

No. 682,238.

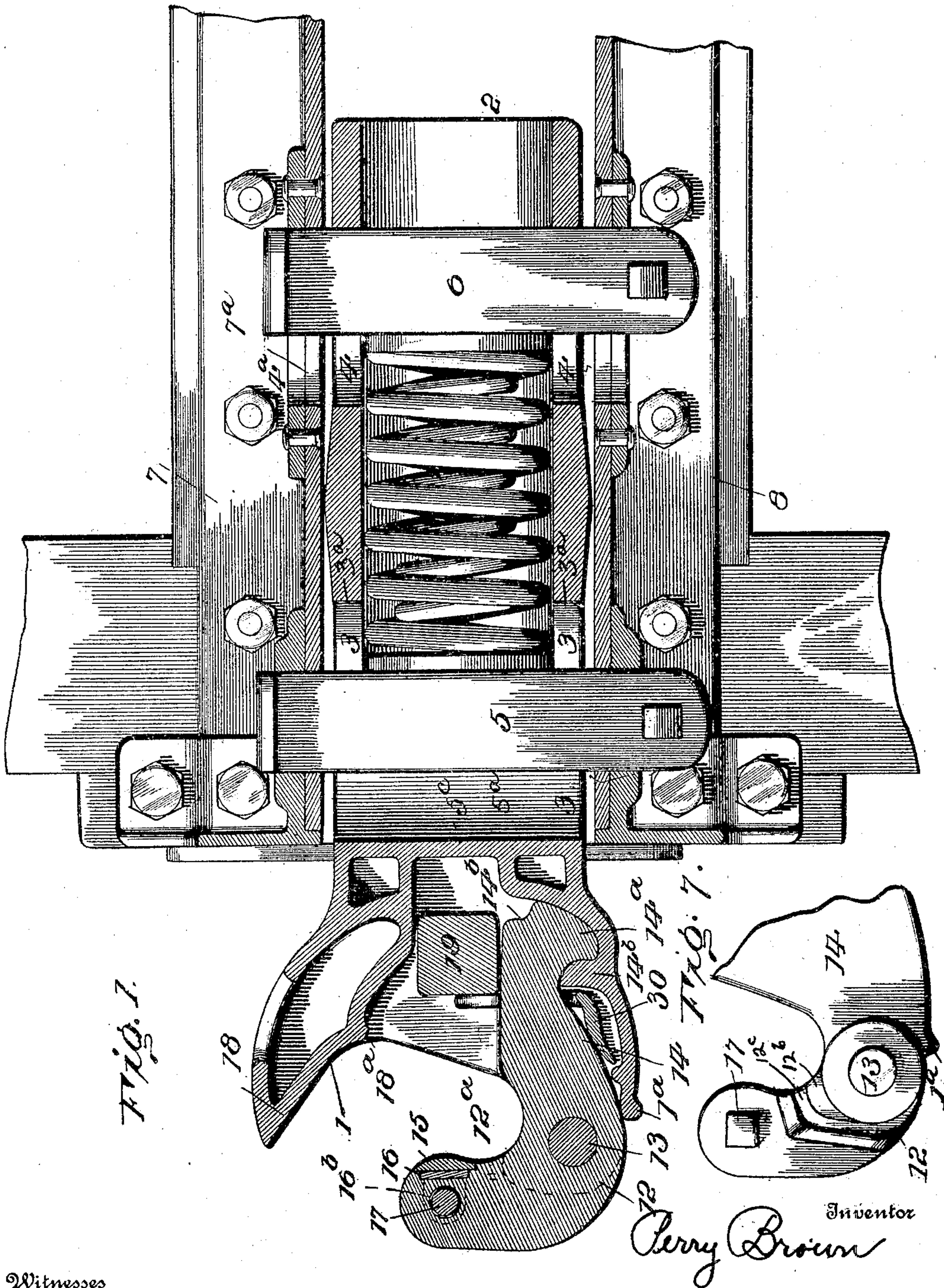
Patented Sept. 10, 1901.

P. BROWN.
CAR COUPLING.

(Application filed May 26, 1900.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses
Mr. Merrill
Stewart Rice.

By *Thos. F. Robertson* Attorney

No. 682,238.

