

T. H. SEELY.
 PINCER OR GRIPPER MECHANISM FOR LASTING MACHINES.
 APPLICATION FILED AUG. 31, 1908. RENEWED APR. 4, 1910.

958,187.

Patented May 17, 1910.

2 SHEETS—SHEET 1.

FIG. 1.

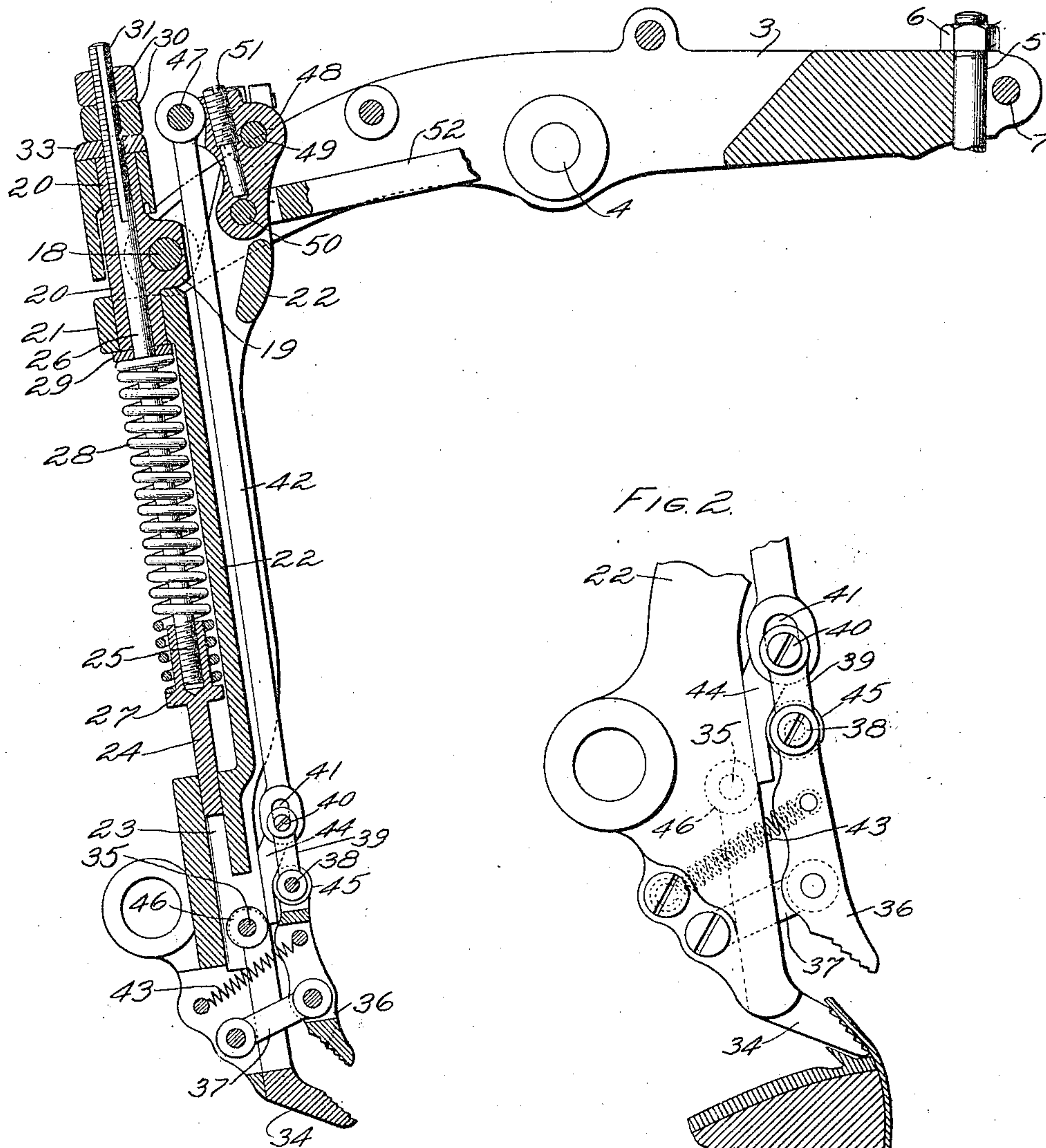
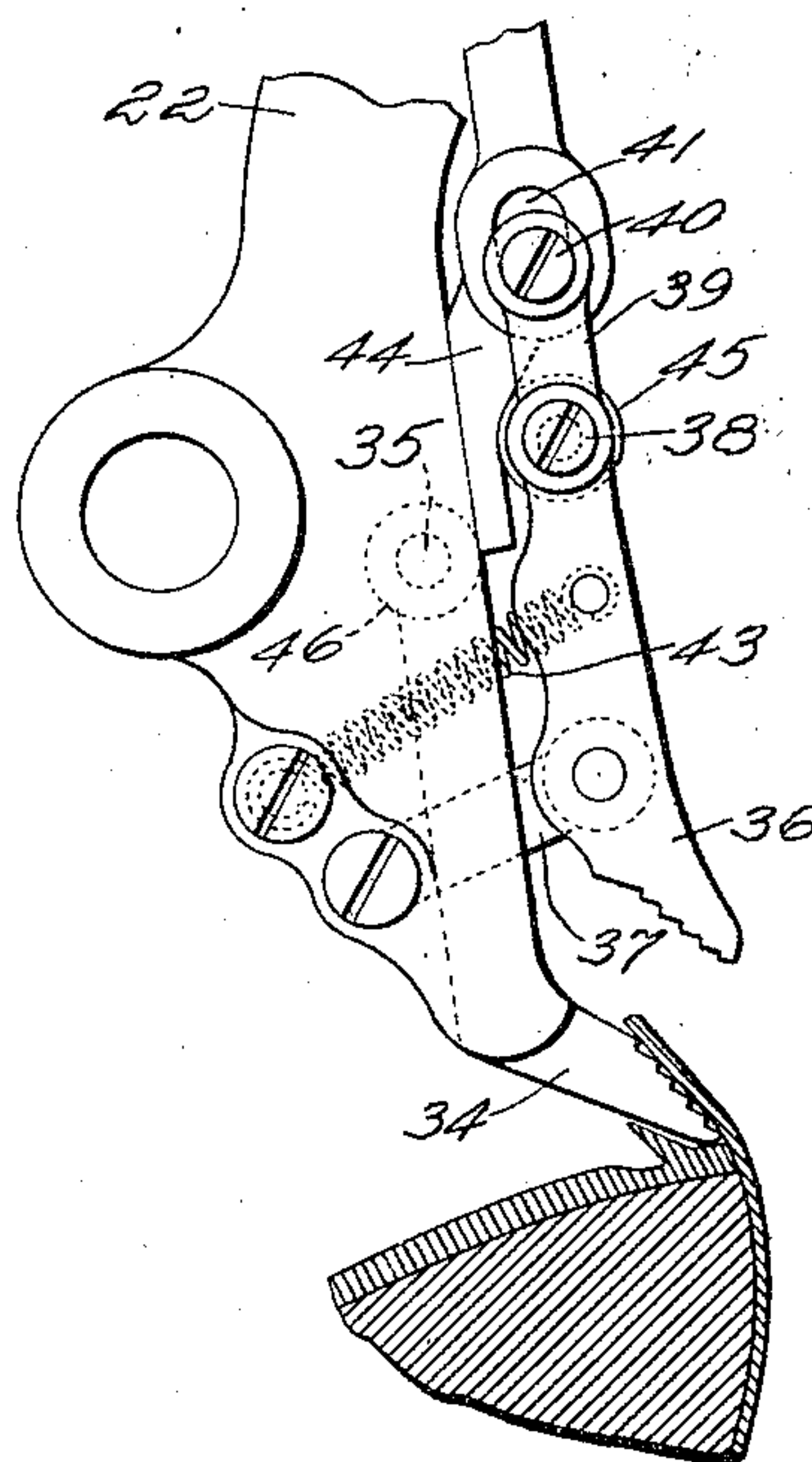


