

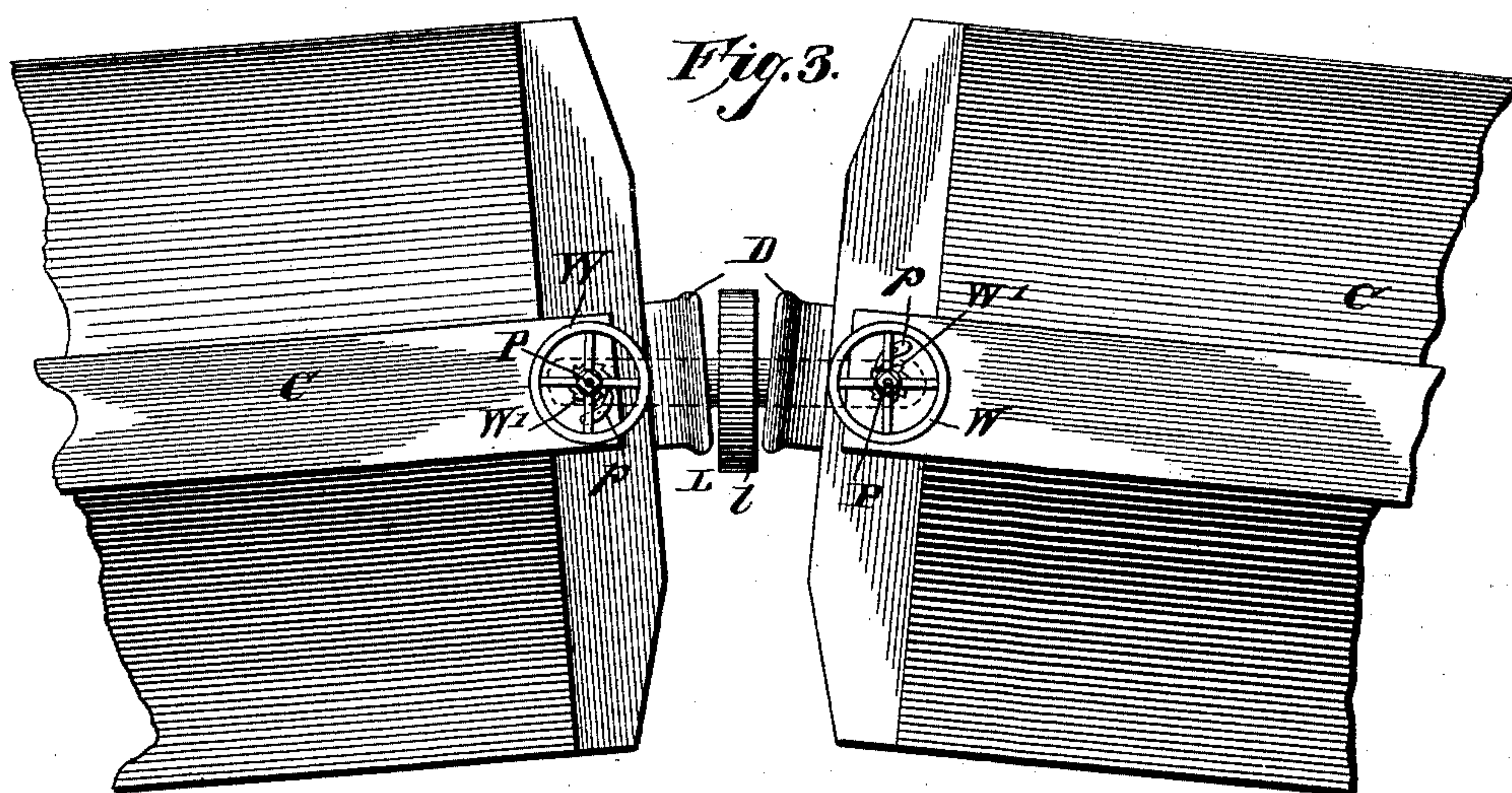
