

(No Model.)

2 Sheets—Sheet 1.

P. GENDRON.
SPOKE SWAGING MACHINE.

No. 503,791.

Patented Aug. 22, 1893.

Fig. 1.

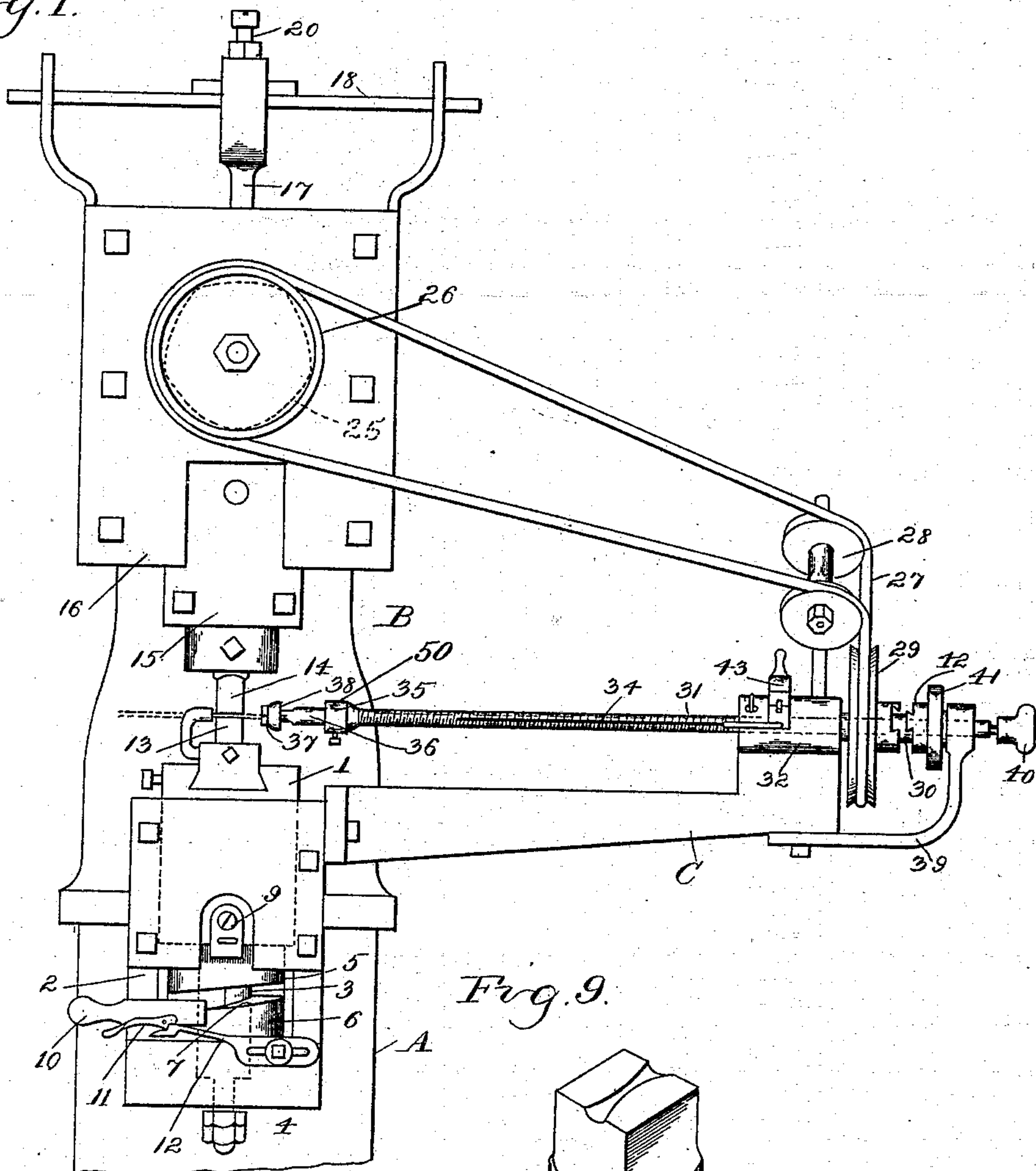


Fig. 9.

