

No. 679,531.

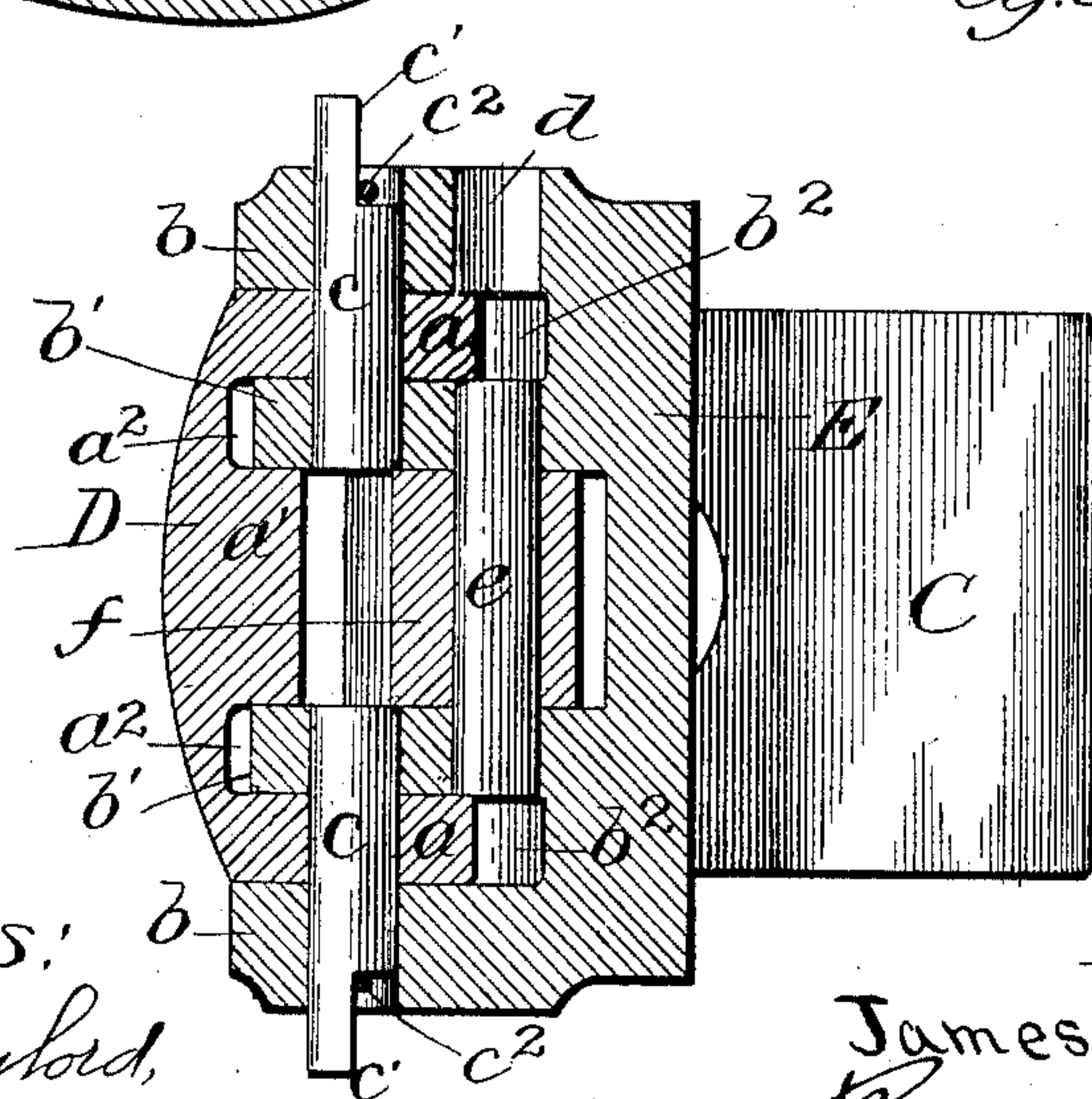
