

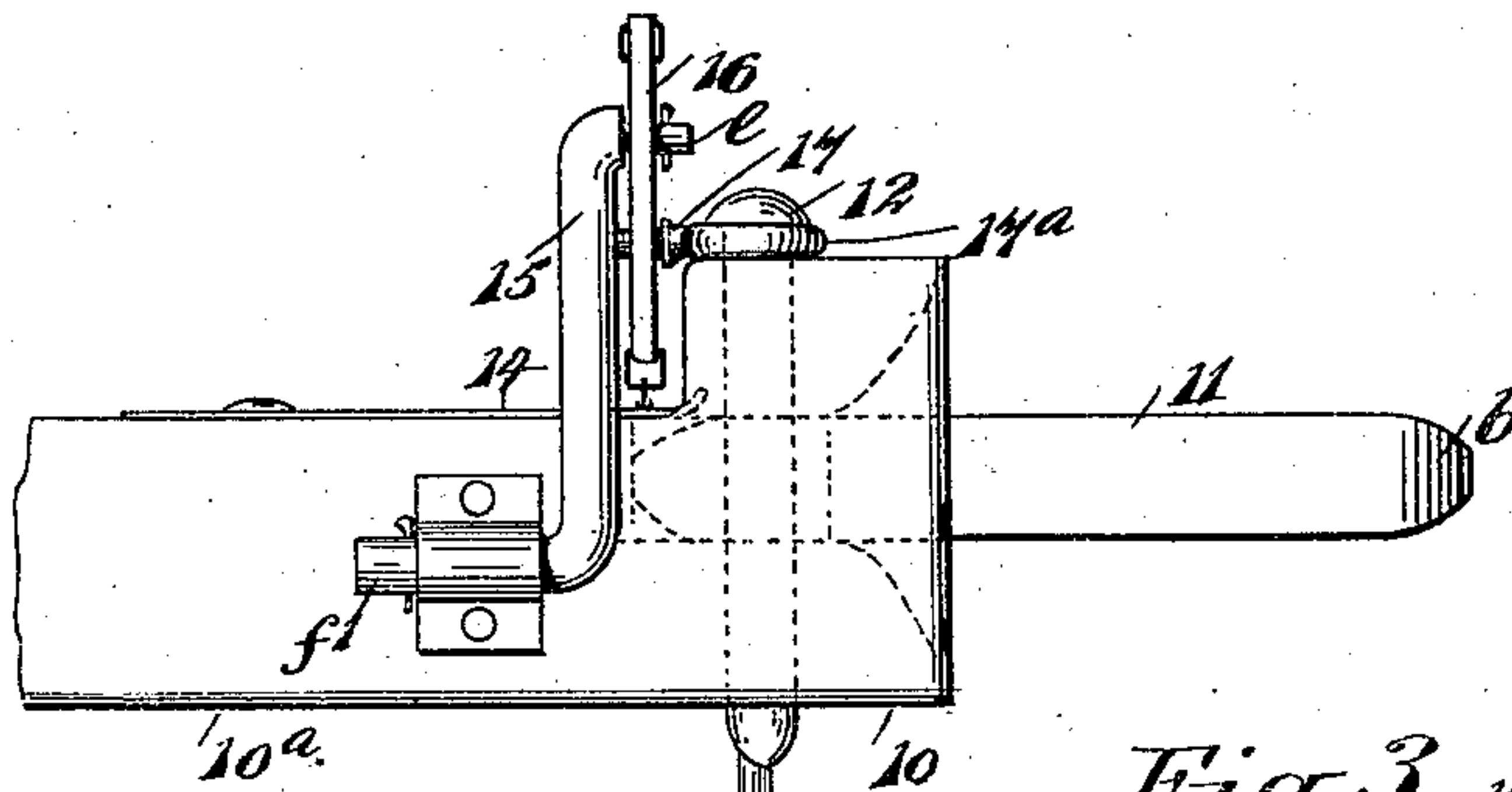
(No Model.)

