

(No Model.)

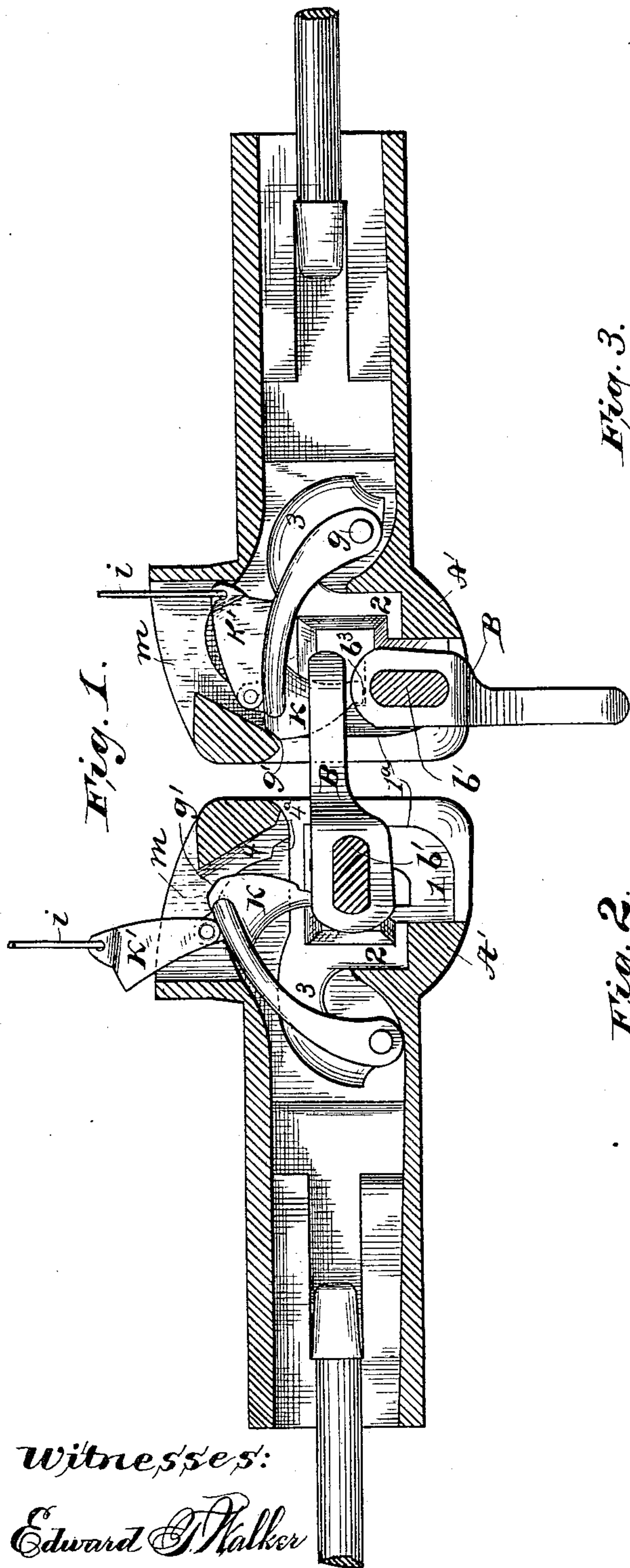
2 Sheets—Sheet 1.

H. L. PECK.

CAR COUPLING.

No. 368,352.

Patented Aug. 16, 1887.



Witnesses:

Edward Walker

L. S. Putaker

Fig. 3.