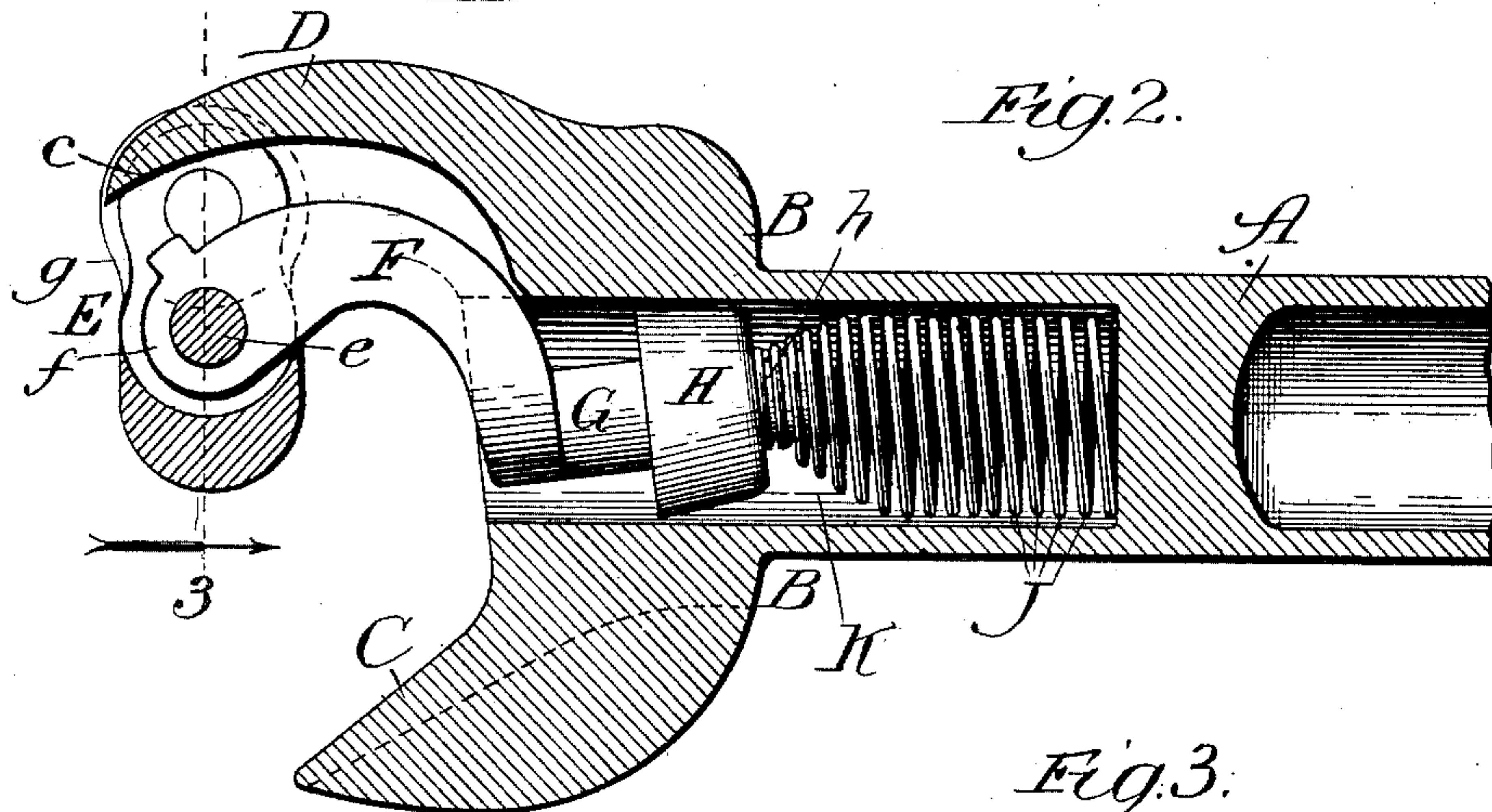
