

(No Model.)

W. McCONWAY.

3 Sheets—Sheet 1.

CAR COUPLING.

No. 281,901.

Patented July 24, 1883.

FIG. 1.

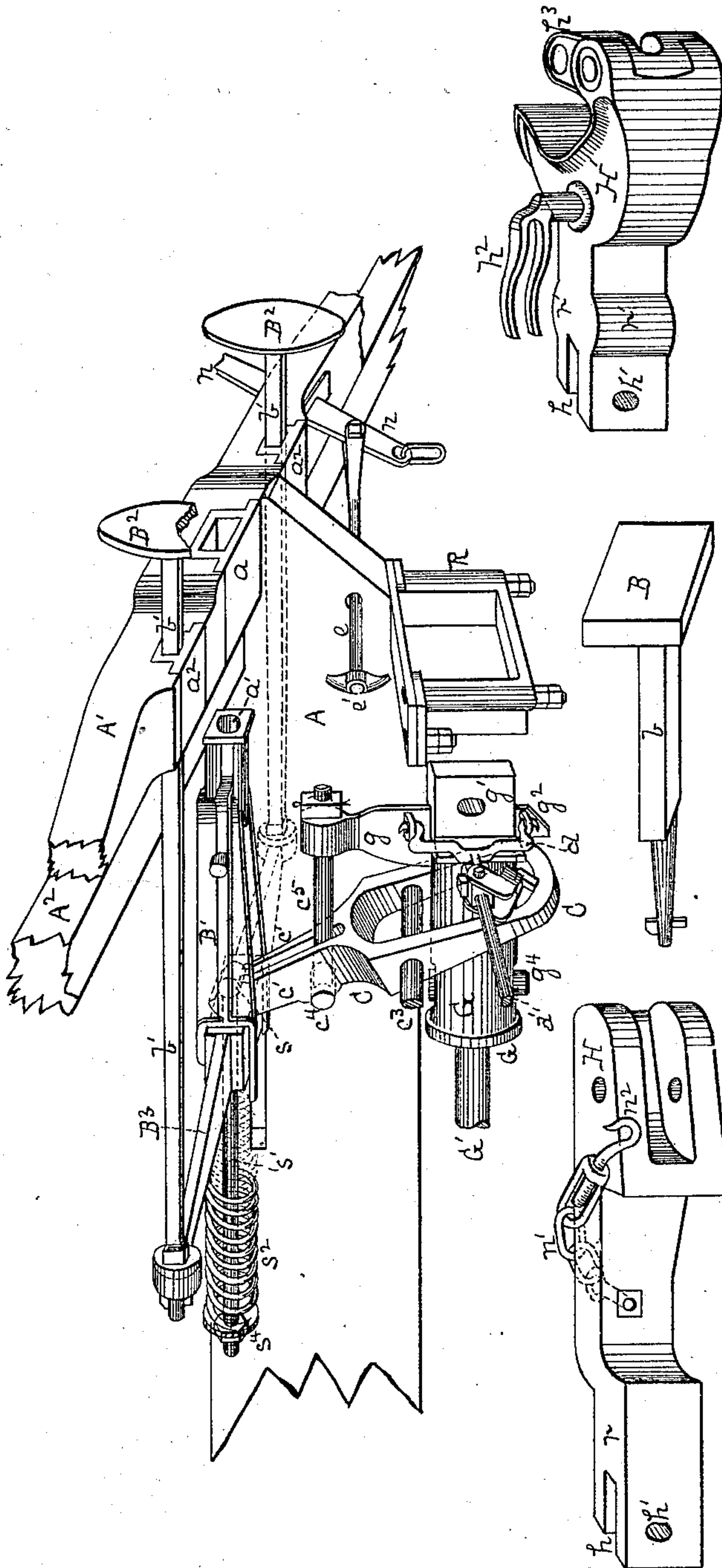


FIG. 2.

FIG. 3.

FIG. 4.

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FIG. 6.

