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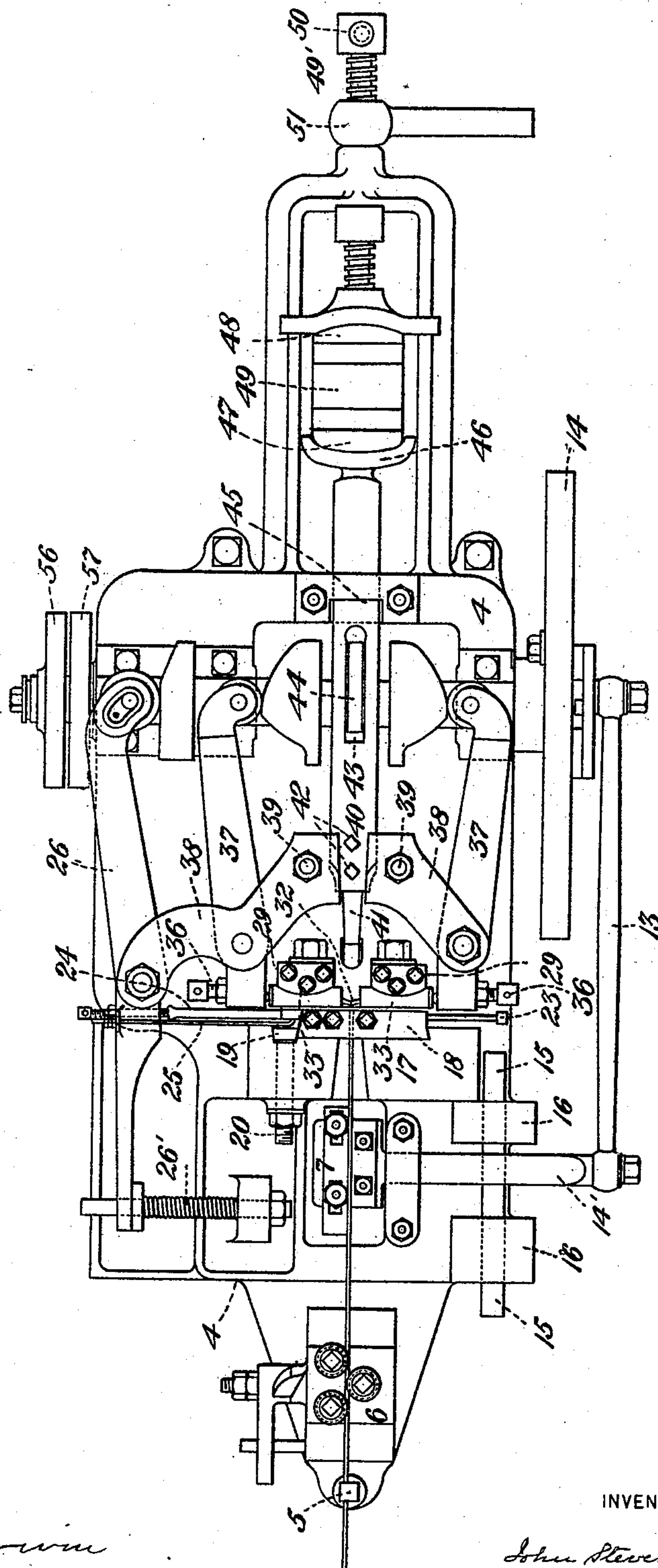
8 Sheets—Sheet 1.

J. STEVENSON, Jr.
WIRE NAIL MACHINE.

No. 492,565.

Patented Feb. 28, 1893.

Fig. 1.



WITNESSES

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(No Model.)

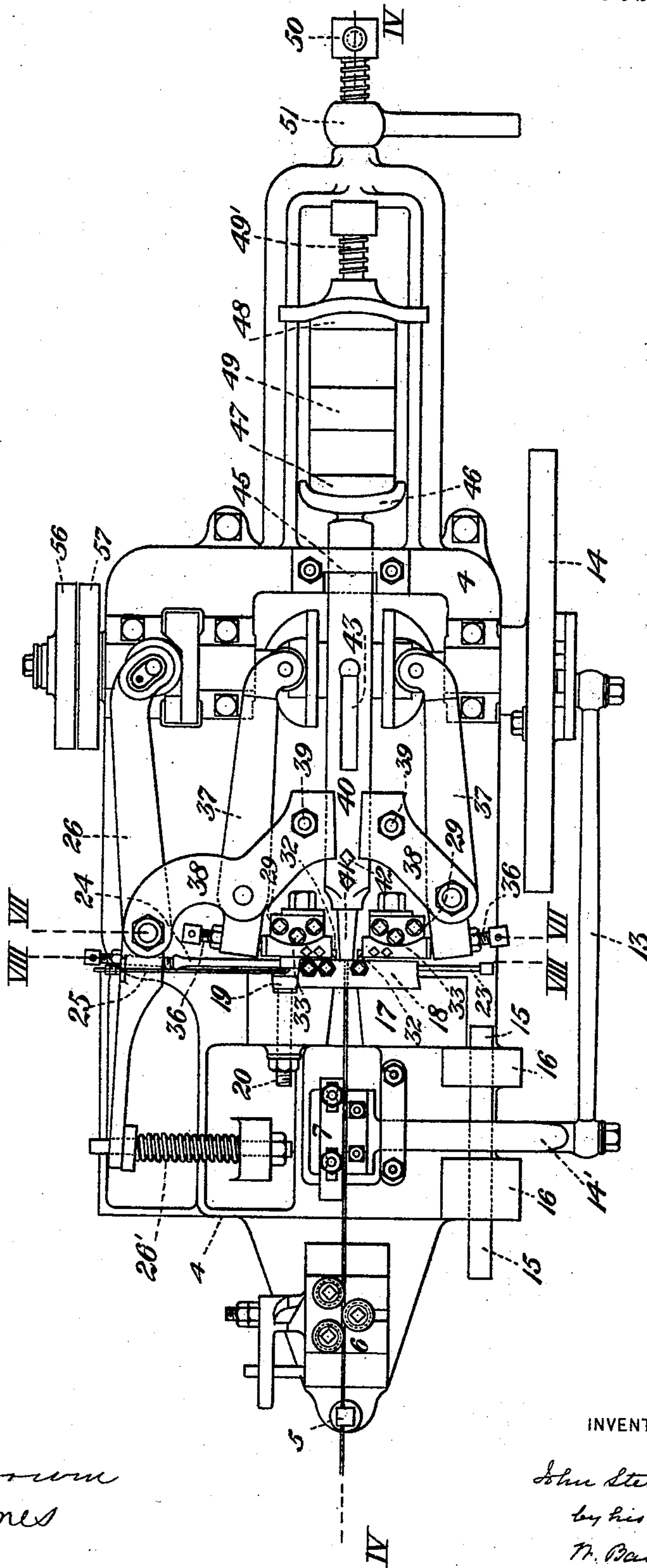
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Fig. 2.