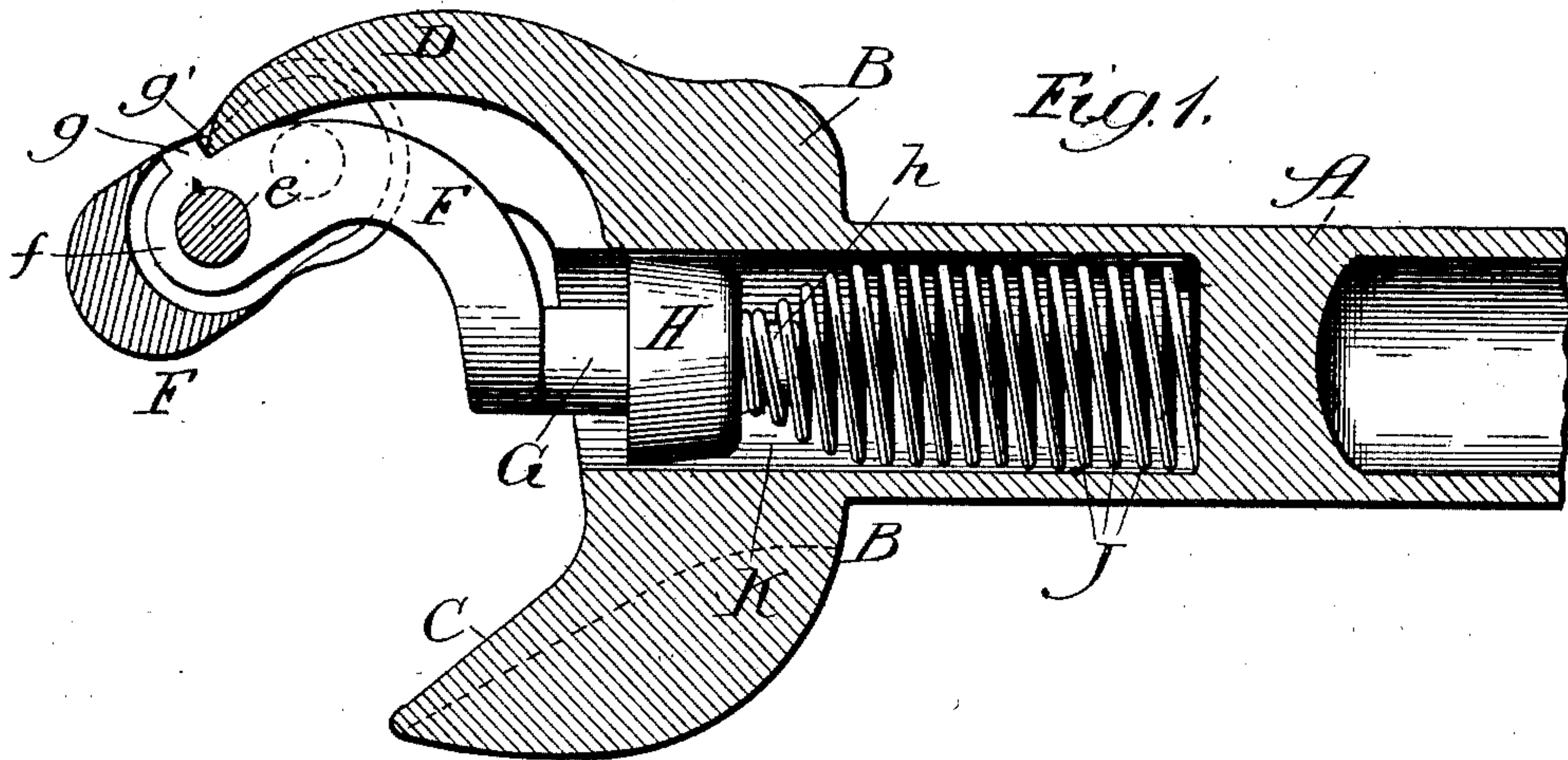
Patented July 30, 1901.