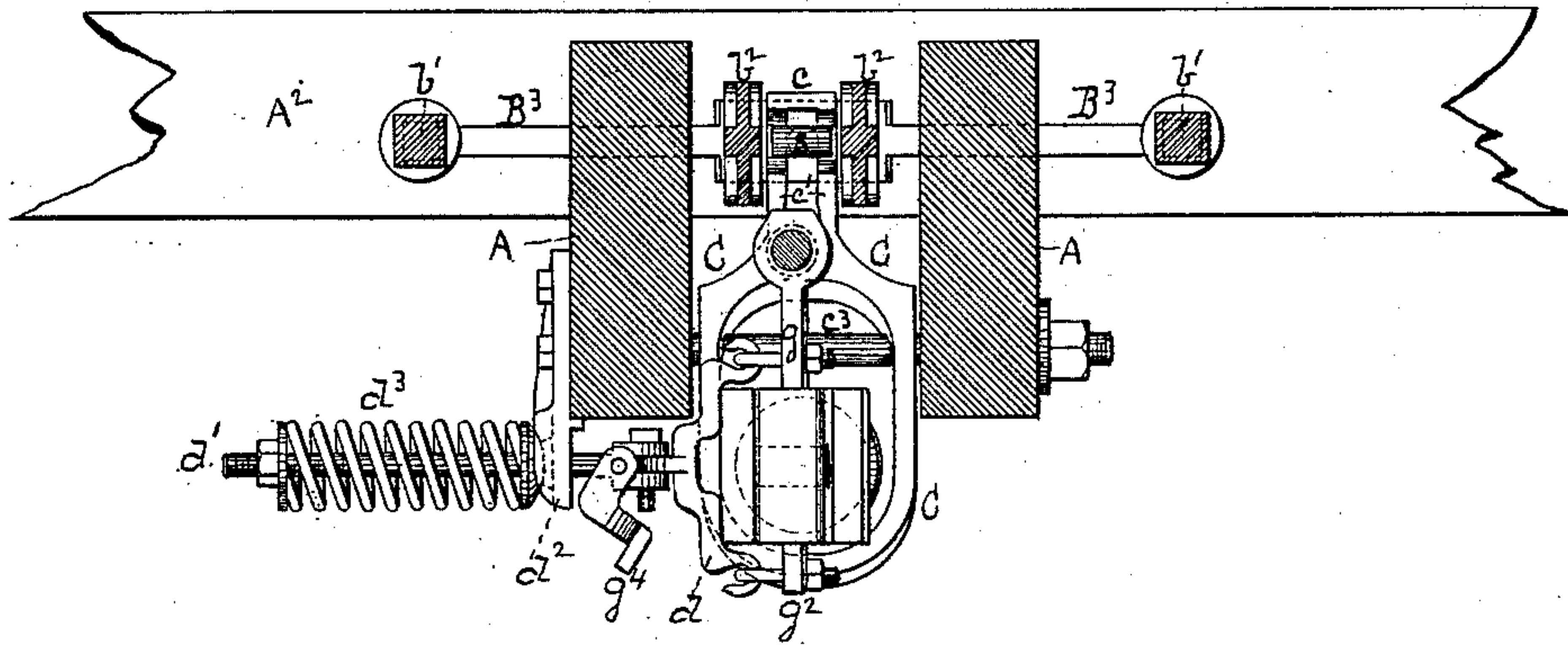
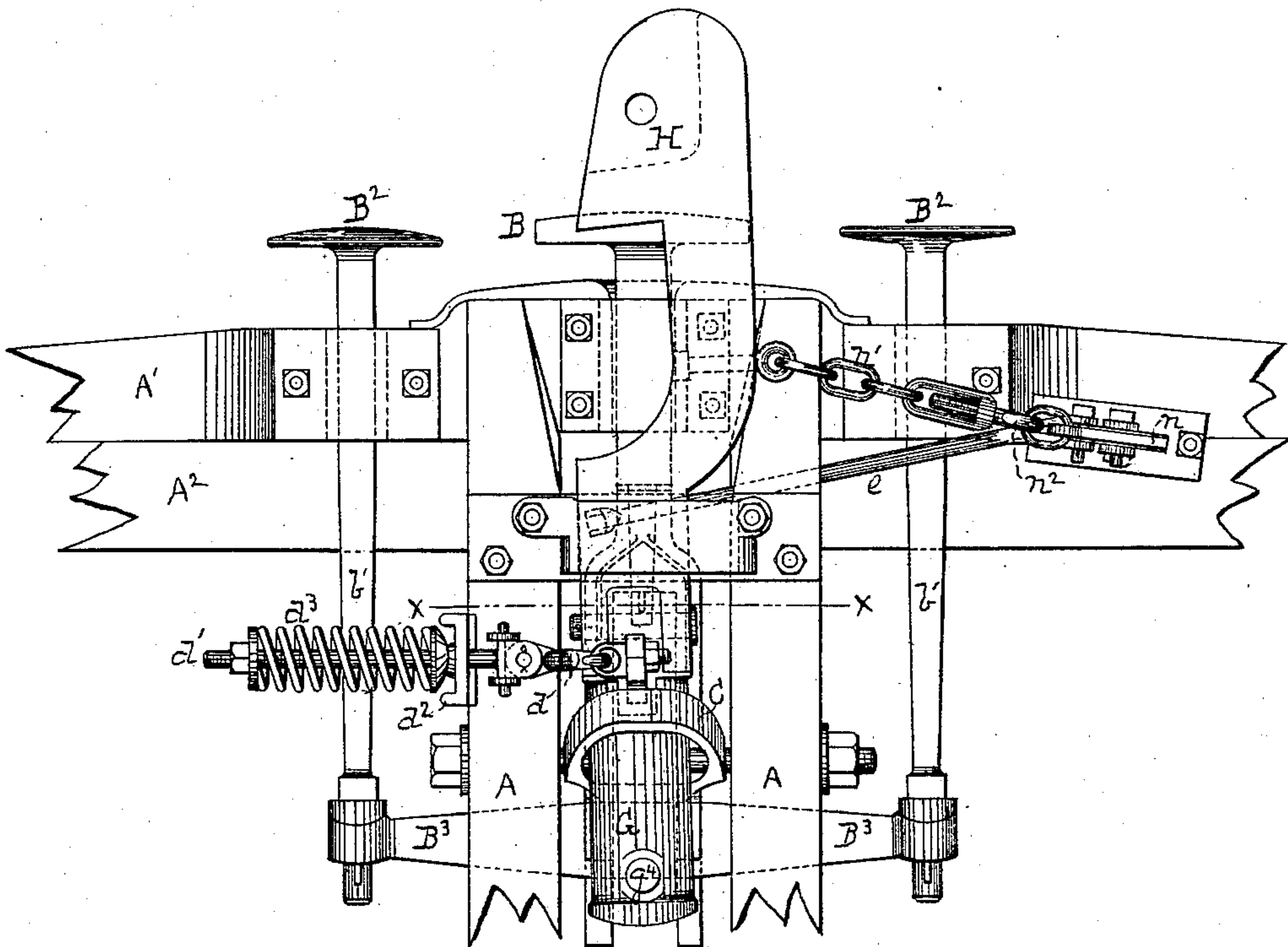