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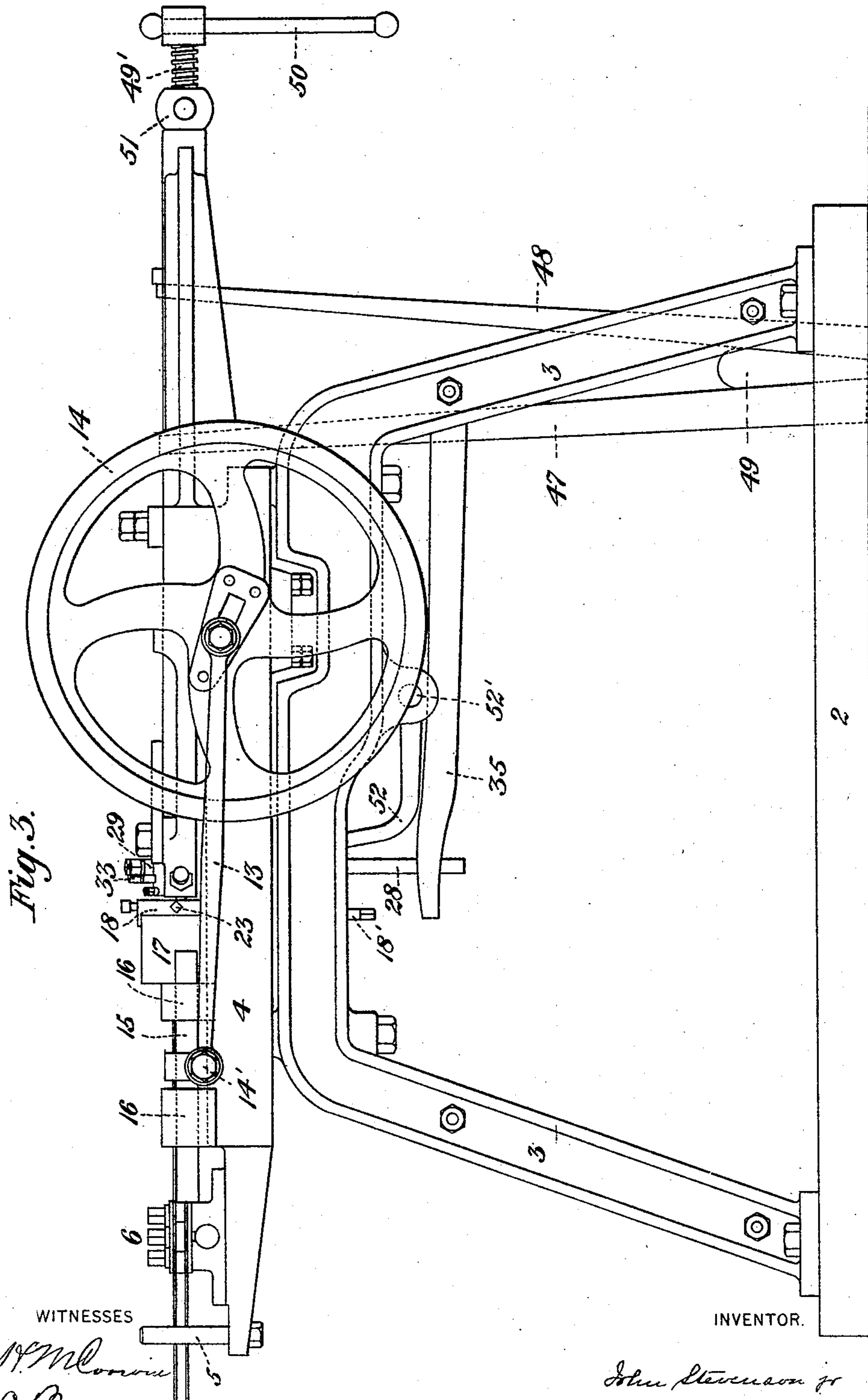
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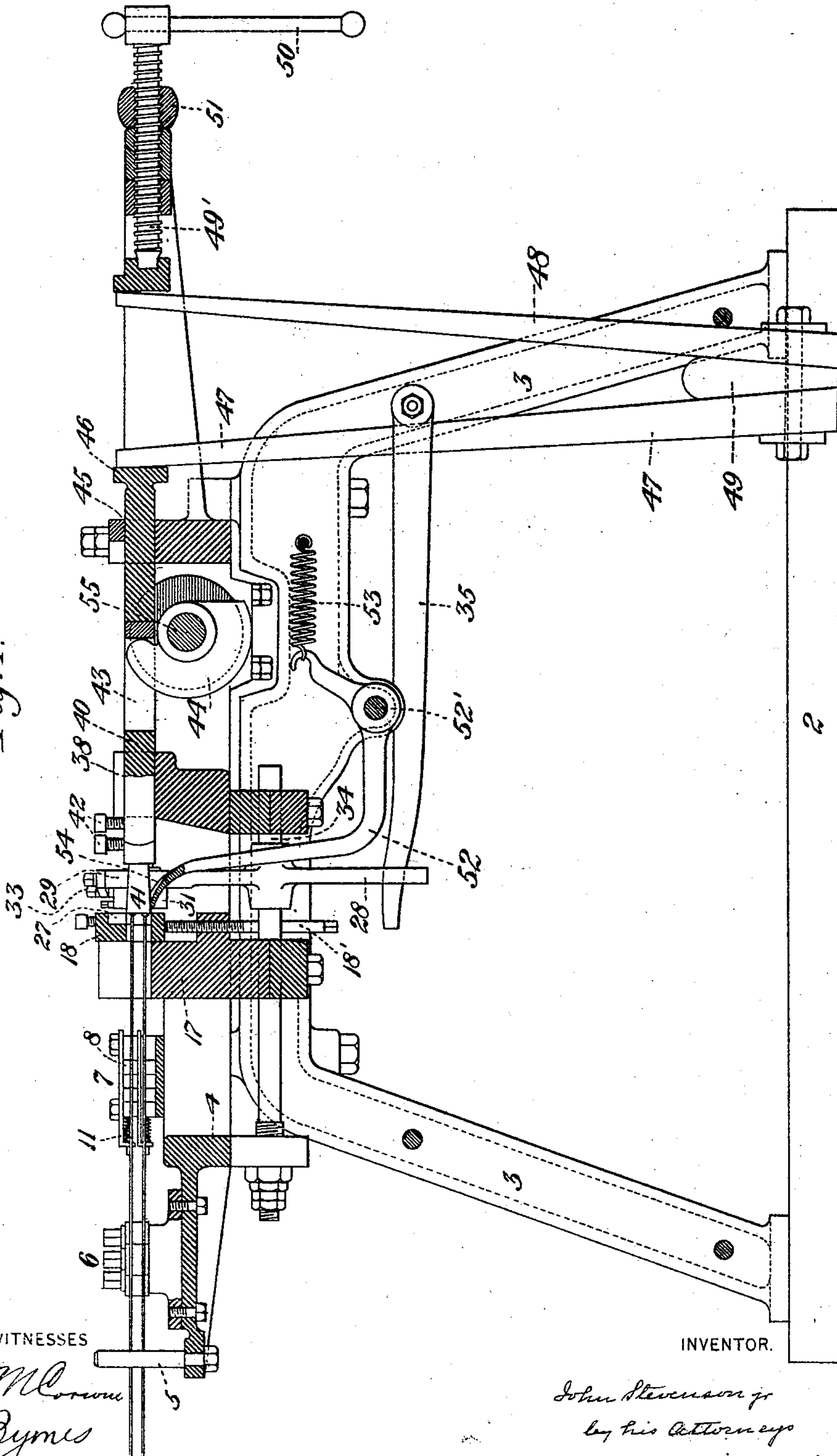
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Fig. 4.