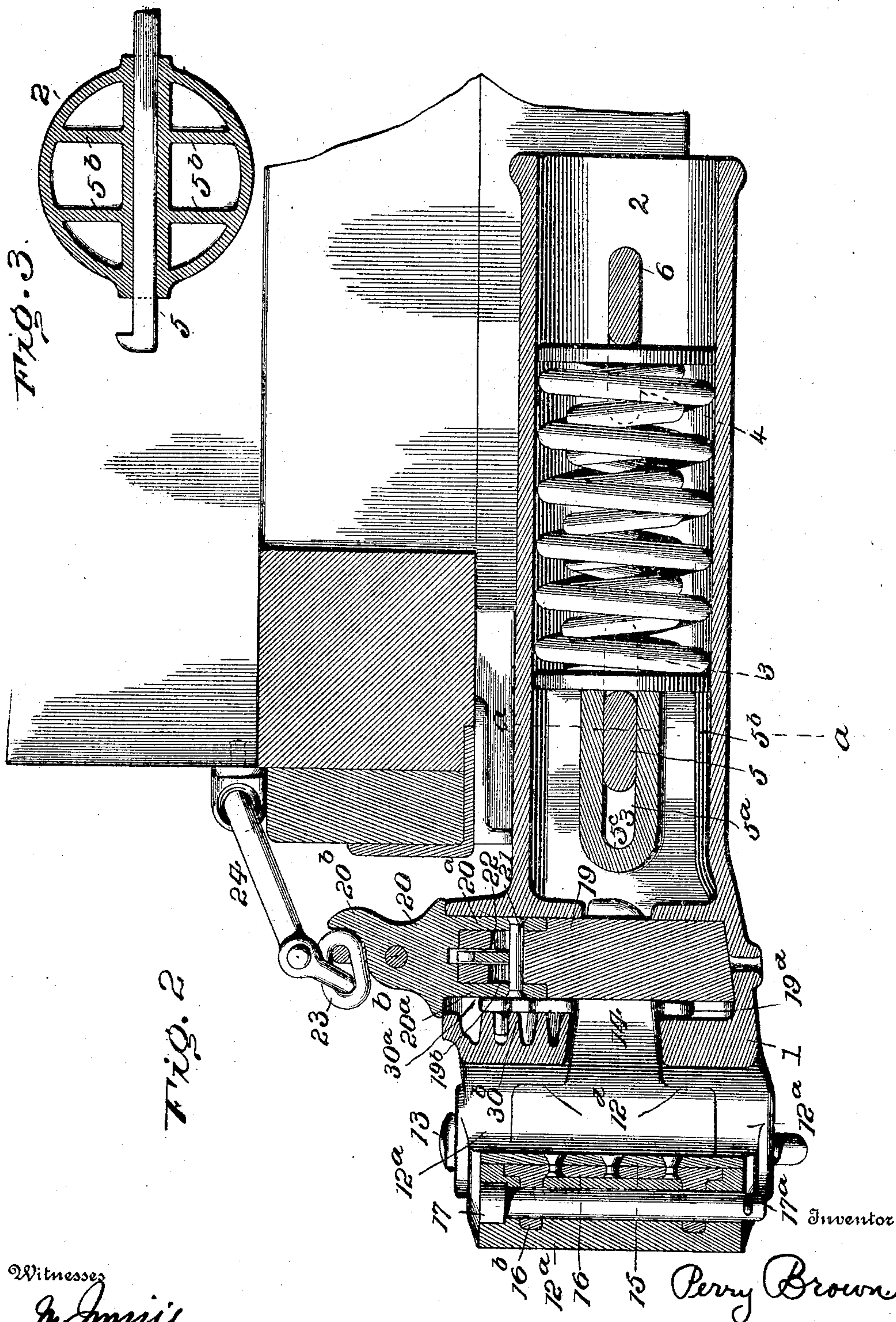
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CAR COUPLING.

(Application filed May 26, 1900.)

(No Model.)

4 Sheets—Sheet 2.



Witnesses

J. M. Miller
J. Stewart Rice

By

Thos. E. Robertson

Attorney

No. 682,238.

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(No Model.)