FIG. 5.



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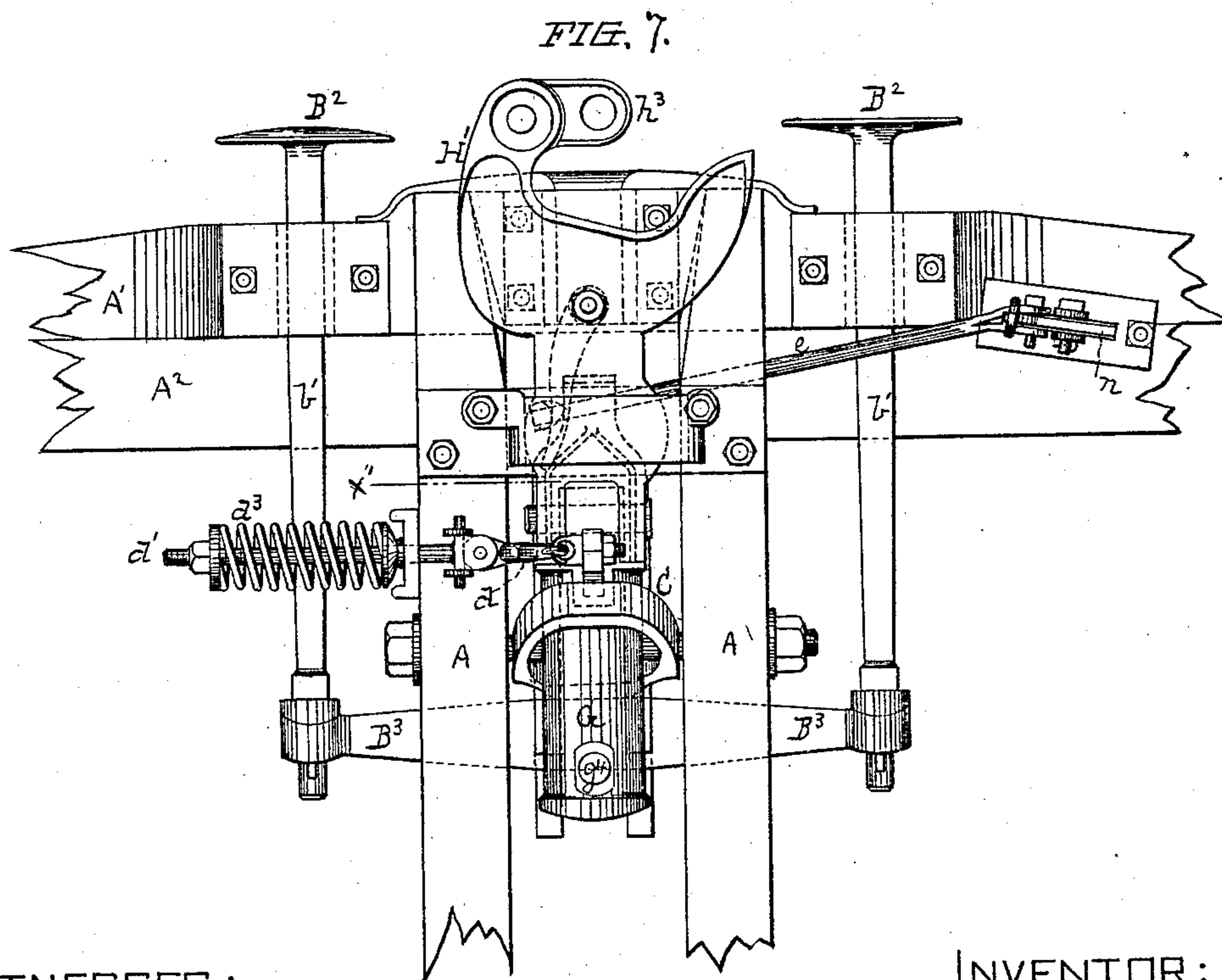