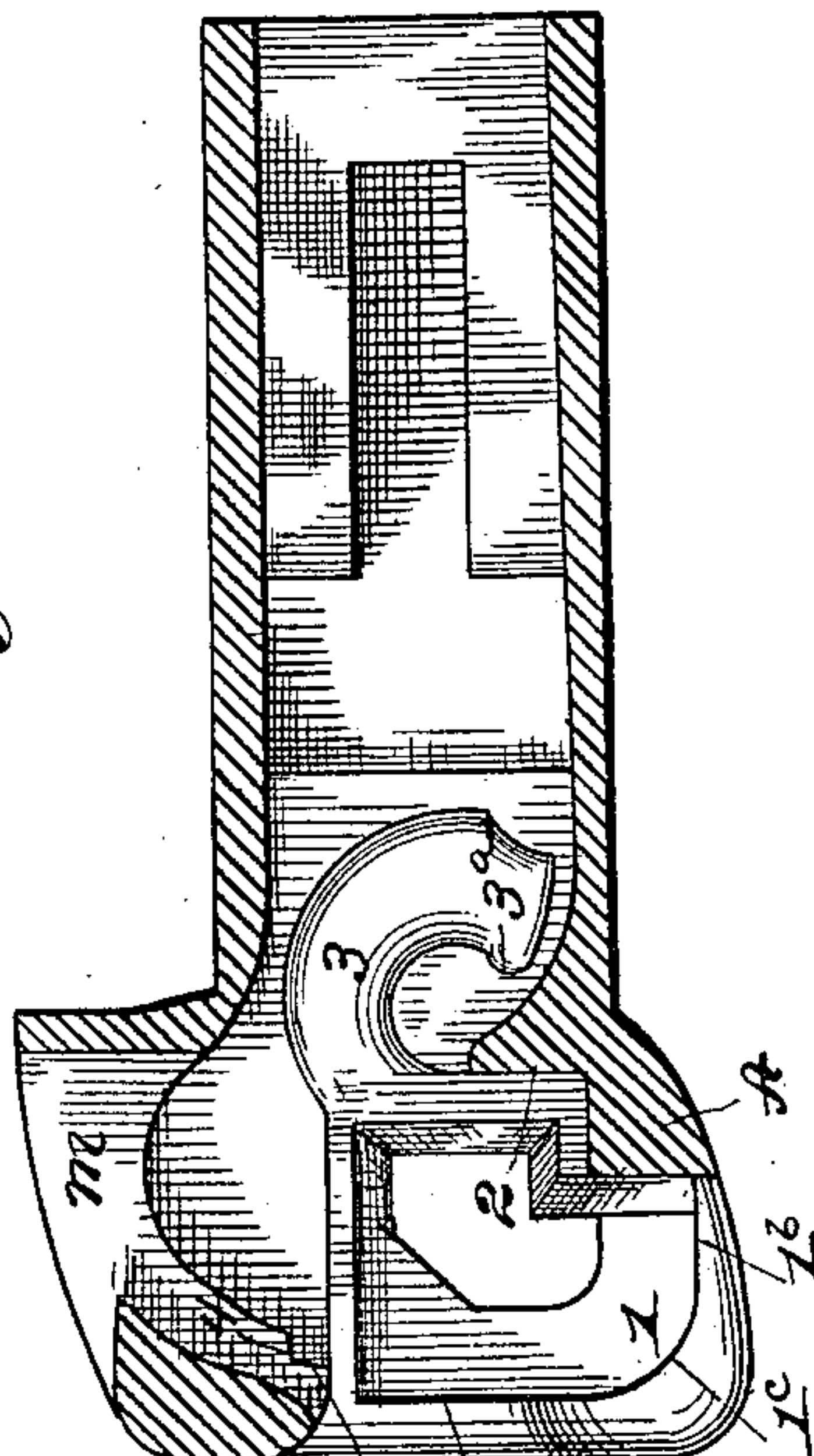
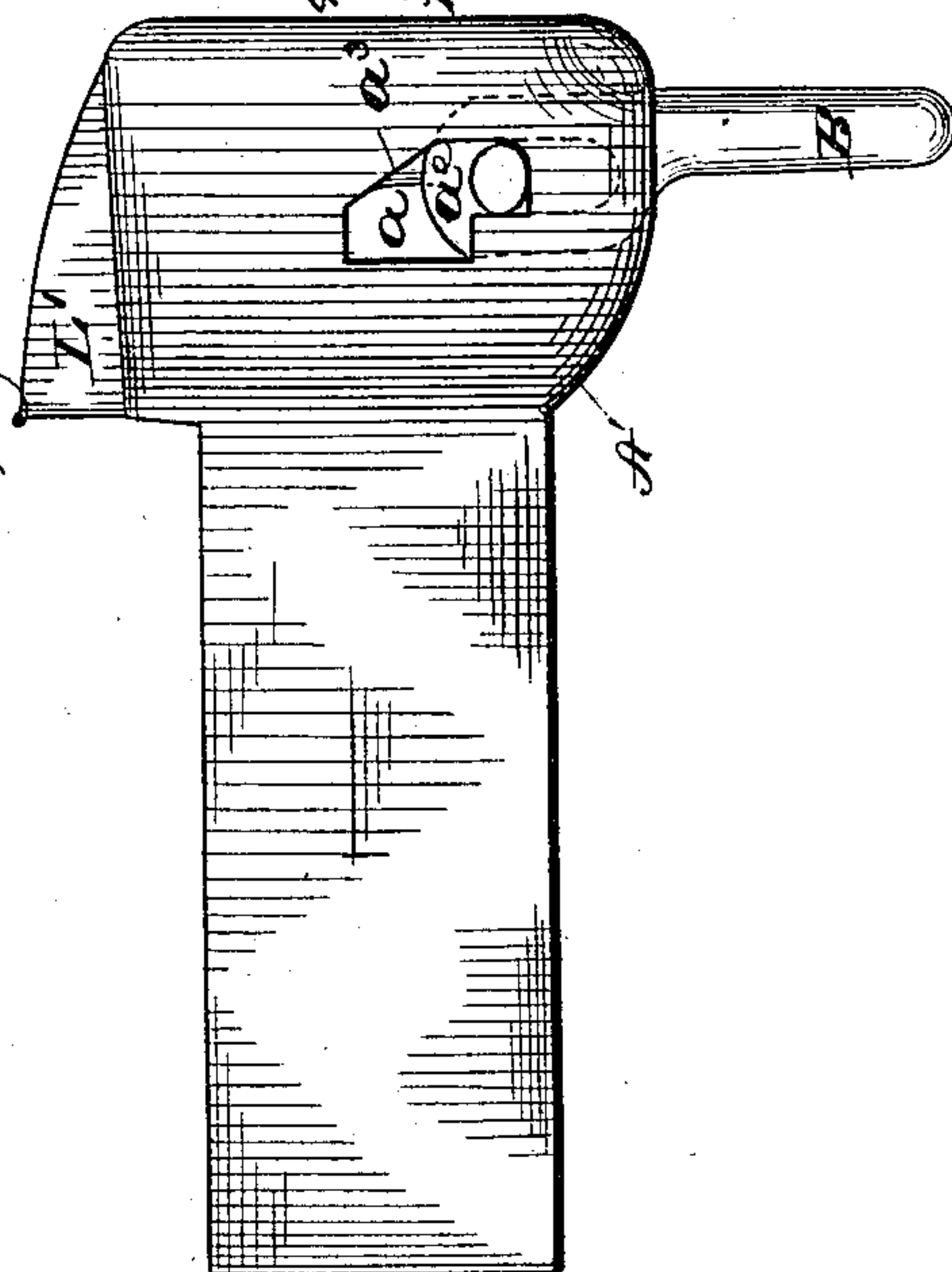


Fig. 2.



Inventor.

