

No. 639,391.

Patented Dec. 19, 1899.

C. D. HORGAN.
CAR COUPLING.

(Application filed Aug. 24, 1899.)

(No Model.)

2 Sheets—Sheet 1.

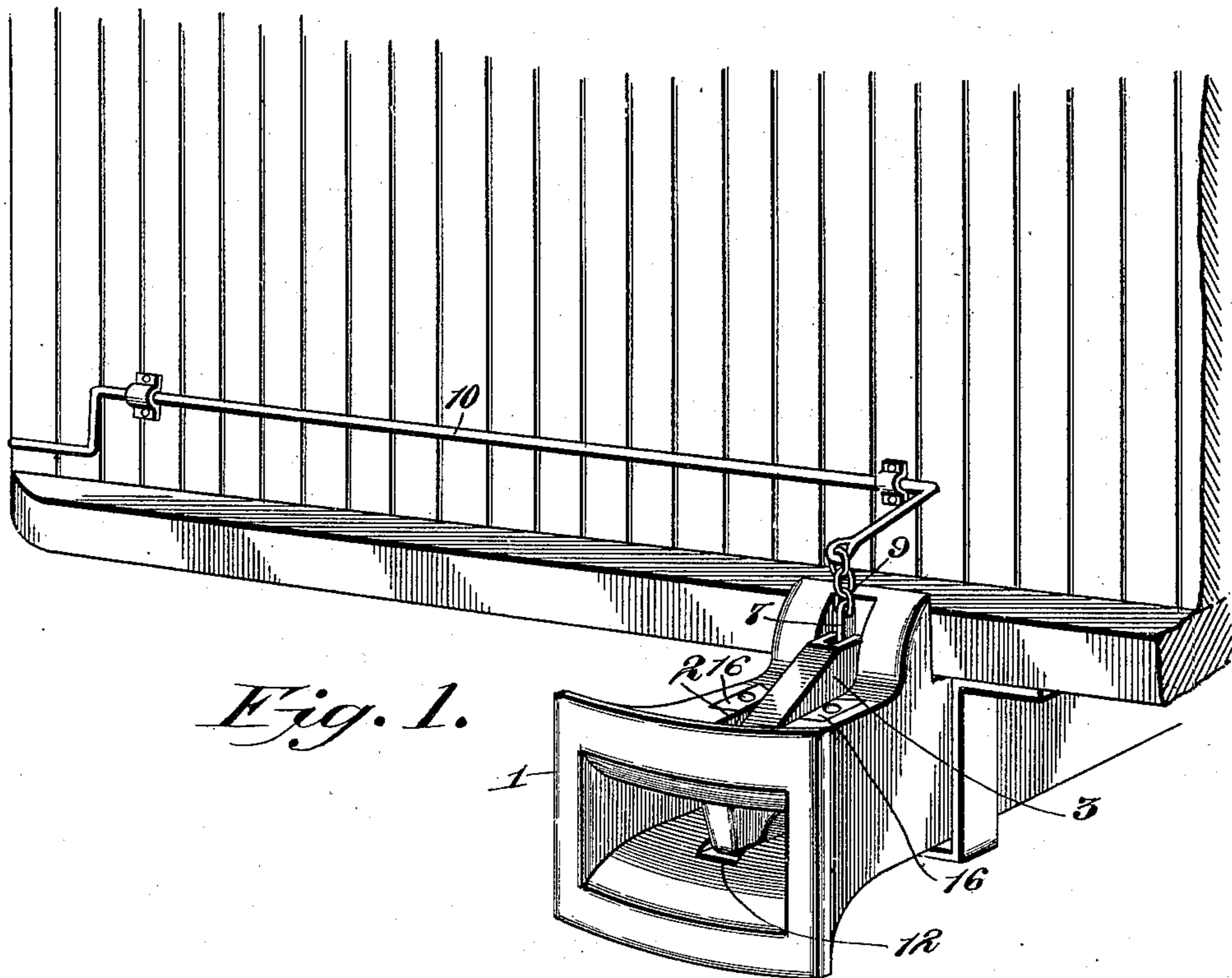


Fig. 1.