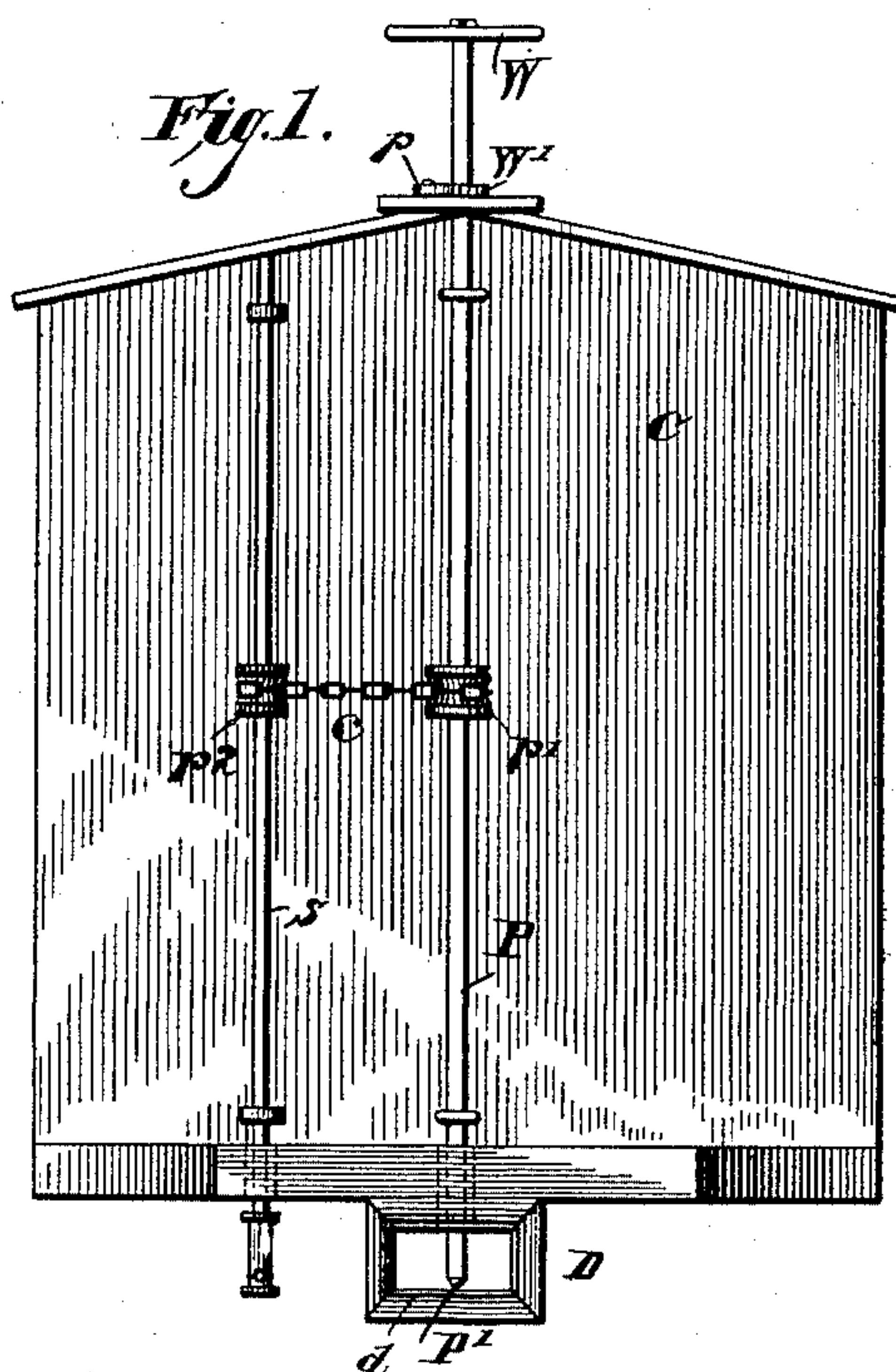