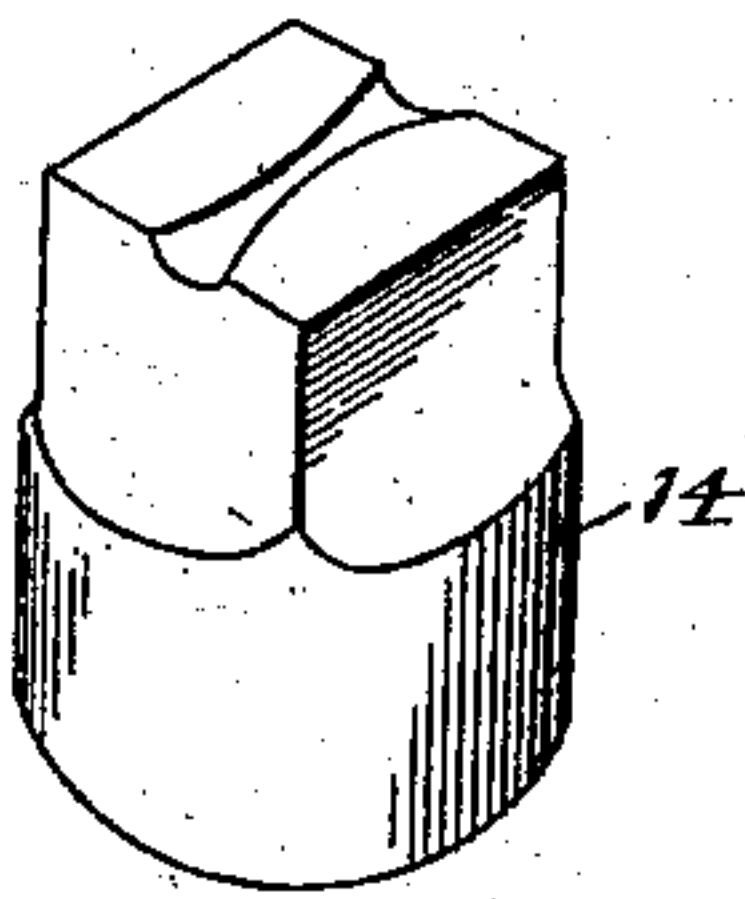
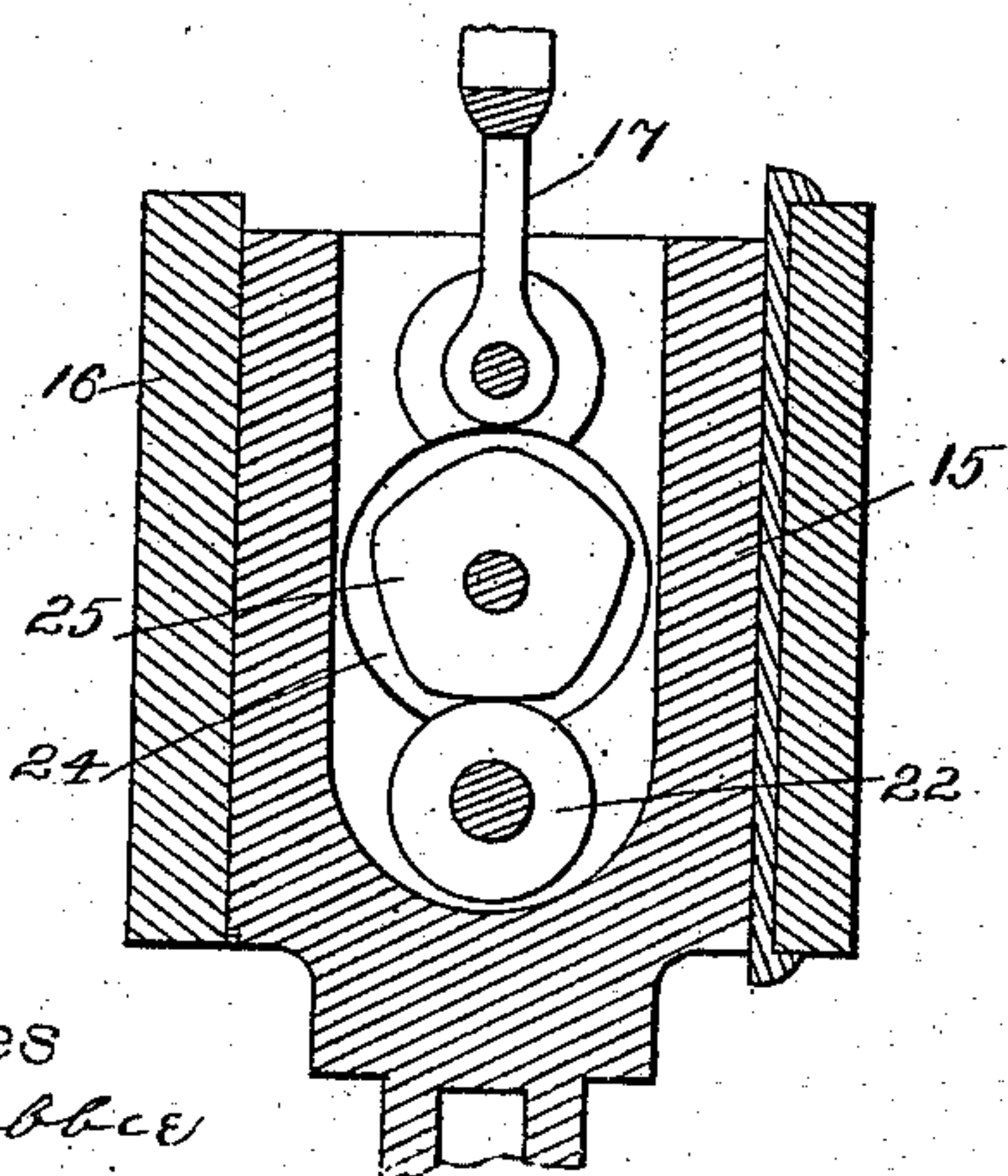