4 Sheets—Sheet 4.

FIG. 11

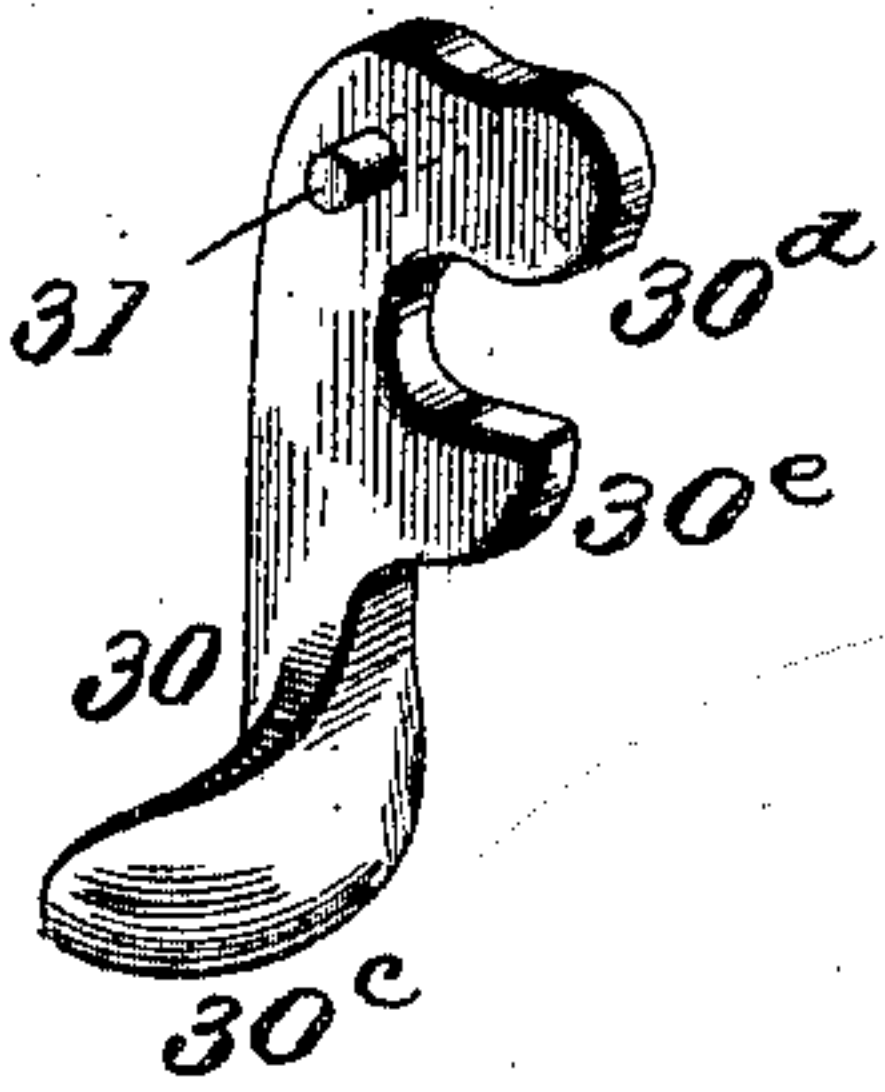


FIG. 12

