

No. 621,266.

Patented Mar. 14, 1899.

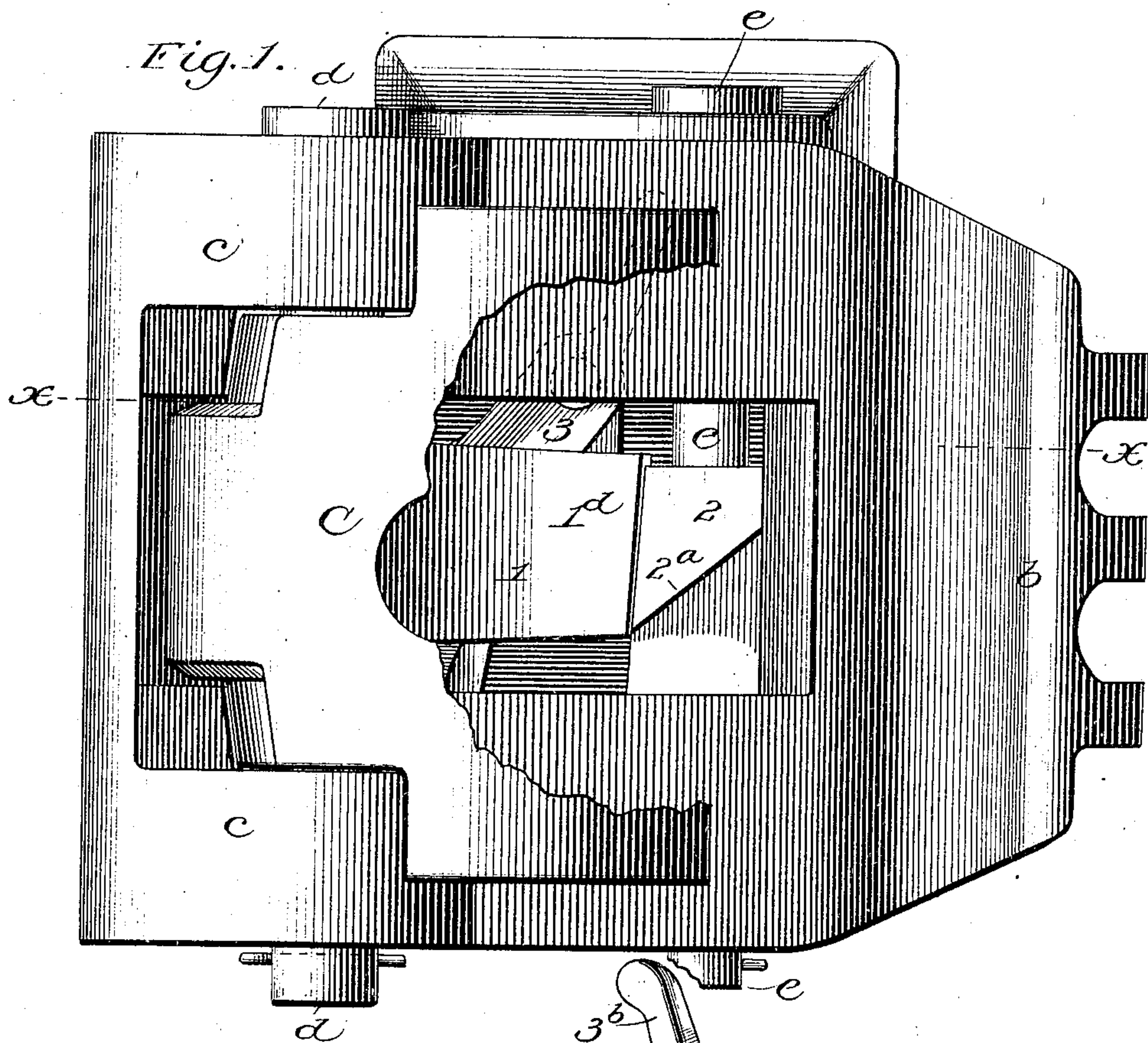
S. C. MASON.

CAR COUPLING.