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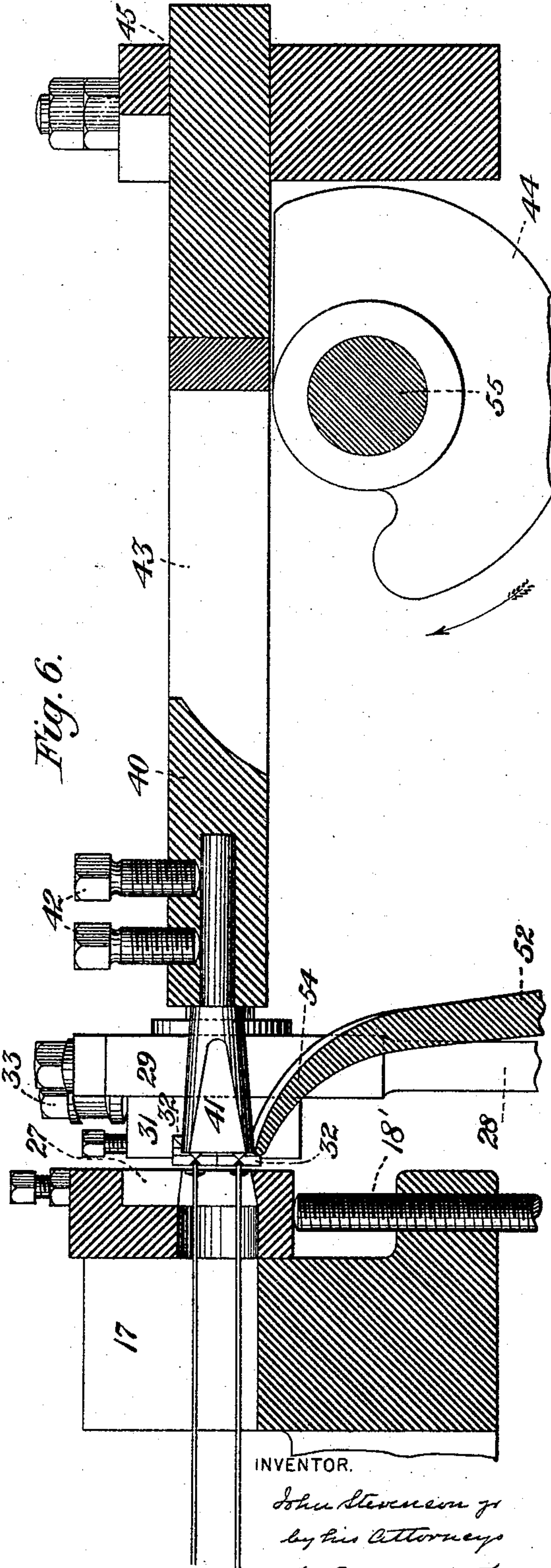
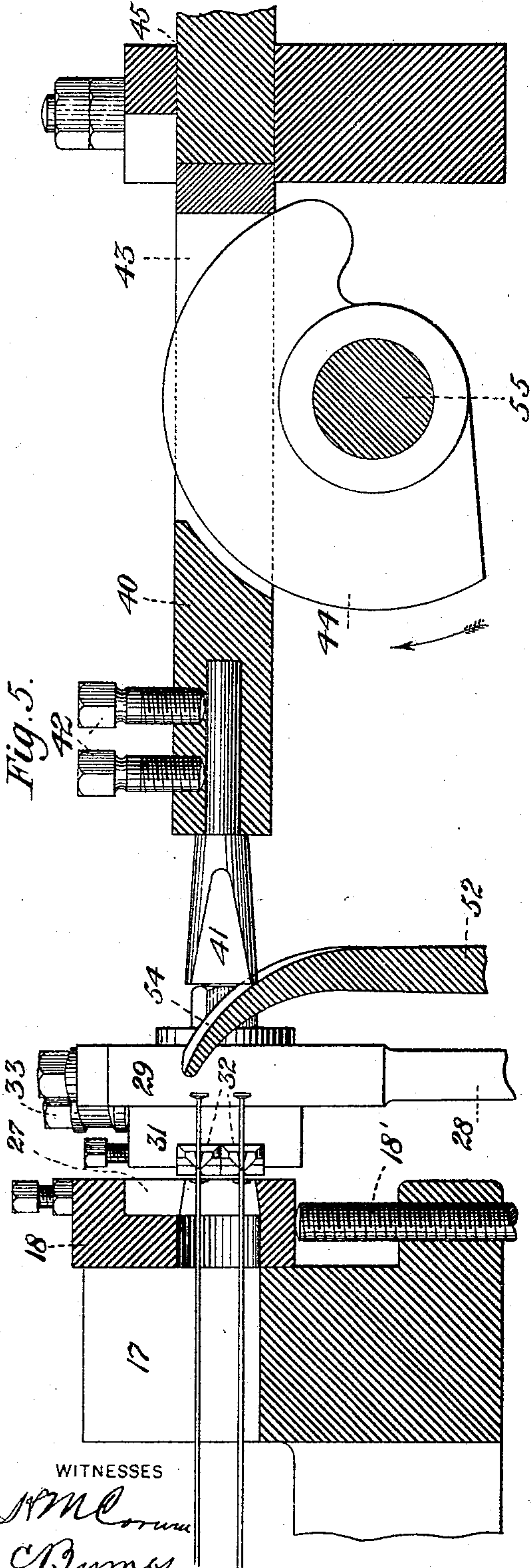
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J. STEVENSON, Jr.
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Fig. 7.

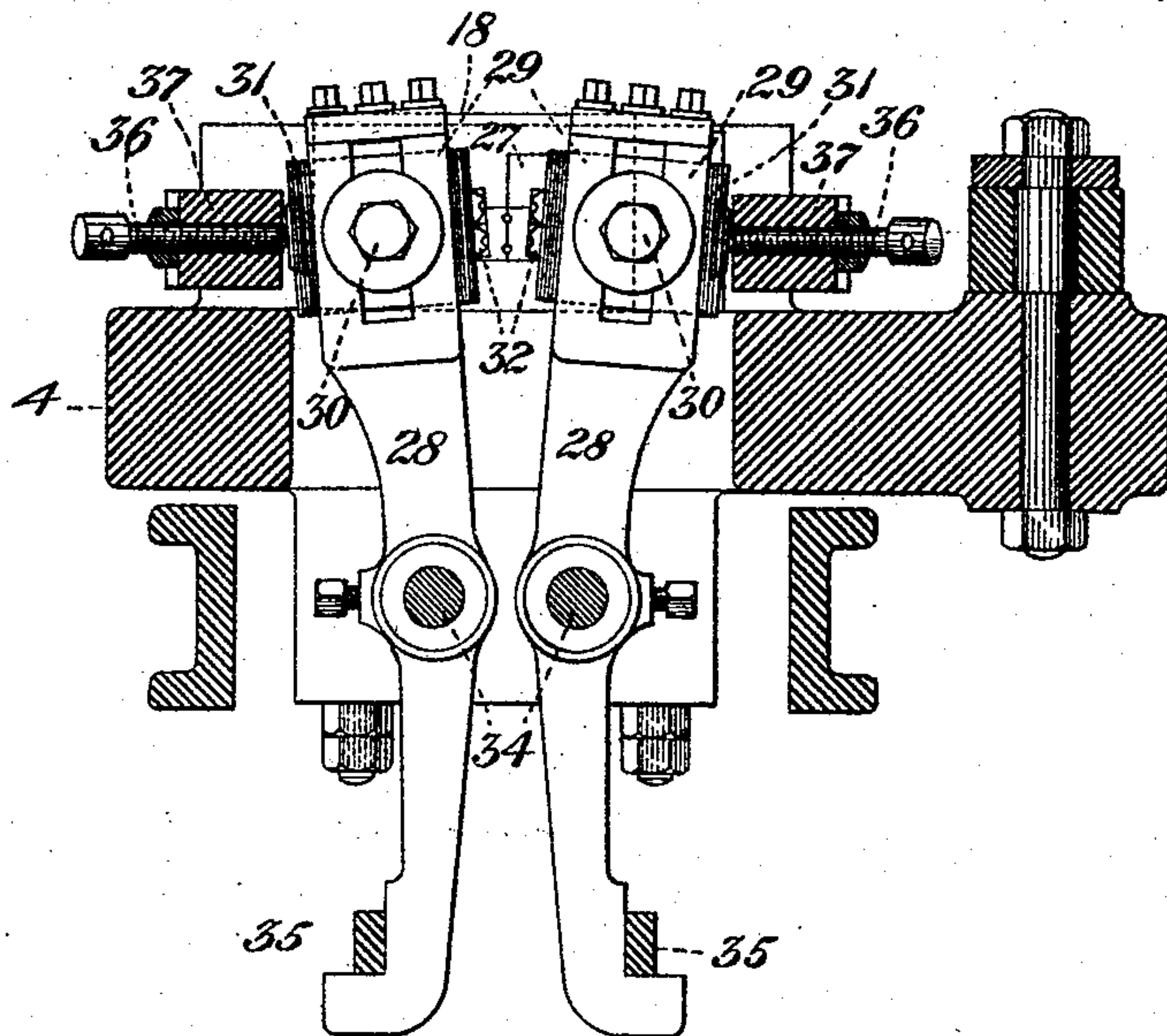


Fig. 8.