Fig. 3.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

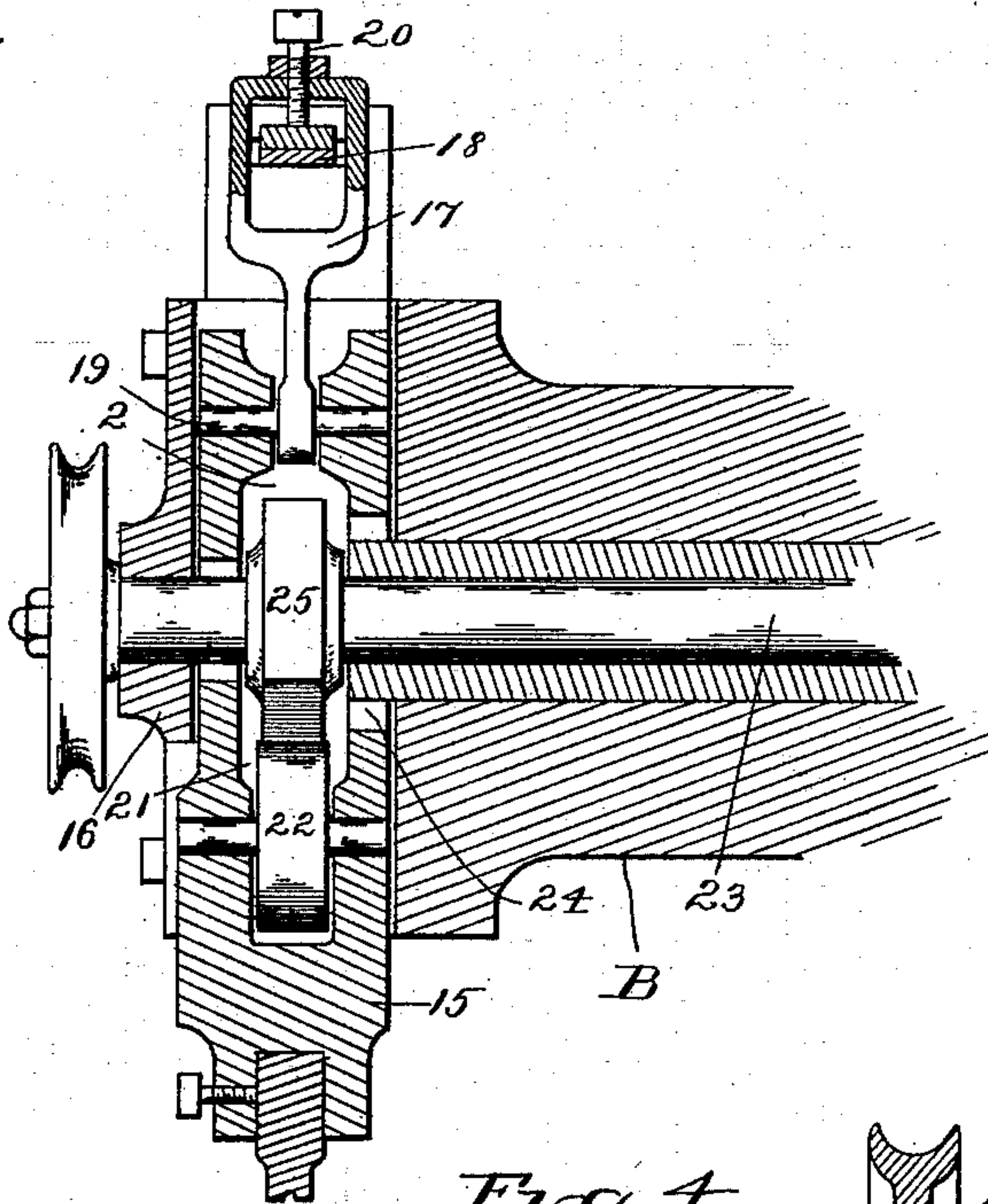


Fig. 4.