J. C. LEIDY.
AUTOMATIC CAR COUPLING.

(Application filed Apr. 13, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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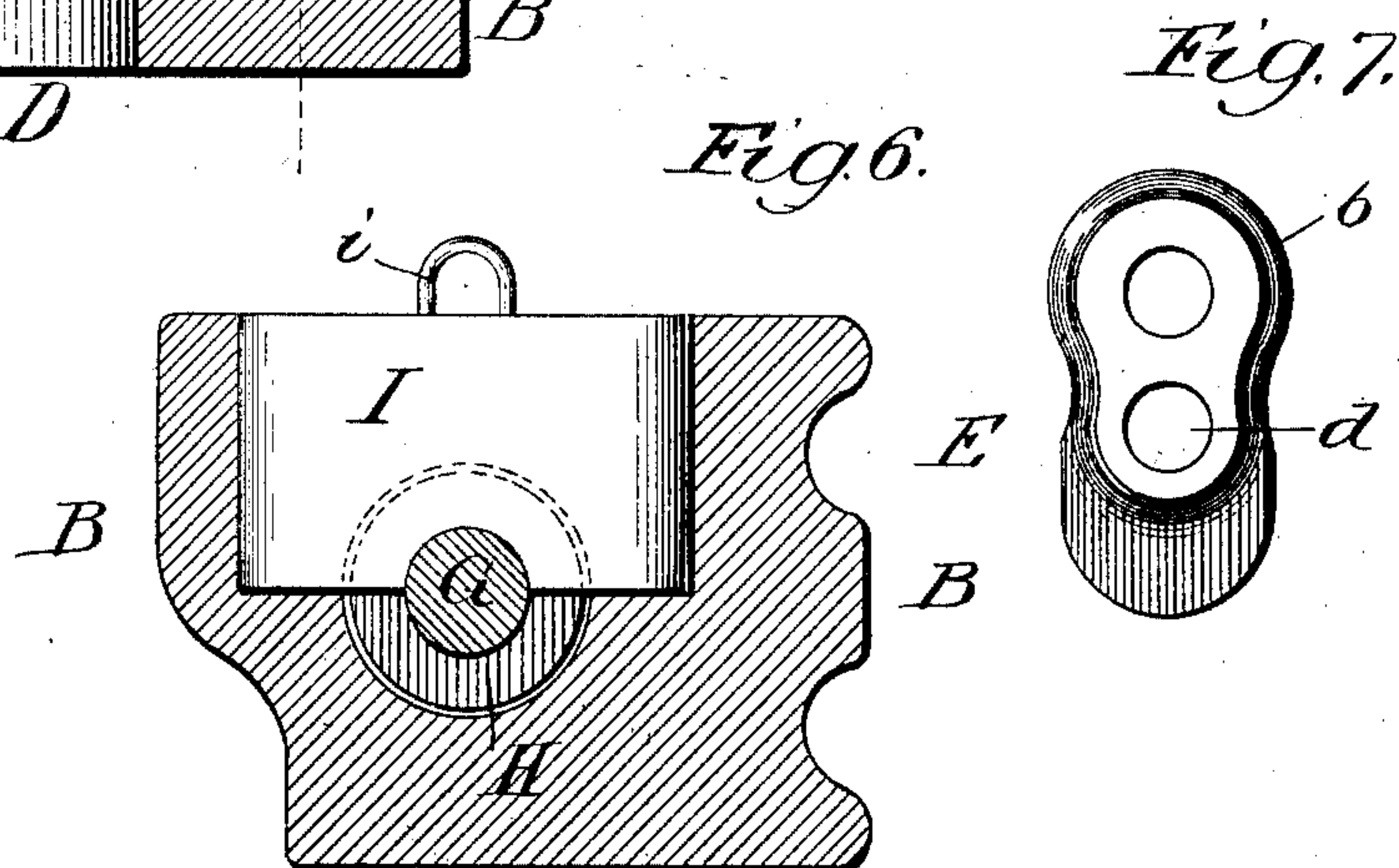
