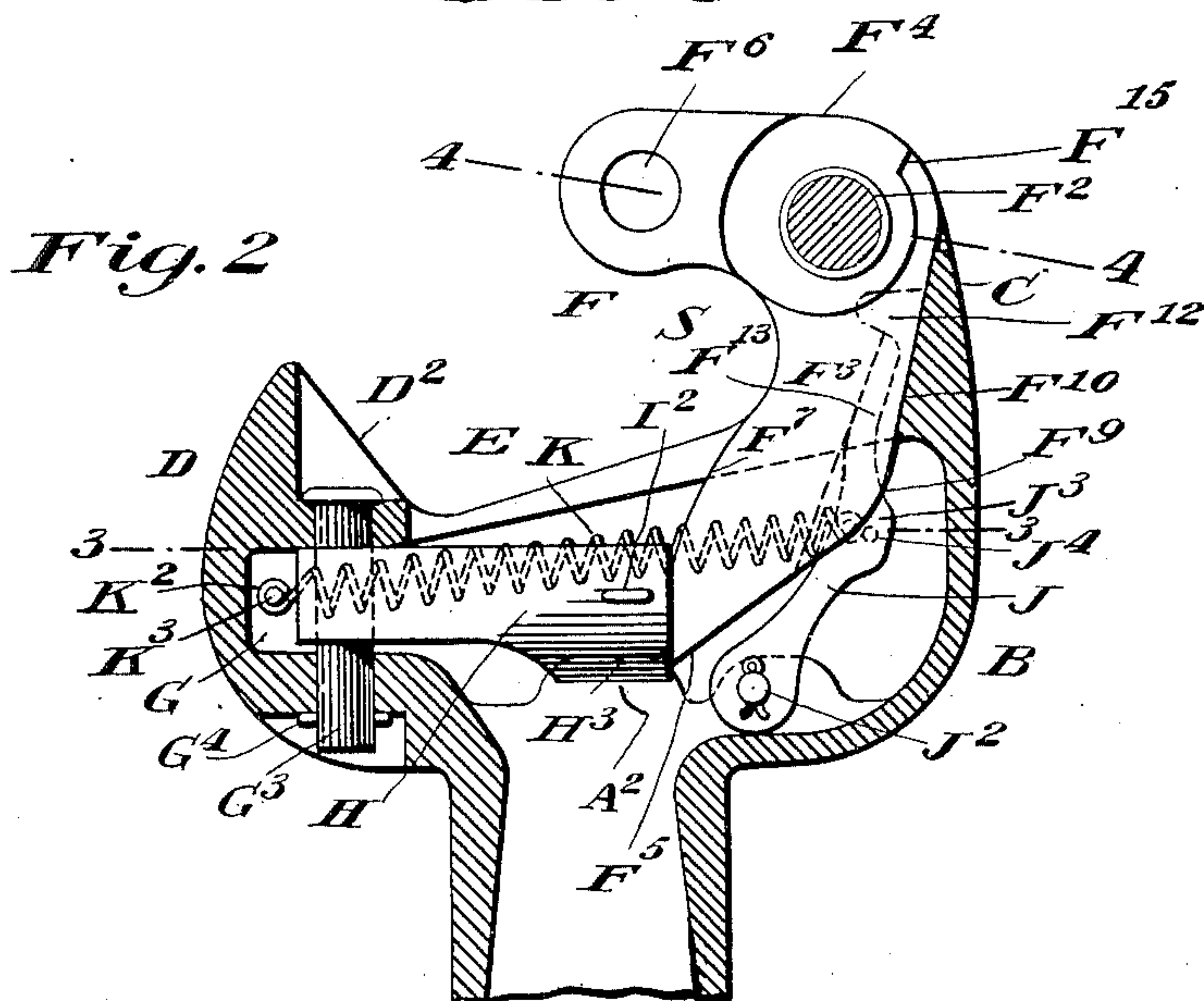