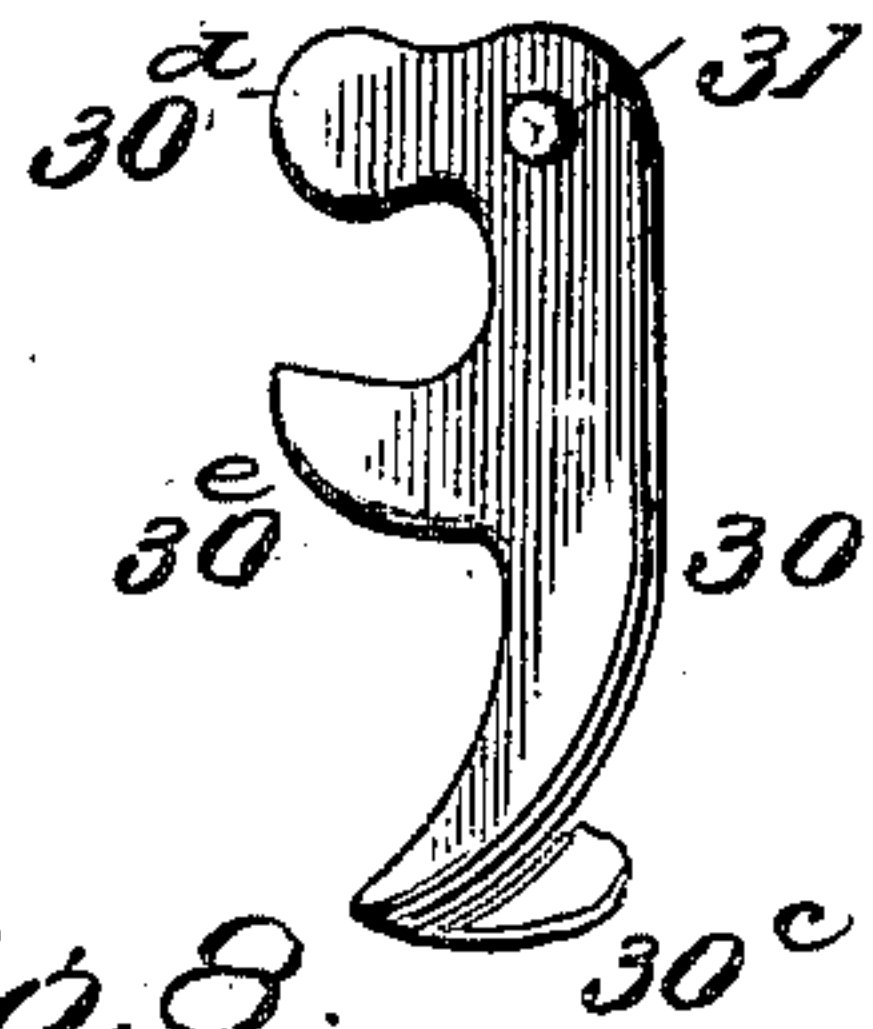


FIG. 8

FIG. 9

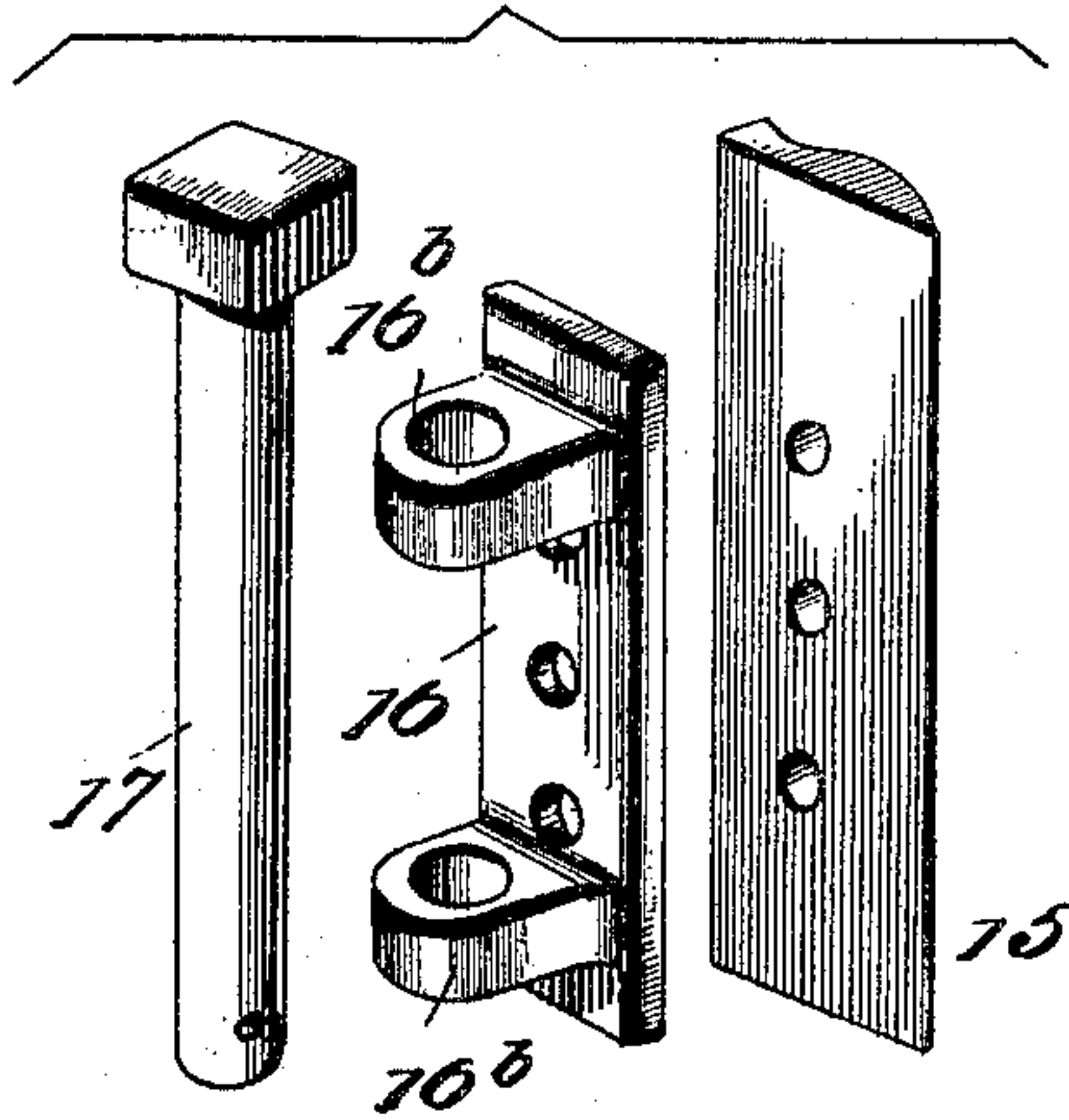