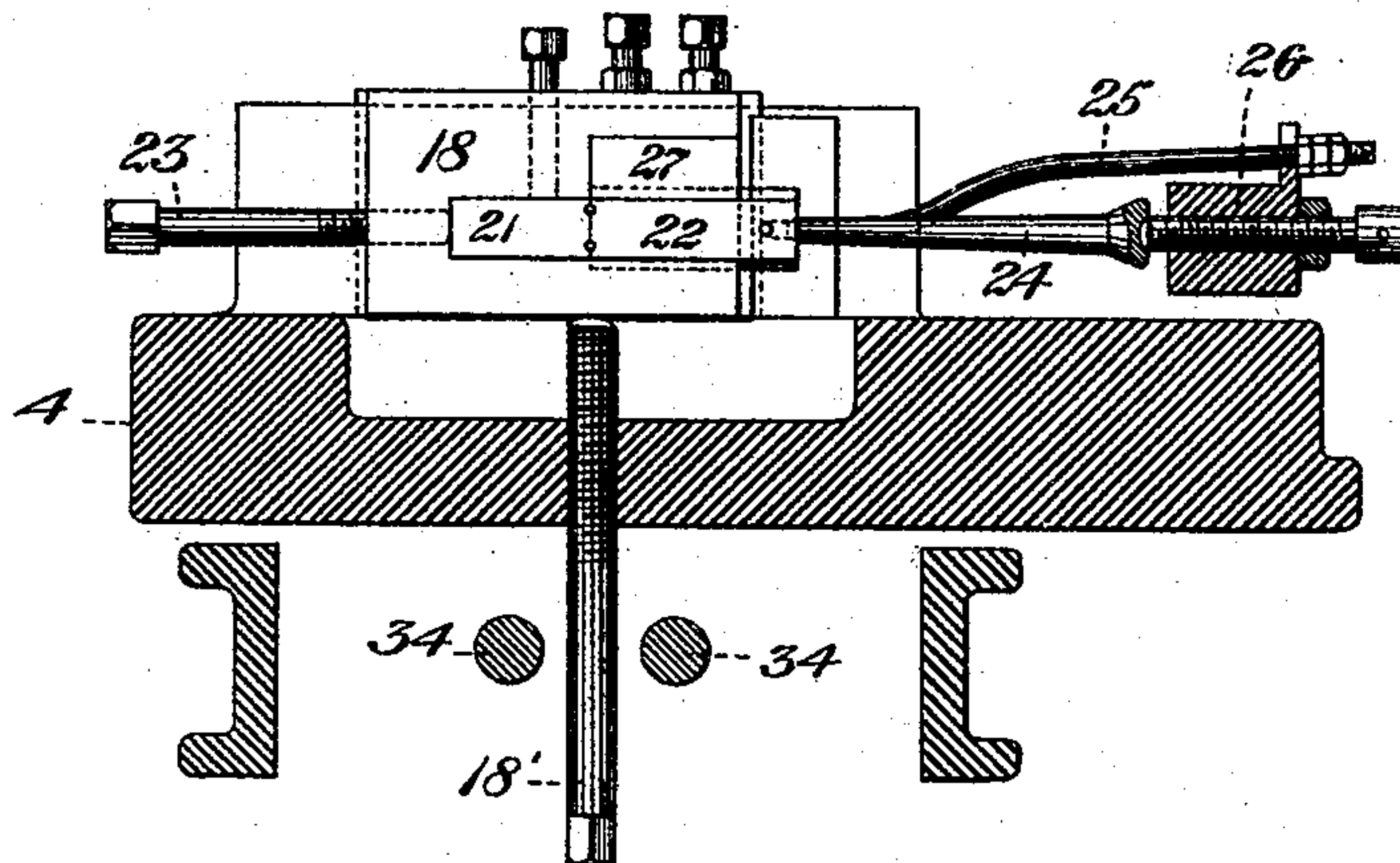
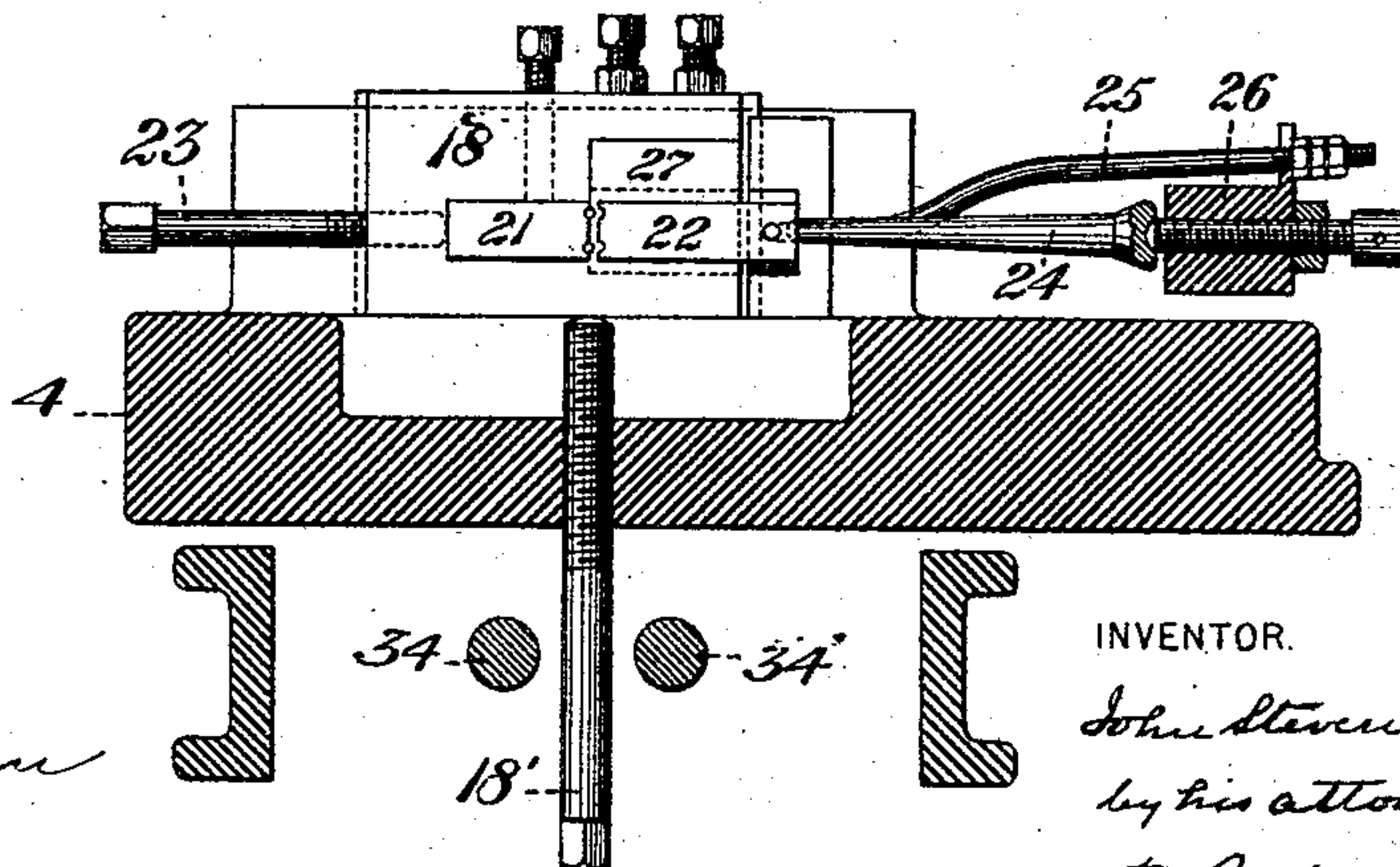


Fig. 9.