FIG. 2.



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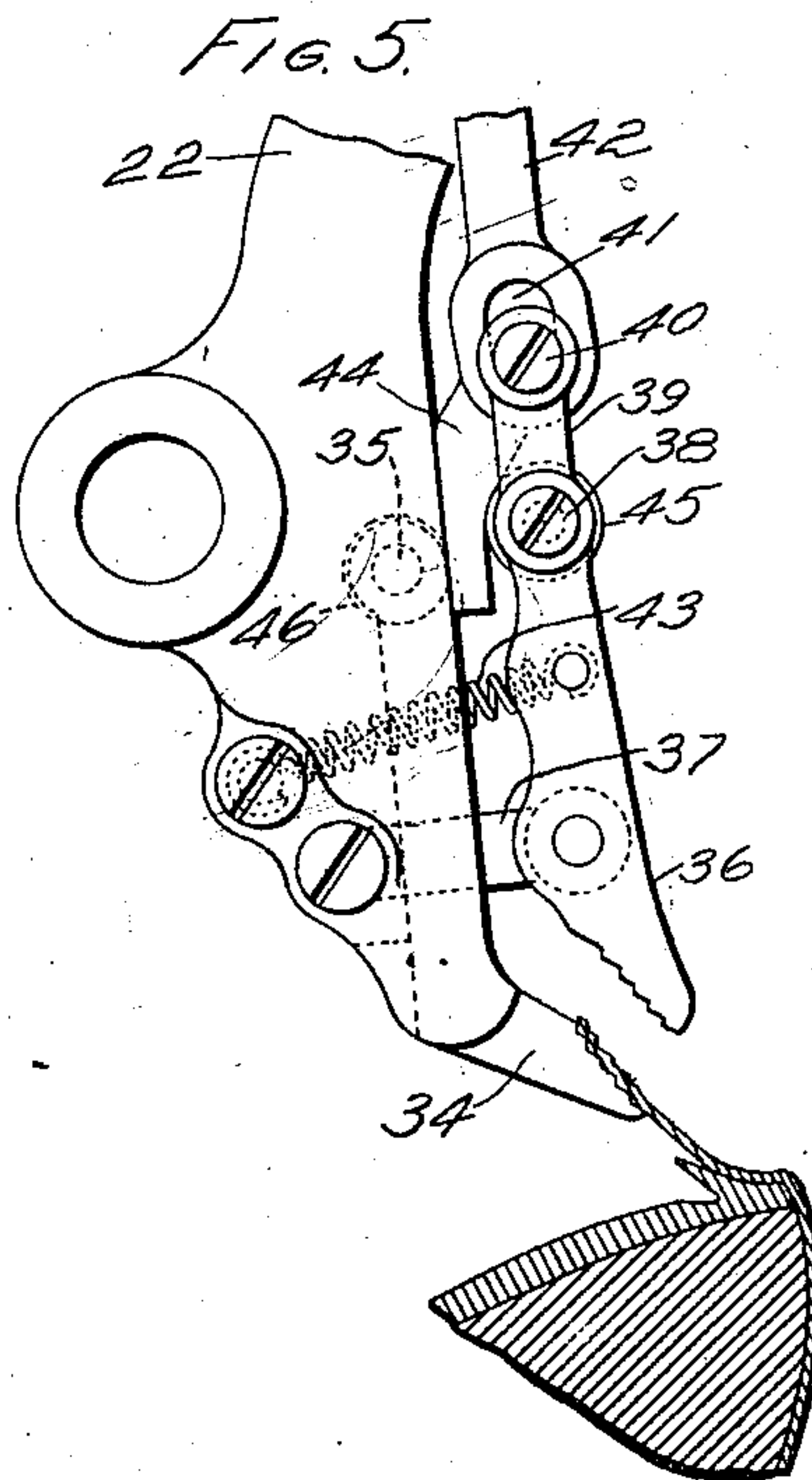
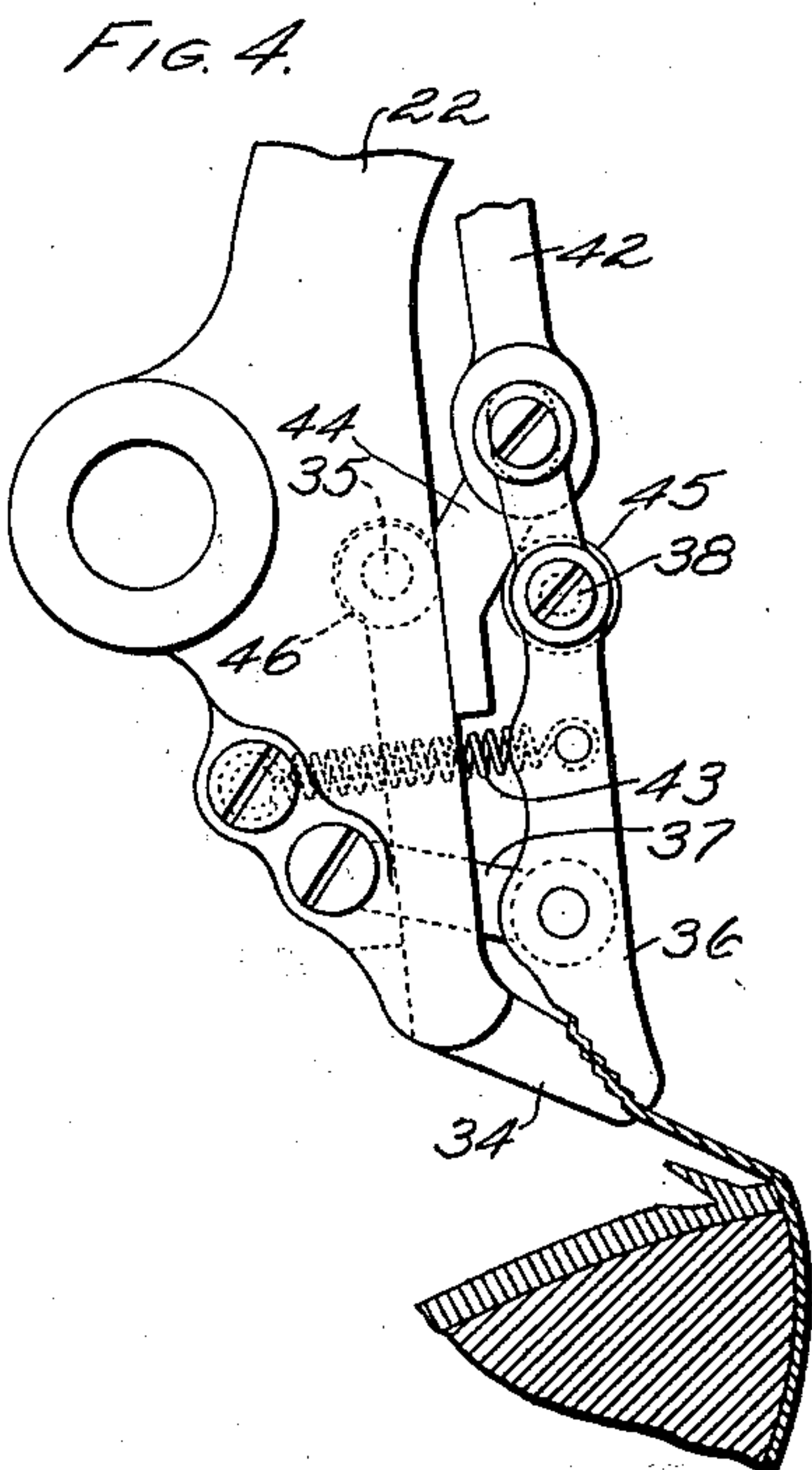