J. E. BETTS.  
CAR COUPLING.

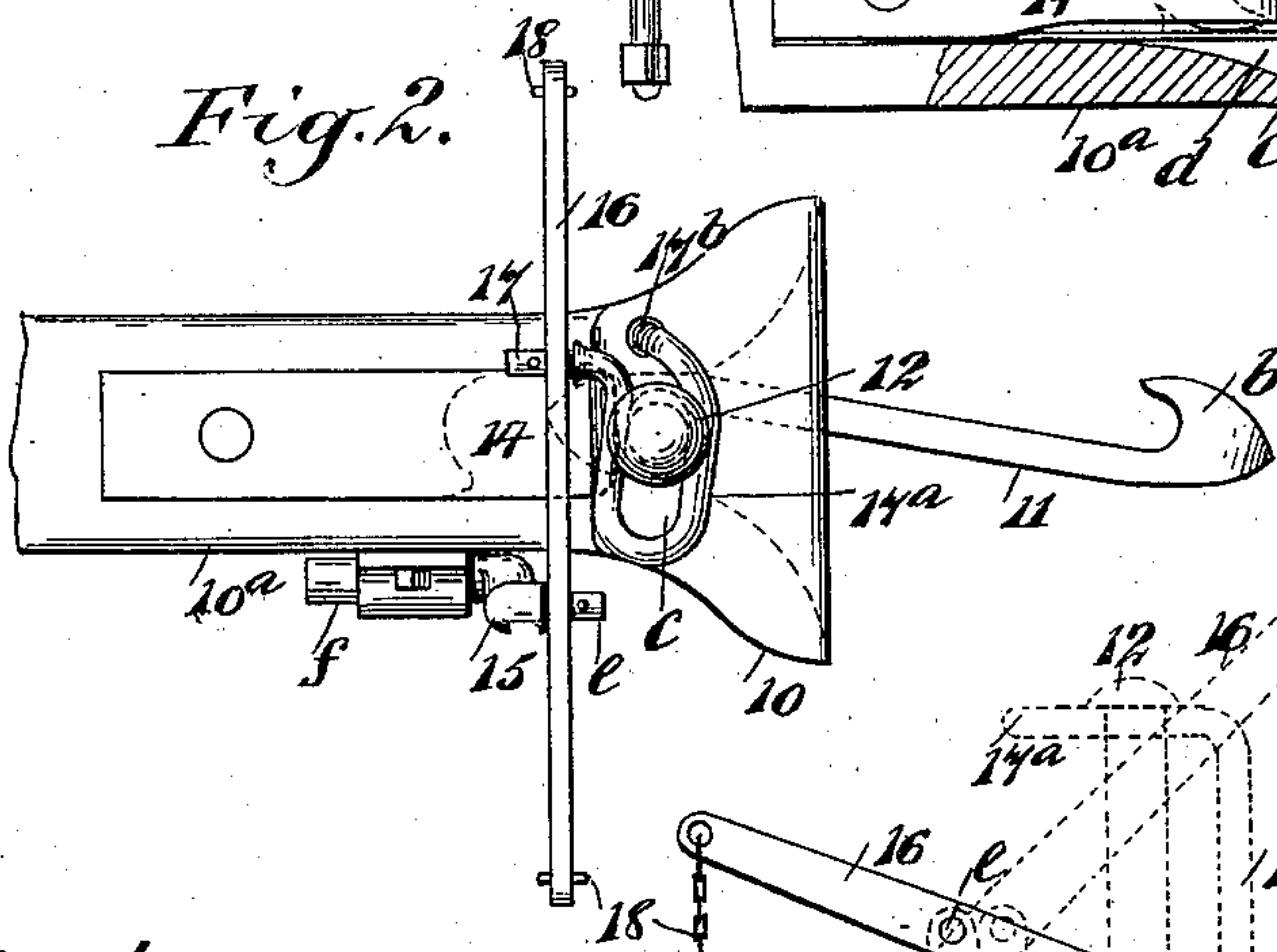
No. 577,000.