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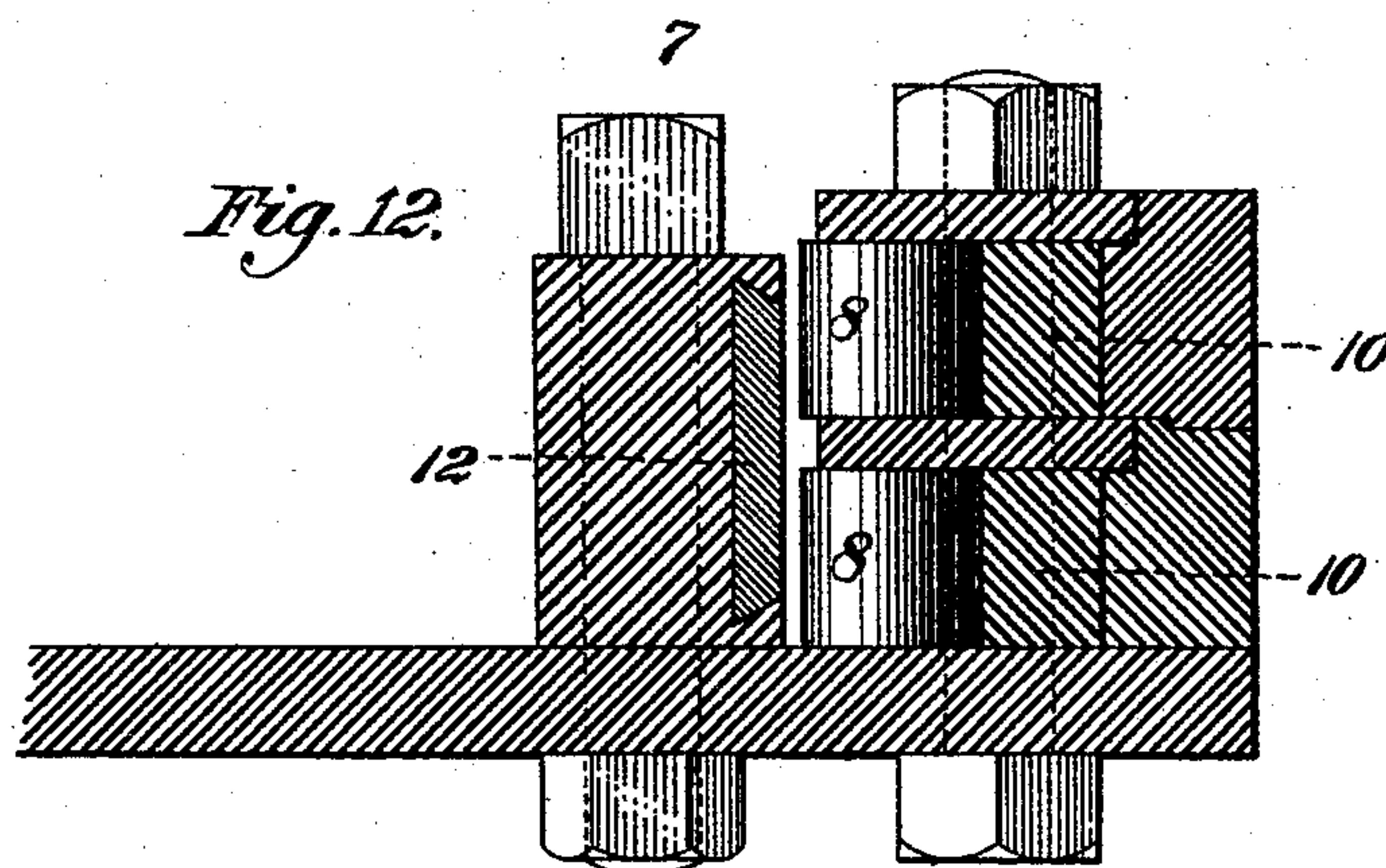
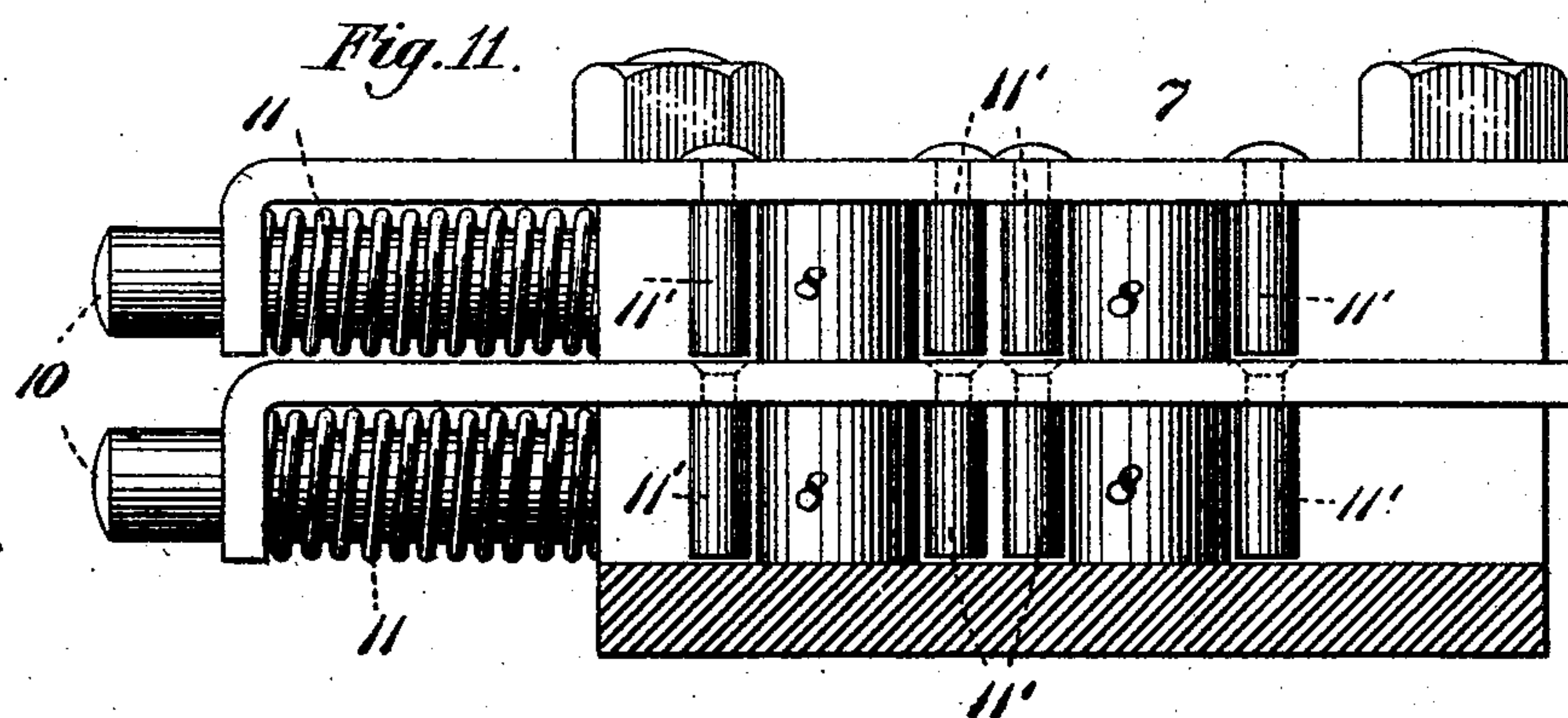