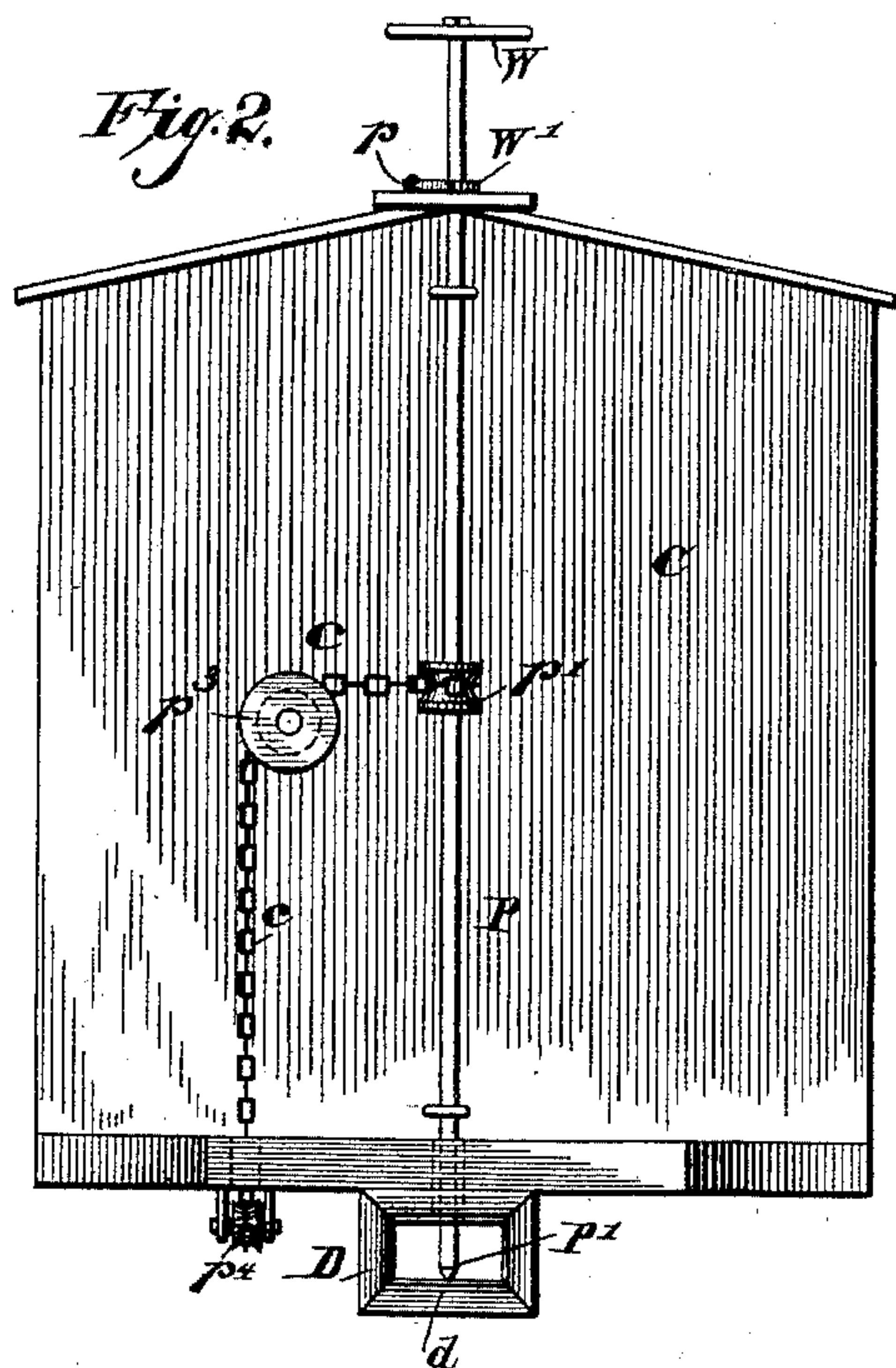
(No Model.)