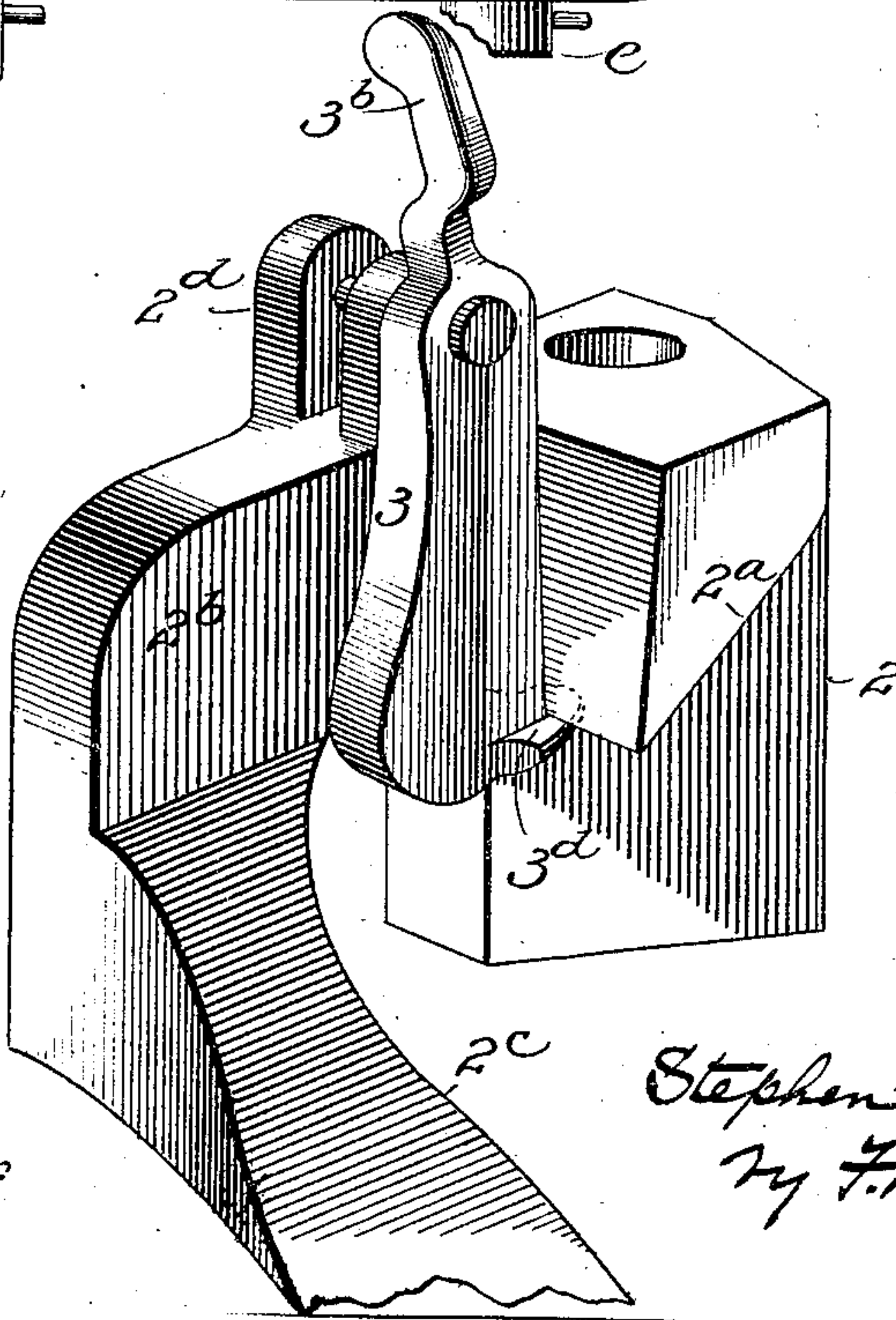
(Application filed Aug. 20, 1898.)

(No Model.)