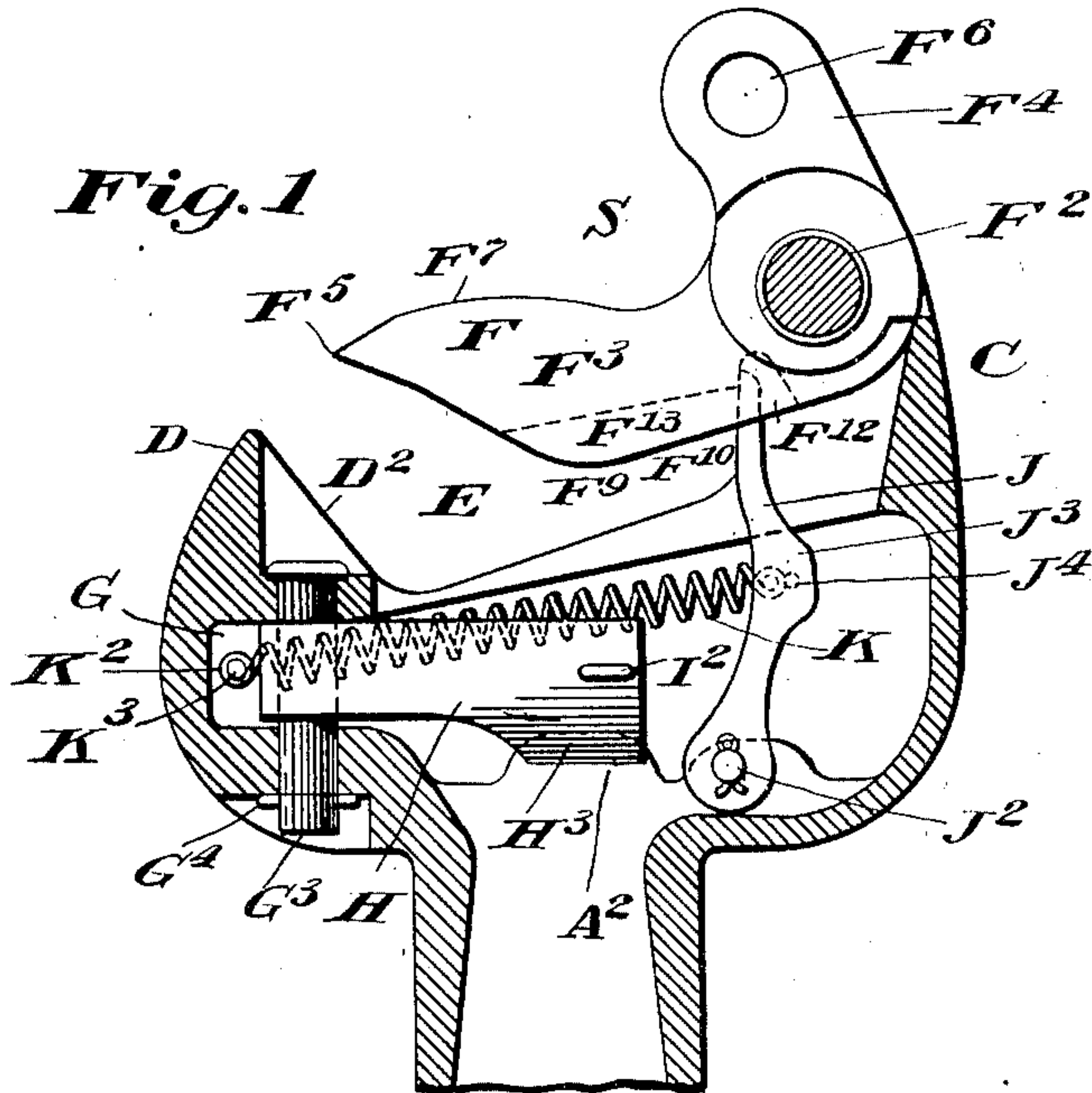
Patented Aug. 28, 1900.