Henry L. Peck

By his attys

Whitaker & Brown

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

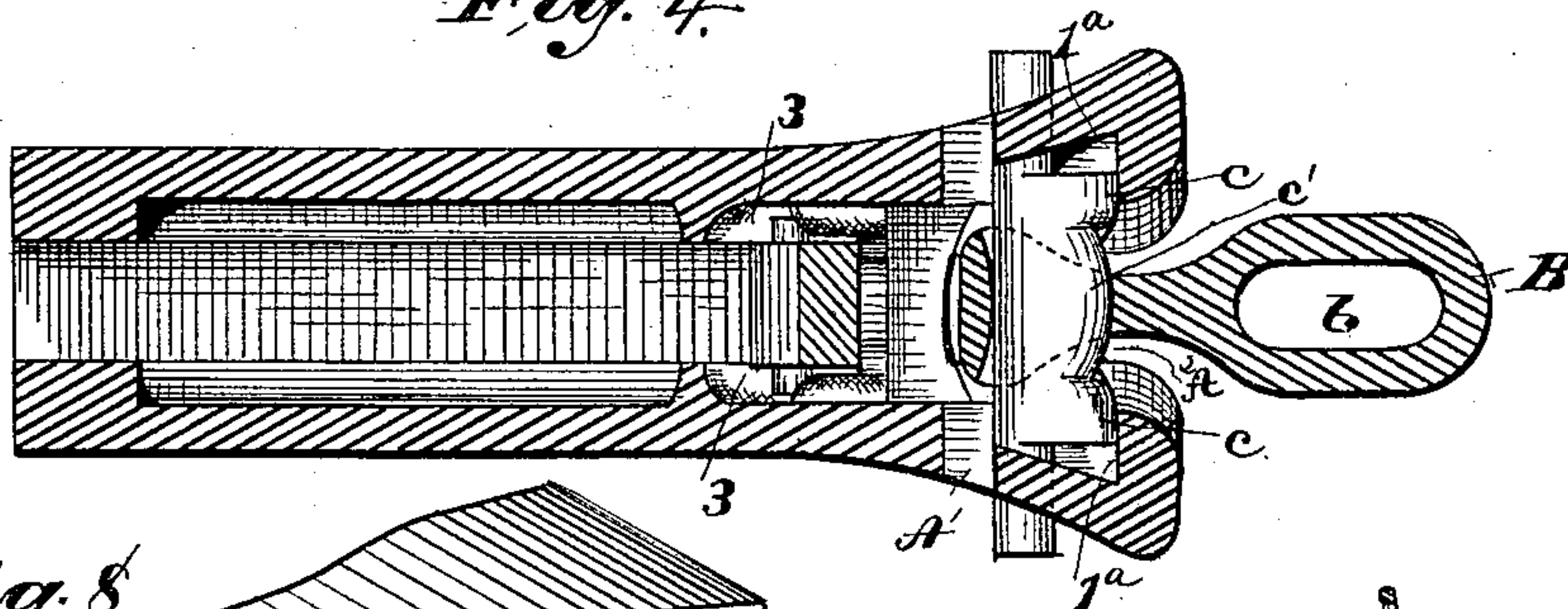


Fig. 8.