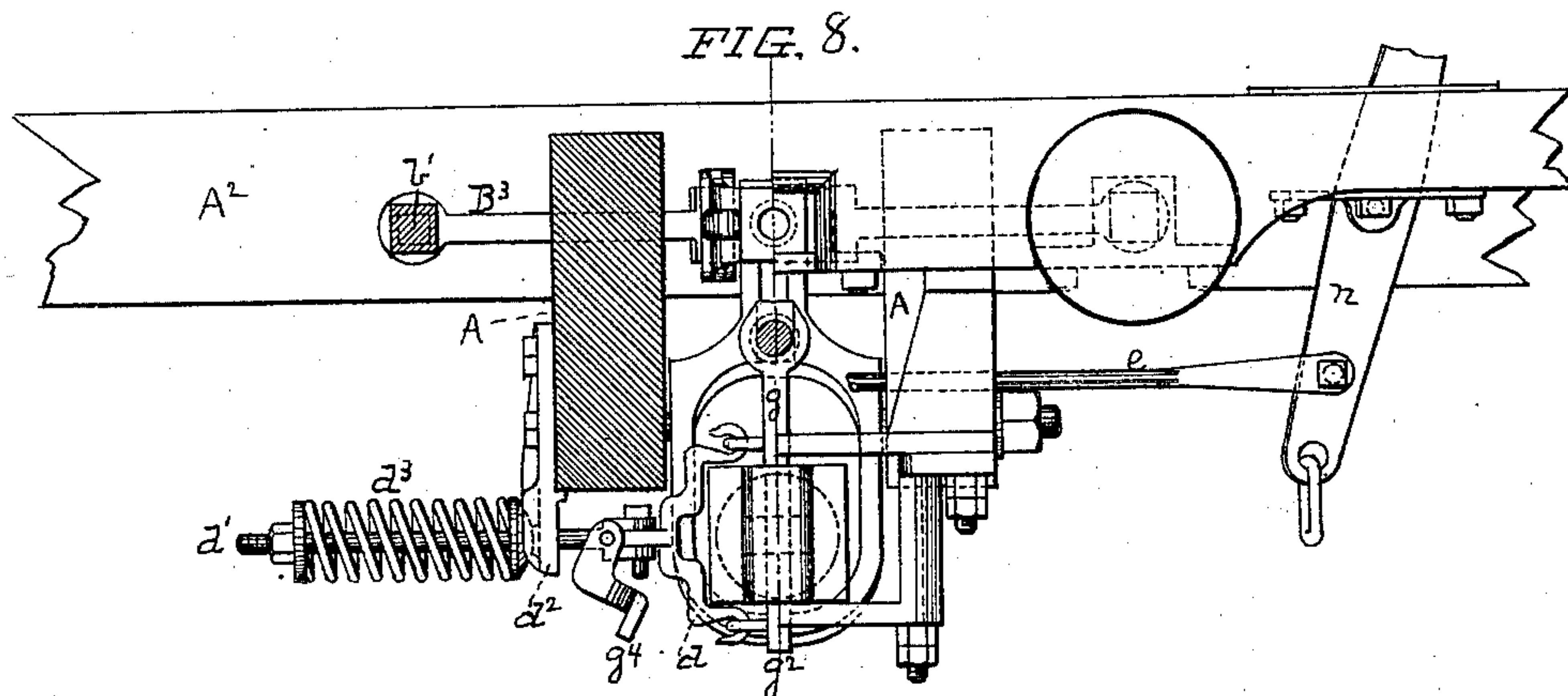
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# UNITED STATES PATENT OFFICE.