T. KLEIMEIER.  
CAR COUPLING.

(Application filed Jan. 29, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses  
Charles Spiegel,  
H. Smith

Inventor

Theodor Kleimeier  
per Wm. Hubbell Fisher,  
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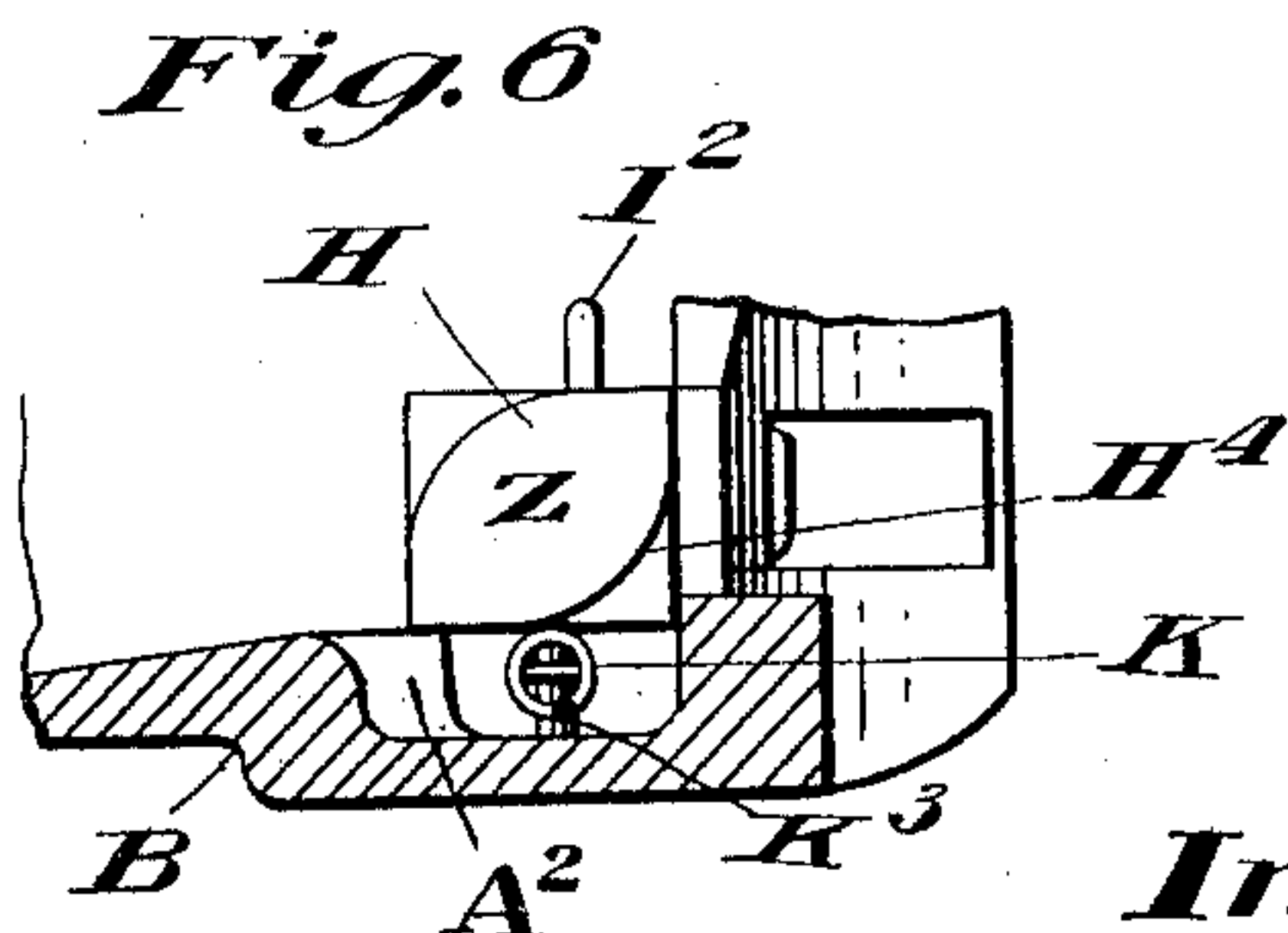
