

(No Model.)

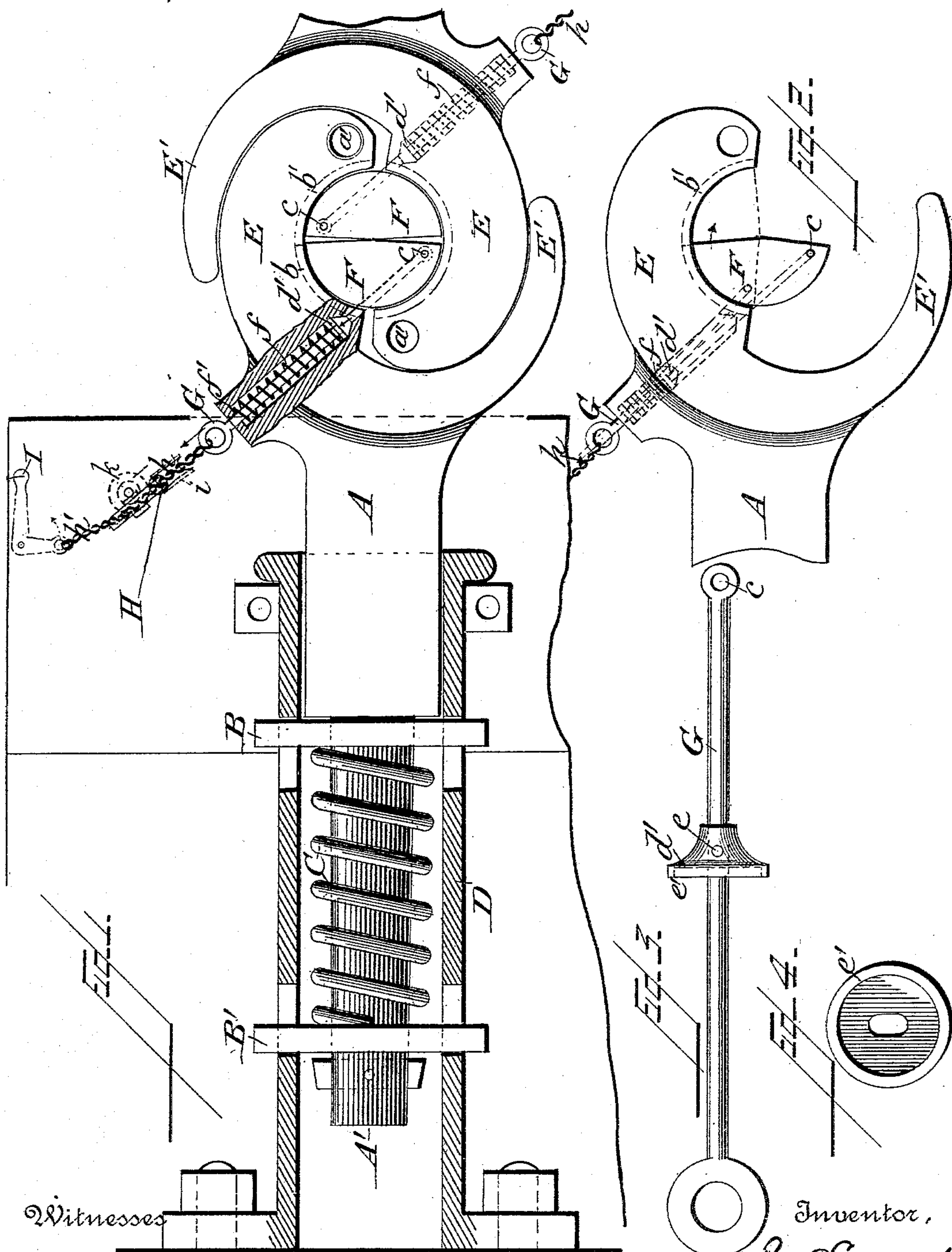
P. C. GREENAWALT.

3 Sheets—Sheet 1.

CAR COUPLING.

No. 384,359.

Patented June 12, 1888.