3 Sheets—Sheet 1.



*Fig. 2.*



Witnesses

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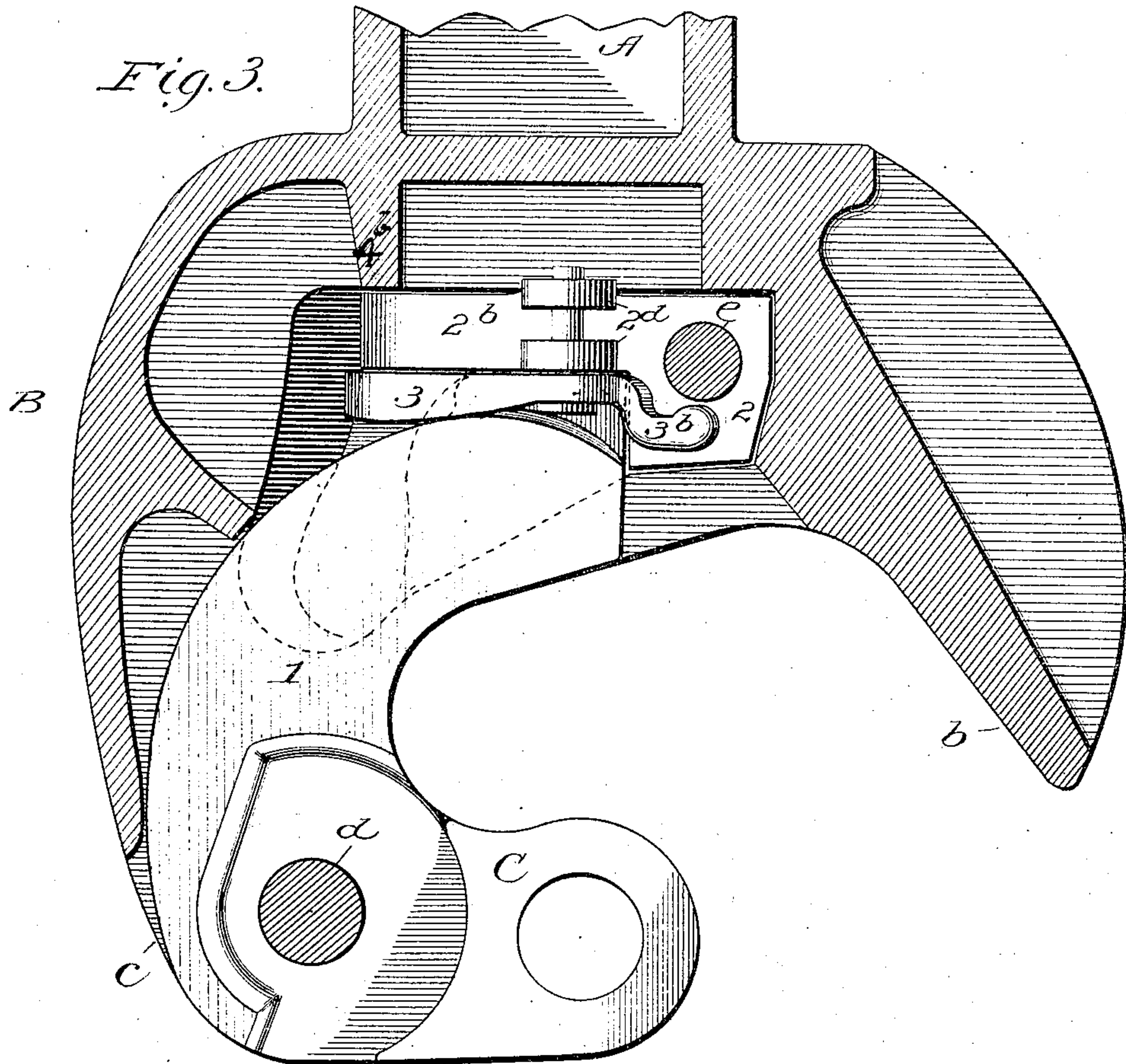
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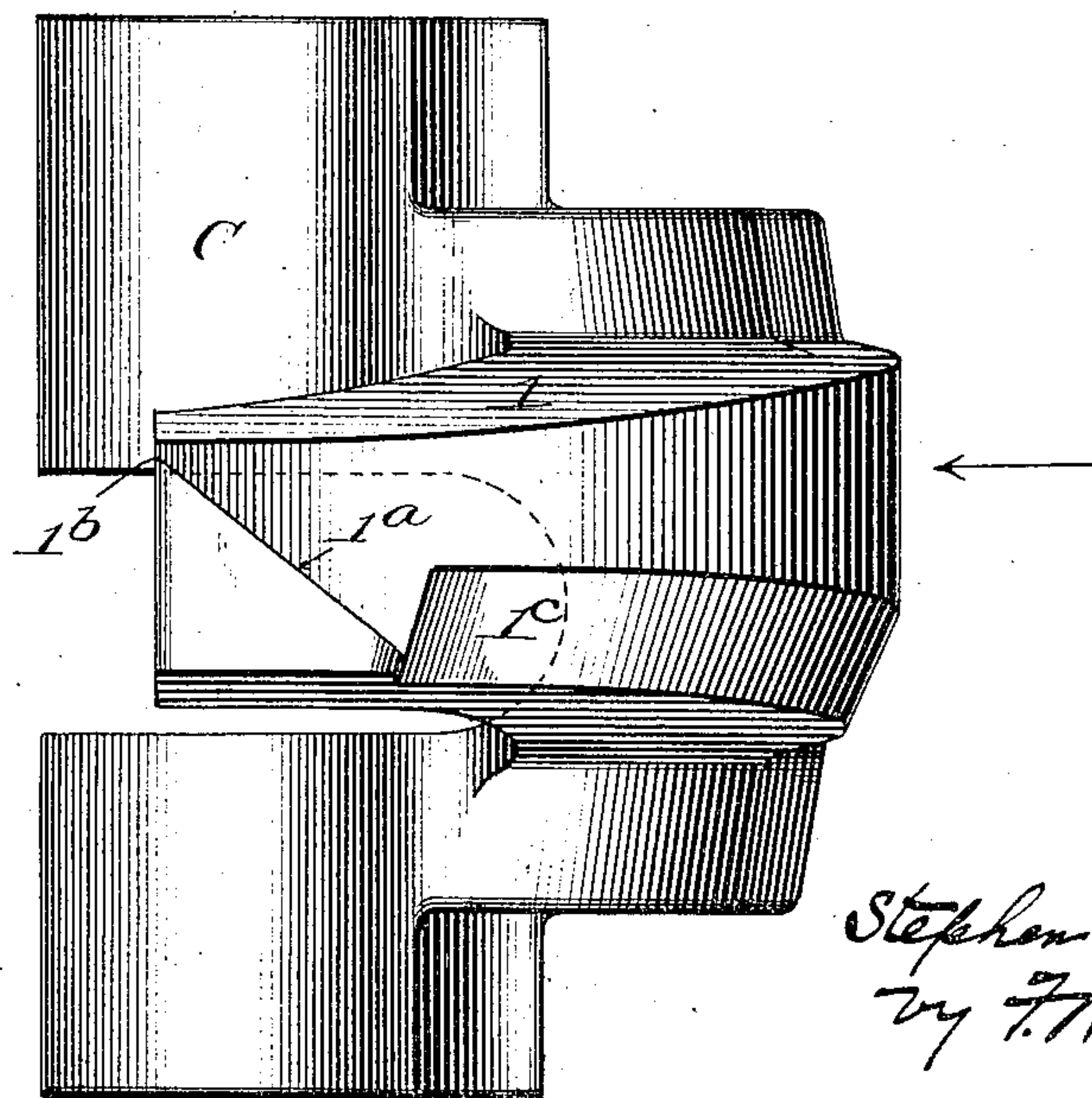
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(No Model.)

