

No. 638,944.

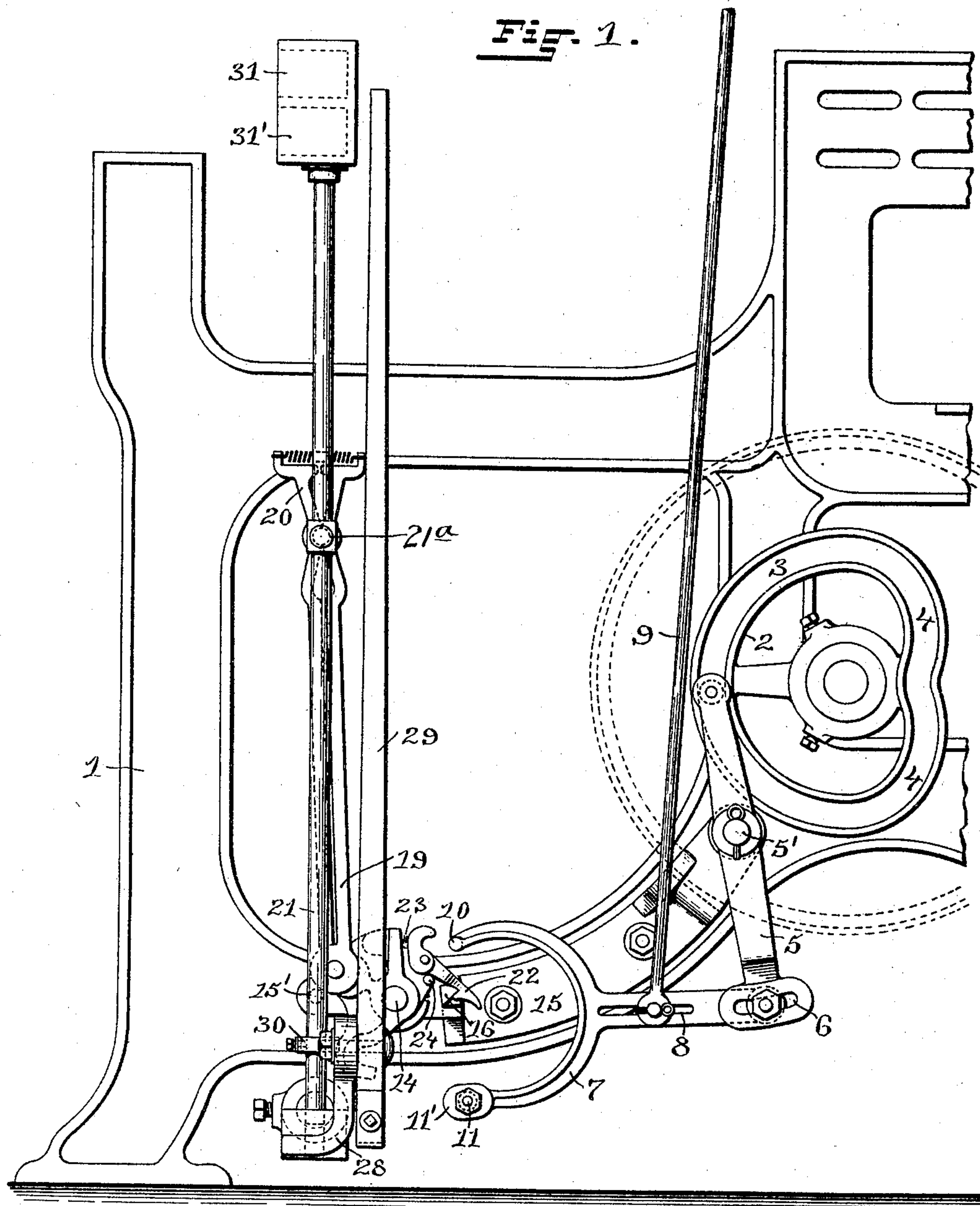
Patented Dec. 12, 1899.