Witnesses

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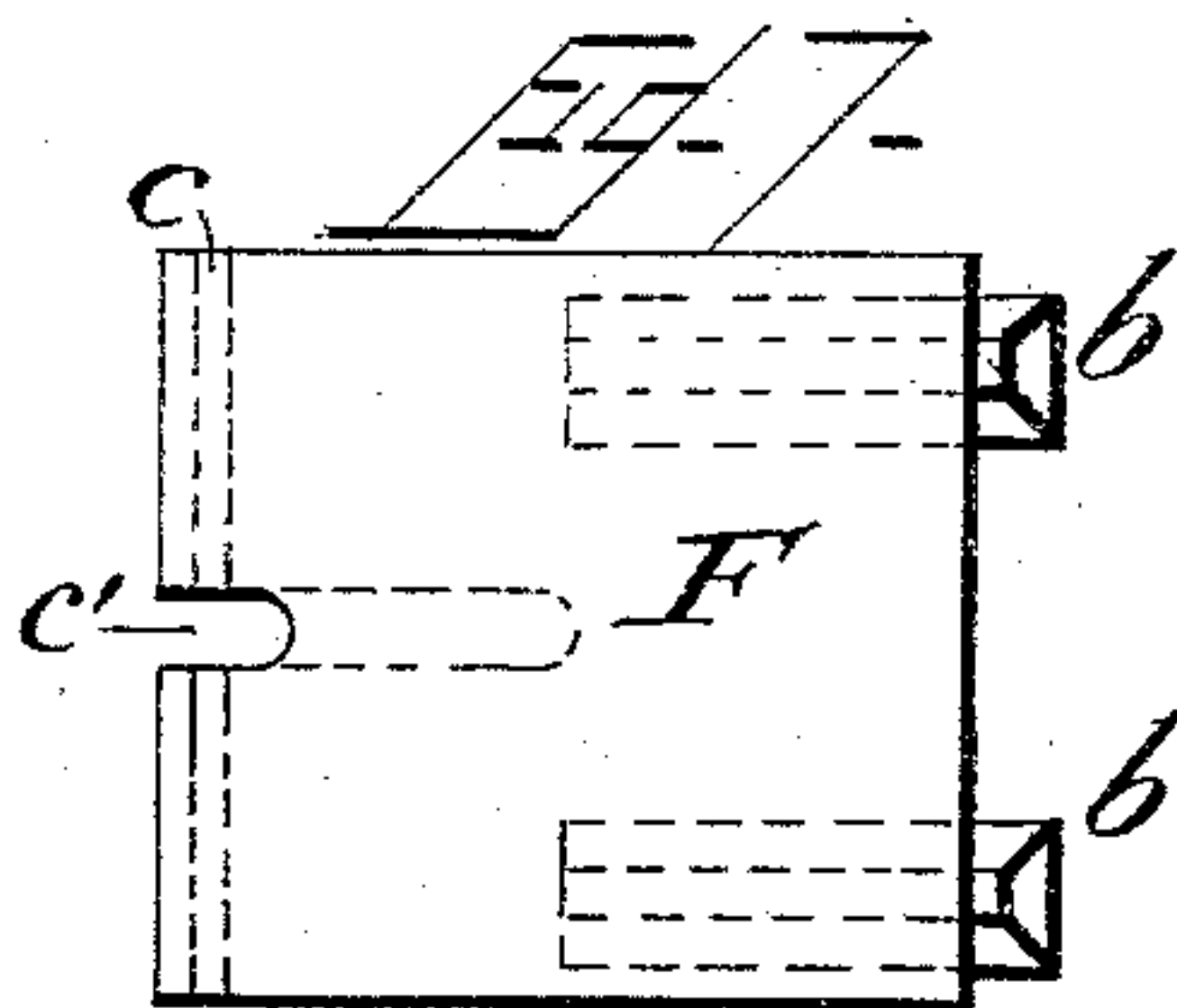
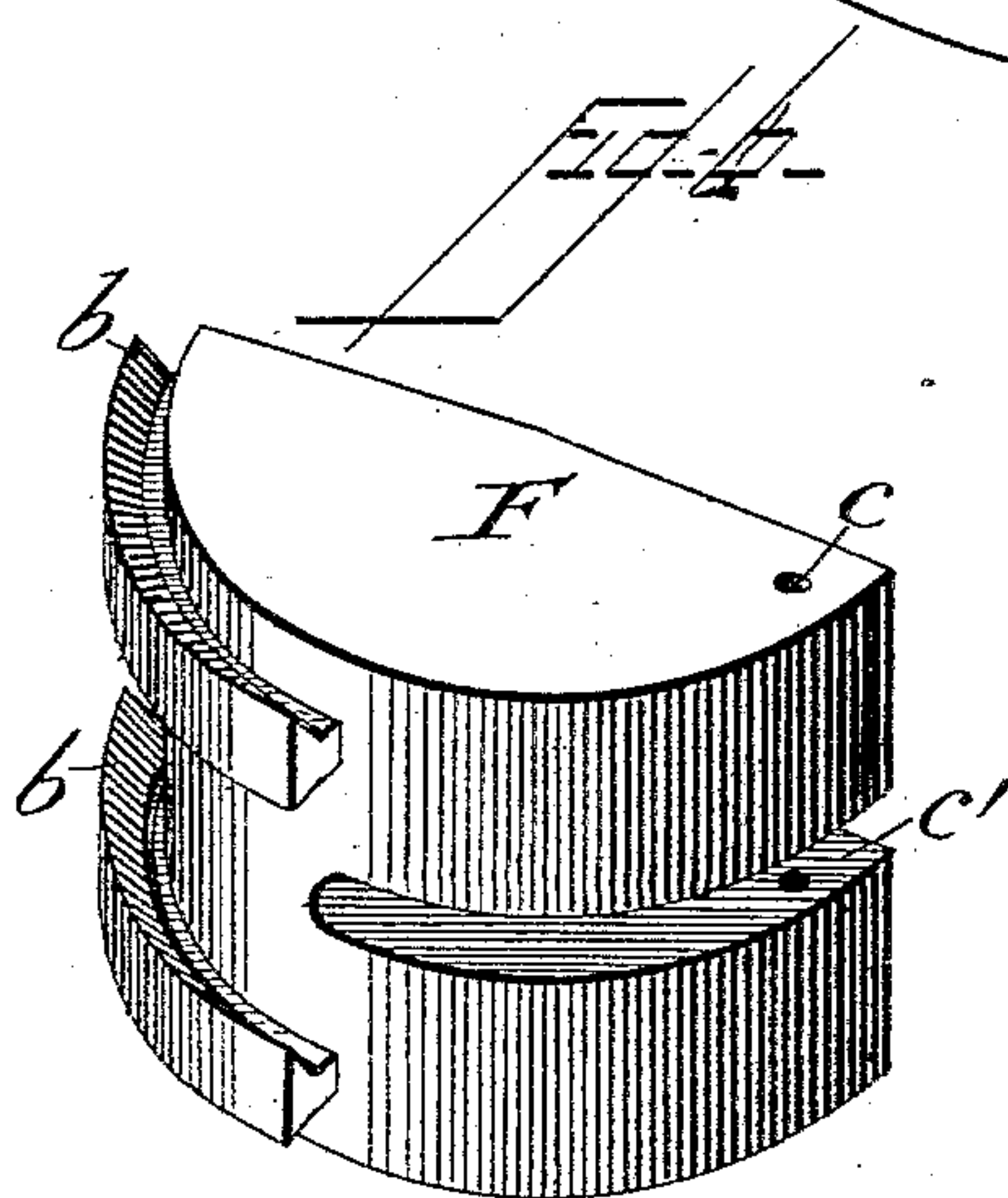