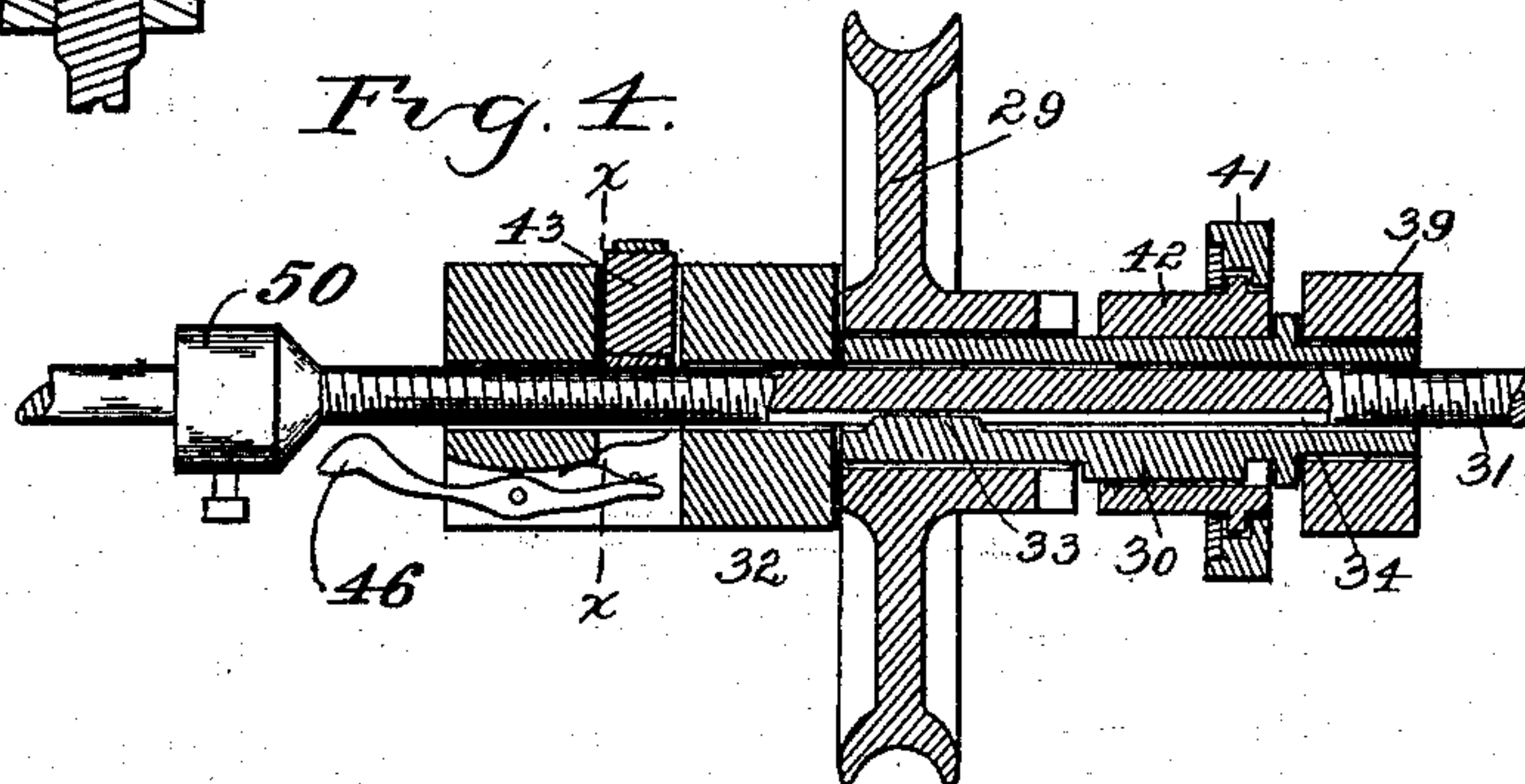


Fig. 5.