C. A. TAFT & H. A. OWEN.  
BOX CONTROLLING MECHANISM FOR LOOMS.

(Application filed July 29, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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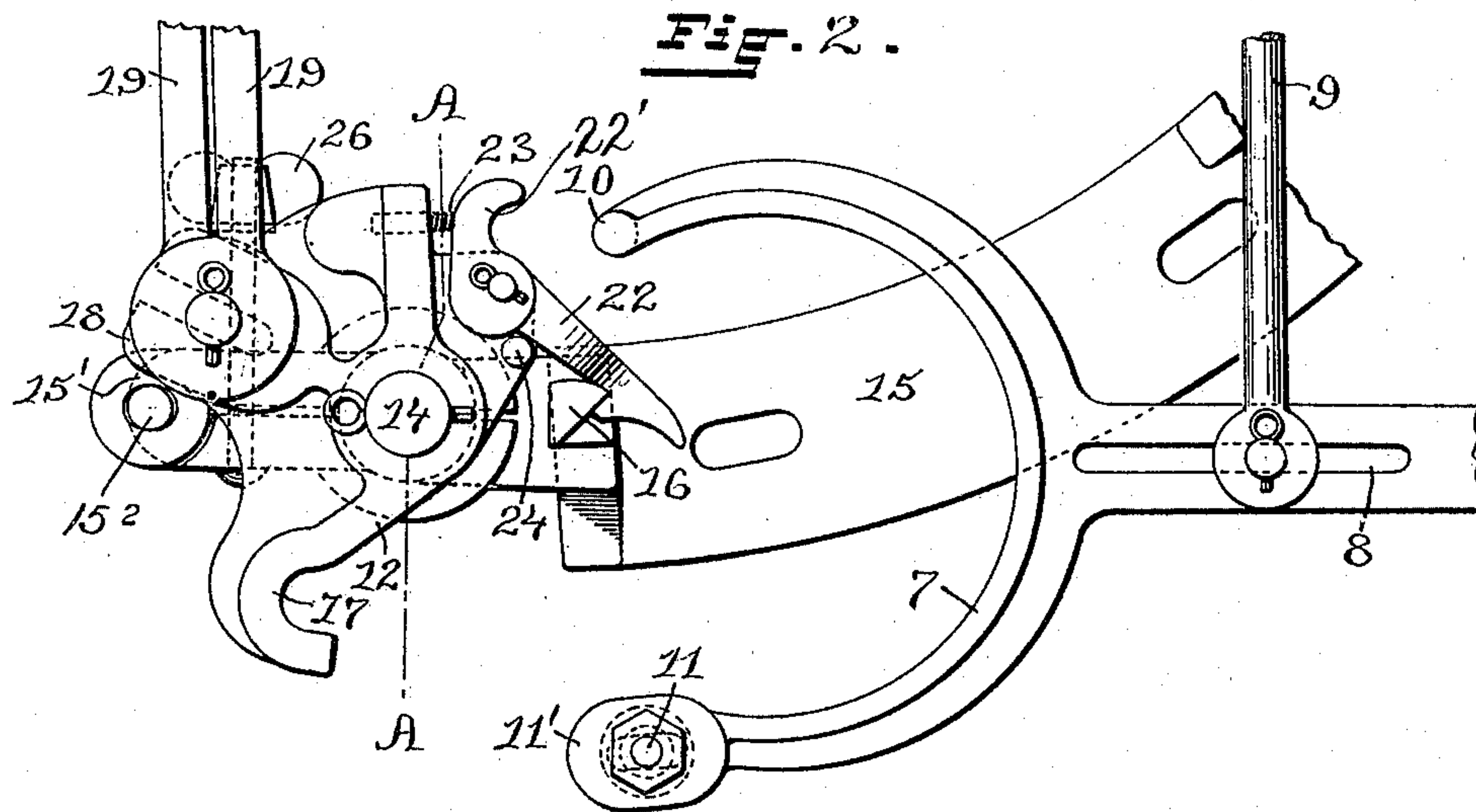
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