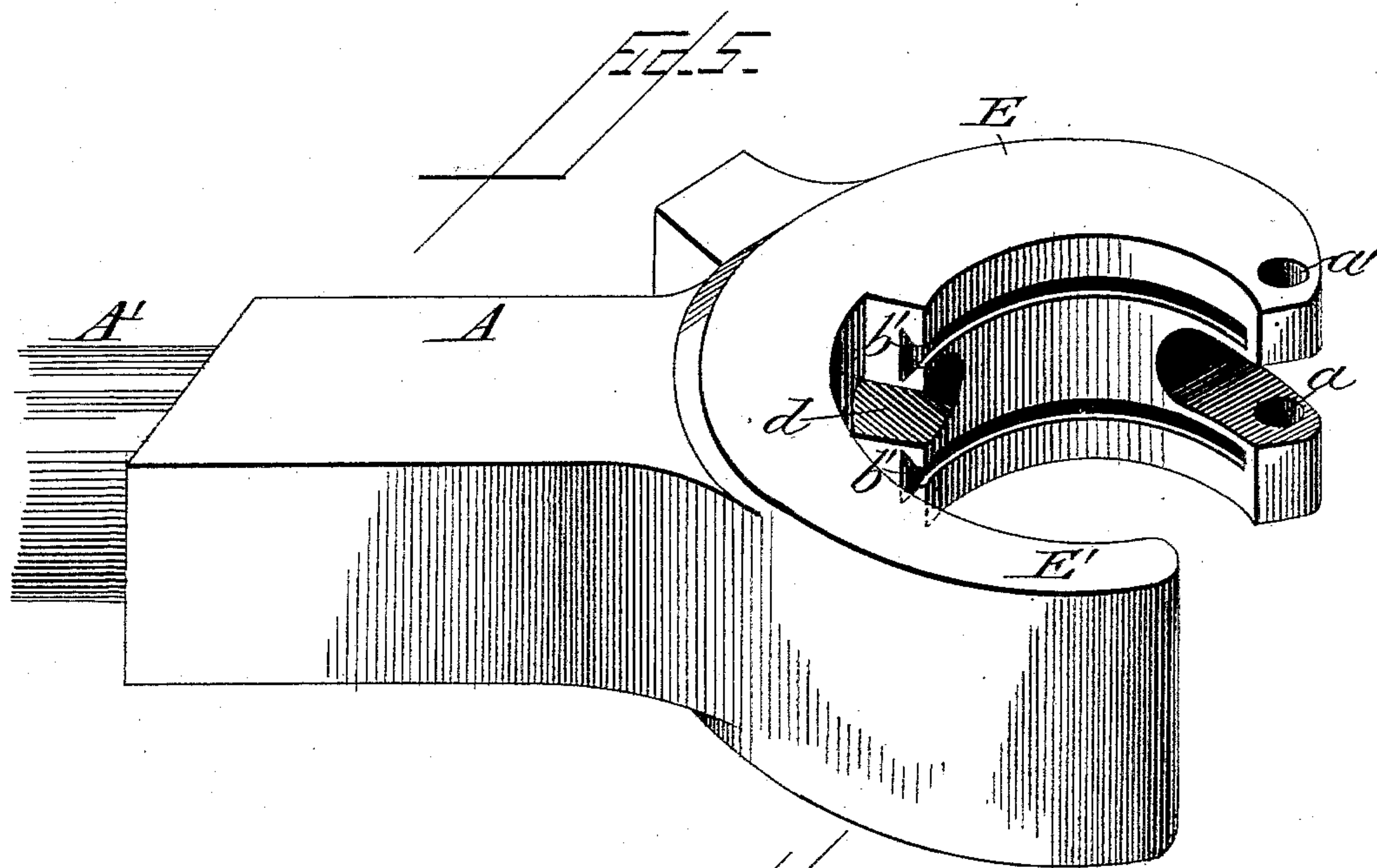
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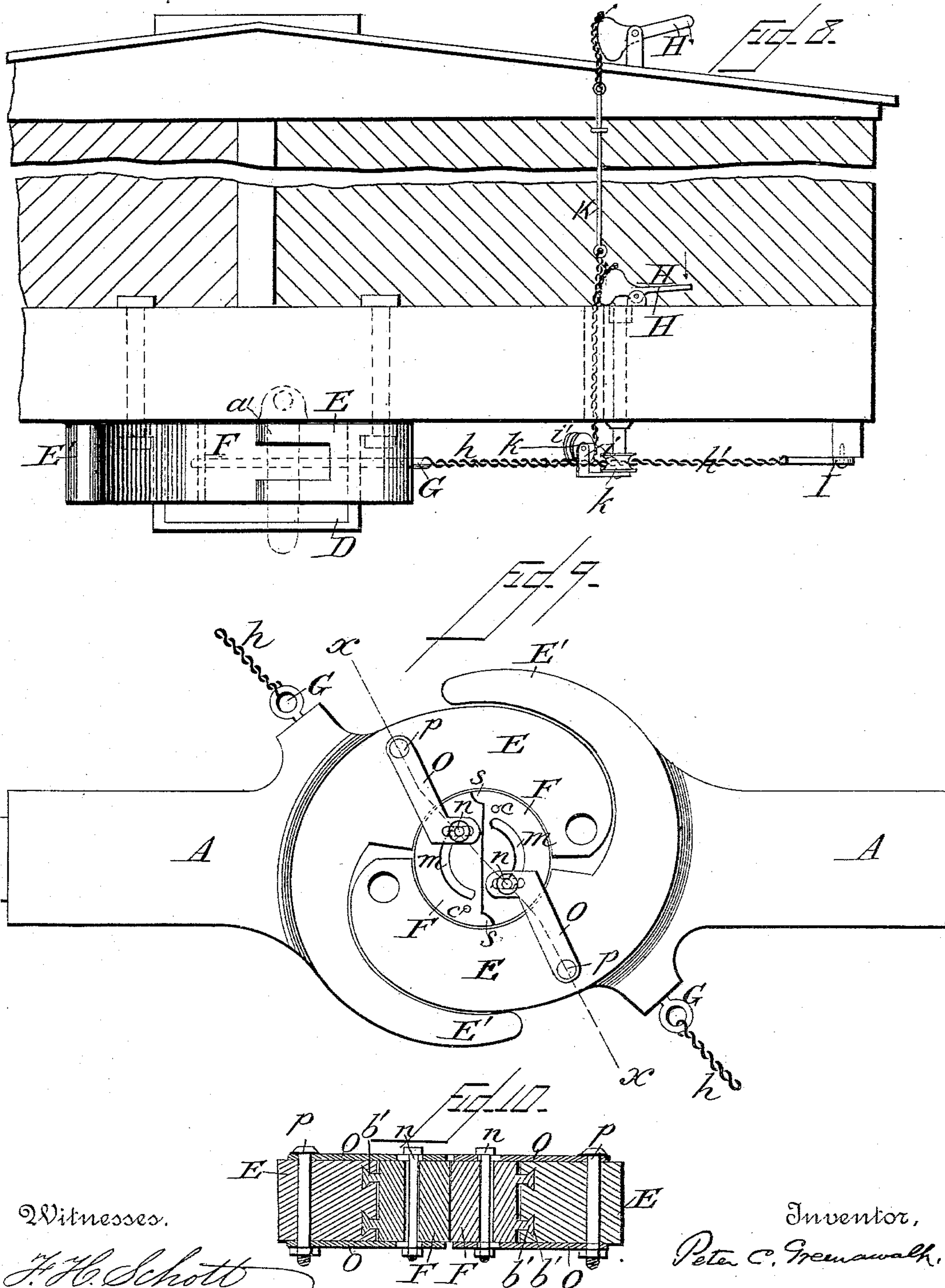
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P. C. GREENAWALT.
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UNITED STATES PATENT OFFICE.