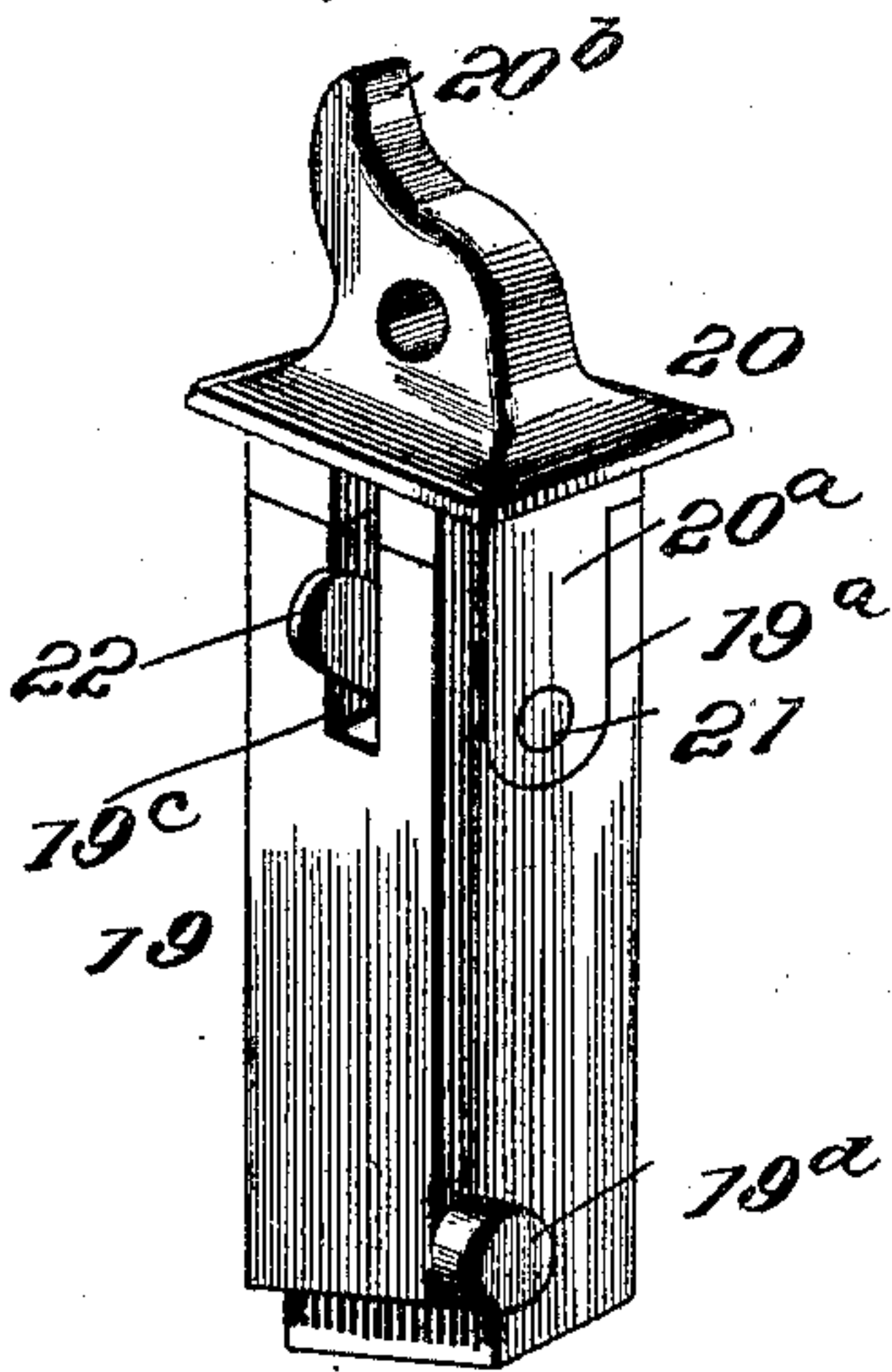
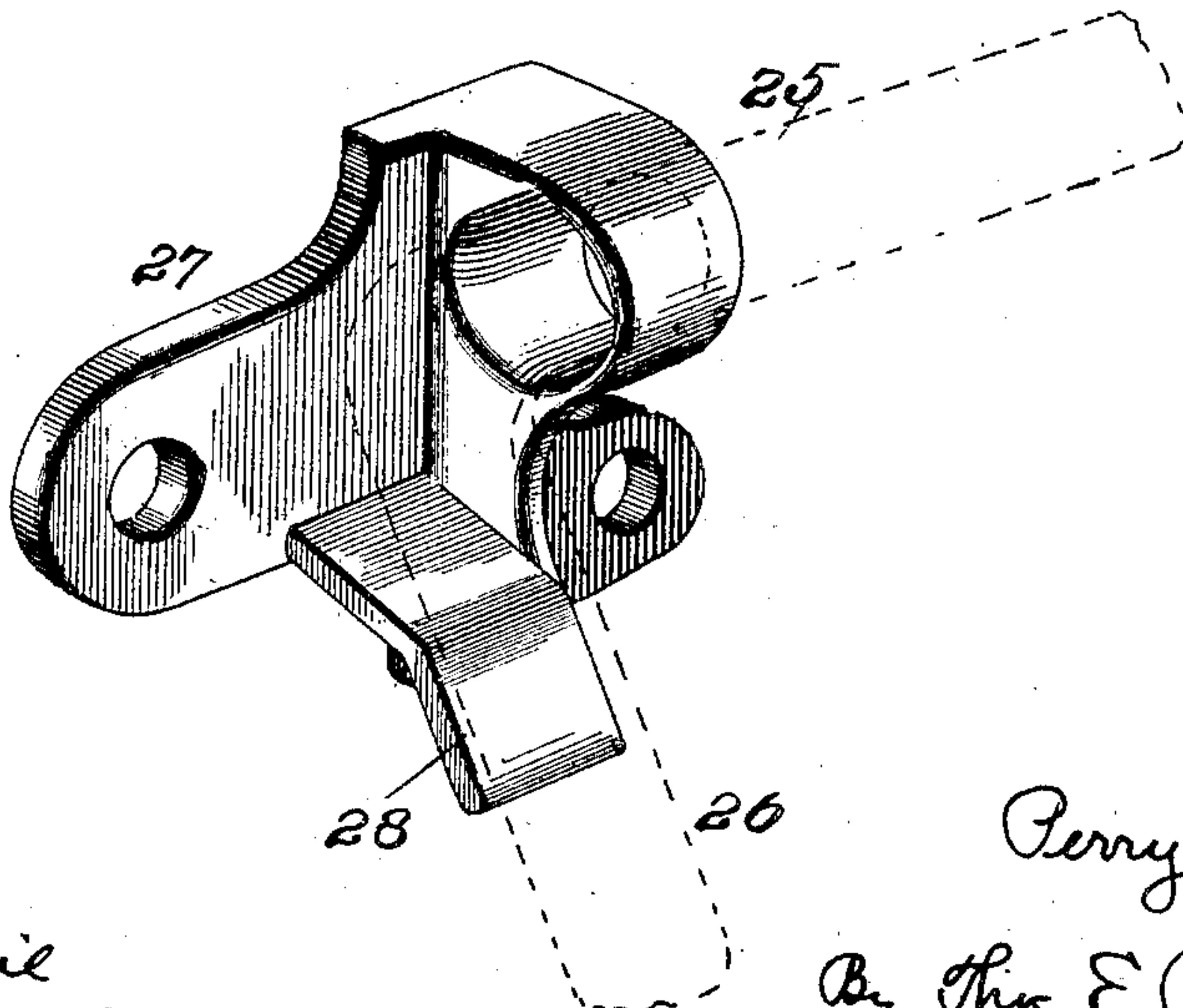