2 Sheets—Sheet 1.

J. ACUFF.
CAR COUPLING.

No. 476,768.

Patented June 14, 1892.



Witnesses:
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C. H. Sommers.

Inventor:
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By *Mary M. M.* Atty.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

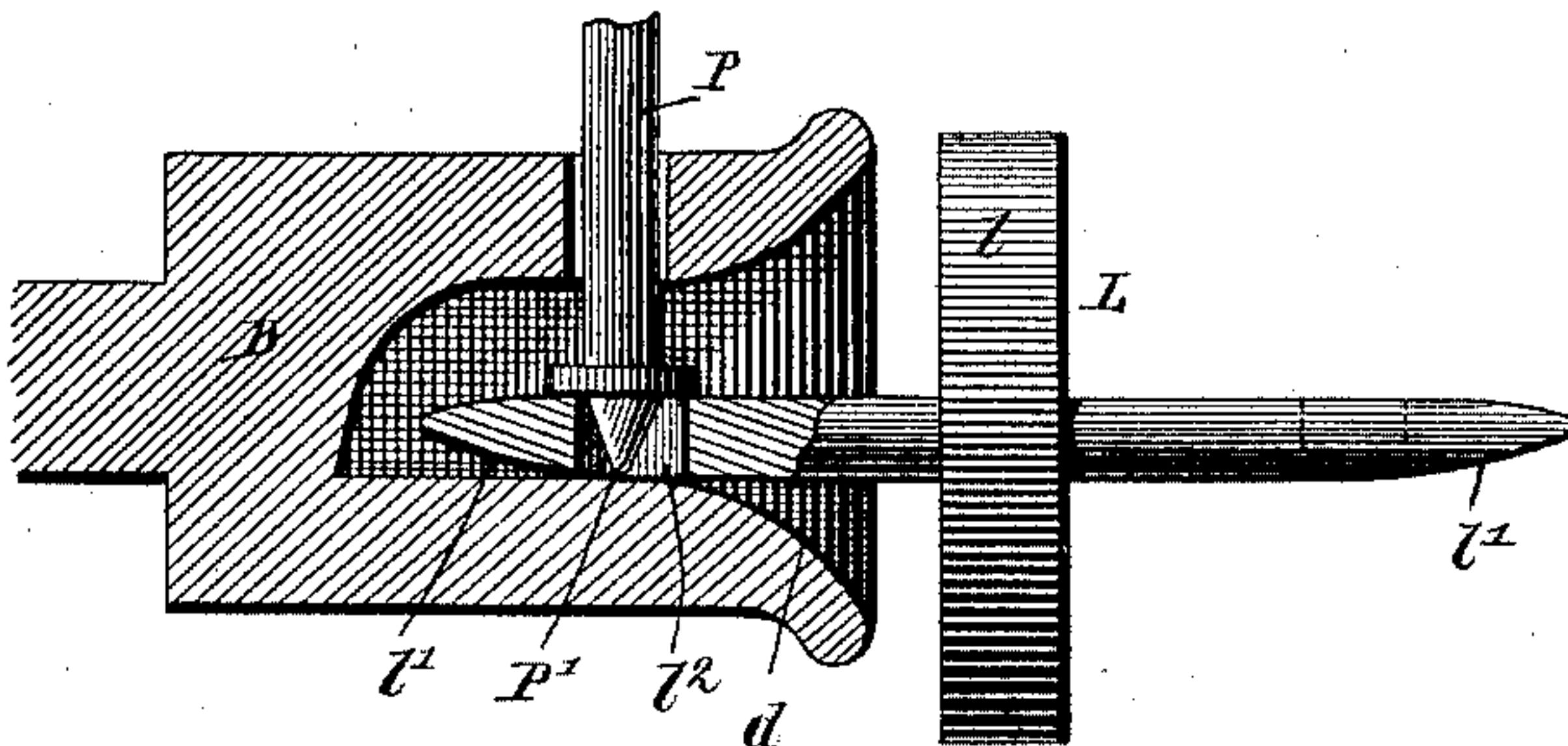


Fig. 6.



Fig. 4^a.