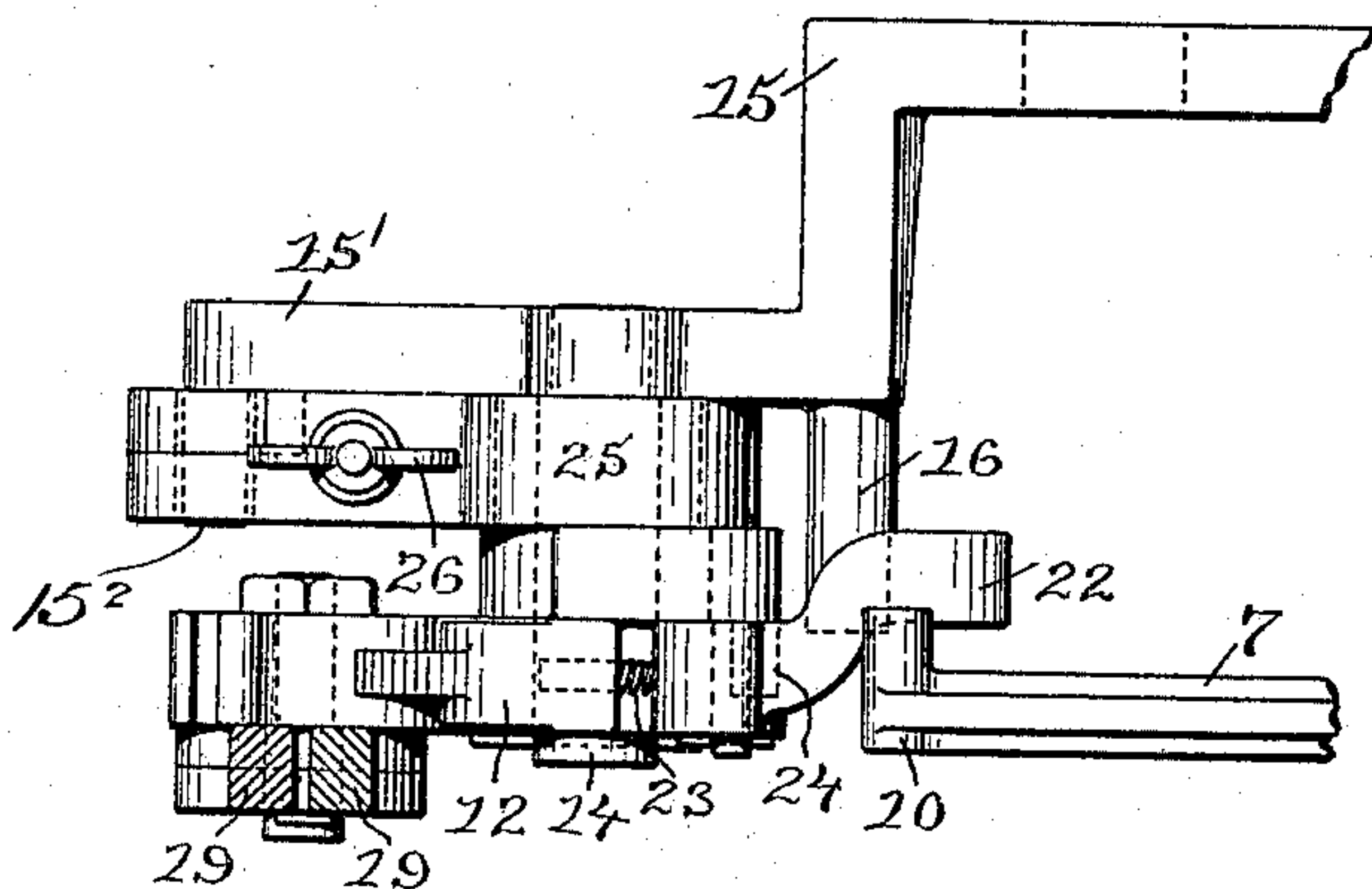
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