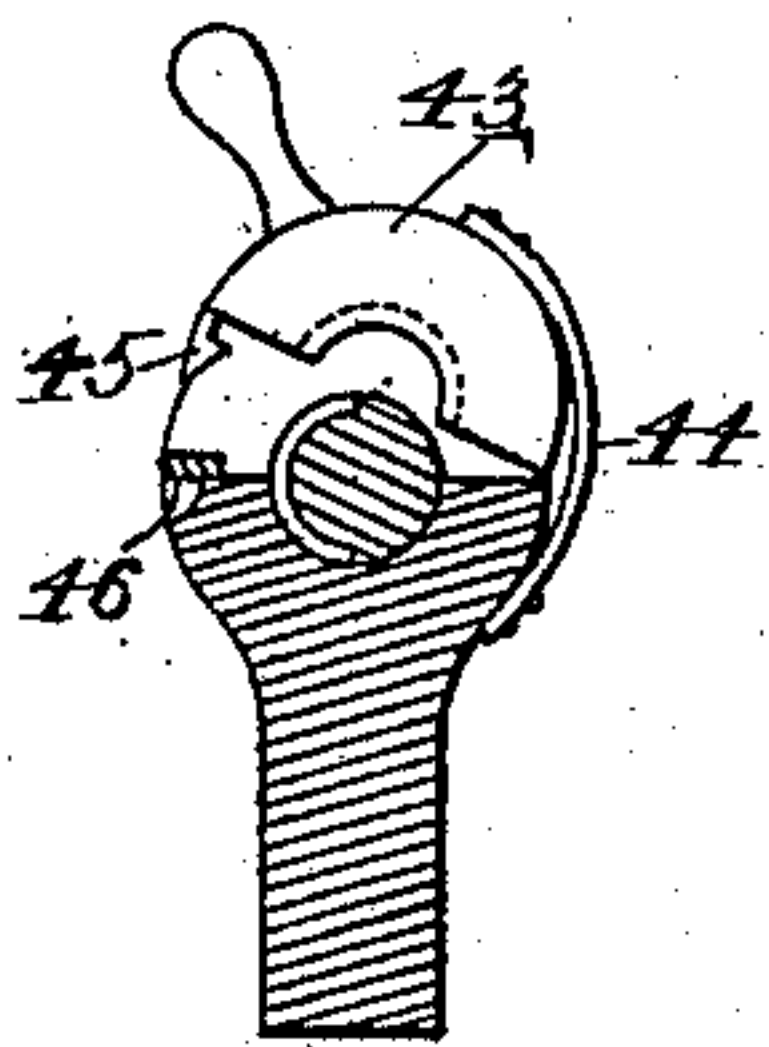


Fig. 8.