3 Sheets—Sheet 2.



*Fig. 4.*



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**No. 621,266.**

**Patented Mar. 14, 1899.**

**S. C. MASON.**  
**CAR COUPLING.**

(Application filed Aug. 20, 1898.)

(No Model.)

**3 Sheets—Sheet 3.**

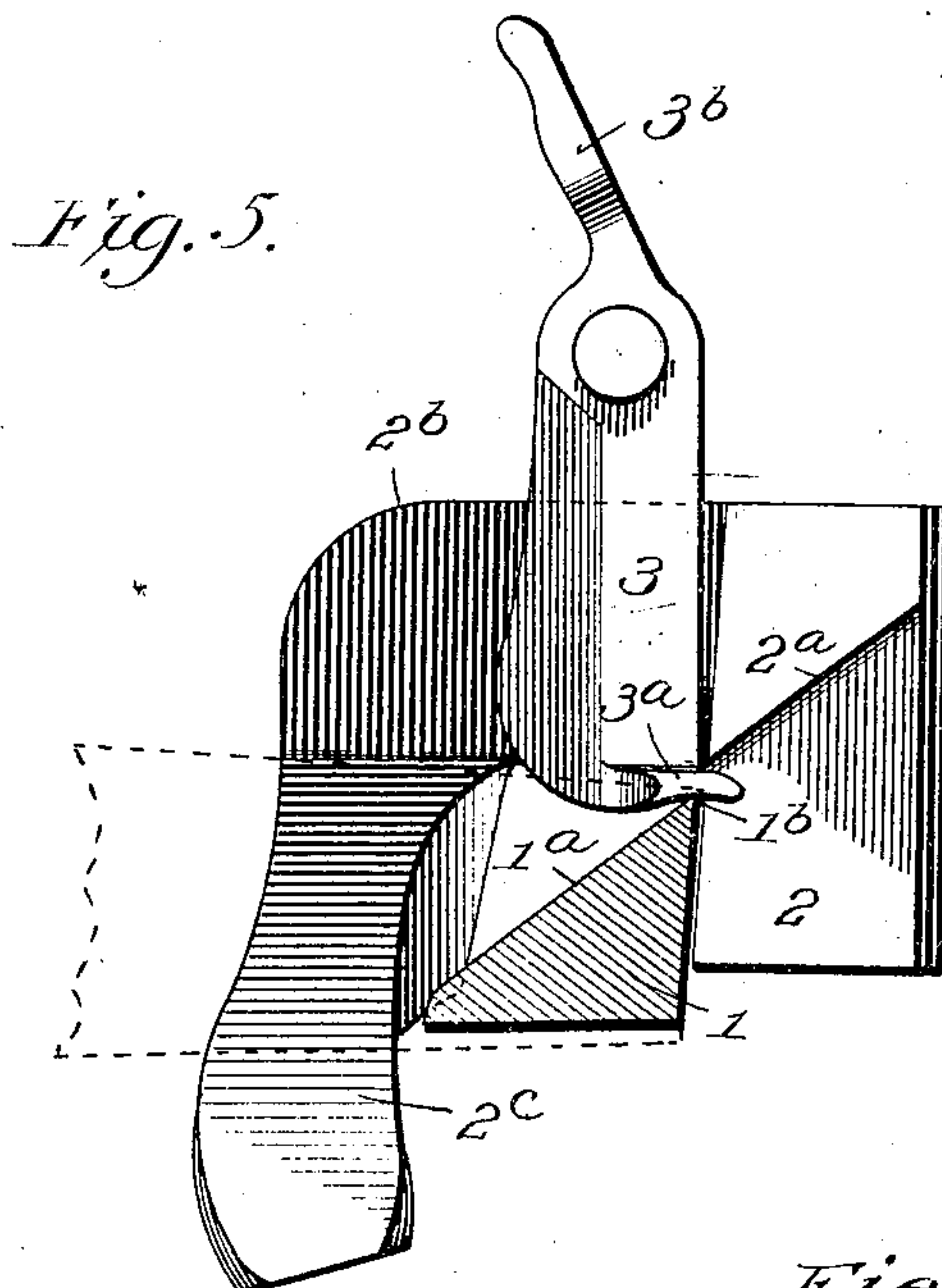
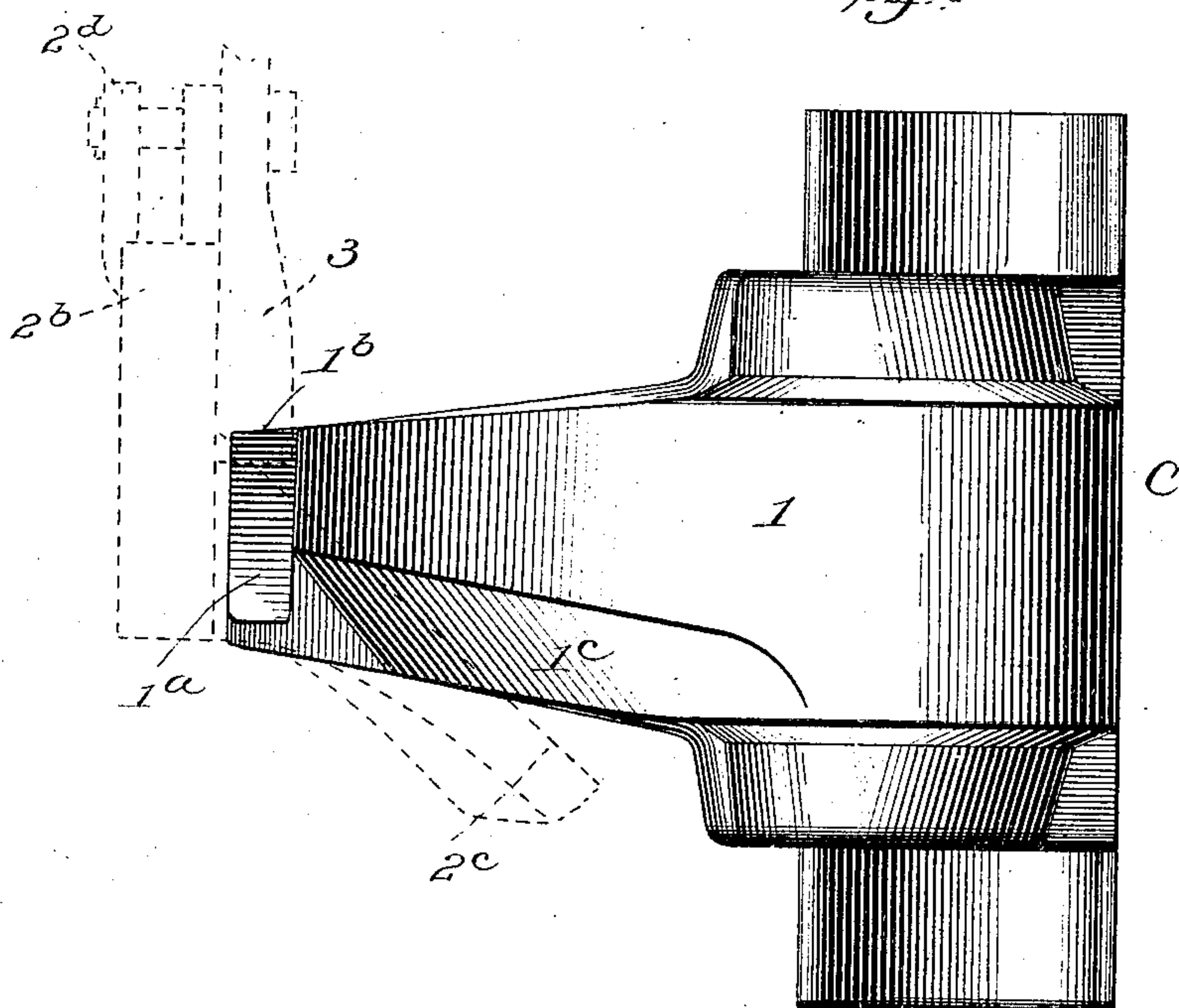


Fig. 6.



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# UNITED STATES PATENT OFFICE.

STEPHEN C. MASON, OF PITTSBURG, PENNSYLVANIA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 621,266, dated March 14, 1899.

Application filed August 20, 1898. Serial No. 689,072. (No model.)