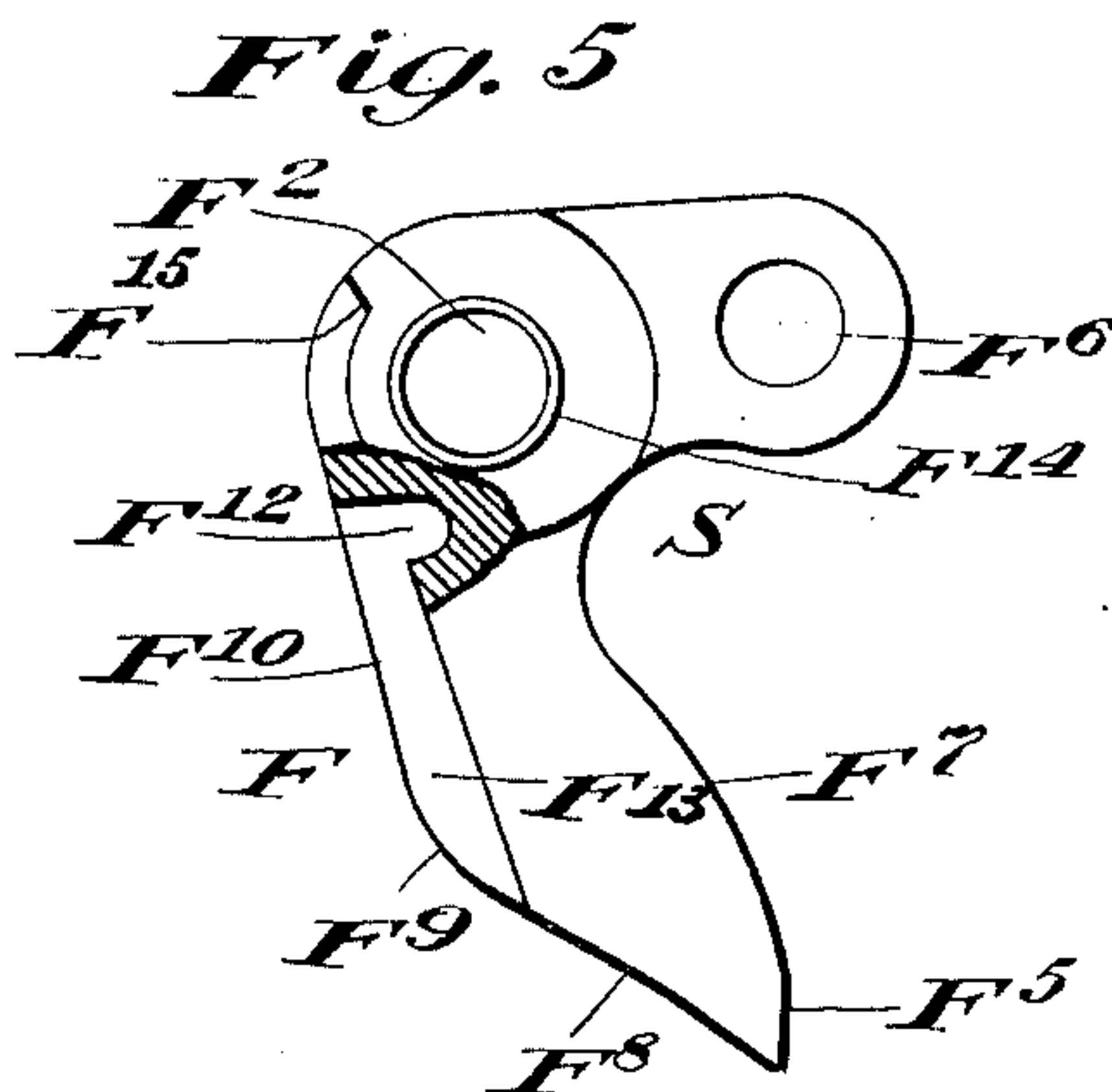
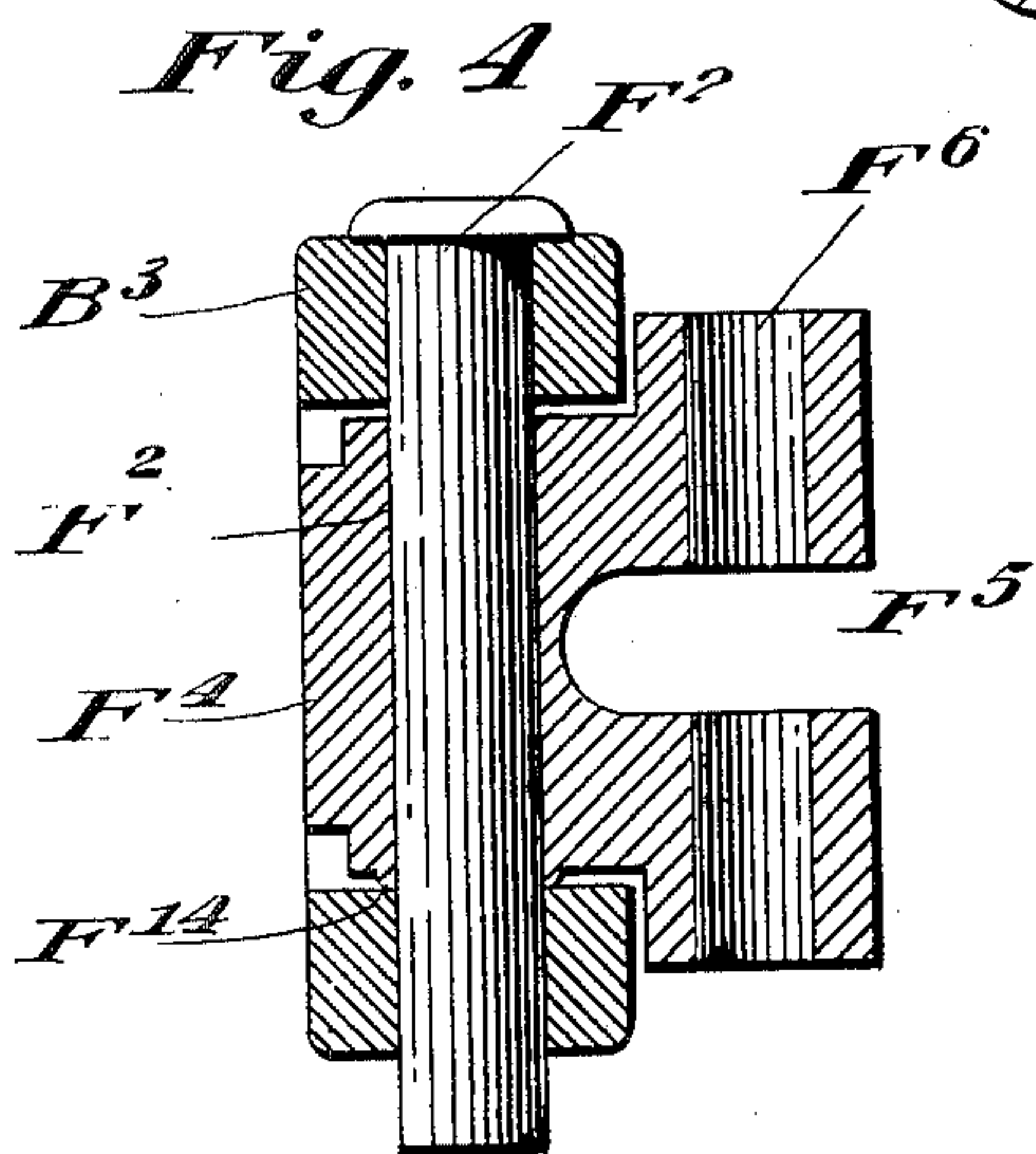
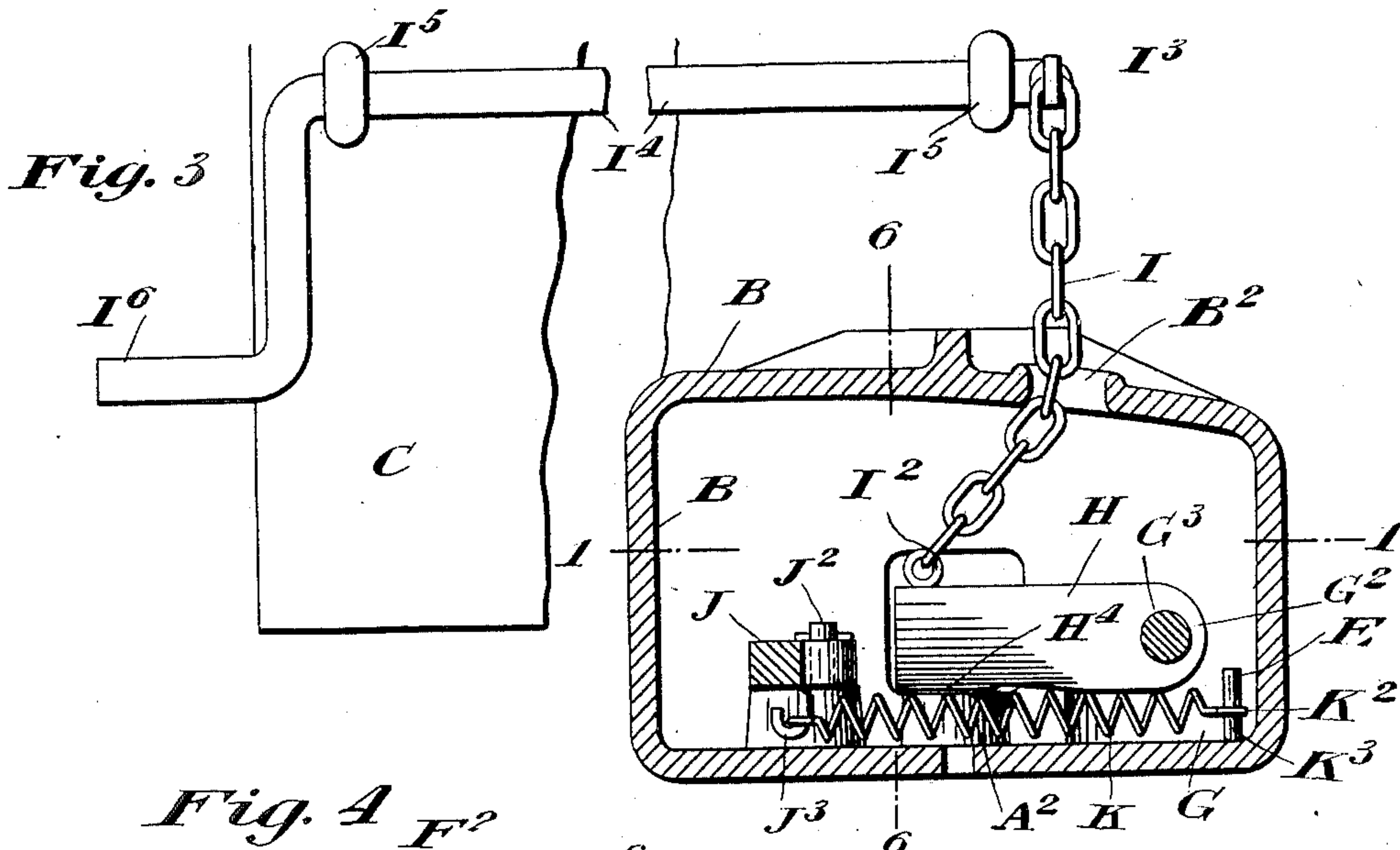
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