WILLIAM McCONWAY, OF PITTSBURG, PENNSYLVANIA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 281,901, dated July 24, 1883.

Application filed April 4, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM McCONWAY, a citizen of the United States, residing at Pittsburgh, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Car-Coupler Mechanisms; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

Two of the leading car-couplers now in use in this country by many railway-lines are known the one as the "Miller" and the other as the "Janney." It is frequently necessary, in railroading, to transfer cars from one line to another, and it sometimes happens that a car equipped with one of these couplers has to be made up in a train of cars which are equipped with the other.

My present invention relates to construction and combination of devices by means of which the Miller and Janney coupling-heads or couplers proper are rendered interchangeable on the same car, so that one may be taken out or removed and the other inserted quickly without expense and with little labor.

In the drawings, Figure 1, Sheet 1, represents in perspective a portion of the framework of a passenger-car platform with my improved apparatus applied thereto, with the Janney buffers, but without the Miller coupling-head, which, as I make it, is shown in Fig. 2, or the Janney coupling-head as I make it, which is shown in Fig. 3, or the Miller buffer as I make it, which is shown in Fig. 4. Fig. 5, Sheet 2, is an inverted or bottom view of a portion of the frame of a car-platform as fitted up with the Miller coupler, but with the Janney buffers in place, their presence not being objectionable. Fig. 6 shows a transverse section through the plane of the line  $xx$  of Fig. 5. Fig. 7, Sheet 3, is a view similar to Fig. 5, but with the Miller coupler and buffer removed and the Janney coupler inserted; and Fig. 8 is a partly-sectional view of Fig. 7, in the plane of the line  $x'$ , and an end view as to the rest.

In the drawings,  $A$   $A$  represent two of the main longitudinal sills of an ordinary passenger-car, and  $A'$   $A^2$  are two of the transverse

platform-sills,  $A'$  being the extreme end sill. In the latter is the usual metallic socket,  $a$ , through which to insert the stem  $b$  of the Miller buffer  $B$ . The rear end of this stem enters a socket,  $a'$ , in the Miller yoke  $B'$ , which, as I have modified it, will be presently explained. The end sill also has metallic sockets  $a^2$ , through which pass the stems  $b'$  of the Janney buffers  $B^2$ , on opposite sides and at about equal distances from the longitudinal center line of the car, and these stems are at their rear ends connected to the opposite ends of an equalizing bar or lever,  $B^3$ , which latter, at its center, is seated or fulcrumed in a seat or seats in the rear end of the Miller yoke  $B'$ . This yoke, at its rear end, is bifurcated, forked, or U-shaped, so as to form two arms,  $b^2$ , Fig. 6, the rear ends of which furnish seats for the equalizing-bar  $B^3$ , and between such arms  $b^2$  is the upper end of a Janney yoke,  $C$ . This upper end of the Janney yoke is formed of two vertical bars,  $c'$   $c'$ , united at the top by a cross-piece,  $c$ , and by means of concave seats on the face of such bars  $c'$  it has a bearing on the rear side of a cross-head,  $s$ , Figs. 1 and 6, made on the forward end of a spring-rod,  $s'$ , which projects back through the equalizing-bar  $B^3$ , and carries a stiff spring,  $s^2$ , under compression, and which spring bears at one end against the rear of the equalizing-bar  $B^3$  and at its other end against a nut,  $s^4$ . The Miller yoke  $B'$  is otherwise constructed and arranged substantially as is usual in the Miller apparatus, and the purpose of the construction thus described is to effect a working combination or coaction between it and the Janney yoke  $C$ , with attainment of the ends presently to be described.