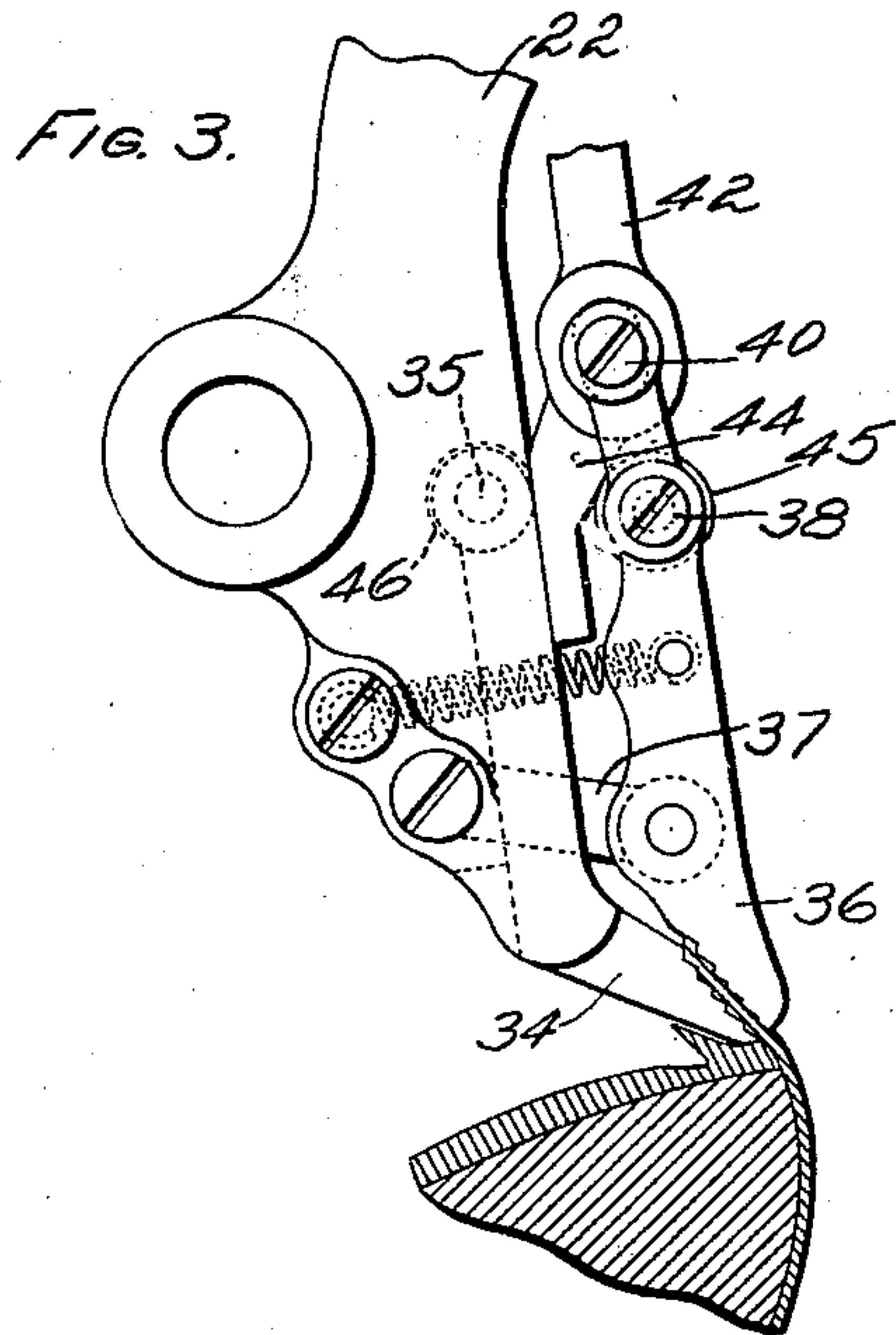
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UNITED STATES PATENT OFFICE.