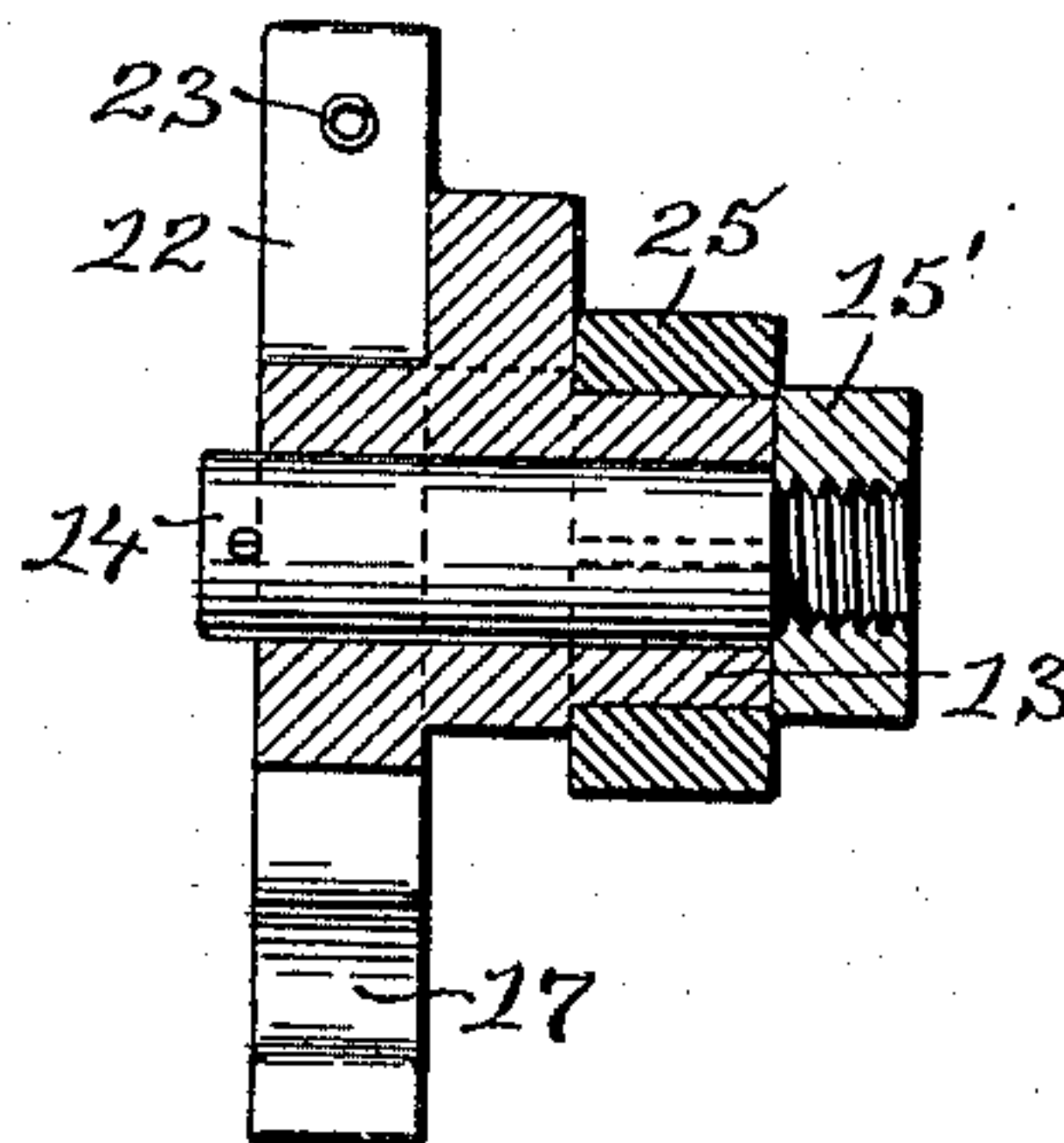
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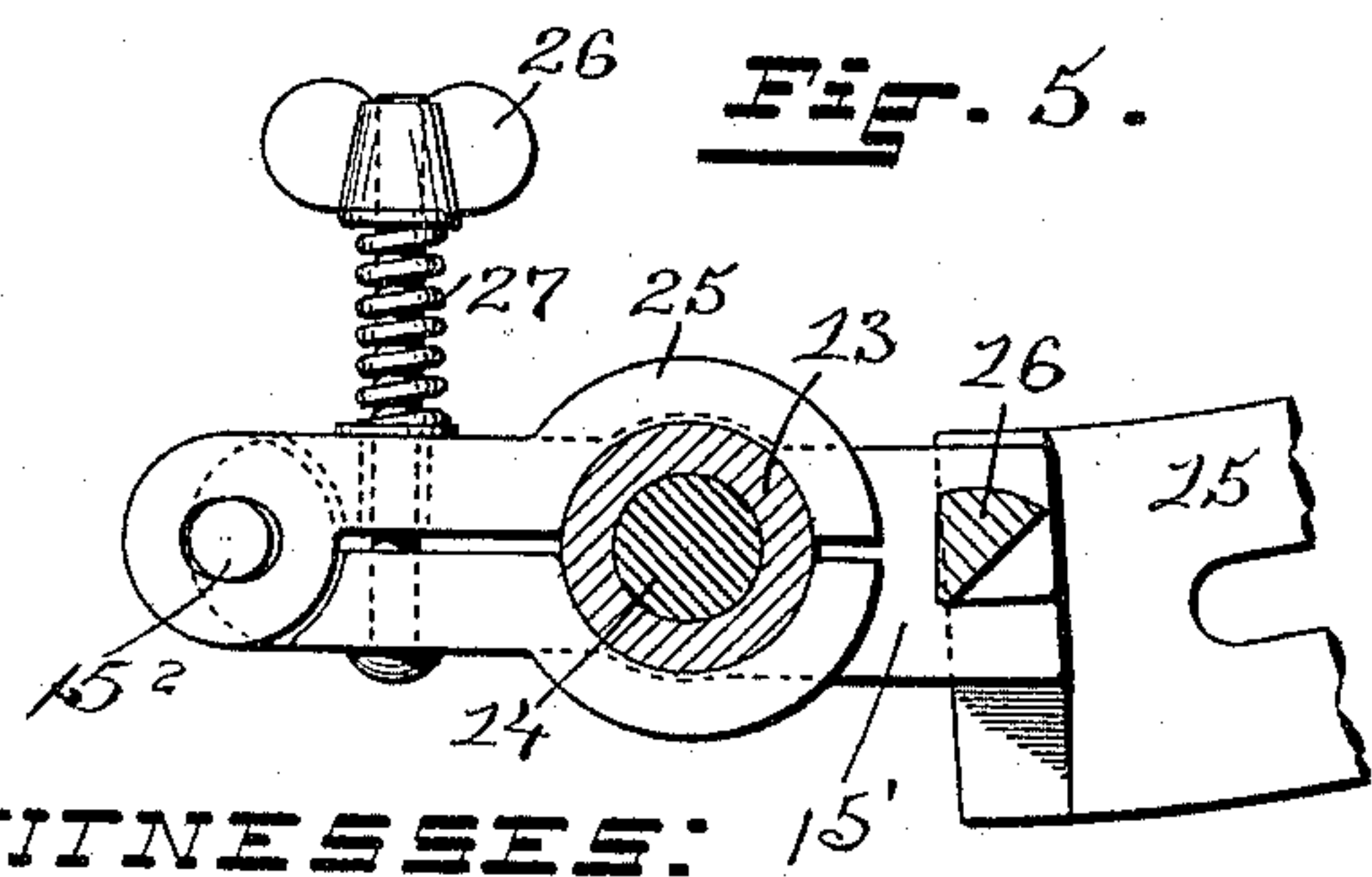
**Fig. 3.**