Patented Feb. 16, 1897.

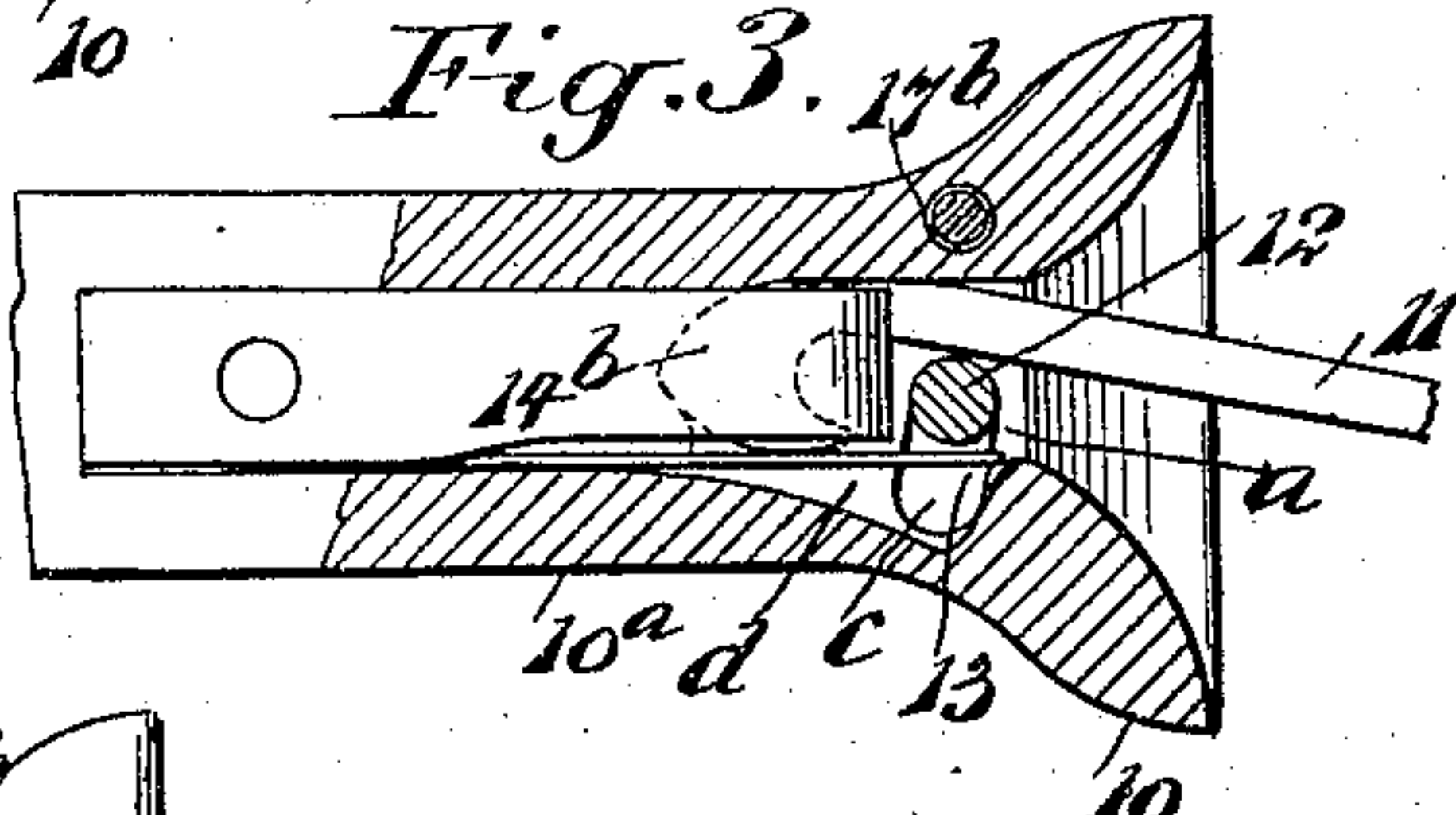
*Fig. 1.*



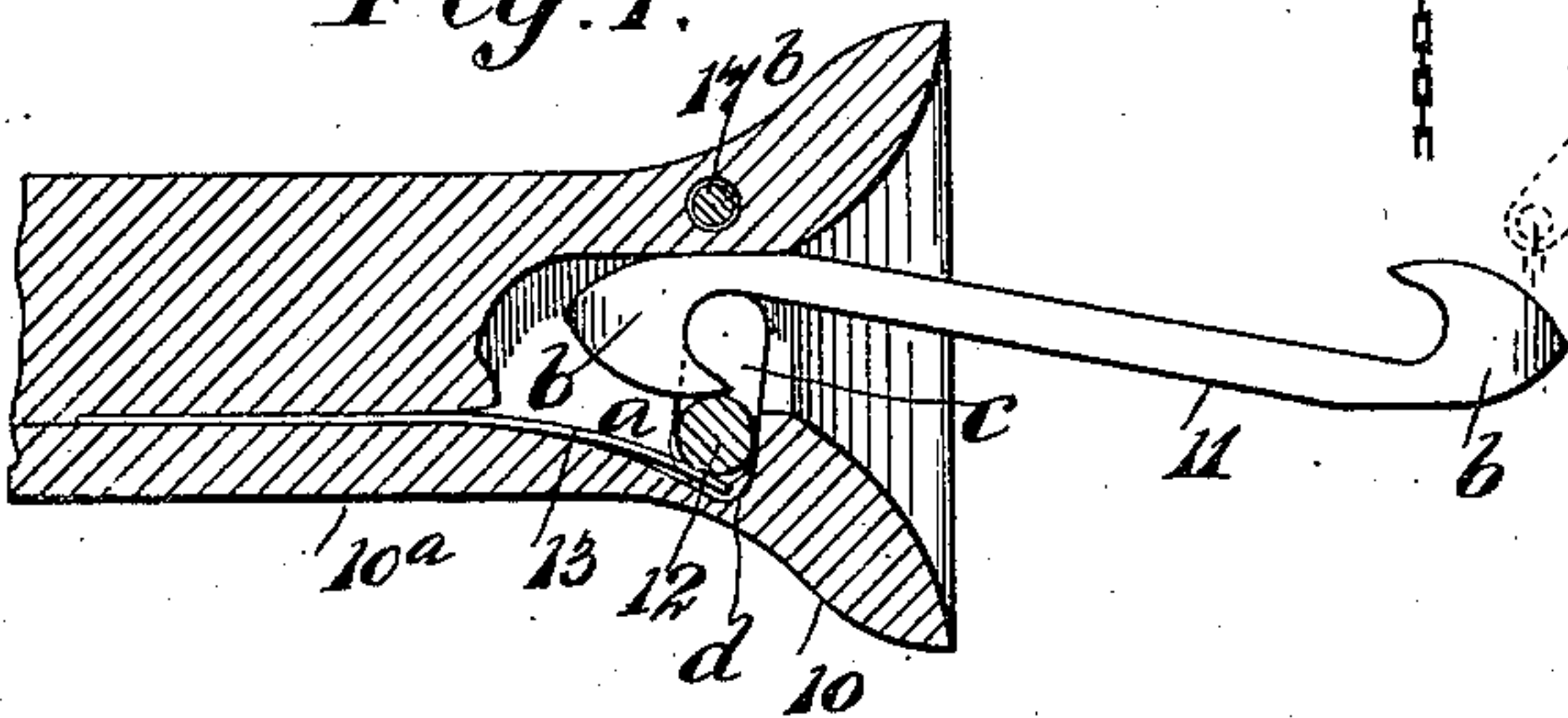
*Fig. 2.*



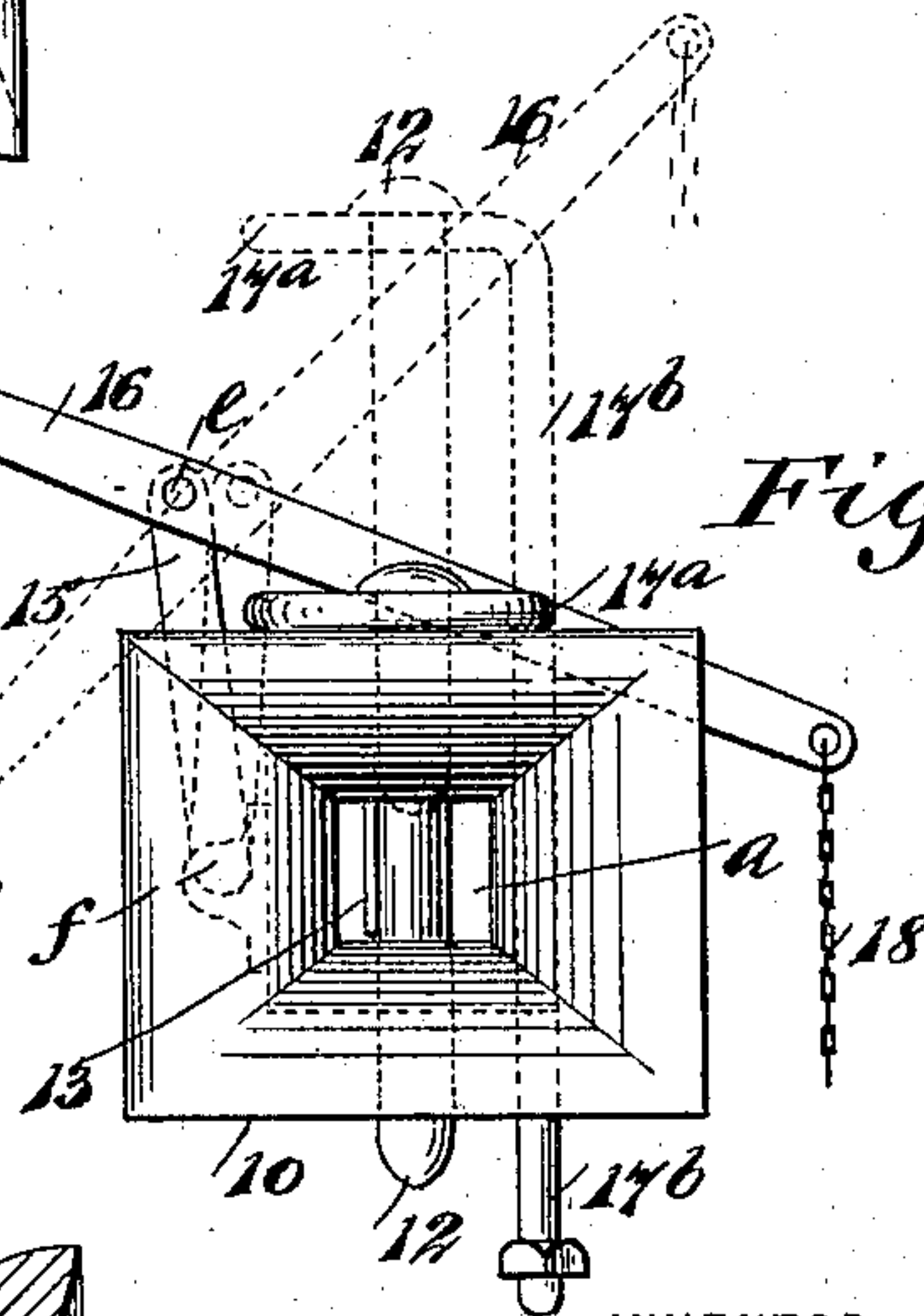