Fig. 5.

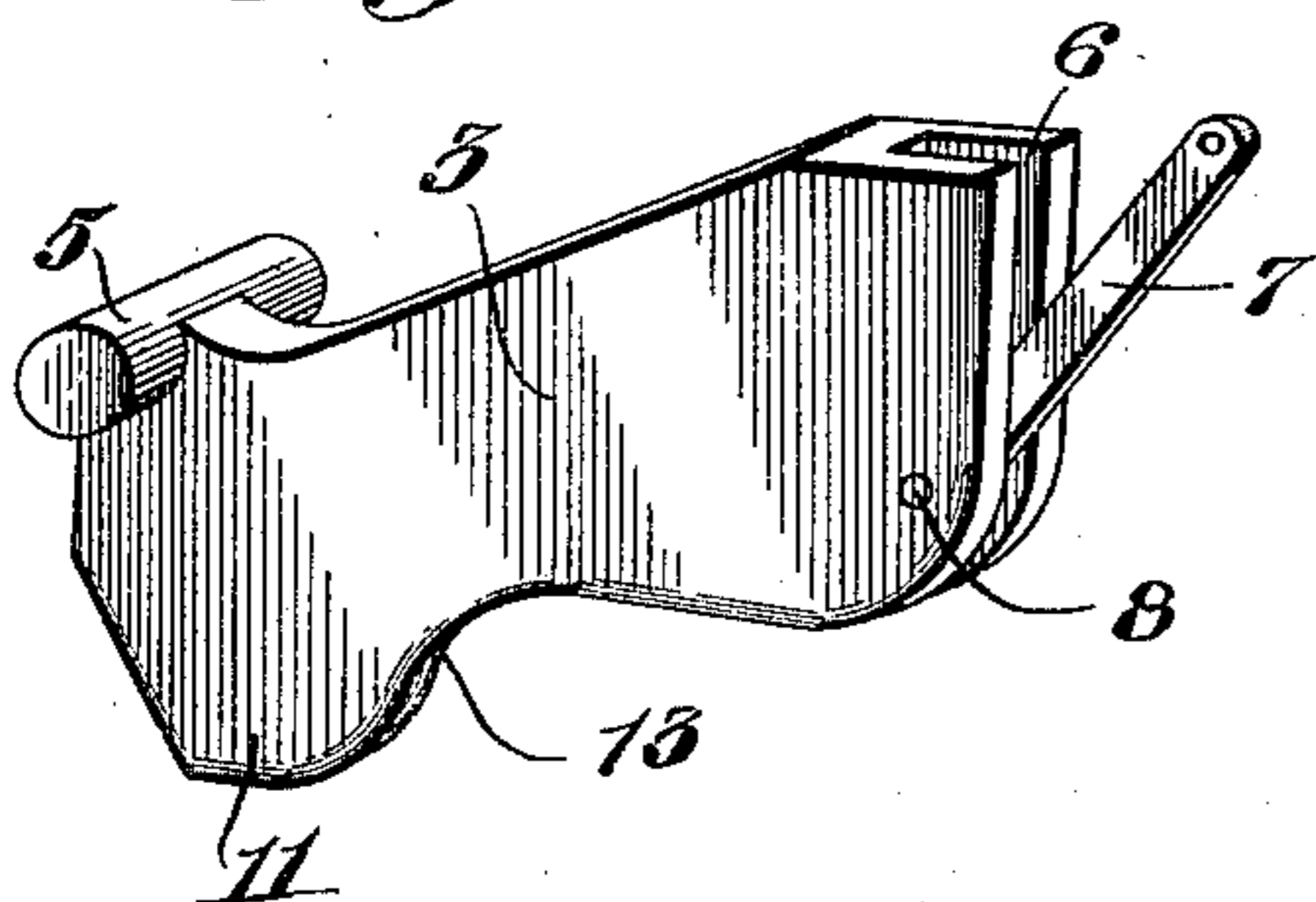
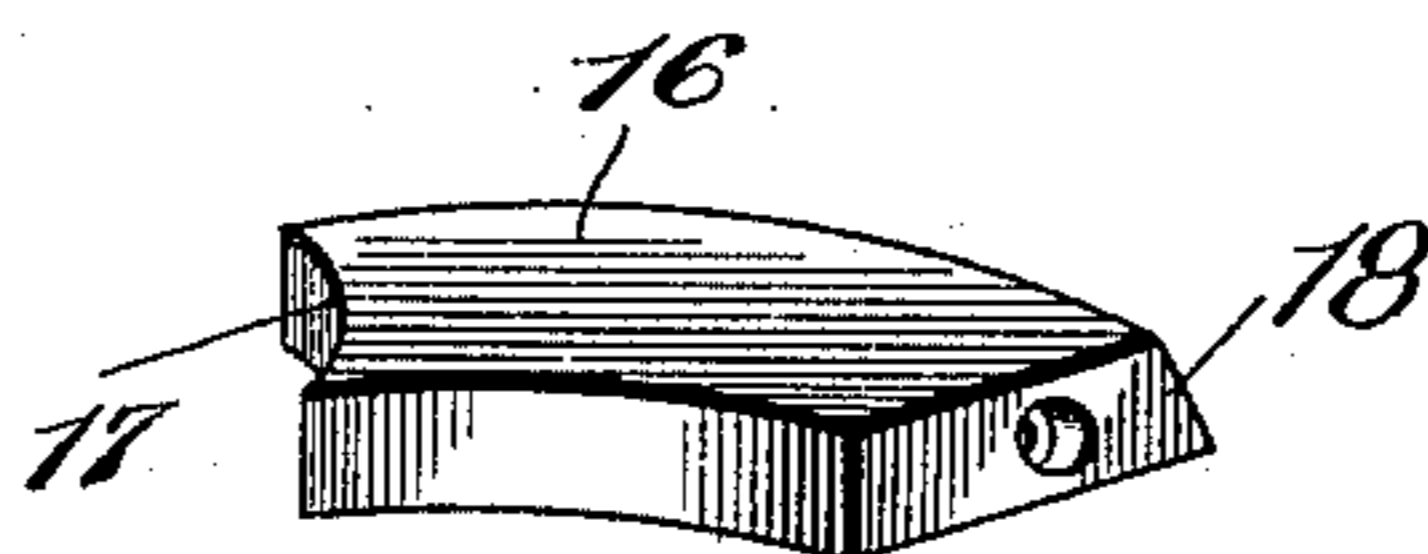