PETER C. GREENAWALT, OF READING, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO FRANKLIN S. S. GREENAWALT AND JACOB F. HOLDER, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 384,359, dated June 12, 1888.

Application filed February 27, 1888. Serial No. 265,429. (No model.)

To all whom it may concern:

Be it known that I, PETER C. GREENAWALT, a citizen of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Car-Couplings; 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 improvements in automatic car-couplings of that class known as "jaw-couplers," in which the outer ends of the draw-heads are bifurcated, thus allowing them to interlock when brought into position for coupling, the object being to produce a coupling which shall readily connect automatically with the coupling of another car when the two are brought together, either on the same level or different levels, as between a loaded and unloaded car, and which shall be disconnected from the side, top, or platform of a car, thus avoiding all necessity of entering the space between the two cars, either in coupling or uncoupling.

In constructing this coupling the draw-head is provided with the usual springs to prevent shock in starting the car, as well as to act as buffers when the cars come together, the outer end of said draw-head being divided or forked, each jaw of this fork being curved outward, and one of them being nearly double the length of the other. In the inner side of the larger jaw is formed a semicircular recess which receives a locking-block semicircular in cross-section. To this locking-block is attached a rod by which it is operated, said rod being encircled by a spirally-coiled spring which retains the locking-block normally in such position that its plane surface is at right angles, or nearly so, to the axial line of the draw-head. It is evident that when two of these draw-heads come forcibly together the long jaw of each will enter the recess between the jaws of the other, and, striking the projecting ends of the locking-block, will turn them partly around, so that the ends of the jaws will pass the blocks, when the springs, acting upon the rods, return the blocks to their normal position, filling the circular

opening between the jaws and effectually preventing the draw-heads from separating until the locking-blocks are so turned as to bring their plane sides into line with the axial line of the draw-heads.