*Fig. 3.*



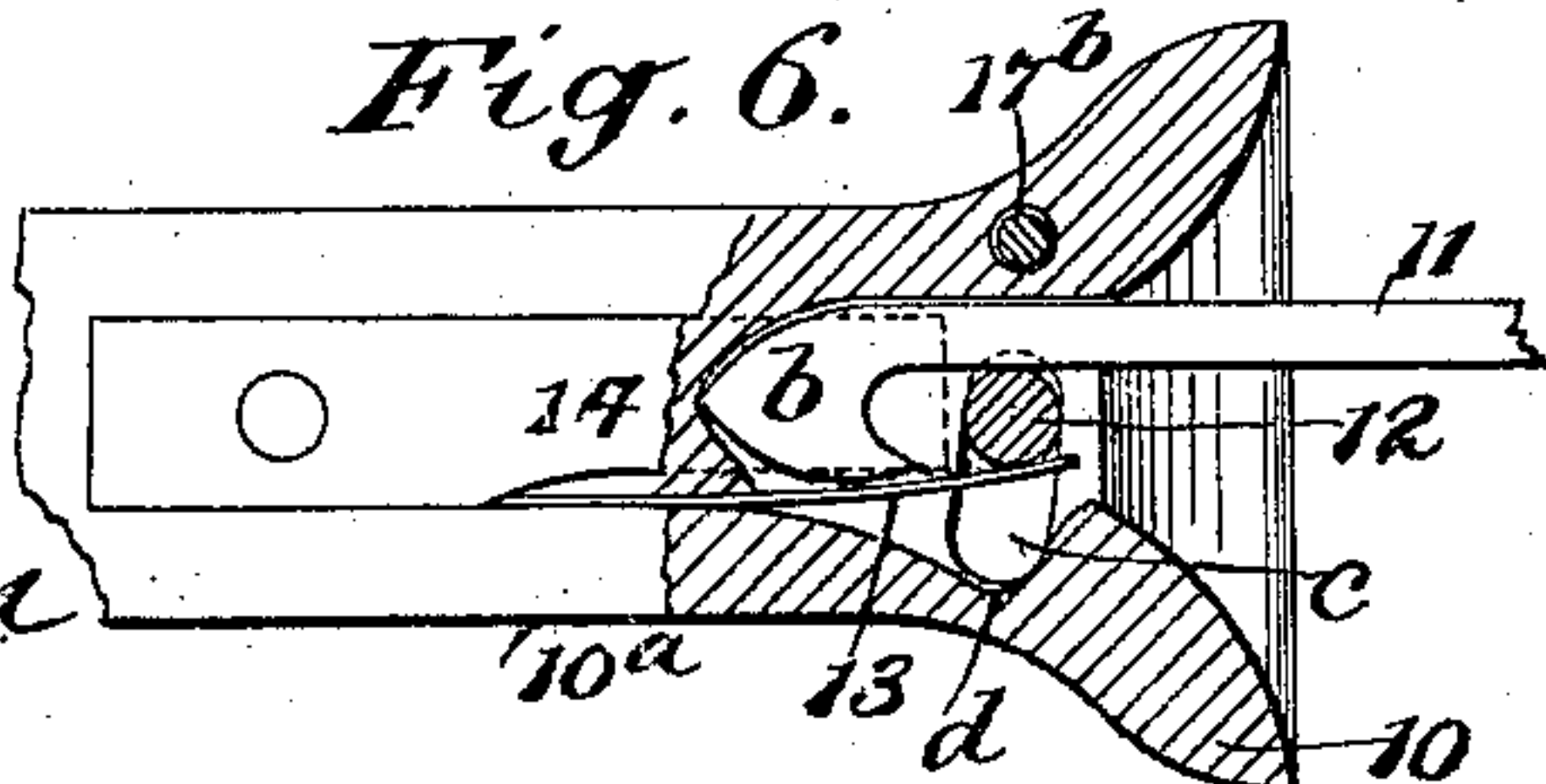
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JAMES EDWIN BETTS, OF WILMINGTON, OHIO.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 577,000, dated February 16, 1897.

Application filed March 5, 1896. Serial No. 581,885. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES EDWIN BETTS, of Wilmington, in the county of Clinton and State of Ohio, have invented certain new and useful Improvements in Car-Couplings, of which the following is a full, clear, and exact description.