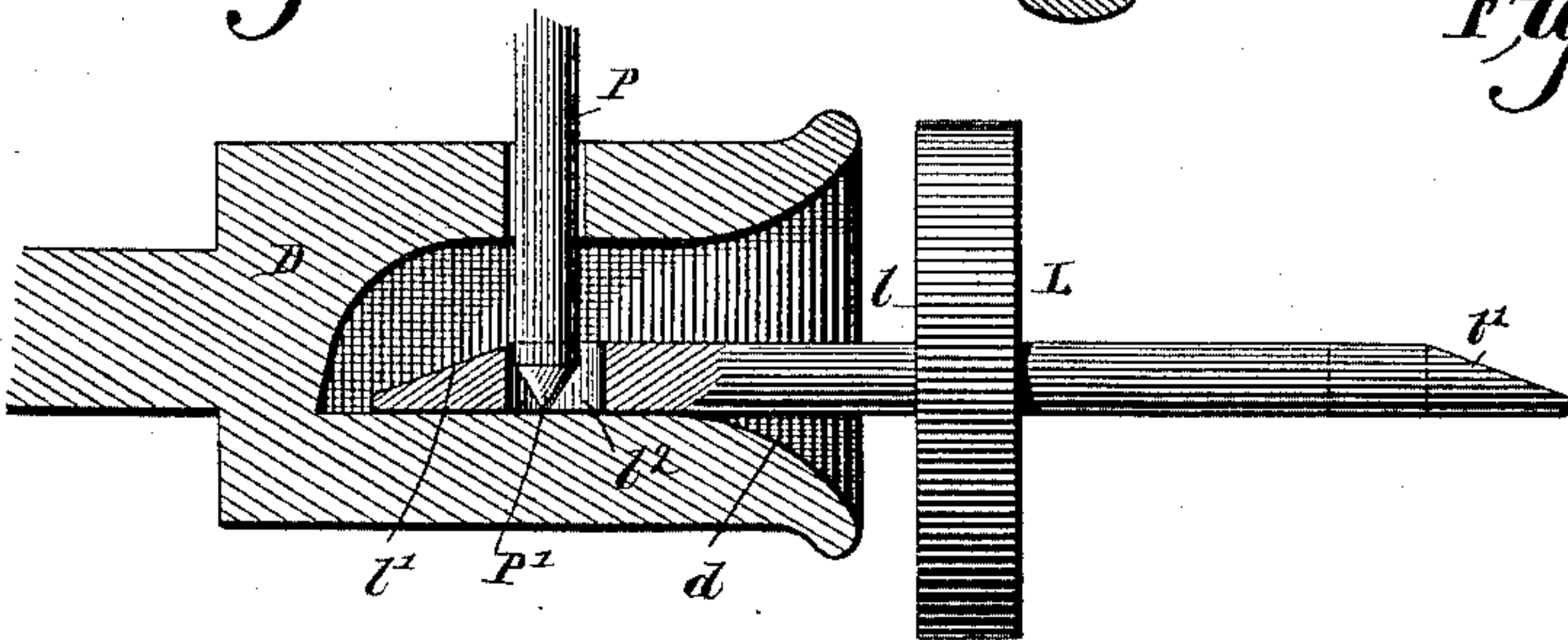


Fig. 5.