The invention consists, essentially, in the construction of the locking-block and its attachments to the draw-head; also, in the devices for operating said locking-block from the ground, the platform, or the top of a car.

In the drawings which illustrate this invention, Figure 1 is a plan showing the bottom of a car with the draw-head coupled to that of an adjacent car. Fig. 2 is a plan of part of a draw-head, showing the coupling devices. Fig. 3 shows the rod by which the locking-block is operated, with the collar against which the spring acts secured thereon. Fig. 4 shows a face view of the collar with its retaining-flange, within which one end of the spring is placed. Fig. 5 is a perspective view of the draw-head, showing the dovetail grooves on the inside of the long jaw, which grooves receive the tongues of the locking-block. Fig. 6 presents a perspective view of the locking-block, and Fig. 7 a face view of the same. Fig. 8 shows the end of a freight-car, illustrating the arrangement of the devices by which the locking-block is operated. Fig. 9 shows a modification, in which, in addition to the dovetail tongue, straps are used to retain the block in place. Fig. 10 shows a vertical section of the same on line *xx* of Fig. 9.

In the several figures, A represents the draw-head, with a rear extension or draw-bolt, A', passing through the stop-plates B and B', and surrounded between said plates by the spring C, acting both as a buffer and draw-spring, a part of the draw-head, with the draw-bolt and spring, being inclosed in the metallic slide-box D, which is firmly bolted to the draw timbers of the car, and in the sides of which box the ends of the stop-plates are secured. The forward end of this draw-head is provided with two forwardly-projecting jaws, E and E', the jaw E being longer than the other and provided at its outer end with a slot, *a*, for the reception of a link when this draw-head is to be coupled with that of a car provided with the ordinary link-and-pin coupling, a pin-hole,

a' , being formed near its outer end for the reception of the pin. The inner surface of this jaw E is curved so as to form a semicircle for the reception of a locking-block, F, which is also semicircular in cross-section and is provided on its outer or rounded surface with the projecting dovetail tongues $b b$, which tongues are received in the dovetail grooves $b' b'$, formed on the inner side of the jaw E.

By constructing the jaw E with these grooves and providing the locking-block with the tongues it will be seen that when the block is in place it may have a circular or rotary movement upon its center, but is effectually prevented by said tongues and grooves from having any other motion.

It will be seen that the curve of the inner side of the jaw E' has a longer radius than the curve in the jaw E, conforming nearly to the curvature of the outer side of said jaw, so that where they meet a shoulder is formed, the grooves b' opening out at said shoulder, so that the locking-block may be readily inserted or removed by giving it a circular motion, which will either insert or withdraw the tongues from the grooves.

By an inspection of Fig. 1 it will be seen that when two of these draw-heads are brought together, their jaws interlocking and the locking-blocks turned so that their plane or meeting sides are at an angle to the axial or draft line of the draw-heads, they will effectually lock the draw-heads together; but when turned so that their adjoining faces are in said line the draw-heads may be readily separated, as there is nothing to prevent the withdrawal of one from the other.

In order to provide a ready means for turning these locking-blocks and for holding them in position with their faces across the line of draft, a rod, G, is pivoted at c in the slot c' , which slot is formed in one side of the block and is of such dimensions as to allow the rod to enter the same when the block is turned to the coupling position. This rod G extends outwardly through an opening, d , formed in the side of the jaw E, its outer end being provided with a ring or other means for attaching the same to the chains by which it is operated. A collar, d' , is secured upon the rod by means of a pin, e , passing through both collar and rod, or it may be held in place by any other suitable means, and one side of this collar is provided with a projecting flange, e' , forming within it a groove or seat for one end of the coiled spring f , which is coiled around the rod, its opposite end resting against the shoulder f' near the outer end of the opening d , through which the rod passes. By this construction it will be seen that the spring f is perfectly protected from injury, it being wholly within the body of the jaw E, and that its tendency is to always keep the block F in the locking position, as shown in Figs. 1 and 2. Attached to the ring at the outer end of the rod G is a chain, h , which passes around the pulley i , which pulley is supported by the