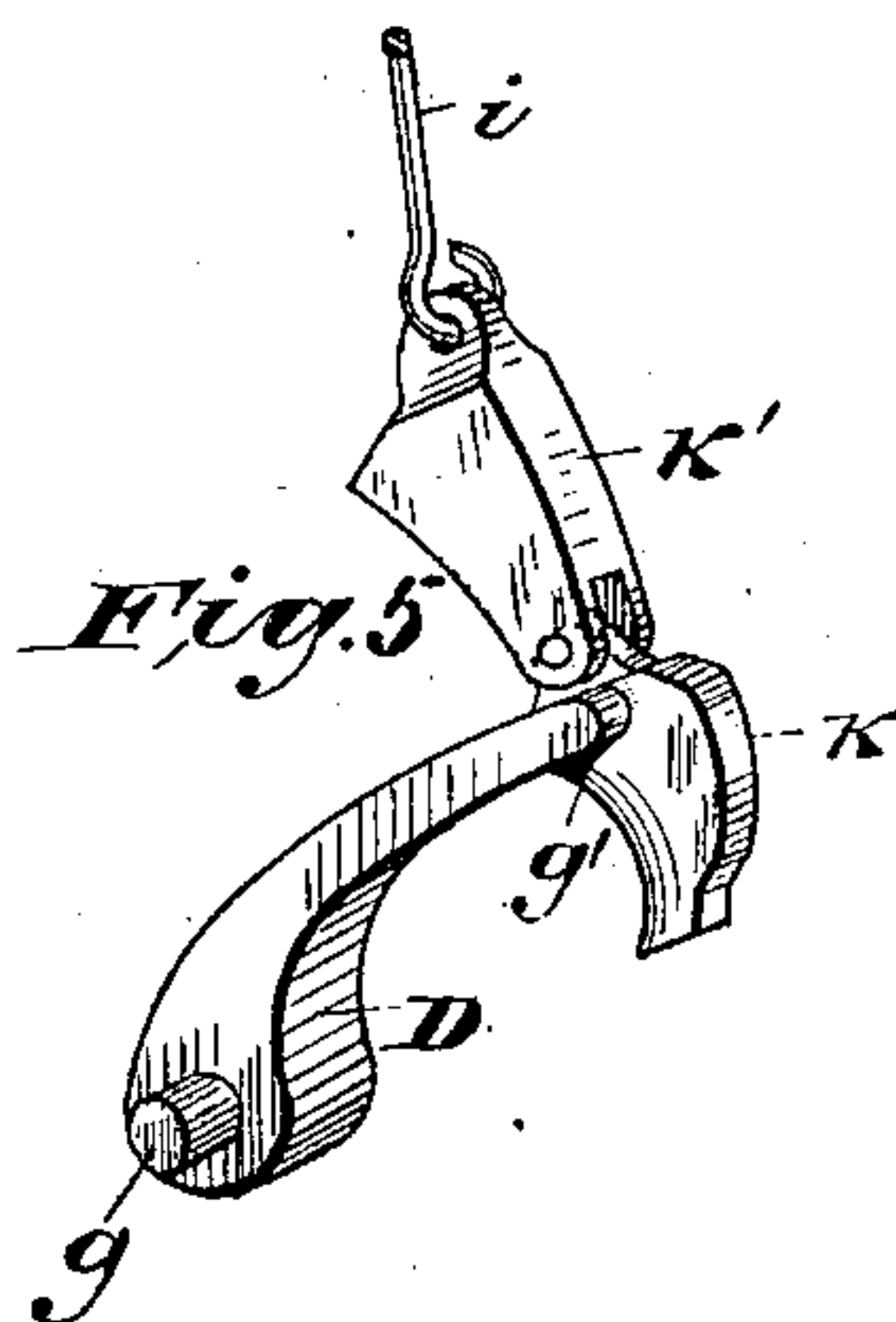
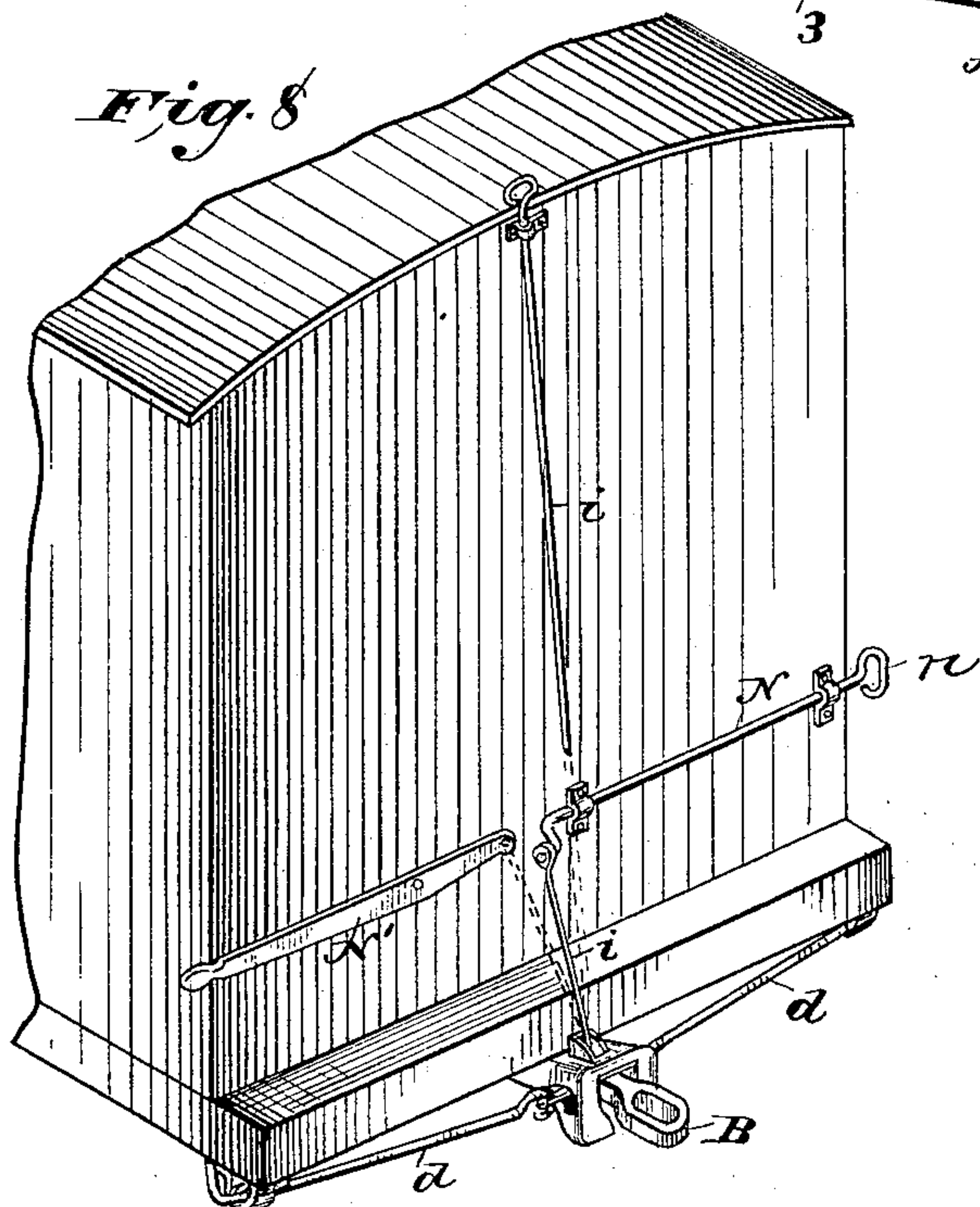


Fig. 6.