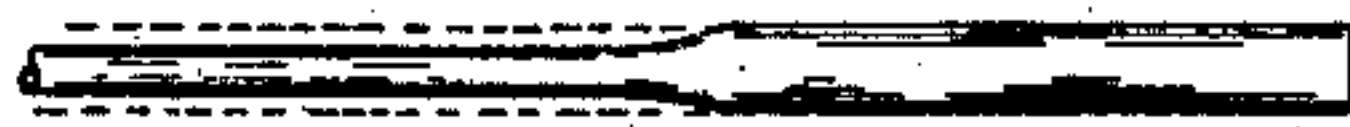


Fig. 7.

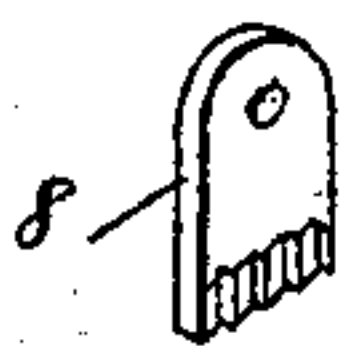
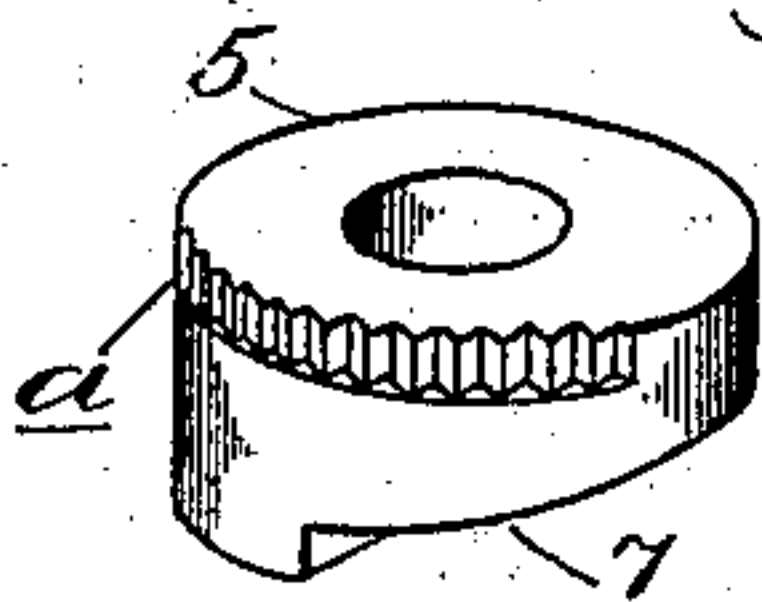


Fig. 6.



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UNITED STATES PATENT OFFICE.

PETER GENDRON, OF TOLEDO, OHIO.

SPOKE-SWAGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 503,791, dated August 22, 1893.

Application filed April 4, 1893. Serial No. 468,970. (No model.)

To all whom it may concern:

Be it known that I, PETER GENDRON, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have
5 invented certain new and useful Improvements in Spoke-Swaging Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in the construction
10 of a machine comprising swaging dies, actuating mechanism therefor, a chuck or work holder having means for moving the work across the dies.

The invention further consists in the peculiar
15 construction of the dies, their adjusting devices and actuating devices; further in the peculiar construction of the feed mechanism for the work, and the means for stopping and starting it.

20 The invention consists in the peculiar construction, arrangement and combination of the various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a front elevation of my machine. Fig. 2 is a vertical, central section through the upper die or hammer and its actuating mechanism, partly in elevation. Fig. 3 is a section at right angles to Fig. 2 through some of the same parts. Fig.
30 4 is a horizontal section through the feed shaft and its actuating mechanism. Fig. 5 is a cross section on line *xx*, Fig. 4. Fig. 6 is a detached perspective view of one of the adjusting rings for the anvil die. Fig. 7 is a
35 similar perspective view of a locking plate therefor. Fig. 8 is an elevation illustrating the work of the machine, and Fig. 9 is a detached perspective view of one of the upper dies.

40 A is a suitable standard supporting the operating parts of the machine. This standard has a curved arm or head B arching over the top of the standard and leaving room for the working of the dies, as is usual in such machines, and a side bracket C for supporting
45 the actuating mechanism of the feed shaft to be hereinafter described.