bracket k , attached to the under side of the platform or end sill of the car. The chain then passes through an opening in said end sill or platform, and may be operated by a foot or hand lever, as H, placed upon the platform, or, in case the attachment is made to a box-car, upon the top of the same. A branch, h' , of the chain h passes around the pulley i' carried by the bracket k , extending thence to the side of the car, where it connects with a hand-lever, I. It is apparent that by operating either of these levers, either on top or at the side of the car, the rod G will be drawn outward, compressing the spring f and rotating the locking-block, so that its face will be brought into the position shown by the dotted line in Fig. 2, in which position it offers no obstruction to the engagement or disengagement of the interlocking jaws of the draw-heads upon different cars; but when the levers and chain are released the spring f , acting upon the collar d' of the rod G, forces the locking-block into the position shown by full lines in the drawings. The faces of these locking-blocks, which come in contact, are not formed upon a line that cuts the diameter of the circle of which they form a part, but upon radial lines that give the block a section a little less than a semicircle, thus facilitating the passage of one block by the other during the operation of coupling.

In case it is desired to set the coupling-block so that it will not interlock with that of another car, it is turned into the position for uncoupling by means of the chain and lever, and then secured in that position by means of a catch, pin, or other suitable device for holding the lever in that position.

In Figs. 9 and 10 I have shown a modification of the locking-blocks, in which, in addition to the tongues and grooves heretofore described for holding said blocks to the jaws of the draw-head, they are provided with a curved slot, m , passing lengthwise through the block, and a bolt, n , passes through this slot, its outer ends passing through slots in the straps $o o$, placed one above and the other on the under side of the jaw E of the draw-head, to which they are secured by a bolt, p , passing through both straps and the draw-head. These straps afford additional security to the blocks and prevent them from being displaced should the tongues be broken by the blows to which they are subject in coupling, and they also, by forming an additional bearing, prevent the blocks from jamming and refusing to turn in the act of coupling, as they may sometimes, from the fact that the impact of the opposing block is wholly at one side of the center, tending to produce an unequal pressure and strain upon the tongues at their opposite ends. The projections on one edge of the locking-block gives to their faces a concave contour, which assists materially in uncoupling, as this projection instantly comes in contact with the face of the opposite block.

Having thus described my invention, I claim

as new, and desire to secure by Letters Patent, the following:

1. In a car-coupling, the combination, with a draw-head having bifurcated jaws, of a locking-block occupying a semicircular recess in one of said jaws and retained therein by a system of dovetail tongues and grooves, a rod for operating the block, and a coiled spring surrounding said rod and wholly inclosed within an opening or recess in the jaw, substantially as set forth.

2. In a car-coupling, the combination of a draw-head having bifurcated jaws, one of which is provided with a semicircular recess and dovetail grooves surrounding said recess, with the locking-block adapted to fill the semicircular recess in the jaw and having tongues upon its external rounded surface, which enter the grooves in the jaw and retain the block in place, as specified.

3. In a car-coupling, the combination, with the jaw E, provided with dovetail grooves, as set forth, of the tongued locking-block F, the plane faces of which radiate from the center, so as to form a section of less than a semicircle to facilitate the engagement of said block with that of an opposing draw-head, as set forth.

4. As an improvement in car couplings, the

circularly-recessed jaw E and the locking-block F, provided with the slot *c'*, in combination with rod G, its collar *d'*, and the spring *f*, encircling said rod between the collar and shoulder *f'* within the recess *d* of the jaw, substantially as specified.

5. The draw-head A, provided with curved jaws E and E', the inner curvature of the jaw E' being substantially the same as the outside of the jaw E, in combination with the locking-block F, secured to the jaws by dovetail tongues and grooves and forced to retain its locking position by a spring wholly inclosed by the jaw E, as set forth.

6. In a car-coupling, the draw-head having jaws E and E', the locking-block F, and its operating-rod G, surrounded by a spring in a recess of the jaw E, in combination with the bifurcated chains and cam-levers attached to the car for the purpose of operating said locking-block from either the top or side of the car, substantially as set forth.

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

PETER C. GREENAWALT.

Witnesses:

WM. M. MILLER,

WM. J. GREENAWALT.