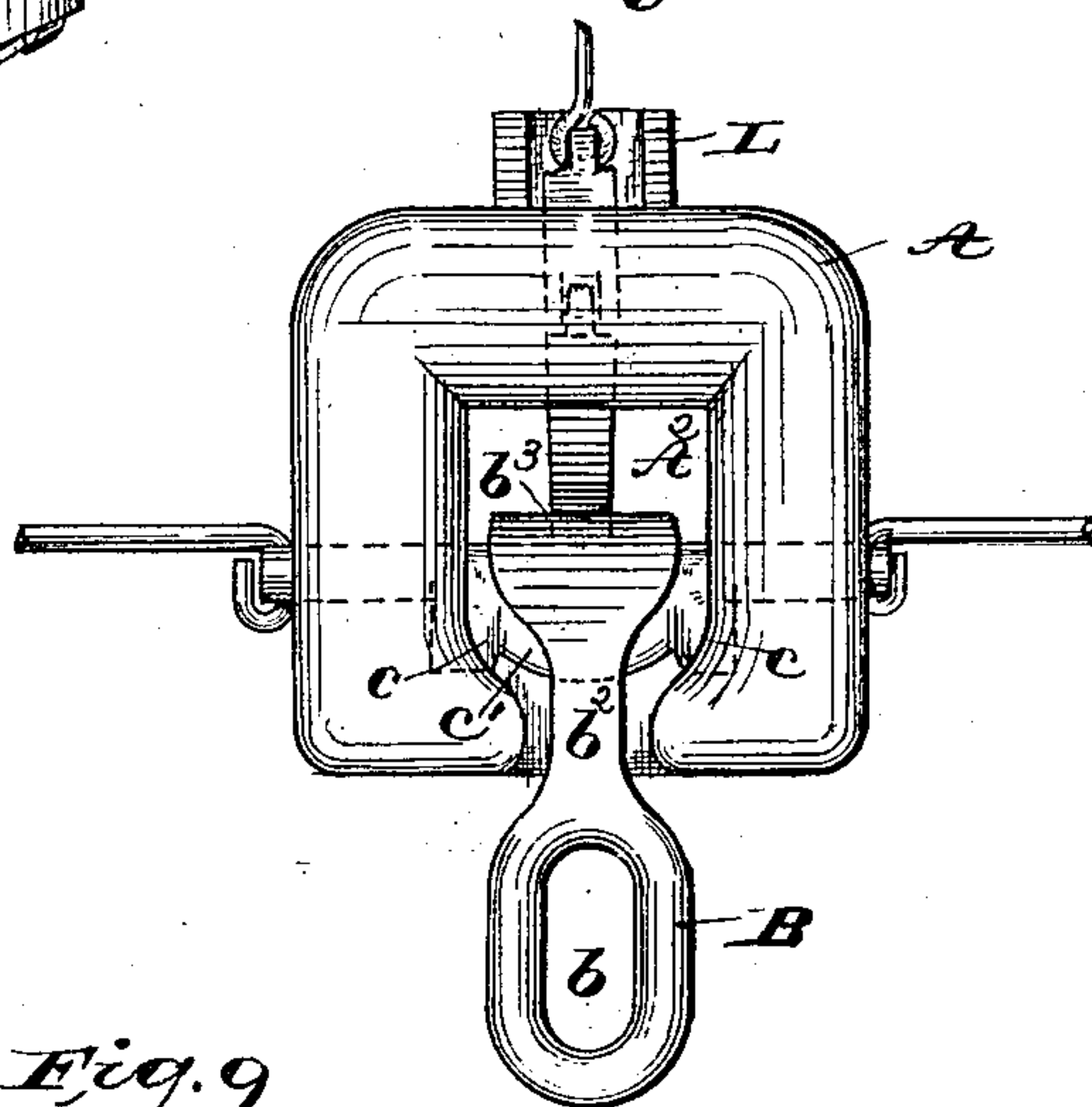


Fig. 7.

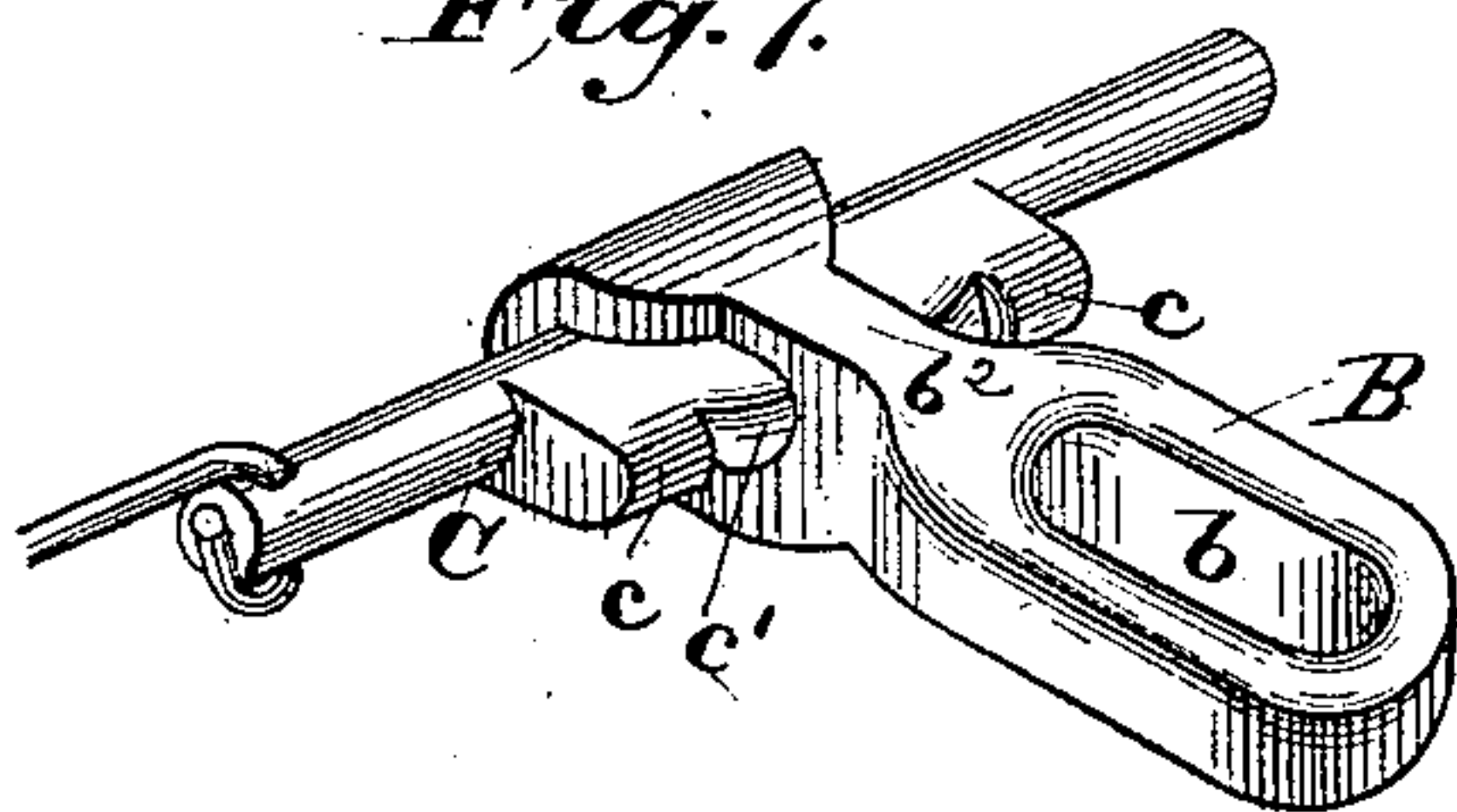
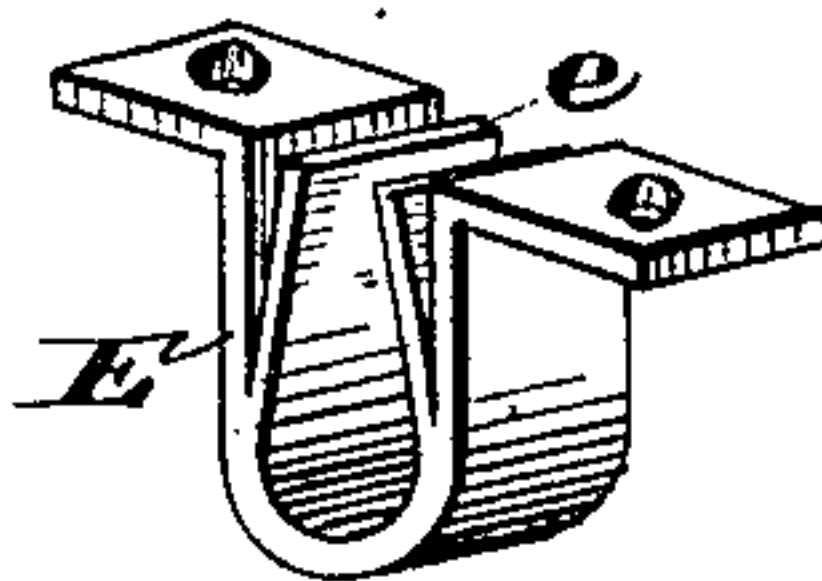