1 is the anvil block supported in guide ways
2 at the top of the standard.

50 3 is a stem or shaft extending downwardly from the under side of the anvil block and having nuts 4 to prevent its disengagement.

The anvil block is adjustable by means of the rings 5 and 6, sleeved upon the stem 3 and having corresponding spiral cam ways 7
55 upon their meeting faces. The ring 5 has any suitable means of adjustment with a locking device for holding it in its adjusted position. I have shown a series of notches or teeth *a* on its upper edge with which a lock-
60 ing plate 8, having corresponding teeth is adapted to engage. This plate is adapted to be clamped upon the ring by means of the set screw 9 which engages into the side of the anvil block 1. The lower ring 6 is adapted
65 to be turned upon the stem 3 and this end is provided with a hand lever 10 projecting to the front in convenient proximity to the operator.

11 is a latch pivoted on this lever, and 12
70 is a spring pawl adapted to engage with the latch to hold the ring in its adjusted position. By turning the hand lever until it engages with the spring pawl, the anvil die will be raised into proper position to be operated
75 upon by the hammer die 14. This hammer die is supported on the lower end of the head 15 sliding in suitable guides 16 in the arm B of the standard. This sliding head is supported by means of the link 17 from the cross
80 spring 18, the link being pivoted at its lower end upon the pin 19. The tension of the spring may be adjusted by means of the set screw 20. The head is provided with a longitudinal slot or opening 21 in the lower end
85 of which is journaled the roller 22.

23 is a drive shaft journaled in the arm B of the machine and passing transversely through the head 15, a slot 24 being provided to allow the head to have a suitable vertical
90 movement about the shaft without striking the same. 25 is a cam wheel secured on this shaft, preferably of hexagonal form, as shown, with slightly rounded corners adapted to bear
95 against the roller 22 in its rotation and depress the hammer die downward against the anvil die to swage the work. The shaft 23 is driven from any suitable source of power. It is evident that if work is placed in position upon the anvil die and motion is commu-
100 nicated to the shaft 23 the cam 25 at each revolution will depress the head 15 which will be lifted between the blows by means of the spring 18 and thus a very rapid series of blows

will be struck upon the work. In order to swage a metal spoke, for instance, as in the manufacture of bicycles, in which the spoke is thinned through its middle portion and left
 5 of its original size at the ends, I have devised a feed mechanism which will continuously feed the spoke between the dies. I use the word continuously in contradistinction to the intermittent feeding device. This feeding
 10 mechanism is driven preferably from a grooved wheel 26 by means of a belt or rope 27 passing over idlers 28 and over a driven pulley 29 which is journaled on the sleeve 30. This sleeve is supported on the screw shaft
 15 31 which extends through a box 32 formed at the end of the bracket C. The outer end of the sleeve 30 is journaled in a bracket 39. The sleeve 30 is provided with an interior key 33 engaged in the key way 34 in the shaft 31,
 20 so that when motion is communicated to the sleeve it will impart motion to the shaft. The shaft at its forward end is provided with a socketed head 35, in which is secured the chuck 36 with spring jaws 37 and the locking
 25 ring 38. This chuck may be of any suitable construction.

40 is the hand block at the end of the shaft 31 journaled on a pin, by means of which the operator may move said shaft.

30 41 is a circular hand hold or wheel swiveled on the sleeve 42 which engages over the sleeve 30 and is keyed thereto, forming the clutch for connecting the drive wheel 29 with the shaft 31.

35 43 is a screw block secured to the bearing 32 on one side thereof, and having a suitable screw threaded portion adapted to engage with the shaft 31. This block is normally held out of engagement with said shaft by
 40 means of a spring 44 which forms in this case, the hinge for uniting the block to the bearing 32. The screw block is provided with a hook 45 on the side opposite to the spring hinge.

45 46 is a spring latch pivoted to the bearing 32. When the screw block engages the shaft 31 the hook 45 will engage over the latch 46 thus locking the screw block to the shaft. The parts being thus constructed, the work
 50 engaged in the chuck, as shown in Fig. 1, motion being imparted to the drive shaft 23, will likewise impart motion to the wheel 29, which will rotate upon the sleeve 30 without imparting motion thereto.