Fig. 6.



Witnesses

Clarence H. Walker, By *H. J. P.* Attorneys,
Chas. S. Hoyer.

Charles D. Horgan Inventor

Chas. S. Hoyer.

No. 639,391.

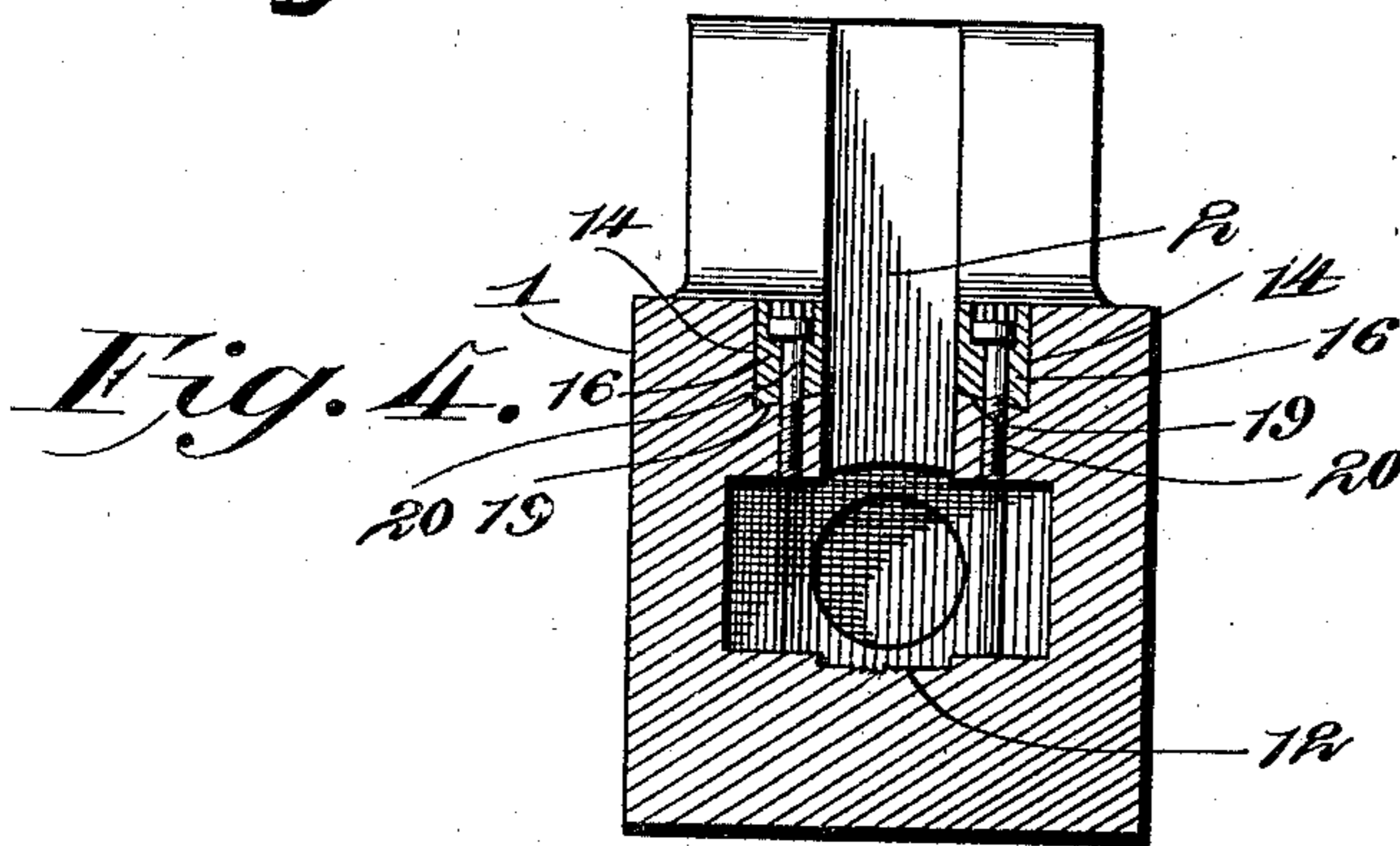