*To all whom it may concern:*

Be it known that I, STEPHEN C. MASON, a citizen of the United States, residing at Pittsburg, in the county of Allegheny, State of Pennsylvania, have invented certain new and useful Improvements in Car-Couplings; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a front or face view of the coupling, portions of the knuckle broken away to show the tailpiece of the knuckle and the locking-block, also their relations when the coupling is locked. Fig. 2 is an enlarged detached perspective view of the locking-block and its "kicker" or arm for actuating the knuckle, also the latch for sustaining the locking-block in the raised or uncoupling position. Fig. 3 is a horizontal sectional view of the coupler-head on the line  $x x$ , Fig. 1, showing the knuckle and its tailpiece, as well as the latch and locking-block, in plan, the kicker or arm of the locking-block and the bevel on the under side of the tailpiece of the knuckle being indicated in dotted lines. Fig. 4 is a view of the knuckle and its tailpiece in rear elevation to show the two bevels thereon, one of which engages the locking-block and the other of which is engaged by the kicker or arm of the locking-block. Fig. 5 is a front view of the locking-block and latch, with a section of the tailpiece of the knuckle, illustrating the relation of the parts when the locking-block is set for uncoupling; and Fig. 6 is a side view of the knuckle and its tailpiece viewed at right angles to Fig. 4, (see arrow,) the locking-block and latch being shown in dotted line and in side elevation to illustrate the relation of the several parts when the locking-block is set for uncoupling and the kicker or arm of the locking-block is in position to open the knuckle on the further upward movement of the locking-block.

Like symbols refer to like parts wherever they occur.

My invention relates generally to the construction of that class of car-couplings commonly called "vertical-plane" couplers, or the "Janney" type, in which are combined a pivoted knuckle and locking-pin or locking-block which engages the tailpiece of the knuckle,

but is more especially directed to what are termed "automatic" couplers, wherein the locking device recedes before the tailpiece of the knuckle in coupling, the parts being previously set for coupling, and has for its object the provision of simple and efficient means whereby the coupler may be set for uncoupling and will be subsequently automatically set for coupling up by the outward movement of the tailpiece of the knuckle when the cars are separated, or, second, if the lock has been set for uncoupling and subsequently, before the cars have been parted, a recoupling is desired it may be effected without any movement of the cars or knuckles of the couplers, or, third, at the time of setting the coupler for uncoupling or subsequent thereto the knuckle may be moved to effect the uncoupling and the coupler set for coupling up by the operation of the usual uncoupling-lever without the operator going between the cars either according to the desire of the operator or the requirement of existing conditions.

In carrying out my invention I combine with the knuckle and its locking-pin or locking-block a latch movably suspended upon the locking-block and adapted to gravitate transversely of the coupler-head or at right angles to the center line of the coupler and to intervene between the locking-block and tailpiece of the knuckle, whereby the locking-block is supported by the knuckle for uncoupling, but may be recoupled by moving the latch independently of the locking-block, and such a construction embodies one feature of my invention. I provide the locking-pin or locking-block with which the tailpiece of the knuckle and the intervening latch is combined with an arm, preferably passing in the rear of the tail of the knuckle, supported in proper position and guided in its movements by a rib of the coupler-head, from which an inclined section or kicker projects, adapted to engage and force out the knuckle on the continued movement of the locking-block, and such a construction or its equivalent embodies another feature of my invention.

There are other minor features of invention, all as will hereinafter more fully appear.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.



In the drawings, A indicates the draw-bar, terminating in the usual coupler-head B, provided with the guard-arm *b* and lugs *c*, on which is pivoted the knuckle C by means of the pin *d* or otherwise, all of which may be of any approved form for the vertical-plane or Janney type of coupler.

1 indicates the tailpiece of the knuckle C, said tailpiece being provided with two inclines, the first of which,  $1^a$ , (see Fig. 4,) constitutes an offset on the end of the tailpiece and coacts with the locking-block 2 to lift the same in the act of coupling up. The acute angle formed by the vertex of incline  $1^a$  constitutes an edge  $1^b$ , upon which the latch 3 rests when the parts are in position or set to uncouple.

In addition to the vertical incline  $1^a$  the tailpiece 1 of the knuckle C is provided with a second incline or bevel  $1^c$  (see Figs. 4 and 6) upon its lower surface, which incline extends horizontally from a point near the base of incline  $1^a$  toward the body of the knuckle for substantially the whole length of tailpiece 1, and with said incline  $1^c$  the kicker or arm  $2^c$  of the locking-block 2 engages and traverses the same during the rise of the locking-block.

The free end of the tailpiece 1, which engages the locking-block 2 when the locking-block is down and the parts are in the coupled position, (see Fig. 1,) is preferably slightly inclined from above downward and inward, as at  $1^d$ , to coact with a reverse incline on the inner face of the locking-block 2 and obviate "creeping" of the locking-block and consequent tendency to uncouple.