The Janney yoke  $C$  is of the form and construction substantially as shown, and has, under the conditions hereinafter stated, a rocking motion on the fixed pivot-shaft  $c^3$ , and has also a rear bearing on the T-shaped arms  $c^4$  of a stem,  $c^5$ , which latter is secured to an upright post,  $g$ , which is made solid with or is affixed to the draw-head barrel  $G$ . The latter, except as hereinafter described, may have any form or construction usual at the rear ends of the draw-bars, or suitable for the purpose. As represented, it is secured by a pin,  $g^4$ , to the usual draft-bolt,  $G'$ , and the latter, having the usual follower, springs, &c., is connected with



the car-body in the usual or any known way. The forward end of this draw-head barrel G terminates in a tenon,  $g'$ , of suitable size to enter and fit neatly into a mortise or recess,  $h$ , as made in the rear end of the Miller coupler-head H, Fig. 2, or in the rear end of the Janney coupler-head H', Fig. 3, and so that they may be secured together by a bolt passing through the holes  $h'$ .

So much or about so much of the Miller and Janney couplers as is represented in Figs. 2 and 3, and included herein each under the terms "draw-head" or "coupler," is made separate from the rear or draw-bar portions thereof, so that by a mortise-and-tenon or other suitable joint either one at pleasure may be removed and the other inserted through a stirrup, R, and be properly secured, and the half-joint made on the rear ends of the draw-heads H H' should be the same in size and form, and should conform to the size and form, of the other half or part of the joint as made on the forward end of the draw-barrel; hence it will be seen that the draw-heads are interchangeable, and that the change can, when required, be easily and quickly made and without expense. When the Janney draw-head is used, the Miller buffer B should be removed, as it ordinarily projects too far forward to be used simultaneously with the Janney buffers; but when the Miller draw-head is used both buffers may remain in place, as the Janney buffers do not interfere with the proper working of the Miller apparatus.

The Janney coupler, when in use, does not require any lateral or side motion, since engagement and disengagement are effected by the movement of the swinging hooks  $h^3$ , and, in fact, any considerable lateral or side motion would interfere with its proper action; but the Miller, on the other hand, makes and releases engagement by virtue of a side or lateral movement; hence provision must be made whereby the Miller draw-head or coupler may have a limited range of side movement in the stirrup R, and so that the Janney shall have little or none. To this end I make the opening through the stirrup R broad enough to allow the part  $r$ , Fig. 2, which plays therein, to move far enough sidewise for the purpose described; and on the corresponding part of the Janney coupler or draw-head I increase the width, as at  $r'$ , Fig. 3, so that it shall fill or approximately fill the entire width of the opening in the stirrup R.

When the Miller coupler is in use, it must at all times be under strong lateral tension, so as to bring its hook over into engagement with the corresponding hook on the next car. To secure this I join to the post  $g$  and to the depending lug  $g^2$  a shackle,  $d$ , and pivot thereto a stem,  $d'$ , which projects out laterally through a depending bracket,  $d^2$ , and carries a spring,  $d^3$ , under the proper compression; and as it is desirable, when the change of one coupler for another is to be made, that this tension be removed or put out of practical action, I pro-

vide for this by a swinging dog,  $g^4$ , which, when the coupler is pulled to the right, Figs. 5 and 6, may be swung up so that its free end shall bear against the adjacent side of the bracket  $d^2$ , and thereby hold the draw-head or coupler about in the middle of the opening in the stirrup R. When the occasion for this locked adjustment no longer exists, a pull on the operating-lever  $n$ , Figs. 1 and 5, will loosen the dog and let it swing down out of the way. For the purpose of swinging the Miller coupler into an unlocking position, or into position for removal, the usual chain,  $n'$ , and the lever  $n$ , Fig. 5, are employed in the usual way; but to render the coupler removable with the least trouble and without danger of loss or interference of parts, I connect the chain  $n'$  permanently with the coupler, and by a detachable hook,  $n^2$ , provide for connecting it with or disconnecting it from the lever. The chain then goes with the coupler, as illustrated in Fig. 2, when the latter is removed. A chain hanging loosely to the lever  $n$  would be highly objectionable on a swiftly-moving train.