THEODOR KLEIMEIER, OF COVINGTON, KENTUCKY.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 656,984, dated August 28, 1900.

Application filed January 29, 1900. Serial No. 3,082. (No model.)

*To all whom it may concern:*

Be it known that I, THEODOR KLEIMEIER, a citizen of the United States, and a resident of the city of Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

In the accompanying drawings, making a part of this application, and in which similar letters of reference indicate corresponding parts, Figure 1 is a sectional elevation taken horizontally through the coupling in the plane of the dotted line 1 1 of Fig. 3, that face of the section being shown which faces upward in Fig. 3. In this figure the knuckle is shown thrown into open position. Fig. 2 is a view similar to Fig. 1, showing the knuckle in closed position. Fig. 3 is a vertical section taken transversely through the coupling in the plane indicated by the line 3 3 of Fig. 2, that face of the section being shown which in Fig. 2 faces the top of the sheet of drawings. Fig. 4 is a vertical section taken through the knuckle in the plane indicated by the line 4 4 of Fig. 2. That side of the section is shown which in Fig. 2 faces toward the upper end of the sheet of drawings. The remainder of the coupling behind is omitted from this figure. Fig. 5 is an under side view, partly in section, of the knuckle detached. Fig. 6 is a fragmentary sectional view taken through the coupling in the plane indicated by the line 6 6 of Fig. 3. Fig. 7 is a plan view, upon a diminished scale, of one of the couplers and of its connections with a car for illustrating my invention.

A indicates the draw-bar.

B indicates the shell of the draw-head. The frame has two projections, respectively marked C and D.