FIG. 10



Witnesses

James
J. Stewart Rice.

Inventor

Perry Brown,

By Thos. F. Robertson

Attorney

UNITED STATES PATENT OFFICE.

PERRY BROWN, OF WILMINGTON, DELAWARE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 682,238, dated September 10, 1901.

Application filed May 26, 1900. Serial No. 18,105. (No model.)

To all whom it may concern:

Be it known that I, PERRY BROWN, a citizen of the United States, residing at Wilmington, in the county of Newcastle and State of Delaware, have invented a certain new and useful Improvement in Car-Couplers, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to that class of twin-jaw couplers which are provided with a swinging coupling arm or knuckle, an automatic locking-pin for retaining the jaw of said arm or knuckle in its coupled position, and means for "kicking" or throwing open the knuckle when the locking-pin is raised to the unlocked position.

The objects of my invention are to provide a coupler of this class which will be of great strength, in which the locking-pin is held in an elevated position by the same means used to throw open the knuckle, and that is so made and constructed as to enable its integral shank to receive and support the springs and followers comprising a part of the "draft-rigging."

With these objects in view my invention consists in the device which is shown in its preferable form in the accompanying drawings and in the details of construction thereof, hereinafter more fully set forth and then claimed at the end hereof.

In the said accompanying drawings, which represent the preferable (though not necessary) embodiment of my invention, Figure 1 is a longitudinal central section viewed from the under side. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a cross-section through the line *a a* of Fig. 2. Fig. 4 is a view looking at the end of a car and showing the coupling-head in section, the line of section being taken immediately in front of the coupling-pin. Fig. 5 is a vertical cross-section of the coupling-head, taken on the same line as Fig. 4, but with the locking-pin in position to be coupled. Fig. 6 is a section through line *b b* of Fig. 2. Fig. 7 is a top plan of a portion of the coupler. Fig. 8 shows in detail perspectives the wearing-plate and the means for attaching the same on the inner side of the knuckle. Fig. 9 is a perspective view of the locking-pin. Fig. 10 is a perspective view of the bracket and lifting-lever for

holding the locking-pin in a raised position. Figs. 11 and 12 are detail views of the swinging dog for throwing open the knuckle and for holding the locking-pin in a lifted position.

Referring now to the details of the drawings by numerals, 1 represents the coupling-head, having a shank 2, very similar in shape to that shown in my application filed on March 30, 1900, Serial No. 10,768. This shank 2 is cast integral with the coupling-head, as in said application, and is provided with slots 3 and 4, through which slots pass the flat bars 5 and 6 for securing the coupler between the draft-irons 7 and 8. In the present instance that part of the shank immediately in front of the forward flat bar 5 is made with a pocket 5^a, forming the groove 3, and which pocket is formed of metal cast integral with the shank and connected thereto by means of ribs or webs 5^b. (See Fig. 3.) The walls of this integral pocket act to partially incase the flat bar 5, as shown in Fig. 2, and it will be observed that the slot 3 is of such length as to cause the front wall 5^c of said pocket to contact with the forward flat bar 5 on an "impact," and thus prevent the springs from "crowding" or being displaced. The rear slot 4 is of the precise length in front of the rear bar 6 as the slot 3 in front of the bar 5, and these are made in this way so as to cause the forward walls 4^a to contact with their bar 6 at the same time as the wall 5^c contacts with its bar 5. In this way when a greater shock or impact is given than the springs are designed to withstand the flat bars 5 and 6 simultaneously receive and transmit the severe strain to the draft-irons, and thus the load is transmitted to a number of points instead of to a single one. Likewise the slot 3 in the rear of its bar 5 is of the same length as the slot 7^a in the draft-irons 7 in order that the rear walls 3^a of slots 3 may strike flat bars 5 simultaneously with the contact of flat bar 6 against the front wall of slot 7^a when a "pull" is made. In addition to forming a means of supporting the walls of the pocket the ribs or webs 5^b act to greatly strengthen the shank immediately in the rear of the coupling-head, where strength is most needed. It is obvious that this same construction can be used for a "tandem" rigging by lengthening the shank and adding springs and an

intermediate flat bar, as shown in my afore-said application.