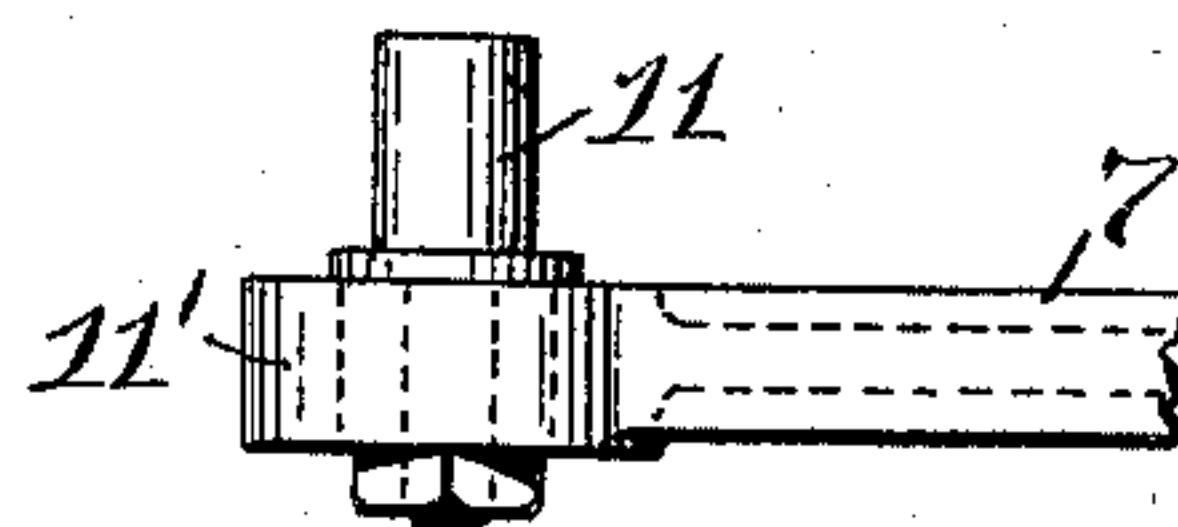
**Fig. 4.**



**Fig. 5.**



**Fig. 6.**



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# UNITED STATES PATENT OFFICE.

CYRUS A. TAFT AND HENRY A. OWEN, OF WHITINSVILLE, MASSACHUSETTS,  
ASSIGNORS TO THE WHITIN MACHINE WORKS, INCORPORATED, OF SAME  
PLACE.

## BOX-CONTROLLING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 638,944, dated December 12, 1899.

Application filed July 29, 1898. Serial No. 687,166. (No model.)

*To all whom it may concern:*

Be it known that we, CYRUS A. TAFT and HENRY A. OWEN, of Whitinsville, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Box-Controlling Mechanism for Looms; and we hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

The invention has reference to an improvement in a drop-box loom; and it consists in the peculiar and novel construction of a vibrator controlled by the pattern-chain and the box-operating rocker-arm provided with a latch, whereby the shuttle-boxes are firmly locked in the raised position.

Figure 1 is a side view of part of a loom provided with our improved box-controlling mechanism. Fig. 2 is a side view, on an enlarged scale, of the box-controlling mechanism. Fig. 3 is a top view of the same. Fig. 4 is a sectional view through the line A A in Fig. 1. Fig. 5 is a side view of the friction-clamp. Fig. 6 is a top view of one end of the vibrating fork.

In the drawings, 1 indicates the side frame of a loom, only so much of which being shown as is required to illustrate our invention; 2, a cam secured to the cam-shaft. This cam is shaped so that the dwell 3 holds the lever 5 stationary during more than half the revolution of the cam, and the throw 4 4 acts to operate the lever 5 forward and backward during less than half the revolution of the cam. The lever 5 is pivoted on the stud 5', projecting from the frame, engages at one end with the groove in the cam 2, and is provided at the opposite end with the segmental slot 6. The fork 7 is pivotally secured in the slotted end of the lever 5, is provided with the slot 8, and is adjustably connected with the rod 9, which is usually connected to a lever controlled by the pattern-chain. The fork 7 has at one of the bifurcated ends the knock-off 10 and at the other end the knock-off pin 11, adjustably secured in a slot in the end 11' of the fork. The rocking plate 12 is provided with the sleeve 13 and is journaled on the post 14. In the preferred form we provide the bracket 15 and secure to the same the post 14, also the post 5', forming the pivotal support for the

lever 5, and form on or secure to the bracket the locking post 16, so that when the bracket is secured to the frame 1 these parts are in their relative positions. The rocking plate 12 is provided with the hook 17, adapted to engage with the knock-off pin 11 on one end of the fork 7 and with the slotted bracket 18, in which the lower end of the lifter-rods 19 19 is supported. The lifter-rods 19 19 connect with the spring-clamp 20, which engages with a stud 21<sup>a</sup>, secured to the box-rod 21 in the usual manner. The latch-lever 22 is pivotally supported on the rocking plate 12 and is provided on one side of its pivotal support with a catch engaging with the locking-post 16 and at the opposite side with a hook 22', adapted to engage with the knock-off 10 of the fork 7. The spiral spring 23 holds the latch-lever 22 in the normal position against the stop 24.