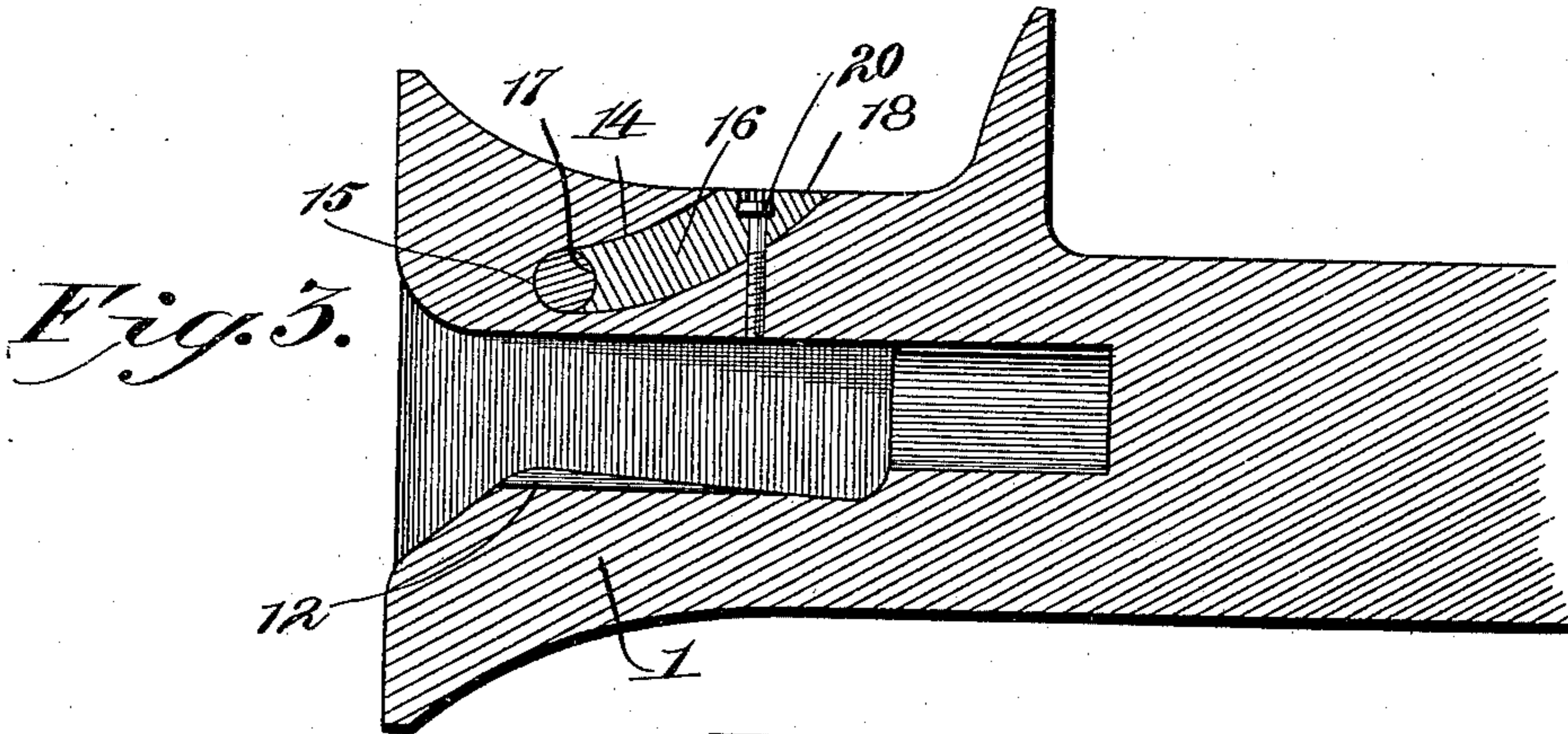
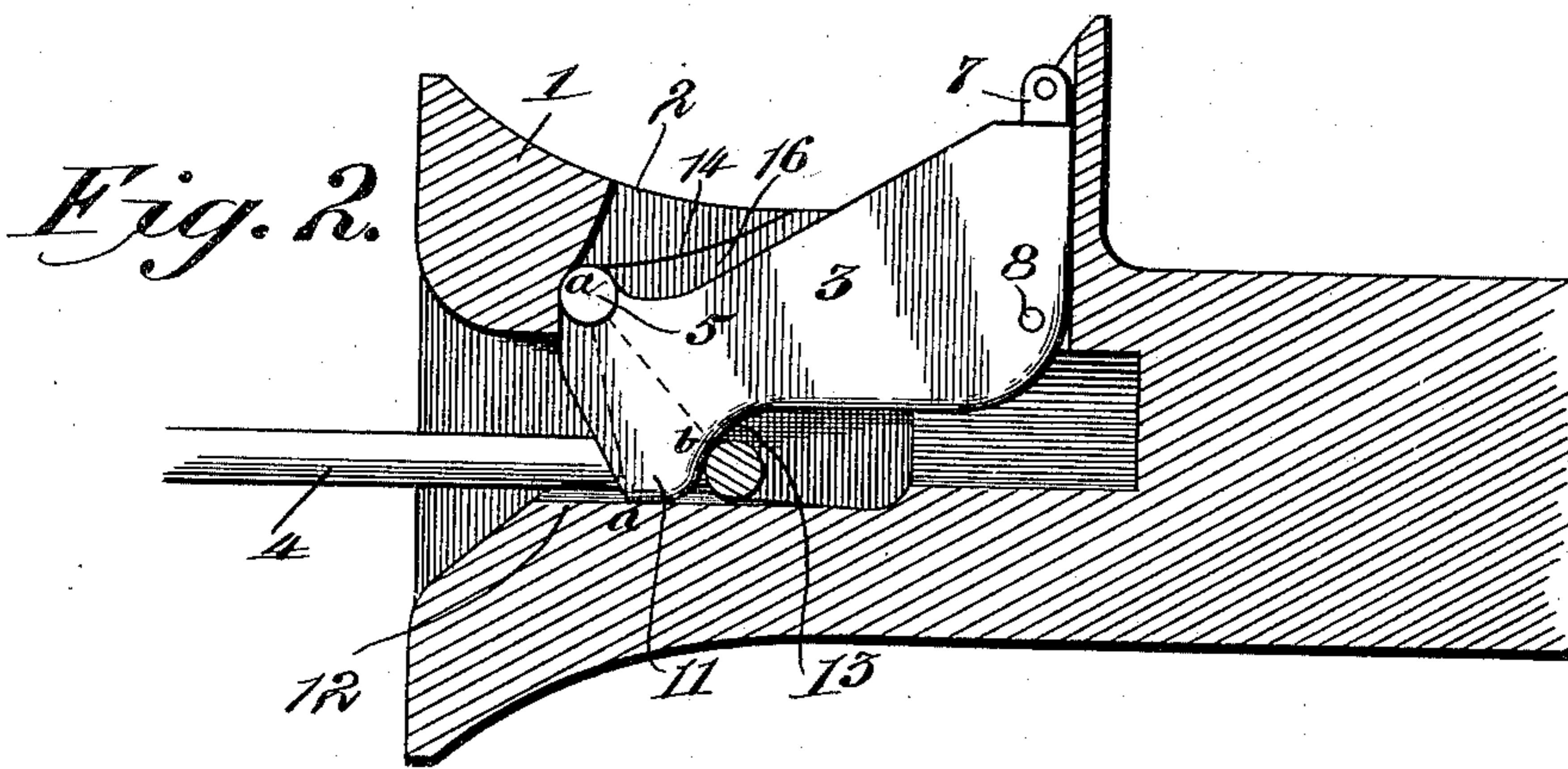
Patented Dec. 19, 1899.