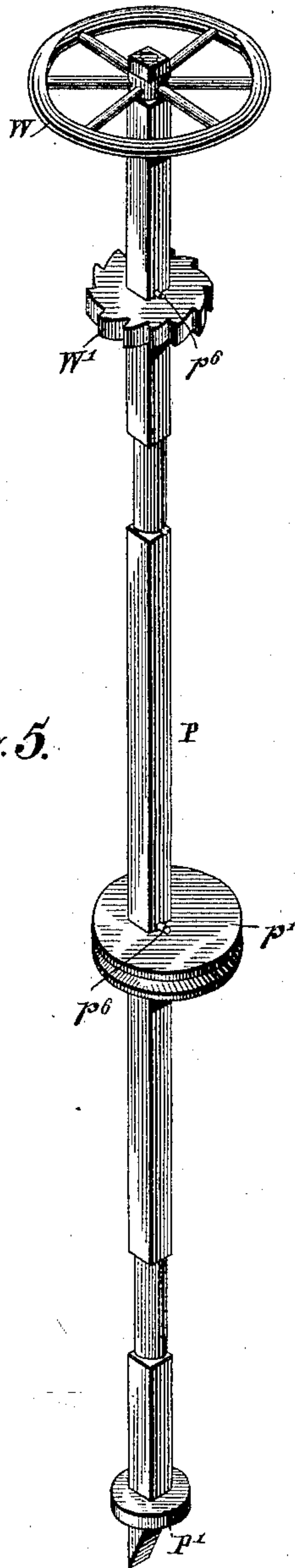
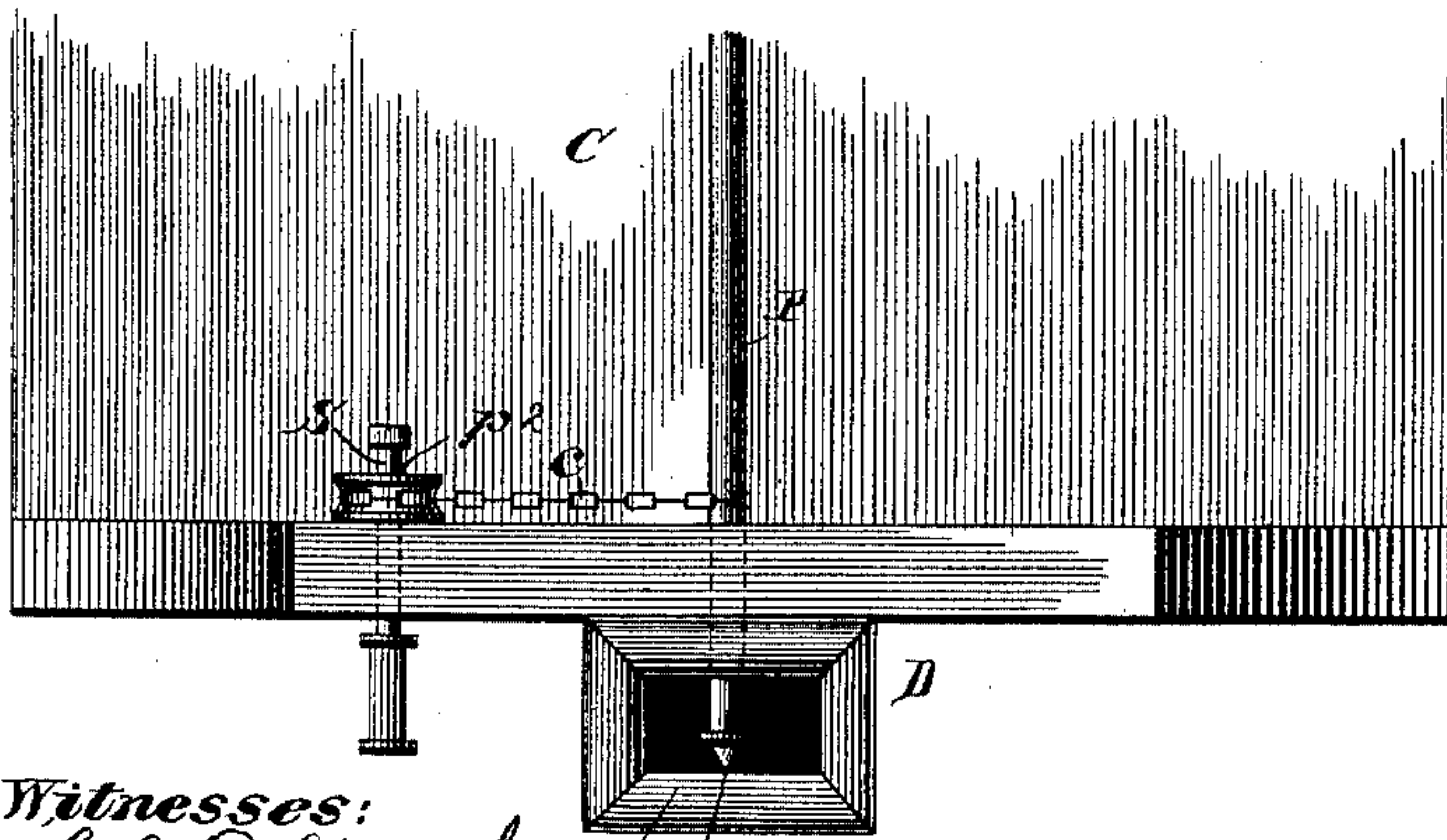


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN ACUFF, OF KILGORE, TEXAS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 476,768, dated June 14, 1892.