Fig. 9.



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UNITED STATES PATENT OFFICE.

HENRY LEVI PECK, OF COLUMBUS, OHIO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 368,352, dated August 16, 1887.

Application filed January 4, 1887. Serial No. 223,346. (No model.)

To all whom it may concern:

Be it known that I, HENRY LEVI PECK, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Car-Couplers; and I do hereby 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.

This invention relates to car-couplers of the type described in my United States Patents Nos. 301,750 and 346,559.

My improvement consists of certain features of construction and combination of parts, having in view the simplification and enhanced effectiveness of the coupler described in my aforesaid Letters Patent.

The ensuing description, in connection with the accompanying drawings, will make clear the improvements, and the claims at the close of this specification will distinctly point out the invention.

In the drawings, Figure 1 is a vertical longitudinal section of two of my improved couplers when coupled. Fig. 2 represents a side elevation of a draw-bar and coupling devices when not in use. Fig. 3 shows a longitudinal section of the draw-bar. Fig. 4 represents a central horizontal section of one of my improved couplers. Fig. 5 shows a side elevation of the gravity-hook. Fig. 6 is an end view of a draw-bar and coupling devices. Fig. 7 is a view in perspective of the link and link-shaft. Fig. 8 represents my improved coupler with operating-connections attached to a car. Fig. 9 is a view in perspective of the support for one end of the operating-connections of the link-shaft.

My improved coupler consists of a draw-bar, A, link B, link-shaft C, and the gravity-hook D, and each end of the car is provided with this device.

The draw-bar is hollow and is preferably made in one solid piece, though it may be made of two separate pieces, which are counterparts of each other and which may be joined in any desired way. In the sides of the head of the draw-bar are openings a , which are of irregular form, as shown in Fig. 2, the outer sides being inclined and the inner sides being provided with shoulders a^2 .

The peculiar shape of these openings is for the purpose of permitting, when desired, the insertion and removal of the link-shaft. To accomplish the insertion of the parts, the link B is placed in the open end of the draw-bar and raised until its upper surface is parallel with the inclined portion a^3 of the opening a , in which position the openings a and the horizontal slot b' of the link will be in the correct relative positions for the insertion or removal of the link-shaft. As these parts can never be placed in such relative positions by any movement of the same when in use, the link-shaft is in no danger of slipping out through the openings a .

The link B is provided with vertical and horizontal slots b b' and neck b^2 . The slot b' is of sufficient size to receive the broadest part of the link-shaft C. This link-shaft is constructed as shown in Fig. 7 and has rounded ends, while the central portion is flat and broad. The front edge of this flat portion is provided at each end with shoulders c , and between these shoulders there is the curved part c' . The rear wall of the horizontal slot in the link is correspondingly curved, and by reason of the link embracing the link-shaft at the point provided with the curved front the outer end of the link is permitted to have a certain amount of lateral movement, and yet have a close connection with the link-shaft and no lost motion between them. The rounded ends are designed to rest and turn readily in the openings a of the draw-bar, dropping into their lowest position when the link is not in use, but resting on the shoulders a^2 when the outer end of the link is raised ready for coupling.