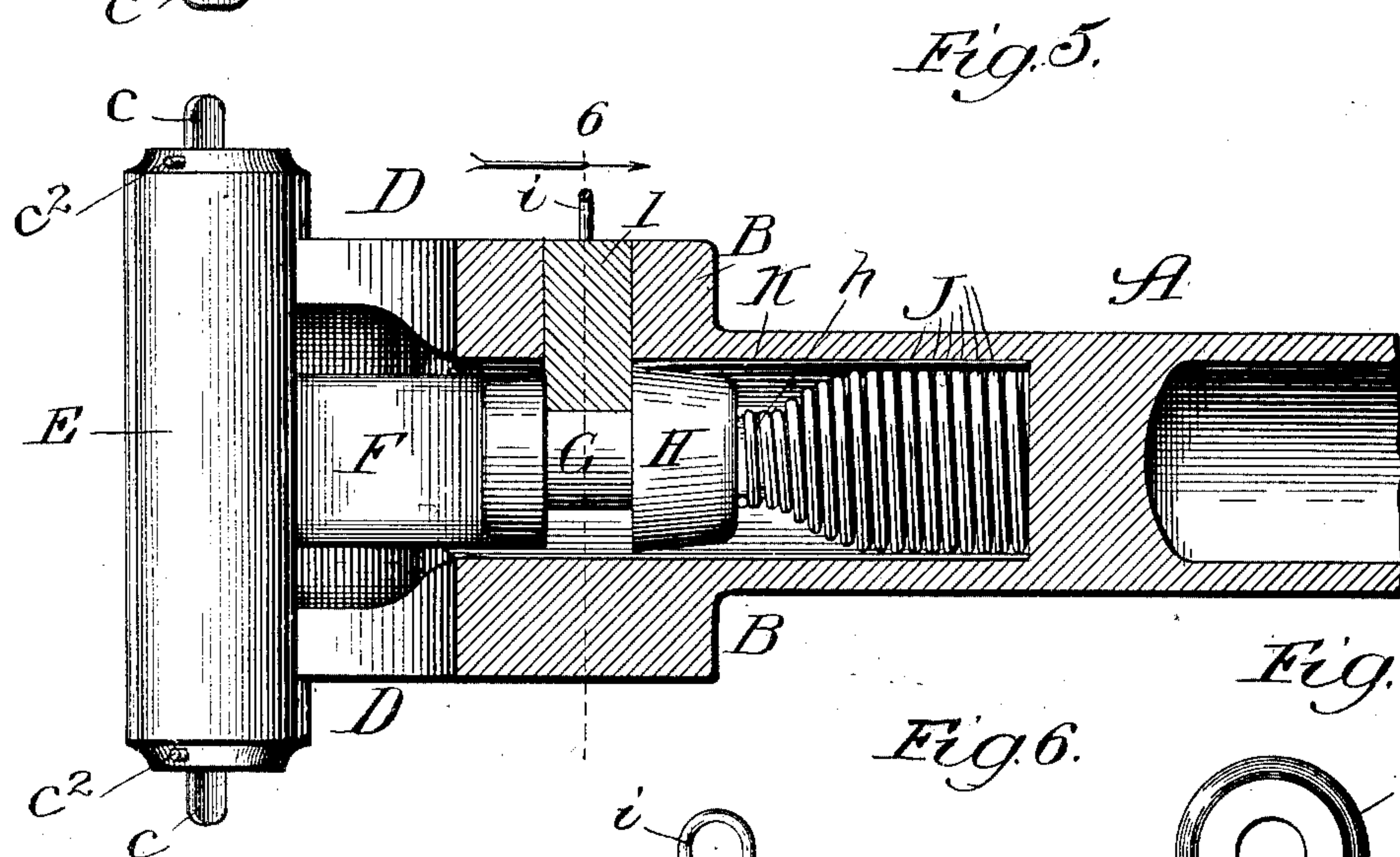
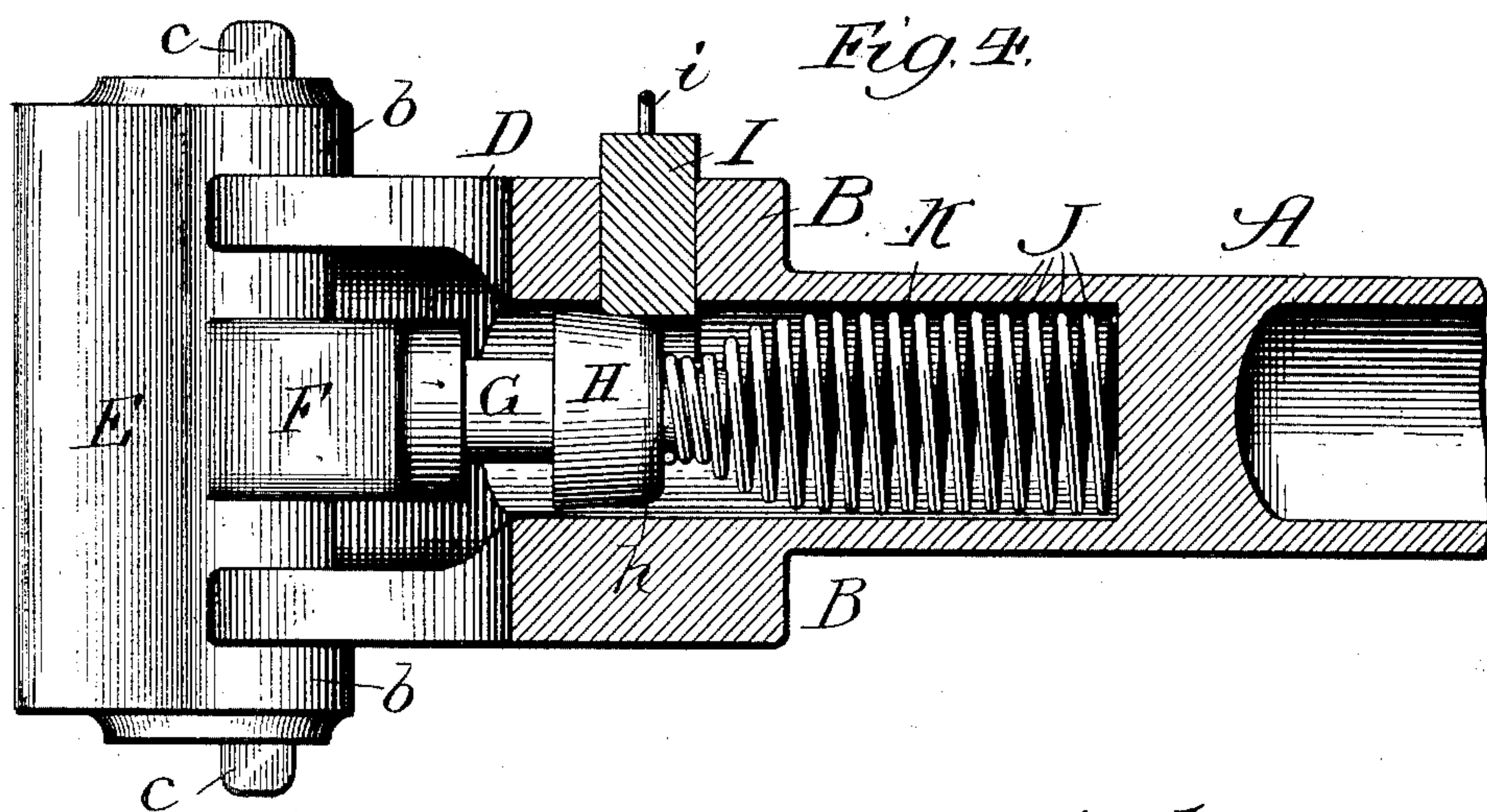
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(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