Application filed October 20, 1891. Serial No. 409,319. (No model.)

To all whom it may concern:

Be it known that I, JOHN ACUFF, a citizen of the United States, residing at Kilgore, in the county of Gregg and State of Texas, 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The invention relates to car-couplers of the class known as "link-and-pin" couplers, and has for its object the provision of means whereby the coupling is effected automatically and whereby the coupling-pin is made to actuate the brake-shaft.

My invention comprises a draw-head, a coupling-pin, and a coupling-link of such construction that the link will be held in the draw-head in a substantially horizontal plane, so that said link, when entering the draw-head in an adjacent car, will lift the coupling-pin and automatically couple therewith; also, means for limiting the extent to which the pin shall enter a draw-head, such means acting, also, as a buffer for the coupled draw-heads.

My invention further comprises a revoluble and vertically-movable coupling-pin, a connection between the revoluble coupling-pin and the brake shaft or rod, whereby said shaft may be revolved when the coupling-pin is revolved to set or release the brakes, and a locking device to lock the coupling-pin against rotation when the brakes are set, as will now be fully described, reference being had to the accompanying drawings, in which—

Figures 1, 2, and 7 are end elevations of a car or part of a car illustrating the application of my improved coupler and brake-operating devices and certain modifications in the connections between the coupling-pin and the brakes. Fig. 3 is a top plan view of a portion of two cars when coupled together on a curve. Figs. 4 and 4^a are sectional views of a portion of the draw-head and coupling-pin and the coupling-link, illustrating means for holding the link in a substantially horizontal position and for lifting the draw-head in coupling cars

of different heights. Fig. 5 is a perspective view illustrating a modified construction of coupling-pin, and Fig. 6 is a section of the coupling-link.

Similar letters of reference are employed to indicate like parts in the above-described drawings.

C indicates the car-body; D, the draw-head, the mouth of which is preferably made flaring outwardly to form the inclined guide-face *d*, as shown, and is secured to the car in the usual manner.

P is the coupling-pin, which may be cylindrical in cross-section, the lower end of said pin being conical (and for freight or box cars being of such a length as to extend above the car-roof) and carrying at its upper end a hand-wheel W, by means of which it is revolved in its bearings. Immediately above the roof of the car the pin P carries a ratchet-wheel W', which engages a pawl *p*, pivoted to the car-roof and serving to lock the pin P against rotation in its bearings, as is the case with the ordinary brake-operating shafts.

At a suitable point above the draw-head D the coupling-pin carries a grooved pulley *p'*, Figs. 1 and 2, to which is attached one end of a chain *c*, whose other end is attached to a similar pulley *p*² on the brake-operating rod or shaft S, so that when the coupling-pin is revolved in the proper direction the shaft S will also be revolved to set the brakes, which latter I have not shown, for the reason that their construction and arrangement, as well as their connection with the operating-shaft, are well known and do not form a part of this invention.

Instead of making use of the usual brake-shaft or of a shorter brake-shaft the coupling-pin may be connected directly with the brakes by means of the chain *c*, running over suitable pulleys *p*³ and *p*⁴, as shown in Fig. 2, and instead of securing a pulley *p'* on the coupling-pin P for one end of said chain such pulley may be dispensed with and the chain *c* attached directly to the pin and caused to wind thereon, as shown in Fig. 7. On the other hand, instead of the pulleys *p'* and *p*², Fig. 1, or *p*² and *p*³, Fig. 2, eccentrics or cams may be employed, as will be readily understood. To avoid the use of a long shaft, a short rod may be used and the pulley *p*²

mounted thereon immediately above the car-platform, as shown in said Fig. 7.