The outer end of the draw-bar A' has an opening, A^2 , in the outer face, through which the link B projects when the same is used to connect the draw-bar with the corresponding draw-bar of another car. Within this opening the head is chambered at each side, as shown at 1, forming the vertical shoulders 1^a and the horizontal shoulders 1^b , connected by the curved portion 1^c . This chambered portion is of sufficient extent to admit the widened flat portion of the link-shaft and permit the shoulders c to bear against the vertical shoulders 1^a of the draw-bar when the link is in a horizontal position and to permit such shoulders of the link-shaft to rest upon the shoul-

ders 1^b when the link is in a pendent or vertical position, as shown in Figs. 1 and 6.

To the rear of the chambered portion of the draw-bar is the recess 2, which receives the rear end of the link when it is in a horizontal position, as shown at the left hand in Fig. 1. The upper part of this recess connects with the hollow space within the draw-bar, and on each side a curved groove or track, 3, extends backward and downward, terminating near the bottom of the draw-bar. This track or groove, at the lower end, is provided with the forwardly-extending recess 3^a. The use of this feature of construction will appear hereinafter.

To the end or ends of the link-shaft are attached rods *d*, or any other suitable connecting device, by means of which the shaft may be turned when desired. These rods terminate in a lever or hand-wheel located at the sides of the car, and the outer ends of the rods are preferably supported by the U-shaped bearings or supports E, which are fastened to the under side of the car and are provided with spring-clasps *e* for the purpose of holding the rods *d* temporarily in a desired position. This may be accomplished by raising the rods *d* until they are grasped by the compressing force of the ends of the spring *e*. This will hold the link in position when coupling the cars; but it is easily and quickly released either by hand or by the jar of the cars in coming together or when in transit.

The preferred form of the gravity-hook D is shown in Fig. 5. It is provided with trunnions *g g* and with shoulders *g'*. The hook *k*, which is narrower than the main body of the device, has a convex outer face and a concave inner face. The part *k'* is pivoted to D above the shoulder *g'*. This part *k'* is provided with a concave under surface, so that when folded upon the main body of the hook it will lie closely thereto. A rod or chain, *i*, is attached to the rear end of the pivoted portion, by means of which the pivoted portion and the forward end of the hook may be raised. While I prefer to make the hook of this form, the part *k'* may be dispensed with and the rod or chain *i* may be connected to the hook at or near the point at which the part *k'* is pivoted to the main body of the device. This hook is placed in its operative position within the draw-bar by inserting the ends provided with the trunnions *g g* through the opening A² in the draw-head and raising the same until said trunnions engage the grooves 3, and then forcing the hook steadily backward until the trunnions rest on the bottom of said groove or track. After the hook has been placed in this position, the link and link-shaft are inserted, as heretofore described, and the coupling is complete. As has been explained, the link and link-shaft cannot be accidentally displaced. The hook is also in operative position and cannot be removed, except intentionally by first removing the link and link-shaft. When the link and link-shaft are removed, the falling of the head of the hook will draw the trunnions into the recesses 3^a,

from which position the hook D must be removed by hand before it can be taken from the draw-bar.

The link B is provided at its rear with the recess *b*³. (Shown in dotted lines in Figs. 1 and 6.) When the link is in the position shown at the right in Fig. 1 and in Fig. 6, the front of the part *k* falls into such recess, and when draft is put upon such hook by the link of the car coupled therewith the front is drawn against the forward wall of such recess, affording a support for the free end of the head of the hook *k*. This engagement with the link serves, also, to keep the latter steady in its pendent position. In order to prevent the hook from accidentally rising out of engagement with the link of the adjacent car, I provide the interior of the head of the draw-bar with shoulders 4. (Best seen in Fig. 3.) When the hook D is drawn to its forward position by the draft upon it, the shoulders *g'* are drawn under the shoulder 4 and against a vertical shoulder of the draw-bar 4^a.

When the hook is in the position just above described, the trunnions have been drawn forward into the recesses 3^a, but without being in contact with the forward walls of the same, and the draft upon *k*, being resisted by the contact of shoulders *g'* against the shoulders 4^a and by the bearing of the point against the forward end of the recess *b*³ in the link, is transmitted through the link and the trunnions of the link-shaft to the draw-head.

The hinged portion *k'* is of such length between its extremities that when the coupling is completed the hook receives the draft of the car to which it is coupled, and the part *k'*, relieved from all support, will fall by its own gravity into the position shown at the right in Fig. 1, with its rear end bearing against the rear wall of the opening in the top of the head of the draw-bar, locking the hook against all rearward movement.

In the under side of the draw-head, and immediately below the neck of the link B, is a recess, *b*. When the link B is not in use, it falls by its own weight and takes the position shown in Figs 2 and 6, the neck dropping into the recess *b*. In this position it is entirely out of the way and the heads of the draw-bars of adjacent cars can come together without danger of breakage. The openings *a a* in the draw-head are provided with guides L, and around the aperture *m*, through which the hinged part *k'* of the hook is raised, is a guide or guard, L'.

In Fig. 8 I have shown three different means which may be employed for raising the hook D out of engagement with the draft-link of the adjacent car. At the right of the car I have shown a rod, N, mounted in horizontal bearings and provided on its outer end with a hand-grasp, *n*. The inner end is provided with a crank-arm, *n'*, from which extends a link, *i*, and connects with the hook. The rod may extend, if desired, entirely across the front of the car, so that it may be operated from either

side of the car, and the hand-grasp may be a hand-wheel or lever-arm.

On the left side of Fig. 8 I have shown a lever, *N'*, pivoted to the end of the car, the inner end of this lever being connected by the link *i* to the hook *D*, as will be obvious. Two of these levers may be employed—one at each side of the car—or the rod *i* may be extended to the top of the car and provided with a hand-grasp, as is also shown in Fig. 8, by which means the hook may be raised from the top of the car.

It will be observed that each coupler employed by me is of exactly the same construction and has the same parts. There are no right or left characteristics to require selection of parts in mounting and attaching the coupler, but each coupler is complete in itself and may be attached to either end of the car, and is at once ready for use.