F indicates the hook, consisting in general of the latch-piece  $F^3$  and of the hook  $F^4$  and pivoted at  $F^2$  to the projection C of the frame B of the draw-head. The space in front of the middle portion of the hook and between the hook  $F^4$  and latch-piece  $F^3$ , I have denominated by the letter S. This combination of

hook  $F^4$  and latch-piece  $F^3$  may be denominated a "knuckle." The hook is provided with a recess  $F^5$  for the reception of one end of a link and with a vertical hole  $F^6$  for the insertion of the pin to hold the link in place, and thus enable this hook and its coupling to be used in connecting cars by means of the well-known coupling link and pin when for any reason my improved coupling is not to be used. The hook is provided with the projection or shoulder  $F^{12}$ , which when the coupling is unlocked impinges against a projection  $C^2$  of the draw-head, thereby preventing the hook from opening too far in the process of uncoupling the draw-head. The free end  $F^5$  of the latch or tailpiece  $F^3$  is flat and then farther along is curved on the front side at  $F^7$ . Its rear side is composed of two portions  $F^8$  and  $F^{10}$ , each substantially straight and making an angle  $F^9$  at their point of meeting. The projection D is inwardly-inclined from its forward end toward the center of the draw-head, forming an inclined bevel  $D^2$ , substantially as shown. The space between the projections C and D of the draw-head is indicated by the letter E. The draw-head is provided with a passage G, running at substantially a right angle to the axis of the draw-bar. In this passage is pivoted the rear end of a locking piece or dog H, pivoted at  $G^2$  on pivot  $G^3$ , and whose inner and free end  $H^2$  is capable of movement in a vertical arc, of which this pivot  $G^3$  is the center. The pivot  $G^3$  is kept from withdrawal by pin  $G^4$ . A projection  $A^2$  of the shank of the draw-bar into the passage G affords a substantial rest for the locking-piece H. The latter has a lateral extension  $H^3$ , which when the locking-piece is down rests on the projection  $A^2$ , substantially as shown in Figs. 1, 2, and 3. When the hook is locked, as in Fig. 2, the flat end  $F^5$  of the tailpiece of the said hook is against the free end  $H^2$  of the locking-piece H and is thereby locked. Elevation of the free end of the locking-piece lifts it up away from and out of contact with the end  $F^5$  of the tail (latch) piece  $F^3$ , and this unlocks the hook F and leaves the latter free to swing open and take the position shown in Fig. 1.

The elevation of the free end  $H^2$  of the locking-piece H is accomplished by means



of a rod, link, chain or cord, or any other preferred means; but a chain or cord is the most handy means for use, especially in connection with that feature of my invention whose object is to prevent, when a draw-bar is drawn from its fastenings, the falling of the draw-bar onto the track and whose further object is to then uncouple the couplings and prevent further strain on the draw-bar and its supports. In the present illustrative instance a chain I is employed. Its lower end is connected to an eye or hook I<sup>2</sup> of the free end H<sup>2</sup> of the locking-piece H, and the chain is extended up through a slot. The upper end of this chain is connected to the free end of an arm I<sup>3</sup>, which is fixed to a shaft I<sup>4</sup>. The latter is journaled in the bearings I<sup>5</sup>, fixed in the car, an end W of which is shown in Figs. 3 and 7 and operated by a crank I<sup>6</sup>. By moving the crank in the proper direction the arm I<sup>3</sup> will draw up the chain and the latter will elevate the locking-piece H<sup>2</sup> H. A lever is present for throwing the knuckle F<sup>3</sup> F<sup>4</sup> into an open position. For enabling the lever to thus throw automatically a spring is combined therewith. J indicates this lever pivoted at its rear end on a pivot J<sup>2</sup> and held in place thereon by suitable means, as a cross-pin J<sup>3</sup>.

K is a spring at one end connected to a pin K<sup>3</sup>. This connection is preferably made by an eye or hook K<sup>2</sup> thrown over the pin, and at the other end connected to the lever J by a hook J<sup>4</sup> at the mid-length of the latter. In practice the spring can thus be readily connected and adjusted to place.

It is to be observed that the locking-piece H is so pivoted that its rear or pivoted end portions lie down quite near to the spring K in the vicinity of the pin K<sup>3</sup>. Hence in whatever position the locking-piece may be, whether raised or down, its rear end will serve to keep the eye of the spring K down on the pin K<sup>3</sup>. It therefore becomes a safeguard.