C. D. HORGAN.
CAR COUPLING.

(Application filed Aug. 24, 1899.)

(No Model.)

2 Sheets—Sheet 2



Witnesses

Flournoy Walker

By *Feip* Attorneys,

Chas. S. Hoyer

Charles D. Horgan Inventor

Ca Snow & Co.

UNITED STATES PATENT OFFICE.

CHARLES D. HORGAN, OF OMAHA, NEBRASKA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 639,391, dated December 19, 1899.

Application filed August 24, 1899. Serial No. 728,335. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. HORGAN, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented a new and useful Car-Coupling, of which the following is a specification.

This invention relates to car-couplings; and the object of the same is to improve devices of this character, and more especially the construction shown and described in Patent No. 598,373, granted to me February 1, 1898, and by such improvement to increase the strength of the draw-head, as well as a pivoted knuckle therein, by avoiding the use of pivotal devices extending entirely through the opposite sides of the draw-head and to bring the bearings for the dog into that part of the draw-head having a preponderance of metal, and thereby overcome any tendency toward fracture of either of the main working parts and injury to the bearings of the knuckle. The present construction is also intended to facilitate the insertion and withdrawal of the dog from the draw-head and so dispose the knuckle when in operative position as to contemplate an easy elevation of the same in releasing the link and also an effective connection when the link is in engagement therewith.