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TO THOMAS G. PLANT, OF BOSTON, MASSACHUSETTS.

PINCER OR GRIPPER MECHANISM FOR LASTING-MACHINES.

958,187.

Specification of Letters Patent.

Patented May 17, 1910.

Original application filed March 12, 1907, Serial No. 362,016. Divided and this application filed August 31, 1908, Serial No. 450,941. Renewed April 4, 1910. Serial No. 553,294.

To all whom it may concern:

Be it known that I, THOMAS H. SEELY, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Pincer or Gripper Mechanisms for Lasting-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

The invention to be hereinafter described relates to gripper or pincer mechanism for use in lasting boots and shoes, such devices being adapted to draw the materials that are to be lasted into desired position where they are tacked or otherwise secured.

The present invention aims to improve and simplify the construction of said mechanism and is a division of a prior application filed by applicant March 12, 1907, for lasting machines, Serial No. 362,016.

In the accompanying drawings, Figure 1 is a sectional elevation of the pincer or gripper mechanism, and so much of the adjunctive devices as are necessary to make clear the construction and operation thereof; Fig. 2 is a detached detail or elevation of the pincer jaws and their associated parts, showing such jaws in their open position and about to be closed upon the materials to be drawn about the last; Fig. 3 is a like detail view of the pincer jaws showing the jaws closed upon the material; Fig. 4 is a similar view to that of Fig. 3 showing the jaws as having pulled the material about the last; and Fig. 5 is a view similar to Fig. 4, showing the jaws as separated to release the material.

In the particular form of the invention herein illustrated, the lasting pincers or grippers depend from an overhead up-draw lever, fulcrumed upon the frame of the machine and suitably actuated to cause it to have an up and down movement to thereby accomplish the designed results.

Referring to Fig. 1 of the drawing, the up-draw lever 3 is pivoted upon a suitable supporting frame, not shown, at 4. This up-draw lever, at its rear end, receives the shank of an eye-bolt 5, hung at its upper end upon a nut 6, seated upon the said lever, and by which its position and effective length may be adjusted as desired, said eye-

bolt being held clamped in adjusted position by a clamp screw 7 extended transversely through the split rear end of said lever. The eye-bolt 5 extends downward from the lever 3 and may be connected to suitable means for giving the required movement to the up-draw lever, as will be readily understood by those skilled in the art.