Referring now to the coupling-head 1, which has been described as being cast integral with the shank 2, it will be observed that the head 1 is formed of an outer lining 9 and an inner lining 10, (see Figs. 4 and 5,) and in effect this makes a "double" coupler, which, though slightly heavier than the "ribbed" couplers as now made, is of much greater strength. The strength is also further increased by providing the two walls with connecting-webs 11. Of course in the casting of this double-walled coupler it is necessary to leave openings 9^a, through which the cores can be withdrawn. The openings 9^b are provided to form "leak-holes." This double-walled coupler secures the maximum of strength for the weight of metal, because of the great amount of skin surface in addition to the strengthening-webs 11 before referred to. It will be further noted that whenever a blow is received by the coupler the strain is transmitted to these webs directly in line therewith, so that the coupler when made in accordance with my drawings will be capable of withstanding any amount of strain to which it is likely to be subjected.

Pivoted at one side of the coupling-head 1 in the usual position is the knuckle 12, supported on the hinge-pin 13. The bosses 12^a, to which this knuckle 12 is hinged, are provided with projecting or offset extensions 12^b, and the knuckles are formed with recesses 12^c, as clearly shown in Fig. 7. The object of this construction is to relieve that part of the knuckle where it is perforated of considerable of the strain usually carried by it. The strain is thus carried between the recessed knuckle at 12^b and 12^c and the ordinary shouldered interior part 12^d of the knuckle shown at the opposite side of the hinge-pin. (See Fig. 2.) The knuckle 12 is also provided with the tail 14, made with a hook 14^a on its rear end, which engages with a corresponding wall or projection 14^b on the interior of the coupling-head. This hook 14^a and the projecting wall 14^b are so located and formed as to relieve the hinge-pin of most of the strain. In fact, when the locking-pin 19, hereinafter described, is in the locked position (shown in Fig. 1) the tail of the coupler is so securely wedged in that the hinge-pin 13 could be withdrawn and the knuckle would yet be held in operative position. The jaw 12^a of the knuckle is provided with a detachable wearing-plate 15, which is riveted to a base-plate 16, provided with one or more perforated ears 16^b, which ears enter openings in the inner side of the jaw 12^a and are secured therein by means of a spindle or bolt 17 passing through said jaw 12^a and said perforated ears 16^b, the bolt 17 being held from upward movement by a cotter 17^a. (See Fig. 2.) This construction will be found of great utility, as it will enable any trainman to withdraw the bolt 17 and replace a new base 16 and wear-

ing-plate 15 for the worn-out ones, the same bolt 17 being used to hold the wearing-plate in position. Thus no skilled mechanic is needed to replace the wearing-plate, and it will be unnecessary to send the knuckle to the shops to have a new wearing-plate riveted thereon. It is obvious that the ears 16^b may be made directly on the wearing-plate; but I prefer to make them separately and rivet them together, for the reason that the base 16 can be cast and the wearing-plate 15 be made of tempered metal, and when the wearing-plates 15 are worn out new ones can be riveted on the base-plates after the latter are sent to the shops.

The tail 14^a of the knuckle 14 is provided with a notch 14^b, arranged to swing around to engage with a projecting rib 18^a on the inner side of the guard-arm 18, so as to prevent the knuckle from opening too far, a strengthening-rib 1^a being formed on the opposite side of the coupling-head, against which the knuckle 12 abuts simultaneously with the coming together of the tail and the rib 18^a.

The locking-pin for locking the knuckle in its closed position is represented at 19, and consists, preferably, of two main parts 19 and 20, connected together by the pin 21. The lower part or body of the pin 19 is provided with a recess 19^a on each side thereof, and fitting in these recesses 19^a are parallel side plates 20^a, projecting from the upper or head part 20, slots 19^b being made in the body part 19 and perforations in the side plates 20^a, through which passes the pin 21. The body is provided with a slot 19^c, in which a dog 22 is pivoted on the pin 22^a, supported by the body portion 19. The object of this construction is to provide a means of preventing the locking-pin from working upwardly, and the operation is as follows: When the parts are in their normal positions, (see Fig. 4,) the locking-pin 19 cannot work upwardly, because its dog 22 would strike against the upper wall of the coupling-head; nor could it be shoved up from underneath for the same reason. Should, however, an operator pull upon the head 20, the latter would move independently of the body 19 the length of the slot 19^b, and in so doing the pin 21, projecting from the side plates 20^a of the head 20, would act against the under side of the pivoted dog 22 and push the same entirely with- in the slot 19^c, (see Fig. 5,) when the body of the locking-pin could be withdrawn. Of course when the pin is allowed to descend by gravity the pivoted dog automatically swings into its pocket or slot 19^c as it passes the upper wall of the coupling-head, and as soon as it entirely passes the said wall the dog drops to its operative position. To withdraw this locking-pin 19, I provide the usual chain 23 to connect the head 20 and the crank-arm 24 of the rock-shaft 25, the opposite end of this shaft 25 being provided with the usual operating-lever 26.

It is sometimes necessary to provide a means

for holding the locking-pin 19 in its raised position—such, for instance, as when one or more cars are to be uncoupled from a train and when the knuckle cannot be swung into its unlocked position until the car ahead is pulled away. In such a case the locking-pin can be raised; but it will fall down again and lock the knuckle. To provide for such a contingency, I provide an “uncoupling-bracket” 27, having an inclined shelf or support 28, and when the locking-pin is to be elevated and held in its unlocked position all that is necessary is to raise the lever 26 and shove it over until it rests upon the shelf or support 28, as shown in Fig. 10. Now the car in front can be pulled away.