The hook, link, and link-shaft of one coupler are exactly the same as the hook, link, and link-shaft of any other coupler, and, being connected to the draw-bar by loose engagement therewith, upon any one part being broken or damaged it can be immediately replaced by the corresponding part of any other coupler not in use or from supply stores of these articles.

It will also be seen that the construction of my coupler enables me to connect readily with the ordinary pin-and-link coupling devices, either by causing the link of the ordinary coupler to engage the hook *D* or by using the link *B* in place thereof.

Slight differences in the height of adjacent cars are also provided for, it not being necessary for connecting purposes that the link *B* should be on an exact level. The construction, too, is such as to secure great strength and durability. When a link *D* has been coupled to an adjacent car, the draft upon said link is received by the broad portion of the link-shaft, the reduced portion of said shaft in the aperture of the head of the draw-bar not receiving the draft on said shaft unless in case of accident to some of the other parts.

The operation of the device is as follows: When it is desired to connect cars, the hand wheel or lever on the rod *d*, connected to one of the link-shafts, is turned until the outer end of the link is raised sufficiently to enter the mouth of the corresponding draw-head on the other car. The rod *d* is then either raised until it is firmly grasped in the spring-clasp *e* or held by the operator. The cars may then be moved together until the link enters the corresponding draw-head and comes in contact with, raises, and passes the gravity-hook *D*. This hook at once drops and catches the vertical slot *b* of the link, and the coupling is complete. The operation of uncoupling is by raising the hook *D*, which releases the link, allowing the cars to be separated.

It will be noticed that in my coupler there are no rigid fastenings, nor are any pivots

used. There is also a minimum danger of breakage or loss of any of the various parts, while the points of bearing are so distributed that there is no undue wear on any of the parts.

Another advantage is the readiness with which any of the parts may be removed and replaced with little trouble or loss of time.

I do not limit myself to the exact constructions shown and described, as modifications of the parts may be made without departing from the spirit of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, with a hollow draw-bar, of a gravity-hook mounted within the bar and held in position by loose engagement with the interior of the bar, the said draw-bar being provided with an opening in the end of the same, through which said hook may be inserted within the bar, substantially as described.

2. The combination, with a hollow draw-bar having an aperture in the side of the same, of a draft-link mounted on a link-shaft, said link-shaft having a reduced portion lying in and engaging the aperture in the side of the bar and a larger portion within the draw-bar embraced by the link, substantially as described.

3. The combination, with a hollow draw-bar having apertures in its sides, of a draft-link mounted upon a link-shaft, said link-shaft having reduced portions lying in and engaging said apertures in the sides of the draw-bar, said link-shaft having also an enlarged portion within the bar and being removable through the apertures at the sides of the bar, substantially as described.

4. The combination, with a hollow draw-bar having within it a grooved track or way, of a gravity-hook provided with trunnions engaging said track or way, the said draw-bar being provided with an opening in the end of the same, through which said hook may be inserted within the bar, substantially as described.

5. The combination, with a hollow draw-bar having shoulders 4 and 4^a, of a gravity-hook in loose engagement with the interior of said bar, provided with shoulders *g'* *g'*, and a link and shaft supporting the free end of the hook, substantially as described.

6. The combination, with a hollow draw-bar having an elongated opening in the top of the same, of a gravity-hook in loose engagement with the interior of the bar and a part hinged or pivoted thereto, lying in the aperture in the top of the draw-bar, and of such length that when the hook is in its lowest and most forward position the rear end of the hinged part lies against the rear end of the said aperture, substantially as described.

7. The combination, with a hollow draw-bar having apertures in its sides and shoulders 4^a, of a link having a recess in the rear end of the same, a link-shaft engaging the

apertures in the sides of the draw-bar, and a gravity-hook engaging said shoulders and said recesses, substantially as described.

8. The combination, with a hollow draw-bar having an elongated opening in the sides and a recessed portion, 1, within the same, of a draft-link having a horizontal slot in the rear part of the same, and a link-shaft having a broad flat central portion engaging the slot in the link and lying in the said recessed portion of the bar, and round ends engaging the apertures in the sides of the bar, substantially as described.

9. The combination, with a hollow draw-bar having elongated apertures in the sides, a recessed portion, 1, and shoulders 1^a, of a link-shaft having trunnions engaging the apertures in the sides of the bar, and a broad flat portion within the recess, with its forward edge bearing against the shoulders 1^a, and a link embracing the broad portion of said bar, substantially as described.

10. The combination, with a hollow draw-bar having apertures in its sides and a recess, 1, within it, of a link-shaft having trunnions within said apertures, a broad flat portion within said recess, said flat portion having shoulders *c* and the curved portion *c'*, and a link embracing the part of said shaft having the curved portion, substantially as described.

11. A car-coupler consisting of a hollow draw-bar, a draft-link, and a gravity-hook, both having loose engagement with the said draw-bar and being instantly removable therefrom, substantially as described.

12. The combination, with a draw-bar, of a draft-link, a link-shaft, a rod connected with the link-shaft by a loose joint extending to the side of the car, and a support or bearing for said rod, having the opening therein narrower at the top, whereby the said rod can be lifted and retained in said narrower portion, substantially as described.

13. The combination, with a draw-bar, of a draft-link, a rod connected with the link-shaft by a loose joint, extending to the side of the car, and a bearing or support for said rod, having interior spring-flanges narrowing the opening toward the top, substantially as described.

14. A bearing for a coupling-operating rod, having an elongated opening, and spring-flanges narrowing said opening at one end, substantially as described.

15. The combination, with a hollow draw-bar, of a draft-link, a link-shaft having the curved portion *c'*, the said link embracing the link-shaft and having the rear wall of the shaft-opening curved to correspond with the curved portion of the shaft, substantially as described.

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

HENRY LEVI PECK.

Witnesses:

G. D. MARTIN,
A. H. ADDINGTON.