To a pin 15<sup>2</sup>, projecting from the arm 15' of the bracket 15, the clamp 25 is secured, bearing on the sleeve 13 of the rocking plate 12, the thumb-nut 26, bearing on the coiled spring 27, regulating the frictional contact of the clamp on the sleeve 13. The lower end of the box-rod 21 extends through a hole in the bracket 28, which forms the pivotal support of the picker-stick 29. The collar 30 is secured to the box-rod 21 by a set-screw adjusted so as to sustain the box-rod on the bracket 28 when the upper box is on a line with the shuttle-race on the lay. The devices are shown in the drawings in the positions they occupy when the boxes are in the raised position, with the lower box on a line with the shuttle-race on the lay.

To enable others skilled in the art to use our invention, we will now more fully describe the operation of the same.

With all parts in the position shown in Figs. 1 and 2 the rotation of the cam 2 will maintain the same in this position until the roller on the upper end of the lever 5 passes from the dwell 3 of the cam and enters the operative part 4, when that end of the lever 5 is moved quickly backward and the lower end, with the fork 7, is moved forward. The knock-off 10 now encounters the hook on the upper end of the latch-lever 22, disengages the catch from the locking-post 16, thereby releasing the rocking plate 12, which turns on the post 14, and the box-rod 21, with the boxes, descends



until the downward movement is arrested by the collar 30 coming in contact with the bracket 28. When now the pattern-chain raises the rod 9, and through it the fork 7, the knock-off pin 11 engages with the hook 17 and turning the rocking plate 12 raises the box-rod 21 and the boxes into the position shown in Figs. 1 and 2, the latch-lever 22 automatically engages with the lock-post 16 and locks the boxes in the raised position. The distance between the knock-off end 10 and the knock-off pin 11 is such that after the change in the position of the boxes is made the fork 7 may continue to vibrate without disturbing the boxes until a change is required by a projection on the pattern-chain or a depression. 31 indicates the upper and 31' the lower shuttle-box.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a drop-box loom, the combination of the following instrumentalities: a box-rod supporting two shuttle-boxes, a rigid support for the box-rod when in the lowered position, a stud on the box-rod, a cam on the cam-shaft, a lever pivotally supported on a fixed part of the loom, one end of the lever engaging with the cam on the cam-shaft, a fork connected with the other end of the lever, a rocking plate, a lifter-rod connected with the rocking plate and with the stud on the box-rod, a hook on the lower part of the rocking plate, a spring-pressed latch-lever, pivoted on the upper part of the locking-plate, adapted to engage with a fixed locking-post, and a rod connected with the fork, controlling its vertical position, whereby the shuttle-boxes are firmly supported in their raised and lowered positions, as described.

2. In a drop-box loom, the combination with the box-rod supporting two shuttles, a rocking plate, lifter-rods connected with the rocking plate and with a stud on the box-rod, a

stud on the box-rod, a spring-pressed latch pivoted on the rocking plate, a locking-post, a vibrating fork controlled by the pattern-chain, and the pattern-chain; whereby one arm of the fork, when it encounters the rocking plate, acts to lift the boxes and the other arm of the fork acts to release the spring-pressed latch and permits the descent of the boxes, as described.

3. In a drop-box loom, the combination with the box-rod, the rocking plate 12 having the hook 17, the sleeve 13, the latching-lever 22, and connections between the rocking plate and the box-rod, and the fork 7 controlled through the rod 9, of the cam 2, the lever 5 connected with the fork 7 and the cam, a fixed post 16, and the spring-pressed clamp 25 engaging with the sleeve 13; whereby the fork controlled by the pattern-chain operates the box-controlling rocking plate to raise or lower the shuttle-boxes resisted by the adjustable friction-clamp, as described.

4. In a drop-box loom, the combination with the box-rod 21, the stud 21<sup>a</sup> on the box-rod, the bracket 28, the collar 30 on the box-rod, the rocking plate 12, a spring-latch on the rocking plate engaging with a fixed part of the loom, two lifter-rods, connected with the rocking plate at the lower ends, held together by a coiled spring and adapted to embrace the stud 21<sup>a</sup> on the lifter-rod, and means, substantially as described, for rocking the rocking plate to lift the boxes and disengaging the spring-latch to drop the boxes; whereby the boxes are firmly supported in their raised and lowered positions, as described.

In witness whereof we have hereunto set our hands.

CYRUS A. TAFT.  
HENRY A. OWEN.

Witnesses:

R. K. BROWN,  
S. M. POLLOCK.