To operate the catch, which in the Janney coupler holds the hook  $h^3$  in its interlocked position, and which releases it so that it may swing open at the proper time, I employ the usual slotted lever,  $h^2$ ; but to secure a detachable connection I make the slot open at its extreme end. Then when the Janney draw-head H' is inserted through the stirrup R the open end of the slot in the crank-lever  $h^2$  passes on to the operating-stem  $e$  inside a T-head or button,  $e'$ , the other end of said stem being secured to the lever  $n$ , as illustrated in Figs. 1 and 8. Thus it will be seen that the same lever,  $n$ , may be employed to work either coupler. As the stem  $e$  passes through a hole in one of the car-sills A, and is properly held in its normal place of use at all times, and as its presence, when the Miller coupler is in use, is not objectionable, it is unnecessary to provide for its removal.

The particular object of the yoke C is to secure a conjoint action or a co-operation between the draw-heads and the buffers, whichever apparatus be used, so that the force, or some portion thereof, with which the couplers come together, over and above what is necessary to effect their interlocking engagement, shall be transferred to the buffers; and it is also an important function of the apparatus to prevent or take up slack motion between cars, so that as the draw-bars move outward a little under the yielding effect of their springs the buffers shall thereby also be drawn forward, and the buffers of adjacent cars shall be kept in close and firm engagement or contact. The first of these two functions is secured chiefly when the Janney couplers are used. The back-thrust which they give on coming together pushes the draw-barrel G backward, the lug  $g^2$  engages the lower bow or end of the yoke C, pushes it back, and causes it to turn on its pivot-shaft  $c^3$ . This tends to throw the upper end of the yoke forward, draw forward.



on the cross-head  $s$  and rod  $s'$ , compress the spring  $s^2$ , and through it pushes forward on the equalizing-lever  $B^3$ , and of course on the buffers  $B^2$ . Whatever force in this direction is exercised when the Miller coupler and buffer  $B$  are used will be transmitted from the equalizing-levers  $B^3$ , through the Miller yoke  $B'$ , to the Miller buffer  $B$ . When the buffers, whichever apparatus is in use, come into engagement, during or after coupling, their backward action is transmitted, by paths the reverse of those above described, to the Janney yoke  $C$ , which, through cross-pin  $c^4$  and stem  $c^5$ , draws back on the draw-barrel, but with a less rapid motion. Hence, when the couplers are united or coupled car to car, all slack motion will be taken up; also, if the draw-bar springs yield unduly, the spring  $s^2$ , back of the equalizing-bar  $B^3$ , will tend to press the buffers into contact, whichever apparatus is in use.

In so far as relates to the combination of the Miller yoke  $B'$  and the Janney yoke  $C$ , other suitable means of making a pivoted connection of one to the other may be employed, even to the exclusion of the stem  $s'$  and springs  $s^2$ ; but I believe the construction shown and described to be the best, and I accordingly include it herein as a part of my invention.

I claim herein as my invention—

30 1. As a means of securing the interchangeability of the Miller and Janney couplers, a

draw-head barrel,  $G$ , having a half-joint on the forward or outer end thereof, in combination with the coupler having the counterpart of such half-joint on the rear or inner end thereof, and suitable means for connecting and disconnecting such half-joints, substantially as set forth. 35

2. The combination of the yoke  $B'$  and the yoke  $C$  by a pivoted connection of one to the other, substantially as set forth. 40

3. The combination of the yokes  $B'C$ , equalizing-bar  $B^3$ , cross-head  $s$ , stem  $s'$ , and spring  $s^2$ , substantially as set forth.

4. The open-ended slot in the lever-arm  $h^2$  of the Janney coupler  $H'$ , in combination with the headed stem  $e$ , substantially as set forth. 45

5. The lever  $n$ , having a link-connection for the detachable chain  $n'$  of the Miller coupler, and a stem-connection,  $e$ , for operating the spring-catch lever of the Janney coupler, substantially as set forth. 50

6. The swinging dog  $g^4$ , in combination with a laterally-movable draw-bar, and with bracket  $d^2$  and spring  $d^3$ , substantially as and for the purposes set forth. 55

In testimony whereof I have hereunto set my hand.

WILLIAM McCONWAY.

Witnesses:

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GEORGE H. CHRISTY.