This invention relates to car-couplings of the drop-pin and hook type, and has for its object to provide novel and practical features of construction for a car-coupling of the indicated character, which will adapt it for automatic coupled connection with another coupling of similar construction and afford convenient and safe means for the detachment of two coupled cars having the improvements.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and pointed out in the 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 figures.

Figure 1 is a side view of the improved car-coupling and a coupling-link projected therefrom. Fig. 2 is a plan view of parts represented in Fig. 1. Fig. 3 is a partly-sectional view of the draw-head, a link in part inserted within the draw-head, a drop coupling-pin in transverse section, and clamping-springs within the draw-head, adapted to hold the link projected at the front of the draw-head. Fig. 4 is a sectional plan view of the draw-head, a pin in transverse section, and the coupling-link partly inserted to engage with said pin. Fig. 5 is a front end view of the coupling, showing the coupling-pin depressed in full lines and elevated in dotted lines; and Fig. 6 is a partly-sectional side view of the draw-head and forward portion of the draw-bar, showing working parts adjusted to hold the coupling-link projected directly forward.

The draw-head 10 is cast integral with the draw-bar 10<sup>a</sup> and comprises an enlargement of the latter, having a chamber *a* formed in it of suitable depth and conformation, the front end of the same being outwardly flared on four sides to permit the easy insertion of one end of the coupling-link 11 within the draw-head chamber. While not illustrated, it is to be understood that the draw-bar 10<sup>a</sup>

is to be connected in any approved manner for effective action with a car-frame, so as to project at its end and thus be adapted for coupled connection with a similar draw-head on another car.

The coupling-link is preferably formed as shown, comprising an elongated bar having an arrow-headed formation *b* at each end, said heads being rounded at the ends on their upper and lower sides and laterally projected on opposite sides of the link-body, as clearly shown in Fig. 4, and each head is concaved at its rear side, thus affording a hook to engage with the coupling-pin 12.

Opposite transverse slots *c* are produced in the top and bottom walls of the draw-head 10 for reception of the pin 12, and as represented the latter comprises a cylindric billet of correct length, having its lower end blunt-pointed and a headed enlargement on the normally upper end, the coupling-pin being designed to occupy the slots *c* and traverse them as occasion may require. An open recess *d* is formed in one side of the draw-head chamber *a*, and the transverse slots *c* extend therein, as indicated in Figs. 3 and 4, so that the body of the pin 12 may be shifted from a central position in the throat of the chamber *a* into the recess *d* and completely out of said throat-entrance of the chamber.

A plate-spring 13 has its rear end embedded or otherwise secured in the draw-bar body, and projects at its front end into the chamber *a*, said resilient end portion of the spring being adapted to laterally contact with the body of the dropped pin 12 and hold it near the center of the draw-head throat. It is essential that the width of the spring 13 should be sufficient to permit it to contact with the side of the pin 12, at the lower end of the said pin, when it is elevated, as indicated by dotted lines in Fig. 5. Another plate-spring 14 is secured on the draw-bar 10<sup>a</sup> so as to project its free end into the chamber *a*, this spring being designed to press on an inserted end of the coupling-link 11 and hold the projecting portion of said link-bar substantially level.

It will be evident that if one hooked end of the coupling-link 11 is introduced within the draw-head chamber *a*, as shown in Fig. 4, the peculiar shape of said head *b* will adapt



it to press the body of the dropped pin 12 into the recess *d* and compress the forward end of the spring 13 until the hooked head of the link is fully inserted, as indicated in Fig. 3. This will permit said spring to return the pin to the transverse center of the chamber *a* in position for a hooked engagement of the head *b* therewith when draft strain is applied to the coupling-link, the link being held by the springs 13 14 projected outward, as shown in Fig. 6. When the hooked end of the link-bar 11 is drawn into coupled engagement with the body of the depressed coupling-pin 12, the free front end of the horizontal spring 14 should press on the link-bar, as before mentioned, so that the latter will, by the coaction of the springs 13 14, still be held extended for engagement of its outer end with a similar car-coupling.