JAMES C. LEIDY, OF GALESBURG, ILLINOIS.

AUTOMATIC CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 679,531, dated July 30, 1901.

Application filed April 13, 1901. Serial No. 55,661. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. LEIDY, a citizen of the United States, residing at Galesburg, in the county of Knox and State of Illinois, have invented a certain new and useful Improvement in Automatic Car-Couplers, of which the following is a specification.

The invention relates to that class of automatic car-couplers known as or termed "twin-jaw," and has for its main object to prolong the life of such couplers as to the wearing away or impairment of the coupling hook or knuckle or latch-block.

It is well known that by long and continued use the coupling hook or knuckle or latch-block in automatic car-couplers of the type specified wear away on the acting or engaging face, requiring in time the replacement of the coupling hook or knuckle or latch-block by a new one in order to maintain the proper connection without too much loose play.

The primary object of my invention is to enable the coupling hook or knuckle or latch-block after it is worn on one side to be reversed and present the opposite face as the acting one for use, thereby giving the coupling the benefit of the wear of both faces of the coupling hook or knuckle or latch-block, and consequently increasing the length of time the coupler can be used without replacing a worn-out coupling hook or knuckle or latch-block with a new one.

Further objects of the invention are to improve the attachment of the coupling hook or knuckle or latch-block to the head of the draw-bar, to improve the means for locking the coupling hook or knuckle or latch-block in its closed position and permitting the release thereof for opening the coupler, to improve the connection between the coupling hook or knuckle or latch-block and the draw-bar and its head for opening and closing the hook or knuckle or latch-block, and to improve generally the construction and operation of the parts which enter into the construction of the coupler as a whole.

The invention consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings illustrating the invention, Figure 1 is a sectional plan view showing the coupling hook or knuckle or latch-block in

its open position; Fig. 2, a similar view to Fig. 1, showing the coupling hook or knuckle or latch-block in its closed or coupling position; Fig. 3, a cross-sectional elevation on line 3 of Fig. 2; Fig. 4, a side elevation, partly in section, with the parts as in Fig. 1; Fig. 5, a side elevation, partly in section, with the parts as in Fig. 2; Fig. 6, a cross-sectional elevation on line 6 of Fig. 5, showing the locking-block in its dropped or locking position; and Fig. 7, an end view of the reversible coupling hook or knuckle.

The general construction of the coupler is of the usual type of twin-jaw automatic couplers of the Master Car-Builders' class, and for this reason the drawings illustrate only so much of the complete coupler as is necessary for the proper understanding of the invention, and therefore only one draw bar and head with its component parts are shown, the other draw bar and head and component parts being of a corresponding construction, except in reverse relation, as usual in this class of couplers.

The coupler has a draw-bar A, which may be of any well-known form of construction, having formed integral therewith the draw-head B, and the draw-head on one side has the usual guard-finger C, and on its opposite side has an extended wall or end D for the attachment of the coupling hook or knuckle or latch-block, which wall or end may be of the general formation found in the class of couplers to which the invention relates and of a construction which will adapt it for use with the reversible hook or knuckle or latch-block and the connection for operating the hook or knuckle.

The coupling hook or knuckle or latch-block E is formed with both of its side faces precisely similar, and this hook or knuckle is so formed for the purpose of enabling it to be reversed and bring either face into position to serve as the acting or engaging face. The extended wall or end D of the draw-head has outer ears a and a central ledge or projection a' , with recesses a^2 between the two outer ears and the central ledge, as shown more particularly in Fig. 3, and the inner end of the coupling hook or knuckle has outer ears b and intermediate ears b' , with a recess b^2 between the outer ears and intermediate

ears, and the outer ears are a sufficient distance apart to overlie the top and bottom ears of the extended wall or end of the draw-head, while the recesses a^2 and b^2 are in such
 5 relation as to receive, respectively, the ears a and the ears b' for attaching the coupling hook or knuckle to the draw-head. The ears a , b , and b' each have a hole for the passage of the pivoting-pin, by means of which the
 10 coupling hook or knuckle is pivotally attached to the draw-head, and, as shown, the pivoting-pin is made in two sections c , each section of a length to pass through the ears a , b , and b' of each side of the coupling-jaw
 15 as a whole, as shown in Fig. 3, and in the arrangement shown each pivoting pin or pin-section c has its outer end cut away, so as to leave a flat side face c' and a squared end shoulder, against which a cross locking-pin
 20 c^2 , passing through a rim or neck on the draw-head, will engage to hold the pin or pin-section against dropping out or withdrawal from jar or otherwise until the cross locking-pin is removed; but other means can be employed
 25 for retaining the pivoting pin or pin-sections in place.

The coupling hook or knuckle or latch-block has pivotally connected thereto between the intermediate ears b' a stem F of a
 30 gooseneck shape in the construction shown, with the head end f of the stem entered between the ears b' and pivotally held in position by a pin e , which pin is inside of the coupling-pin for the latch-block, so that the
 35 projecting of the stem will operate to force the coupling hook or knuckle into the position shown in Figs. 1 and 4, opening the coupling-jaw for the reception of the companion jaw, which is likewise in an open condition.
 40 The stem F is attached by entering its head between the jaws and securing it in position by the pivot-pin e , and in order to enter the pivot-pin the upper portion of the coupling knuckle or hook has a hole d passing through
 45 the ears b and b' , permitting the insertion of the pivoting-pin e , and when the pivoting-pin is inserted the attachment of the coupling knuckle or hook or latch-block is completed by entering its ears into the slots there-
 50 for, so that the coupling pin or pin-sections can be inserted in the holes for such pin or pin-sections in the ears, as already described.