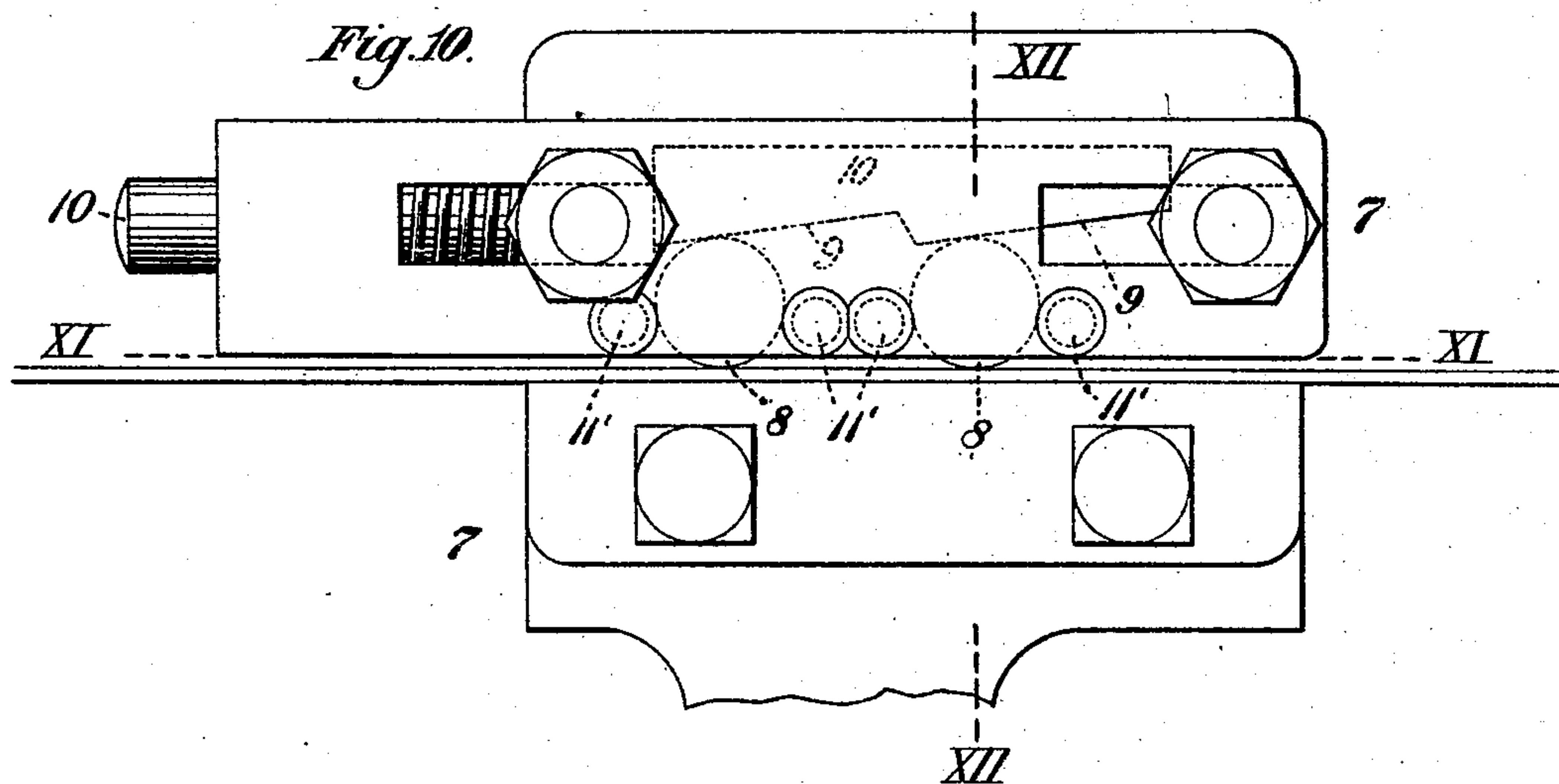
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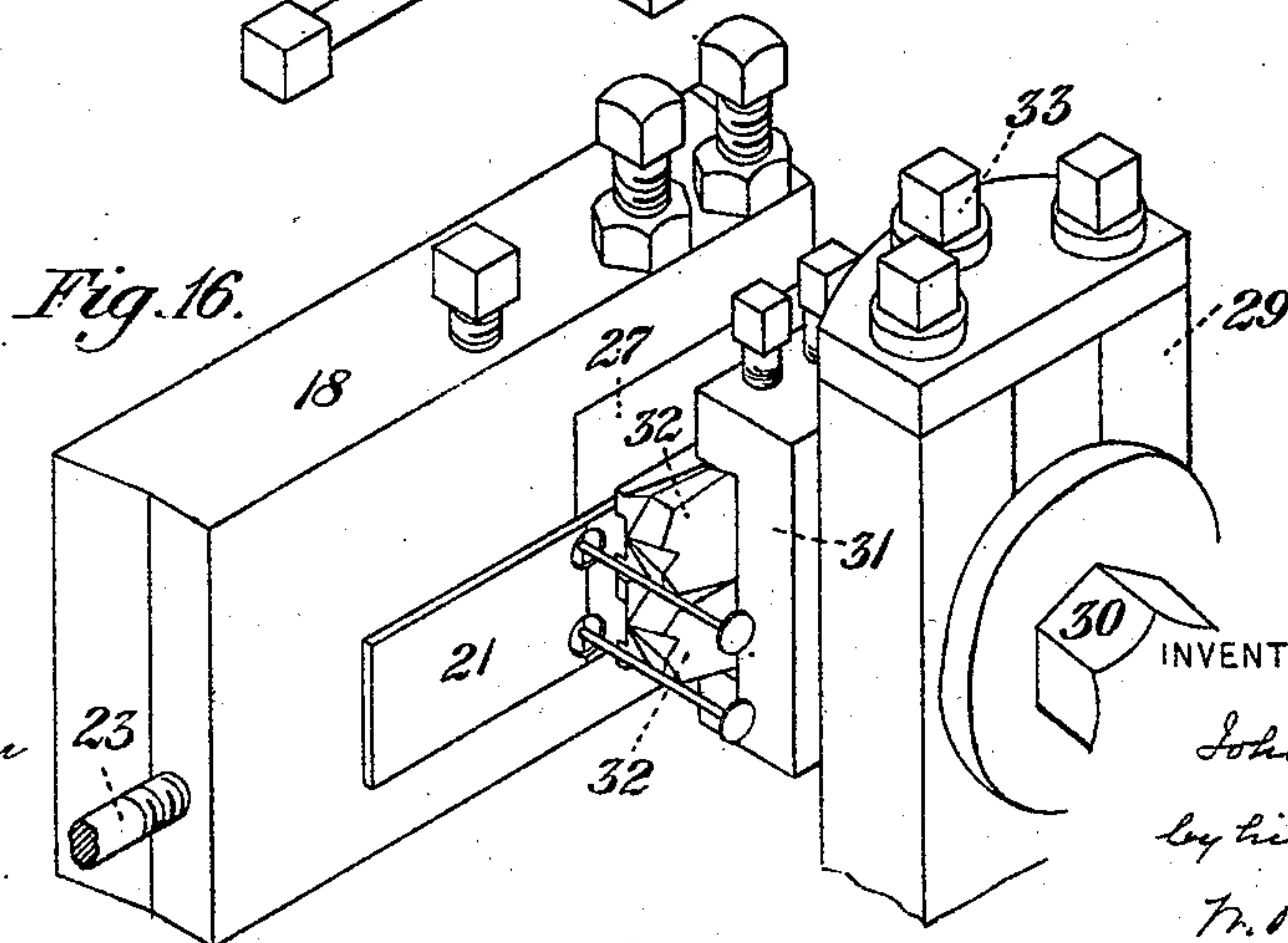