The means provided for vertical movement of the coupling-pin 12 consists, essentially, of the following-described parts: An arm 15, having two oppositely-bent members *e* and *f* at its ends, is journaled by its lower member *f* in a box *g* or like support on the side of the draw-bar 10<sup>a</sup>, so that the body of said arm will be adapted to receive upright adjustment and the upper member *e* be forwardly projected, as shown in Figs. 1 and 2.

A lever 16, of suitable length, is perforated near one end for reception of a journal end on the member *e*, and both members *e* and *f* of the arm 15 are loosely secured in place by cross-pins or other means. The longer limb of the lever 16, which projects over the draw-head, is perforated at a proper point for the pivotal engagement therewith of one end of a lifter-arm 17, whereon is formed a looped portion 17<sup>a</sup>, that is transversely disposed above the slots in the draw-head, wherein the coupling-pin 12 is introduced, as before explained, the body of said pin hanging by its head through the loop of the lifter-arm, as best shown in Fig. 2.

The lever 16 is afforded a suitable length, and at its ends flexible connections 18 are attached, which may be extended to convenient points for safe manipulation at either side of the car whereon the improvements are placed, and it will be seen that draft force applied to the flexible connection at the end of the lever 16 which is nearest the rock-arm 15 will depress the lever at said end and elevate the opposite end of the same, which will produce an elevation of the coupling-pin 12 sufficient to release it from engagement with the link 11. The weight of the longer end of the lever 16, together with that of the coupling-pin 11 and looped lifter-arm 17, serves to depress the pin 11 when free to do so.

It is preferred, for efficiency in operation, to extend a depending limb 17<sup>b</sup> from the looped portion of the arm at right angles thereto and pass said limb loosely down through a vertical perforation of the draw-head, as shown by dotted lines in Fig. 5, which

will convert the limb into a guide-rod for the lifter-arm and adapt the looped portion of the same to vertically reciprocate in a level condition, thus avoiding any cramping strain on the coupling-pin 11.

It will, furthermore, be apparent that by provision of the rock-arm 15 the free rocking movement of the same will obviate lateral strain on the coupling-pin and permit its vertical movement when sliding up or down in the draw-head.

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

1. The combination, with a chambered draw-head, having transverse slots in the top and bottom walls thereof, of a gravity-pin reciprocal in said slots, a lateral plate-spring pressing the pin toward the center of the draw-head chamber at its throat, a lifting device for the pin, and a coupling-link having a lateral hook on each end and adapted for insertion in the draw-head throat to engage the coupling-pin, substantially as described.

2. The combination, with a draw-head, having a chamber and flared walls at the front, of a coupling-link in bar form, having opposite arrow-head formations at its ends which project laterally from the body of the link, each head being concaved at the rear to produce hooks thereon, and springs in the draw-head chamber adapted to press on the side and top of an inserted end of the coupling-link, substantially as described.

3. In a car-coupling of the described construction, the combination with the draw-head having a chamber and flared walls at the front, a lateral plate-spring in said chamber, and a similar spring at the top of the chamber, of a coupling-link in bar form, having an arrow-head formation at each end projecting at opposite sides, said formations being concaved at their rear walls, the spring being adapted to hold the link projected from the throat of the draw-head, substantially as described.

4. In a car-coupling of the described construction, the combination with the draw-head chambered to receive a coupling-link, and transversely slotted in its top and lower walls near the front of the chamber to receive a cylindric pin, of a pin-lifter device, comprising the rock-arm having a member pivoted to the side of the draw-head and upwardly projected therefrom, a transverse lever pivoted nearer one end on the upper end of the rock-arm, a lifter-arm having loose connection with the lever and furnished with a looped formation adapted to receive and lift the coupling-pin, and a guide-limb depending from the said looped portion of the lifter-arm and slidable in a vertical perforation of the draw-head, substantially as described.

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Witnesses:

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