The stem F has a neck G terminating in a flange or head H , forming a groove around
 55 the neck between the end of the stem and the flange or head, into which groove the acting face of the locking or coupling block I enters when the coupling hook or knuckle is in its closed position, holding such hook or knuckle
 60 closed, as shown in Figs. 2 and 5. The locking or drop block I is to be operated, as usual, by a lever, cord, or other means, for which purpose the block can have a loop i for the engagement of the operating means, by which
 65 the block is disengaged from the actuating-stem of the coupling hook or knuckle, and

with the raising of the locking or coupling block the stem is forced forward or projected, so as to open the coupling hook or knuckle, in the arrangement shown, by the coiled
 70 spring J , one end of which is engaged with a stud h on the head H and the other end of which abuts against the end wall of the recess J of the draw-bar, in which recess the spring is located and operates.
 75

The limit of opening movement for the coupling hook or knuckle is controlled by a stop g on the head of the stem f , which stop strikes against a contact or stop g' on the head B , which, as shown, is the outer end of the ledge
 80 a' , and these stops or contacts are in such relation one to the other as to permit the coupling hook or knuckle to open only to the extent sufficient for the passage of the coacting
 85 coupling hook or knuckle of the companion jaw for the contact of the draw-heads to force the coupling hooks or knuckles of the two jaws into the locking position, and when opened the coupling hook or knuckle is held
 90 in the open position by the action of the coiled spring against the operating-stem, which spring has its resistance overcome with the forcing of the hook or knuckle into the locking position.

The operation is as follows: For coupling
 95 purposes the block I is elevated, so as to release the actuating-stem F of the coupling hook or knuckle and have the spring throw open the hook or knuckle, and when raised the block I rests upon the head or flange H ,
 100 as shown in Fig. 4. The closing of the coupling hook or knuckle by the impact of the draw-head thereagainst forces the stem inwardly to a point where the neck G is in line with the coupling or locking block I , when
 105 the locking-block will drop of its own accord, engaging the flange or head H and holding the coupling hook or knuckle in its coupling position, as shown in Fig. 5, and with the release of the stem by the raising of the coupling
 110 or locking block the spring J acts and forces the stem outward, throwing open the coupling hook or knuckle. The operation is essentially the same as with couplings of the
 115 Master Car-Builders' class.

Heretofore the coupling hook or knuckle of automatic car-couplers of the Master Car-Builders' type have not been so constructed as to be reversible, enabling both side faces
 120 of the hook or knuckle to be used, and as result when the acting face of an old-style hook or knuckle becomes worn to an extent as to be useless it must be thrown away and replaced with a new one, which in some instances is impractical or impossible to do.
 125 The essential feature of my invention, pertaining, as it does, to the reversible hook or knuckle, enables a hook or knuckle as one of its acting faces becomes too much worn to be reversed and bring the other acting face into
 130 use. Such reversal of the coupling hook or knuckle is readily accomplished, as all that

is required is to remove the pivoting pin or pin-sections, so as to detach the hook or knuckle from the draw-head, and then removing the pivot-pin of the actuating-stem to the hook or knuckle through the opening or hole *d*, which disengages the hook or knuckle from its stem, so that it can be taken out and reversed end for end, bringing the opposite face from that constituting the first acting face into position to furnish an acting face, and when reversed the hook or knuckle can be attached by again inserting the pivoting-pin *e*, so as to pivotally attach the stem to the hook or knuckle, and then inserting the pivoting pin or pin-sections *c*, so as to attach the hook or knuckle to the draw-head, bringing the parts into position for use with the opposite face of the hook or knuckle as the acting one, and in use the operation will be the same as already described.

It will be seen that by means of this reversible coupling hook or knuckle when one side becomes too much worn the knuckle or hook can be readily and quickly reversed to present the opposite face for use, and by this arrangement the knuckle or hook is given a double length of time for wear before it becomes useless and has to be thrown away, and, furthermore, it will not be necessary as the knuckle or hook wears out in its first position to have the repairs made in the shop, as such repairs can be made by any one while the coupler is on the car and the car on the track, if necessary.

The actuating-stem for operating the knuckle or hook has the requisite leverage to perform the work easily by reason of its pivotal connection to the hook inside of the line of pivot of the hook or knuckle to the draw-head, and with the construction and arrangement of the knuckle or hook, the actuating-stem therefor, and the spring for projecting the stem the parts are located in the draw-head in a very compact space and at the same time are positive in operation.

The coupler as a whole is exceedingly simple in construction, but will be found reliable and positive in use for the purpose intended.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a car-coupler, a swinging coupling hook or knuckle, having both of its side faces similar in formation and contour, adapted to be pivotally connected with the draw-head on one of its edge faces and reversed end for end to bring either side face into position for use, substantially as described.