The invention consists in the construction and arrangement of parts, which will be more fully hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a car-coupling constructed in accordance with this invention and shown applied to a car. Fig. 2 is a central longitudinal sectional view of the same, showing the knuckle in locking position. Fig. 3 is a longitudinal sectional view to one side of the center of the draw-head. Fig. 4 is a transverse vertical section taken through the draw-head in rear of the pivotal seats of the draw-head to illustrate the transverse contour of the bearing-blocks. Fig. 5 is a detail perspective view of the knuckle. Fig. 6 is a similar view of one of the bearing-blocks.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a draw-head provided with a longitudinal slot 2 in its top, and this slot, which communicates with the link-

opening, receives a freely-movable or pivoted knuckle 3, which is adapted to engage a link 4 and when in an uncoupling position is swung upwardly out of engagement with the link. One of the most important features of this improvement resides in the mode of pivotally mounting the knuckle in the draw-head, so that all punctures or perforations for receiving pivot-pins and extending transversely through the draw-head from side to side will be entirely obviated and the strength of the draw-head thereby materially increased and reinforced against fracture. It is also desired to bring the fulcrums of the knuckle 3 forward into the region of greatest metal thickness and to avoid as much as possible the removal of metal at such point, so as to strengthen the knuckle in its action and brace it against strain and vibration. Therefore the knuckle is provided near its front end and on the upper edge with a laterally-projecting bearing-bar 5, preferably of integral construction with the knuckle and dressed to cylindrical form. The bearing-bar equally projects beyond opposite sides of the knuckle to form trunnions, which are located in seats hereinafter referred to when the knuckle is in working position, and in this arrangement the upper part of the bar is brought to bear against the adjacent portion of the draw-head above the said seats. When the knuckle is in working position in the draw-head, the body portion thereof inclines upwardly and rearwardly from the front edge, the latter being at an inclination to enable the link in entering the draw-head to raise the knuckle and couple automatically.

The rear edge of the knuckle is straight and is also grooved to provide a recess 6 for the reception of a link bar or rod 7, which is pivoted at its lower end within the recess 6 by a transverse pin 8 or other suitable fastening device. The upper end of the link bar or rod 7 projects above the catch and is designed to stand as close as possible over the upper rear edge portion of the knuckle, and thereto is attached a yielding connection 9, which is also secured to a transverse rock-shaft 10 or other suitable or preferred operating mechanism. When the rock-shaft is used as shown, it is journaled on the car at a suitable elevation and provided with a handle located adjacent one side of the car to permit the operation

of uncoupling to be performed from that point. To make the knuckle 3 effective in a coupling operation, it has at the bottom, near the front edge, a projecting nose 11, which falls into a recess 12, extending longitudinally for a distance through the base of the link-opening and having the function to throw the link up into a recess 13 in rear of the said nose and cause a pull to be exerted upwardly on the bearing of the knuckle as well as in a forward direction toward the outer end of the draw-head.

On opposite sides of the longitudinal slot 2 downwardly and forwardly extending segmentally-curved seat slots or recesses 14 are formed that open into the said slot 2 and also outwardly through the top of the draw-head. These slots lead to the seats 15 for the trunnions formed by the bearing-bar 5, and at the rear the bottom walls of the same have a slight inclination in an outward and downward direction to provide a partial dovetail construction. Within these slots 14 segmental bearing-blocks 16 are removably mounted and of less length than the slots. The front ends of the bearing-blocks are formed with transversely-extending semicircular grooves 17 to receive the trunnions of the bearing-bar 5 and hold the same constantly in a predetermined position within the draw-head. The rear ends 18 of the said bearing-blocks are beveled or cut off at an angle to adapt them to have a flush fitting with the top of the draw-head when they are in the slots 14 the full intended extent. The under edges of the said bearing-blocks, adjacent the ends 18, have a partial dovetailed construction, as at 19, to correspond with the lower walls of the slots 14 at the rear, and by means of this dovetailed construction the bearing-blocks are prevented from working inwardly toward the slot 2 or the knuckle operating therein. As a further means of securing the bearing-blocks 16 fully within the slots 14 and against endwise movement collar-bolts 20 are employed and extend through the blocks in part and also project into the metal of the draw-head thereunder. These collar-bolts are also made to assume flush fitting with the upper part of the draw-head, as shown in the drawings, and the bearing-blocks are prevented from having movement through the medium of the same. The knuckle is thus held in close operative relation within the draw-head and at any time desired and when found necessary the collar-bolts may be withdrawn to release the bearing-blocks and permit the knuckle to be removed from the draw-head.