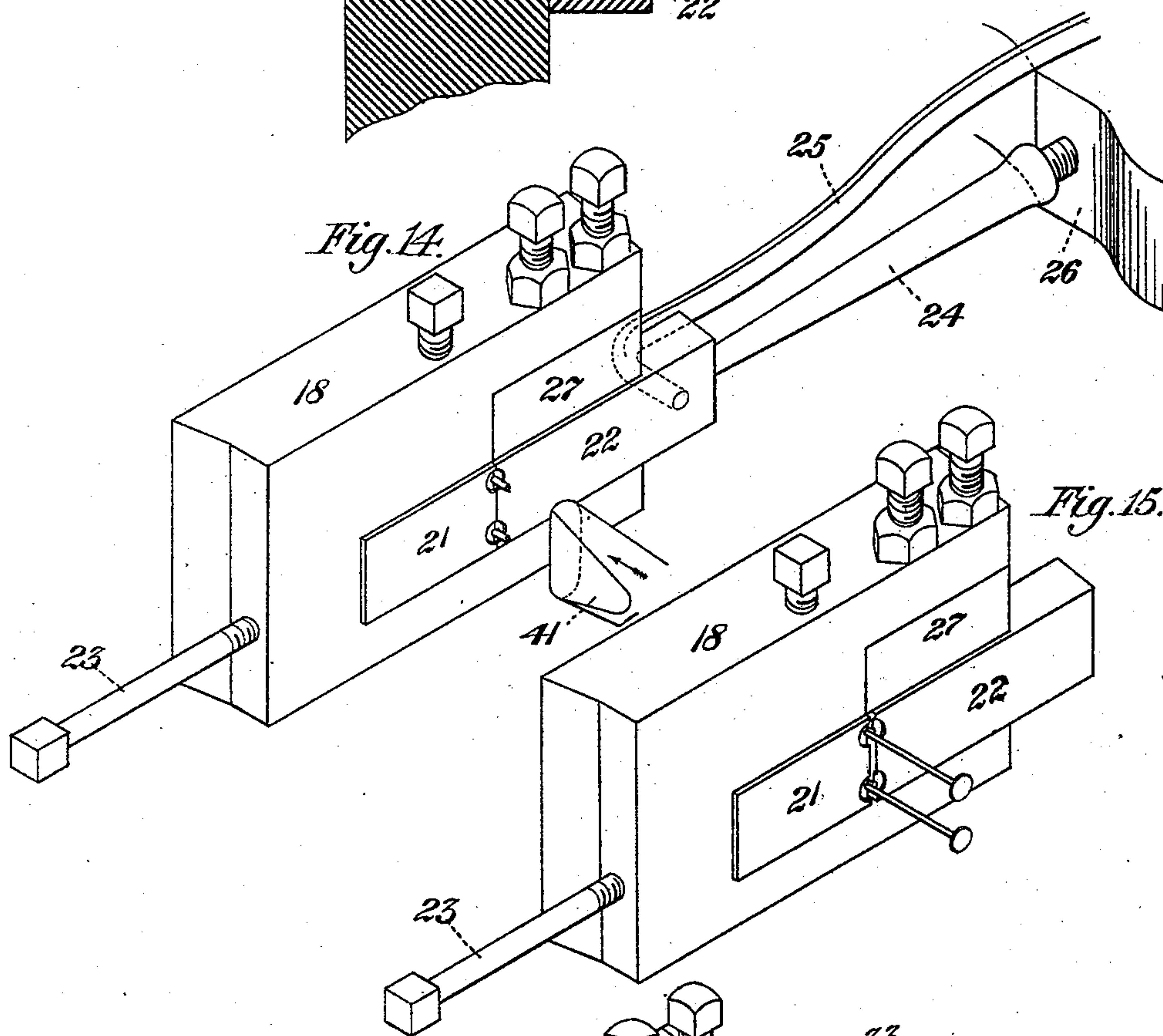
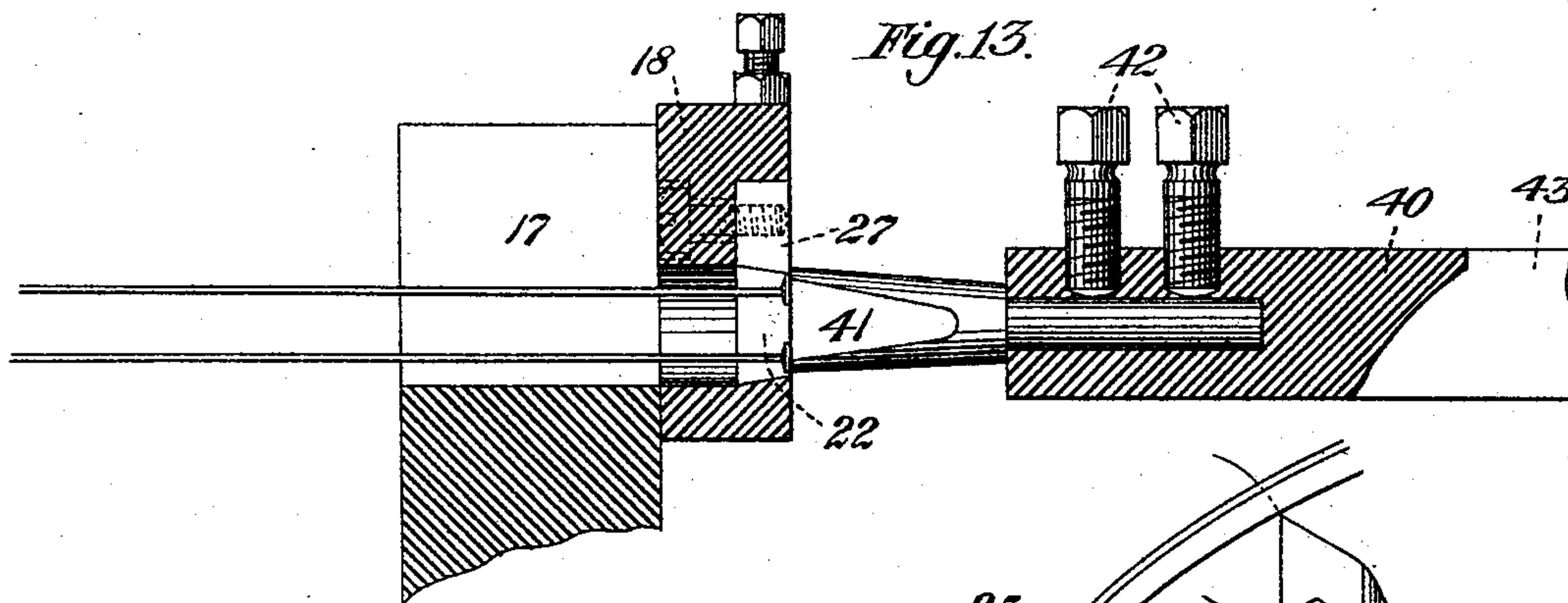
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Patented Feb. 28, 1893.