2. In a car-coupler, the combination of a draw-head and a swinging coupling hook or knuckle, having both of its side faces similar in formation and contour, both faces adaptable for use as the operative one with the draw-head, the hook or knuckle turnable end for end and having a pivotal connection at one of its edge faces with the draw-head to bring either side face into position for use.

3. In a car-coupler, the combination of a draw-head, a reversible hook or knuckle, a pivotal pin for the coupling hook or knuckle, a stem pivotally connected with the coupling hook or knuckle, and a locking-block for the stem, substantially as described.

4. In a car-coupler, the combination of a draw-head, a reversible coupling hook or knuckle, a pivotal pin for the coupling hook or knuckle to the draw-head, an actuating-stem for opening the coupling hook or knuckle, a pivot for the actuating-stem to the coupling hook or knuckle inside of the pivot-pin of the hook or knuckle to the draw-head, and a locking-block engaging the stem when the hook or knuckle is in its closed position, substantially as described.

5. In a car-coupler, the combination of a draw-head, a reversible coupling hook or knuckle, a pivotal pin for the coupling hook or knuckle to the draw-head, an actuating-stem for opening the coupling hook or knuckle, a pivot for the actuating-stem to the coupling hook or knuckle inside of the pivot-pin of the hook or knuckle to the draw-head, a locking-block engaging the stem when the hook or knuckle is in its closed position, and a spring for advancing the stem and opening the hook or knuckle, substantially as described.

6. In a car-coupler, the combination of a draw-head, a reversible coupling hook or knuckle, a pivot-pin for the attachment of the hook or knuckle to the draw-head, an actuating-stem for the hook or knuckle, a pivot-pin for the actuating-stem inside of the pivot-pin of the hook or knuckle to the draw-head, a flange or head on the stem, and a locking-block engaging the flange or head when the stem is receded and the hook or knuckle is in its closed position, substantially as described.

7. In a car-coupler, the combination of a draw-head, a reversible coupling hook or knuckle, a pivot-pin for the attachment of the hook or knuckle to the draw-head, an actuating-stem for the hook or knuckle, a pivot-pin for the actuating-stem inside of the pivot-pin of the hook or knuckle to the draw-head, a flange or head on the stem, a locking-block engaging the flange or head when the stem is receded and the hook or knuckle is in its closed position, and a spring engaging the stem and operating with the release of the stem from the locking-block to advance the stem and open the hook or knuckle, substantially as described.

8. In a car-coupler, the combination of a draw-head an ear on its upper and lower sides and a recess adjacent to each ear, a reversible coupling hook or knuckle having an upper and lower ear and two intermediate ears with a recess between the upper and lower ears and the intermediate ears, for the ears and recesses of the draw-head and the coupling hook or knuckle to intermesh, and a divided pivoting-pin, one section of the pin for

each upper and lower division of ears, substantially as described.

9. In a car-coupler, the combination of a draw-head having an ear on its upper and lower sides and a recess adjacent to each ear, a reversible coupling hook or knuckle having an upper and lower ear and two intermediate ears with a recess between the upper and lower ears and the intermediate ears, for the ears and recesses of the draw-head and the coupling hook or knuckle to intermesh, a divided pivoting-pin, one section of the pin for each upper and lower division of ears, and an actuating-stem pivotally connected with the coupling hook or knuckle, substantially as described.

10. In a car-coupler, the combination of a draw-head having an ear on its upper and lower sides and a recess adjacent to each ear, a reversible coupling hook or knuckle having an upper and lower ear and two intermediate ears with a recess between the upper and lower ears and the intermediate ears, for the ears and recesses of the draw-head and the coupling hook or knuckle to intermesh, a divided pivoting-pin, one section of the pin for each upper and lower division of ears, an actuating-stem connected with the coupling hook or knuckle, and a pivoting-pin for the

stem entered through the intermediate ears of the coupling hook or knuckle and the head of the stem, substantially as described.

11. In a car-coupler, the combination of a draw-head having an ear on its upper and lower sides, and a recess adjacent to each ear, a reversible coupling hook or knuckle having an upper and lower ear and two intermediate ears with a recess between the upper and lower ears and the intermediate ears, for the ears and recesses of the draw-head and the coupling hook or knuckle to intermesh, a divided pivoting-pin, one section of the pin for each upper and lower division of ears, an actuating-stem connected with the coupling hook or knuckle, a pivoting-pin for the stem entered through the intermediate ears of the coupling hook or knuckle and the head of the stem, a flange or head on the stem, a locking-block engaging the flange or head when the coupling hook or knuckle is in its coupling position, and a spring for projecting the stem, with the release thereof from the locking-block, to open the coupling hook or knuckle, substantially as described.

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