To prevent the chain 23 from falling behind the head 20 and getting crushed against the plate covering the dead-wood block, I form on the head 20 an upward projection 20^b, which is so formed as to cause the chain 23 to fall forward instead of in the rear of said head 20. (See Figs. 2 and 9.)

To throw the knuckle to the position it would occupy when it is ready for coupling, I provide a swinging dog 30, having trunnions or gudgeons 31, working in slots 32 in the walls or shell of the coupling-head. There is a recess 30^a between the locking-pin 19 and the wall of the coupling-head, in which recess the swinging dog 30 is trunnioned, the forward wall of the coupling-head being cast with ribs 30^b, as shown in Figs. 2 and 6. One of the slots 32 is formed at the end of one of the grooves formed between two of these ribs, as shown in the latter view, Fig. 6. This swinging dog 30 is shown ready for coupling in Fig. 5, and its tail 30^c rests on the bottom 1^c of the coupling-head. The dog is provided at its upper end with two projections 30^d and 30^e, which serve as teeth, and these teeth are engaged by a stud or boss 19^d, cast integral with the locking-pin 19. When in this position, if another knuckle engages the knuckle of this coupler and closes the tail 14 into locking position the latter will first contact with the tail 30^a of the swinging dog 30 and push the same toward the left, the trunnions of the dog moving vertically in the slot 32 to allow the tail of the dog to lift and swing over the bottom of the coupler to the position shown in Fig. 4. When it is swung into this position, the locking-pin 19 falls by gravity, as shown in said Fig. 4. This swinging dog thus serves the important functions of throwing the knuckle open and of holding the locking-pin in its elevated position after the knuckle has been thrown open ready for coupling again. This swinging dog also performs another function—viz., when the knuckle is in the uncoupled position, with its tail contacting with the rib 18^a, the tail of said dog is prevented from swinging sufficiently far around to allow the locking-pin 19 to be lifted far enough to disengage the stud or boss 19^d from between the teeth 30^d 30^e. Thus the pin 19 cannot be

taken out accidentally, and, as before described, it cannot work upwardly. The tail of the knuckle is shown in dotted lines in Fig. 5, so as to show why the swinging dog cannot be swung farther. In order to disengage the pin 19, it is necessary to first withdraw the hinge-pin 13 and take out the knuckle 14. Then the tail of the knuckle will be out of the way of the swinging dog, and the latter can be swung around far enough to release the pin 19.

The lower end of the locking-pin 19 is cut away, as at 19^e, for the purpose of forming a “half-lock”—i. e., the pin 19 can be lifted so that the knuckle can be opened until it fits the end of said pin 19 and the knuckle thus held so that it can be coupled on a curve or in a pocket or siding.

In view of the very detailed description of the various parts it is believed that a description of the operation is entirely unnecessary, as after a careful examination of the drawings any one familiar with these devices will understand the operation of the same.

It is obvious that various changes may be made without departing from the scope of my invention, which is merely shown in its preferred form, and I intend the following claims to cover such modifications as would naturally suggest themselves.

What I claim as new is—

1. In a car-coupler; a locking-pin comprising two main parts sliding on each other; a connecting-pin on one part and a slot in the opposite part permitting said sliding movement; and a dog pivoted to one of said parts and arranged to prevent the withdrawal of said pin; the said connecting-pin coacting with said dog and swinging the same into an inoperative position as one part of said locking-pin slides on the other.

2. In a car-coupler; a knuckle; a dog arranged to open said knuckle and having teeth thereon; and a locking-pin having means as a stud adapted to operate between said teeth for moving the said dog.

3. In a car-coupler; a knuckle; a swinging dog having one part arranged to open said knuckle and provided with teeth; and a locking-pin having means thereon adapted to operate between said teeth and thereby operate the said swinging dog, as the locking-pin is moved.

4. In a car-coupler; a knuckle; a locking-pin for holding said knuckle in its closed position; a swinging dog having teeth thereon; and means as the stud on said pin adapted to operate between said teeth and thereby operate the dog to move the knuckle as the pin is elevated; the said swinging dog being so arranged that its under tooth holds said pin in its elevated position.

5. In a car-coupler; a knuckle provided with a recess therein; a wearing-plate; a base-plate supporting said wearing-plate and having a perforated ear entering the recess of

said knuckle; and a bolt or pin passing through said knuckle and perforated ear and securing them together.

6. In a car-coupler, a knuckle, a locking-pin, a vertically-swinging dog engaging said locking-pin and knuckle, the latter coacting with said dog and pin and preventing the withdrawal of the latter when said knuckle is swung open.

7. In a car-coupler, a knuckle, a dog arranged to open said knuckle and having teeth thereon; and a locking-pin having means thereon arranged to operate between said

teeth and thereby operate the said swinging dog as the locking-pin is moved; the said knuckle coacting with said dog and pin and preventing the withdrawal of the latter when the said knuckle is swung open. 15

In testimony whereof I affix my signature, in the presence of two witnesses, this 22d day of May, 1900. 20

PERRY BROWN.

Witnesses:

THOS. E. ROBERTSON,
J. STEWART RICE.