2 indicates the locking-block, which coacts with the knuckle, and said block is preferably one having a vertical movement, supported and guided by a pin *e*, which passes through the top and bottom walls of the head at points just back of the guard-arm *b* and through the locking-block, which moves upon the pin, though in lieu thereof guides and supports for the locking-block may be otherwise placed within the head B and form parts of the wall thereof, as is common in some types of vertical-plane couplers. Upon the front face of said locking-block 2 is a projection which overhangs the path of the extremity of the tailpiece 1 of the knuckle C in its inward and outward movement, and said projection may have the form of a transverse incline  $2^a$ , extending downward and inward and with said incline the incline  $1^a$  on the tailpiece of the knuckle engages to force up the locking-block on the inward movement of the tailpiece of the knuckle in making a coupling. This locking-block 2 is provided with an arm  $2^b$ , which projects transversely across the head back of the tailpiece of the knuckle, supported and guided in its movement by the rib  $4^b$ , (see Fig. 3,) and terminates in a downwardly and forwardly inclined section  $2^c$ , which passes under the tailpiece and engages the horizontal bevel or incline  $1^c$  thereof, the parts  $2^b$   $2^c$  or

their equivalents having for their function to force the tailpiece outward beyond the locking-block when the locking-block is raised above the height required to set the devices for uncoupling. Said parts for sake of brevity I have termed a "kicker."

Lugs  $2^d$  (see Fig. 2) or equivalent means may be provided for connecting the locking-block (through a suitable opening in the top wall of the head) with any suitable release-rigging or other means whereby the locking-block may be lifted to "set" the devices for uncoupling.

3 indicates the means for supporting the locking-pin or locking-block upon the tailpiece of the knuckle when the parts are set for uncoupling, and the same is also the means of releasing the locking-block for purposes of recoupling without parting the train or disturbing the knuckle. This means, which is movably suspended on the locking-block, is of a character not only to move with the locking-block, but also to be moved at will independently thereof and transversely of the coupler-head or at right angles with the center line of the coupler, so that it can not only automatically intervene between the locking-block and tailpiece of the knuckle when the locking-block is raised, but can be withdrawn at will without disturbing the knuckle to release or lower the locking-block to a locking position. In the present instance for purposes of simplicity I have chosen for such device a vertically-hung gravity-latch 3, (see Figs. 2 and 5,) provided with a projection or finger  $3^a$ , adapted to enter between the lower edge of the incline  $2^a$  of the locking-block 2 and the vertex  $1^b$  of the incline  $1^a$  of the tailpiece of the knuckle, and to insure against displacement the under surface of the projection or finger  $3^a$  is indented, as indicated in Fig. 5 of the drawings. This latch 3 is so pivoted on the locking-block 2 that when at liberty so to do it will swing at right angles to the center line of the coupler toward the incline  $2^a$  and across or over the edge  $1^b$  on the tailpiece of the knuckle and so support the locking-block from the tailpiece of the knuckle. The upper end of the latch 3 is provided with an arm  $3^b$  or equivalent means, by which it may be moved at will independently of the locking-block 2 to withdraw the finger  $3^a$  from between the locking-block and tailpiece.

The locking-block 2 and latch 3, pivoted thereon, are of such shape that they can be readily introduced into the coupler-head B from the front or tailpiece opening, so that the opening in the top of the head may be restricted in size to what is required to connect the locking-block with the release-rigging or other means for operating the block and for operating the latch independently of the block.

The construction of the devices being substantially such as hereinbefore pointed out will operate as follows: Assuming the parts



to be in the position shown in Figs. 1 and 3—that is to say, the tailpiece 1 within the head B and the locking-block 2 lowered so that the end of the tailpiece is engaged and held by the inner face of that portion of the locking-block above the incline 2<sup>a</sup>, while the gravity-latch 3 is held inward or by the incline 1<sup>a</sup> of the tailpiece, or, in other words, the device is in the coupled-up position—and it is desired to set the devices for uncoupling, the locking-block 2 is raised until the lower end of incline 2<sup>a</sup> thereof rises slightly above the vertex 1<sup>b</sup> of the incline 1<sup>a</sup> of the tailpiece, whereupon the latch 3 will gravitate toward the center line of the coupler until the finger 3<sup>a</sup> intervenes between the vertex of incline 1<sup>a</sup> and the lower edge of the incline 2<sup>a</sup>, whereupon the locking-block on being released will be supported on the tailpiece through the interposition of the latch-finger until such time as the outward movement of the tailpiece of the knuckle in uncoupling shall allow the descent of the latch and locking-block, when they will assume the required position for subsequent coupling up. In coupling up thereafter the tailpiece will move inward, as usual, the incline 1<sup>a</sup> of the tailpiece engaging the incline 2<sup>a</sup> of the locking-block, forcing the locking-block up until the tailpiece can pass under the same, which it will do, carrying the gravity-latch 3 back with it until the released locking-block again drops down, and the coupling up is completed. If after the devices have been set for uncoupling, as above noted, it is desired to recouple without parting the train, the latch is manually operated by means of the arm 3<sup>b</sup> to withdraw the finger 3<sup>a</sup>, whereupon the locking-block drops down in a locking position, and the recoupling is effected. If the knuckle is closed and it is desired to unlock it to set the coupler in position for coupling up, the locking-block is raised by the operation of the uncoupling-lever in the usual manner and the upward movement continued past the point where the set occurs and until the arm 2<sup>c</sup>, acting on the incline 1<sup>c</sup> of the tailpiece 1, rotates the knuckle outward until the end of the tailpiece has escaped past the locking-block, whereupon the locking-block is released and drops to its lowest position and in such relation to the tailpiece of the knuckle as to be raised thereby on the subsequent inward movement of the tailpiece in coupling up.