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UNITED STATES PATENT OFFICE.

JOHN STEVENSON, JR., OF NEW CASTLE, PENNSYLVANIA.

WIRE-NAIL MACHINE.

SPECIFICATION forming part of Letters Patent No. 492,565, dated February 28, 1893.

Application filed July 20, 1891. Serial No. 400,055. (No model.)

To all whom it may concern:

Be it known that I, JOHN STEVENSON, Jr., of New Castle, in the county of Lawrence and State of Pennsylvania, have invented a new and useful Improvement in Wire-Nail Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view of my complete machine with the hammer retracted. Fig. 2 is a similar view with the hammer thrown forward in the act of heading the nails. Fig. 3 is a side elevation; and Fig. 4 is a longitudinal section of the machine. Figs. 5 and 6 are enlarged detailed sectional views of the operative parts. Fig. 7 is a cross-sectional view showing the two cutter heads with their operating levers. Figs. 8 and 9 are cross-sectional views, showing the die-block with the stationary and moving dies therein. Fig. 10 is a top plan view of the feeding device. Fig. 11 is a longitudinal sectional view on the line XI—XI of Fig. 10. Fig. 12 is a cross-sectional view on the line XII—XII of Fig. 10. Fig. 13 is an enlarged sectional view of the die-block and hammer stock; and Figs. 14–16 inclusive are perspective views of the die-block and adjacent parts in the various positions assumed in the working of the machine.

Like symbols of reference indicate like parts in each of the views.

My invention applies to that class of wire nail machines known as the German type, in which the wire is held in a die-block while a hammer strikes its end and upsets the metal into the form of a head, the wire being then fed forward and cut at the proper length to produce the finished nail; and it consists in certain features of construction hereinafter described and set forth in the claims, whereby several nails are manufactured simultaneously.

In the drawings, 2 is the base of the machine upon which rest the bent side uprights 3, which in turn support the frame or table 4, which carries the working parts of the machine. Upon the front end of this table is bolted a slotted post 5, through the slots of which the wires first pass and are then led between the upright grooved rolls 6, which

are provided with as many grooves as there are wires being operated upon. From the rolls the wires pass through the gripping feeder 7. This feeder, as more clearly shown in Figs. 10–12 inclusive, contains two or more series of rolls 8, which are normally pushed forward by the inclined surfaces 9 upon bars 10, which are acted upon by springs 11 surrounding their stems and pushing them inwardly so as to force out the rolls 8. These rolls are guided in their movements by pins 11' which prevent their moving sidewise, and the rolls serve to press the wires against an opposing surface 12, whereby, as the feeder moves toward the die-block, the wire is carried with it, while on the return motion the rollers tending to ride down the inclines roll upon the wires and do not move them. This feeder is reciprocated by a connecting rod 13 eccentrically pivoted upon the wheel 14 and pivotally connected with an arm 14' extending from the feeder-head. This arm is provided with supplemental arms 15 extending at a right angle thereto and moving in guides 16, whereby the straight line movement of the feeder is preserved. The wires next pass through a hole in the casting 17 and thence through holes in the die-block 18 which is dovetailed in such casting, the die-block being laterally adjustable therein by means of a wedge piece 19 at the inner end of a bolt 20, whose nut bears against the casting 17. The die-block is rendered vertically adjustable by a set-screw 18', and, as more clearly shown in Figs. 14 to 16, has dovetailed in its inner face two dies 21 and 22, the one die being adjustable by means of the square-headed screw 23, while the die 22 is reciprocated in one direction by means of the rod 24 which butts against its outer end, and in the opposite direction by the hooked bar 25, both rod 24 and bar 25 being adjustably connected to a cam-actuated lever 26, as shown in Figs. 1 and 2. The forward end of this lever 26 is normally forced outward by a spring 26'.

Adjustable pieces 27 may be provided in the die-block 18 above the dies, whereby they may be vertically adjusted. In the rear of the dies and in close proximity thereto are mounted upon the levers 28 the slotted cutter-heads 29, shown in Fig. 7. Upon the front

faces of these heads are adjustably fastened by bolts 30, the cutter-blocks 31 containing the cutters 32. The cutters 32 are adjustably held in the blocks by vertical screws (not shown) passing through the blocks and bearing upon the upper cutter, while the blocks in turn are adjusted upon the heads by set-screws 33. The levers 28 are pivoted at 34, and upon their lower ends bear springs 35, as shown in Figs. 3 and 4, which springs tend to force the cutter-heads apart. Bearing upon the outer sides of steel pieces inserted in the cutter-blocks are the set-screws 36 carried at the ends of cam-levers 37, shown in Figs. 1 and 2. These cam-levers 37 as well as the lever 26 are pivoted between the bed-plate, and curved arms 38 fastened rigidly to said bed. These arms at their inner ends extend beyond the fastening-bolts 39 and constitute guide-ways in which reciprocates the hammer-stock 40 bearing at its front end the hammer 41, such hammer having a stem adjustably secured in the stock by set-screws 42. The stock is slotted at 43, and in this slot works the cam 44, thereby reciprocating said stock, which back of the slot passes through an aperture in the frame at 45, and is provided at its back end with a head 46 as in Fig. 4. Against this head bears the stout spring 47, which at its bottom portion is bolted to a second spring 48, a block 49 being inserted between to hold them apart. Against the upper end of the spring 48 bears a screw 49' operated by the handle 50 and held in its adjusted position by locking nut 51, and by this screw the pressure of the spring may be varied.

Pivoted to the frame at 52' is an ejector 52 in the form of a bell-crank lever, the arm beyond the pivot being provided with a spring 53 by which the ejector is held normally in an elevated position, while the upper end terminates in a forwardly and upwardly curved lip 54. A single shaft 55 carries all the cams which actuate the various levers and also bears the wheel 14, upon which is pivoted the connecting-rod 13, this shaft being provided with fast and loose pulleys 56 and 57 as usual.

The action is as follows:—The parts being in the position of Fig. 2, and the shaft 55 being rotated, an abrupt rise on the cam 44 throws back the hammer against the pressure of the spring 47. At the same time, by the action of the connecting-rod 13, the wires are fed forward through the die-block, the cut-

ters and die 22 being retracted. The cam-levers 26 and 37 are then actuated to close, first, the die 22 thus clamping the wires, and then, the cutters 32 which cut the wires into a point. A further rotation of the shaft withdraws the cutters, their cam-levers riding down the inclines on the cams, while the lever 26 and hammer stock remain stationary, their cams having a portion concentric with the shaft. The end of the cam 44 is then reached and the spring throws the released hammer-stock forward, and the hammer first striking the ejector forces the same against the cut nails, which may be held by projecting fins, and breaks them off and then heads the wires which project through the holes in the die-blocks. The above movements occur in one rotation of the shaft, two or more nails being thus produced simultaneously.

The advantages of my machine lie in its simplicity and the small number of parts, it being hardly more complex than machines wherein a single nail is produced at each rotation. The parts are all arranged to have a nice adjustment relative to each other, and by reason of the hammer actuating the ejector, the machine may be worked much faster than ordinary machines, thus greatly increasing the product.

Many changes may be made in the form and construction of the various parts of my invention without departure therefrom, for

What I claim is—

1. A cutting mechanism for wire-nail machines, comprising a cutter-head, a recessed cutter-block adjustably fastened thereto, a series of cutters located in the recess of the cutter-block, and set-screws bearing against one side of the uppermost cutter and holding the series in position; substantially as and for the purposes described.

2. In a nail-machine, having a die-block and a hammer, an ejector consisting of a bell-crank-lever pivoted beneath the hammer, a spring attached to the lower arm of said lever, and a forwardly-extending lip upon the upper arm, said lip being in the path of motion of the hammer; substantially as described.

In testimony whereof I have hereunto set my hand this 16th day of July, A. D. 1891.

JOHN STEVENSON, JR.

Witnesses:

W. B. CORWIN,
C. BYRNES.