It will be observed that when the link 4 is coupled by the knuckle the latter cannot accidentally work loose or become disengaged from the link, owing to the fact that the strain or pull is exerted in a plane in rear of the working position or seats of the trunnions provided by the bearing-bar 5, and a release of the link can only be obtained by elevating the rear end of the knuckle through

the mechanism set forth. The lateral extension of the bearing-bar across the front portion of the upper edge of the knuckle and so that it will contact with a part of the draw-head containing the greatest metal area is also effective in resisting the strain of the link. When the knuckle is in its lowered position, the link bar or rod 7 fits closely within the recess 6 at the rear end of the knuckle, and all parts are thus arranged to avoid exterior surface projection without interfering with each other or without instituting a bind or incurring a liability to jam. Furthermore, the fulcrums of the knuckle are fully protected and housed and the operation of assembling or disconnecting the several parts can be readily carried on, and, if necessary, substitution of parts may be also easily made.

The precise construction of the knuckle in the present instance is also of material advantage. The proportions of certain parts, as well as the radial distance from the center of the bearing-bar to different points on the nose, is effective in preventing the link from throwing the knuckle upwardly while said link is in coupled connection with said knuckle. As indicated in Fig. 2, the radius $a a$ (designated by the dotted line drawn from the center of the bearing-bar to the lower front corner of the nose) is greater than the radius $a b$ from the same center to the normal point of bearing of the inner end of the link against the rear curved wall of the nose. Furthermore, the point of bearing of the link on the nose is inward from or beyond the vertical plane of the bearing-bar, and the draft on the link in a horizontal plane exerts also a forward and upwardly-inclined pull toward the bearing-bar approximately in the direction of the radius $a b$. Another important feature of construction is making the bearing-bar integral with the knuckle and locating it on the upper edge at the front. These several structural niceties have been found in practice to be necessary in obtaining a safe attachment of the link and to obstruct any tendency toward a self-disconnection of the latter, which might occur under other conditions and due to certain blows delivered by the link against the knuckle caused by forceful coming together of the opposite car ends.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed as new is—

1. In a car-coupling, the combination of a draw-head provided at its top between its ends with a longitudinal slot and having a solid transverse bearing portion at the front of the slot, said draw-head being provided at opposite sides of the slot with recesses having top and bottom walls, and the knuckle provided with a front bearing portion to fit against the solid front portion of the draw-head and having trunnions arranged in the

bearing-recesses, said knuckle being adapted to bear against the bottom of the draw-head and being recessed or cut away at the back at a point in rear of the trunnions to receive the link, whereby the strain on the latter will operate to hold the bearing portion of the knuckle against the front portion of the draw-head, to relieve the trunnions of strain, and also to prevent the latter from moving outward in the recesses, substantially as described.

2. In a car-coupling, the combination of a draw-head provided at its top between its ends with a longitudinal slot and having a solid bearing portion at the front of the slot, said draw-head being provided at opposite sides of the slot with bearing-recesses having top and bottom walls, independent blocks secured within the bearing-recesses, and a knuckle provided with a front bearing portion to fit against the solid front portion of the draw-head, and having trunnions arranged in the bearing-recesses at the inner ends of the blocks, said knuckle being adapted to bear against the bottom of the draw-head at a point in rear of the trunnions and recessed or cut away at the back to receive a link, whereby the strain on the latter will operate to hold

the bearing portion of the knuckle against the solid portion of the draw-head, to relieve the trunnions of strain and to prevent the same from exerting any strain on the blocks, substantially as described.

3. In a car-coupling, the combination of a draw-head provided with a longitudinal slot or opening and segmental slots on opposite sides of the latter and communicating therewith, a part of the lower walls of the segmental slots at the rear having a dovetailed formation, a knuckle having trunnions at the front upper portion thereof and movable in the said segmental slots, bearing-blocks insertible in and withdrawable from the said segmental slots, and having a part of their lower edges at the rear of dovetailed construction to conform to the lower walls of the segmental slots at adjacent points, and means for fastening the said blocks.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES D. HORGAN.

Witnesses:

CHAS. E. RIORDAN,
THEODORE DALTON.