One of the objects of my invention is to so construct and arrange the lever J and the tailpiece F<sup>3</sup>, which connects therewith, as to enable the lever not only to be fully effective, but to occupy an unobtrusive position and to always be in operative conjunction with the tailpiece. To this end I construct the lever as shown, and I form in the rear edge or side of the latch-piece, near the pivot F<sup>2</sup>, a recess F<sup>12</sup>. I also provide a groove F<sup>13</sup> in the rear side of the tailpiece. When the tailpiece is locked, (see Fig. 2,) the larger portion of the lever J occupies this groove. In this obvious manner space is economized. As soon as the locking-piece H is lifted, the tailpiece F<sup>3</sup> being then free to move, the spring K, strained between pin K<sup>3</sup> and hook J<sup>3</sup> of the lever, will draw the free end of the lever to the left and cause the lever to move the latch-piece forward. As the lever does this and before the latch-piece assumes the position shown in Fig. 1, the free end of the lever has entered the recess F<sup>12</sup>. (See Fig. 1.)

The knuckle is now open and the lever is in a position where it not only tends to keep the knuckle open until closed by the forcible impingement of an opposing knuckle draw-head, but its free end is held by the side of the recess, and is thus prevented from being drawn over by the spring when the knuckle is wide open. This arrangement of the lever in connection with the tailpiece is very effective and convenient. When the knuckle is being closed and as the tailpiece moves backward, the free end of the lever remains in the recess F<sup>12</sup> until the rear side of the lever comes nearly parallel and nearly in contact with the side of the lever. Then the free end of the lever leaves the recess and continues out of it while the latch-piece is unlatched. (See Fig. 2.)

It will be noted that the forward side of the locking-piece H at the portion where the tailpiece impinges when the knuckle is being locked is curved away at H<sup>4</sup>. Such well-known conformation enables the free end of the tailpiece F<sup>3</sup> when the latter is moved back in the operation of locking the knuckle to elevate the locking-piece and pass under and by the same and to assume the position shown in Fig. 2, at which time the locking-piece will descend and will lock the tailpiece, all the parts taking the position shown in Fig. 2.

It will be observed that I have provided the knuckle F<sup>4</sup> with the annular projection F<sup>14</sup>, respectively located around the lower end of the bore and concentric with the latter. This bears against the adjacent bearing B<sup>3</sup> of the shell and diminishes the pivotal friction between the knuckle and the draw-head.

The presence of the shaft I<sup>4</sup>, journaled and provided with crank-arm I<sup>6</sup> and arranged as shown, is of advantageous importance not only for unlocking the knuckle under ordinary and normal conditions, but for a purpose now to be mentioned.

It sometimes occurs that a draw-bar will come loose while the train is in motion. Then the bar and its draw-head will part from its car and drop down in front of the next car and frequently fall in such a position as to throw the train from the track. The last-named feature of my invention operates to prevent such a catastrophe, and the manner of such prevention is as follows: The chain I is, when the draw-bar and draw-head are in their normal position, of a suitable length to enable the moving of the crank I<sup>6</sup> to lift the locking-piece H and unlock the knuckle. In the event of the draw-bar becoming detached from the car it would gradually or quickly work out from the car. As it began to slip out of its place, it would draw the chain I taut. The chain would allow the draw-head to move but a little from the car, and long before the draw-bar had left its supports on the car the chain would be drawn taut and would lift the locking-piece, would unlock the knuckle, and uncouple the draw-head from the adjacent car. When the train



was thus uncoupled, no further strain would come on the loose draw-head and its bar and the chain I will hold them in place on the car. As they cannot drop down, the next car  
5 cannot be thrown from the track by reason of their encumbering the track.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. In a draw-head having a knuckle, a piv-  
10 oted locking-piece for locking the knuckle, and a lever and spring for automatically opening the knuckle, when the latter is unlocked, the spring strained between the lever and a pin, a connection of the spring slipped over  
15 the pin, the pivot of the locking-piece holding the latter at all times close to the spring so that the latter cannot leave the pin, until

the removal of the locking-piece, substantially as and for the purposes specified.

2. In a draw-head having a locking knuckle, 20 a lever and spring for automatically opening the knuckle when unlocked, the groove in the rear side of the tailpiece of the knuckle and the added recess therein at F<sup>12</sup> to receive the free end of the lever and which, 25 while enabling the latter to actuate the tailpiece, will limit the throw of the lever toward the spring, substantially as and for the purposes specified.

THEODOR KLEIMEIER.

Attest:

WM. H. PUGH,  
K. SMITH.