The coupling-link L has intermediate of its ends a circular boss l , that determines the length of link entering a draw-head and serves as a buffer for adjacent draw-heads when coupled. The link L itself is ellipsoidal in cross-section, as shown in Fig. 6, and has its opposite ends beveled, as shown at l' , so that as the link enters a draw-head said beveled portion will impinge upon the conical end P' of the coupling-pin and lift the same, and when the link has entered the draw-head said pin will drop of its own weight into slot l^2 in such link.

In Fig. 4^a I have shown the upper face of the opposite ends of the link beveled, said link being held in substantially horizontal position by the pin by reason of its extended bearing on the bottom of the draw-head. This requires, however, a draw-head of considerable length in order to provide such a bearing, and, on the other hand, it is desirable that means should be provided for coupling cars of different lengths without manipulating the link, which could not be done with the construction of draw-head and coupling-pin shown in Fig. 4^a. In order to do this and at the same time use a comparatively short draw-head, I provide the coupling-pin P with a collar P' , Figs. 4, 5, and 7, which when the pin engages the link has bearing thereon and holds the same in a substantially horizontal position. This collar also serves as a means for lifting the draw-head in coupling cars of different heights, so that the link on one car may enter the draw-head of a car of less height, as will be readily understood. In this construction I prefer to bevel the lower face of the opposite ends of the coupling-link, as shown in said Fig. 4, and slightly curve the upper face thereof at said ends, so as to practically form a true wedge for lifting the coupling-pin P.

It is not absolutely necessary that the coupling-pin should be cylindrical in cross-section. In fact, under some conditions of use I employ a pin P that is square in cross-section and has the front face of its lower end inclined upwardly, so that it may be lifted by the coupling-link. In the use of such a pin it is provided with cylindrical journal portions, so as to adapt it to revolve in its bearings on the car, as shown in Fig. 5. A pin of this construction affords a better hold for the link L, and the keys, by means of which the hand-wheel W, ratchet-wheel W' , and the pulley, cam, or eccentric p' are keyed to a cylindrical rod, are dispensed with, said devices being provided with a square opening, thus avoiding all danger of a slip by the wear or breakage of a key or feather or spline. The

ratchet-wheel W' and the pulley p' may be locked against vertical displacement on the coupling-pin P by means of a locking-pin p^6 .

In uncoupling one or more cars when a train is on an incline and the brakes are set it is simply necessary to release the brake of the car adjacent to the car or cars to be uncoupled by throwing the pawl p out of engagement with the ratchet-wheel W' . Then lift the coupling-pin out of engagement with the coupling-link L. It will also be seen that the coupling-link and draw-head as constructed are such that the said link will be held in a normally-horizontal position when the car is uncoupled, so that the coupling may be automatically effected without going between the cars.

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

1. A car-coupler comprising a chambered and outwardly-flaring draw-head, a coupling-pin movable vertically in said draw-head and having at its lower end an inclined bearing-face and a collar P' immediately above the same, and a coupling-link constructed and adapted to lift the coupling-pin on entering the draw-head, said link having an opening for the reception of the pin, as and for the purpose set forth.

2. In a link-and-pin coupler, a revoluble and vertically-movable coupling-pin and a connection between the pin and the car-brakes for operating the latter, for the purpose set forth.

3. In a link-and-pin coupler, a revoluble and vertically-movable coupling-pin, a connection between the pin and the car-brakes for operating the latter, and a locking device to lock the pin against rotation, for the purpose set forth.

4. The combination, with the brake shaft or rod of a car, of a link-and-pin coupler having a revoluble and vertically-movable coupling-pin, and actuating devices controlled by the coupling-pin and imparting a rotary motion to the brake-shaft, for the purpose set forth.

5. The combination, with the brake-shaft of a car, of a link-and-pin coupler having a coupling-pin extending above the car-roof, said pin having a rotary as well as a longitudinal motion in its bearings, actuating devices controlled by the coupling-pin and imparting a rotary motion to the brake-shaft, and a locking device to lock the pin against rotation, for the purpose set forth.

JOHN ACUFF.

Witnesses:

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W. M. HENDERSON.