55 To start the machine, the operator grasps the hand-hold 41 and moves the clutch 42 into engagement with the wheel 29 which imparts motion through the connections described to the shaft 31, rapidly revolving the
 60 same. This shaft however, will not be fed longitudinally until the screw block 43 has been turned down to engage with the shaft, when the screw shaft will not only be rotated, but will also be fed longitudinally, drawing
 65 the work between the dies, which in the meantime have been moved into proper operative

position as previously described. When the screw shaft 31 reaches the end of its movement, the inclined face 50 on the head 35 will strike the latch 46 and release it from the
 70 hook 45 on the screw block, when the spring 44 will raise the screw block into the position shown in Fig. 5, stopping the longitudinal feed of the shaft. The operator may now stop the rotation of the shaft by taking hold
 75 of the wheel 41 and drawing it laterally to the position shown in Fig. 4, disengaging the clutch. In this position the swaged blank may be removed from the chuck, a new one inserted and the shaft pushed through its
 80 bearing to its initial position, as shown in Fig. 1, the operator pressing upon the knob 40 to effect this movement. To again start the feed the operator presses in upon the
 85 hand wheel 41, re-engaging the clutch and starting the shaft revolving and then presses down the screw block. In inserting a new blank the lower die or anvil is lowered by means of the lever 10 as previously described and in starting the operation it is raised to
 90 its operative position.

I find that with a swaging machine of this kind I am enabled to swage spokes for a bicycle not only most satisfactorily as to the work produced but with great speed, thus
 95 simplifying and cheapening the production of such spokes.

What I claim as my invention is—

1. In a metal swaging machine, the combination with the dies, of a chuck, a screw shaft
 100 on which the chuck is mounted, a bearing for the shaft, a screw block on the bearing engaging the shaft, a spring for disengaging the block from the shaft, a trip for releasing the spring and an abutment carried directly by
 105 the shaft for engaging the trip substantially as described.

2. In a metal swaging machine, the combination with the dies, of a chuck, a screw shaft
 110 on which the chuck is mounted, a stationary bearing for the shaft, a screw block hinged to the bearing, a spring for normally holding the block and bearing apart, a catch for locking the same together, a pivoted trip, and an inclined flange on the shaft, for engaging the
 115 trip, substantially as described.

3. In a metal swaging machine, the combination with a hammer die, of an anvil die, and means for adjusting the anvil die, consisting of a plurality of cam rings, means for
 120 adjusting one ring independently of the other, and a lever for moving the other ring, substantially as described.

4. In a metal swaging machine, the combination with a standard, of an anvil die, a vertically reciprocating hammer die, a cross-spring supported on the standard, a cross head
 125 located below and carried by said cross-spring, having the hammer die secured thereto, guides on the standard in which the cross head works, a link connection between the spring
 130 and cross head, a roller in the cross head, a

shaft passing through the cross head, and a cam on the shaft engaging the roller, substantially as described.

5. In a metal swaging machine, the combination with the chuck, a screw shaft, to which said chuck is secured, a bearing for the shaft, a screw block, on said bearing, a spring hinge uniting the block, forming a spring for normally holding the block out of engagement with the shaft, a latch for engaging the block with the shaft, and means on the shaft for tripping the latch, substantially as described.

6. In a metal swaging machine, the combination with the chuck, a screw shaft to which said chuck is secured, a sleeve keyed on the shaft, an actuating wheel for the shaft, loosely journaled on said sleeve, a clutch keyed on said sleeve, for engaging the actuating wheel, and a hand wheel swiveled on the clutch for actuating the same, substantially as described.

7. In a spoke swaging machine, the combi-

nation of the frame, the anvil die, the anvil block, in which said die is supported, moving in vertical guides, the stem 3 on said block, the rings 5 and 6 having complementary spiral cam ways, means for adjusting one of the rings, and a lever for rotating the other ring to raise and lower the anvil block, substantially as described.

8. In a spoke swaging machine, the combination with the frame, an anvil die, an anvil block, supporting said die, a stem on said block, rings having complementary spiral cam ways, a lever for rotating one ring to raise and lower the anvil block, and a spring pawl for the lever, substantially as described.

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

PETER GENDRON.

Witnesses:

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