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

1. In a car-coupling of the “vertical-plane or Janney type,” the combination with the tailpiece of the knuckle, of a locking-block, and a device movable with and also independently of the locking-block, said device arranged to move across the tailpiece of the knuckle and to intervene between the locking-block and tailpiece of the knuckle when the locking-block is withdrawn from engage-

ment with the tailpiece, substantially as and for the purposes specified.

2. In a car-coupling of the “vertical-plane or Janney type,” the combination with a knuckle and its tailpiece, of a locking-block therefor, and a latch movable at will, said latch pivoted on the locking-block and arranged to vibrate across the tailpiece of the knuckle and intervene between the locking-block and tailpiece of the knuckle when the locking-block is withdrawn, substantially as and for the purposes specified.

3. In a car-coupling of the “vertical-plane or Janney type,” the combination with a knuckle and its tailpiece, of a locking-block, a gravity-latch pivoted on the locking-block and arranged to vibrate in a plane at right angles to the center line of the coupler and across the tailpiece of the knuckle, said gravity-latch movable at will and provided with a projection or finger adapted to intervene between the locking-block and the tailpiece of the knuckle, substantially as and for the purposes specified.

4. In a car-coupling of the “vertical-plane or Janney type” the combination with a knuckle and its tailpiece having a vertical incline to engage the locking-block, of a locking-block having a reverse incline to engage the incline of the tailpiece, and a gravity-latch provided with a finger having an indentation to engage the vertex of the incline on the tailpiece of the knuckle, substantially as and for the purposes specified.

5. In a car-coupling of the “vertical-plane or Janney type” the combination with the knuckle and its tailpiece the latter provided with suitable inclines, of a locking-block having a kicker-arm, said block and its kicker-arm having suitable inclines to engage the inclines on the tailpiece of the knuckle, and a device movable with and also independently of the locking-block arranged to intervene between the locking-block and the tailpiece of the knuckle when the locking-block is withdrawn, substantially as and for the purposes specified.

6. In a car-coupler of the “vertical-plane or Janney type” the combination with the knuckle and its tailpiece of a locking-block, and a device mounted on the locking-block and arranged to move at right angles to the center line of the coupler and adapted to intervene between the locking-block and tailpiece of the knuckle when the locking-block is withdrawn to release the tailpiece of the knuckle, the locking-block being provided with a kicker or arm arranged to engage and force outward the tailpiece of the knuckle when the locking-block is withdrawn to the limit of its movement, substantially as and for the purposes specified.

7. In a car-coupler, the combination with the knuckle and its tailpiece, of a locking-block having a projection or overhang, a device mounted on the locking-block and arranged to vibrate across the tailpiece of the



knuckle and at right angles to the center line of the coupler and adapted to intervene between the tailpiece of the knuckle and the projection or overhang of the locking-block; substantially as and for the purposes specified.

8. In a car-coupler, the combination with a pivoted knuckle having a tailpiece provided at its extremity with an incline, of a locking-block provided on its anterior face with a reverse incline, and a vibrating latch mounted on the locking-block and provided with a finger or projection adapted to intervene between the tailpiece of the knuckle and the incline of the locking-block, substantially as and for the purposes specified.

9. In a car-coupler the combination with a pivoted knuckle and its tailpiece, of a locking-block therefor, a device movably mounted on the locking-block and adapted to intervene between the locking-block and the tailpiece of the knuckle, and means whereby said device may be moved independently of the lock-

ing-block and tailpiece of the knuckle to withdraw the same from between said parts, substantially as and for the purposes specified.

10. In a car-coupler, the combination with a pivoted knuckle having a tailpiece provided on its extremity with an incline, of a locking-block having on its anterior face an incline the reverse of that on the tailpiece of the knuckle, a latch pivoted on the locking-block and arranged to vibrate at right angles to the center line of the coupler said latch provided with an arm or extension whereby it may be moved independently of the locking-block, substantially as and for the purposes specified.

In testimony whereof I affix my signature in presence of two witnesses, this 19th day of August, 1898.

STEPHEN C. MASON.

Witnesses:

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JOSEPH STANTON.