Referring to Fig. 1, the up-draw lever 3 is provided near its end opposite the eye-bolt 5 with a transverse pin 18. This pin passes loosely through a hub 19 of an upright tubular guide 20, which projects both upward and downward from said hub. The lower end of said tubular guide receives about it a boss 21, on the upper end of the depending pincer or gripper carrier 22. This depending pincer or gripper carrier is provided near its lower end with a tubular guide way 23 which receives the guiding extension 24 of, and separably connected at 25 to, the hanger rod 26, which rises through the tubular guide 20 referred to. At its lower end the said hanger rod extension is provided with a shoulder 27, upon which is seated an up-draw spring 28 which encircles the said hanger rod, and, at its upper end, supports a washer 29 that in turn supports the pincer or gripper carrier 22. The hanger rod 26 is threaded at its upper end to receive the supporting nuts 30, by which said rod may be raised or lowered to increase or diminish the tension of or upon the spring 28. To restrain the hanger rod from rotation during such adjustment, said rod is grooved longitudinally at 31 to receive a spline on a washer 33 non-rotatably seated upon the upper end of said tubular bearing 20. The spring 28 thus furnishes a yielding support for the pincer or gripper carrier 22 whereby oscillation of the up-draw lever 3 to lift its forward end, at the left Fig. 1, will, through the tubular guide 20, lift the said hanger rod 26, and this rod in turn, through the interposition of the spring 28, will also, but yieldingly, lift the pincer carrier and its pincers or grippers. At its lower end, the pincer or gripper carrier 22 is bifurcated to receive the shank of the lower pincer jaw 34, the said shank being itself bifurcated and further secured to and between the arms of said carrier by a transverse pin 35.

The movable pincer or gripper jaw is in-

indicated at 36, the same being mounted near its lower end upon a link 37 jointed thereto and to the pincer or gripper carrier 22, said link extending between the arms of the bifurcated shank of the fixed pincer jaw, as clearly shown by the drawings. At its upper end, said movable pincer or gripper jaw 36 is provided with a transverse pin 38 to which are jointed the lower ends of a pair of links 39, the upper ends of which support between them a transverse pin 40, preferably provided with a sleeve (not shown) extending through a slot 41, in the lower end of the pincer or gripper closing rod 42. It is evident that vertical reciprocation of this closing rod will cause the movable pincer or gripper jaw 36 to be swung toward and from its cooperating fixed jaw 34, the link 37 bringing the two jaws together as the said rod is depressed and separating them as the said rod is elevated. The movable jaw is acted upon by a spring 43, connected with the pincer or gripper carrier, which draws the upper end of the movable jaw normally inward or to the left, as indicated in the drawings, thereby insuring a predetermined path of movement to the lower engaging end of said movable jaw.

While the devices, as hereinbefore described may be relied upon to produce an approximate closing of the jaws, it is desirable to provide means for imparting a firmer closing movement to the jaws than would be possible by a reliance solely upon such devices. To this end, the lower end of the pincer or closing rod 42 is provided with a cam extension 44, which reaches down between the upper end of the movable jaw and the adjacent face of the pincer carrier. The upper end of the movable jaw is bifurcated, as described, to receive an anti-friction roller 45, which travels upon the face of said cam extension, the latter at its opposite or front side being supported by a roller 46, loosely mounted between the arms of the bifurcated shank of the fixed pincer jaw 34 and upon the transverse pin 35, by which said arms are hung from the pincer carrier. Owing to the bearing contact between the roller 45 and the incline on the wedge 44, the spring 43 will tend to normally move the jaw 36 downward to the extent permitted by the slot 41, but not sufficiently to cause the closure of the jaws, said spring acting at such times to hold the jaws normally open. If the pincer or gripper closing rod 42 be depressed, it will cause the downward movement of the movable jaw 36 and, by virtue of the link 37, a closure movement of said jaw upon the fixed jaw 34. When the movable jaw meets and is arrested by any substance or materials inserted between it and the opposing jaw, continued or further depression of the closing rod 42 will cause its cam extension 44 to be projected between the

roller-carrying-upper-end of the movable jaw and the opposing roller 46 on the pincer carrier (as indicated in Figs. 3 and 4) to serve as a wedge to force the upper end of the movable jaw positively inward or to the right (Figs. 3 and 4), thereby jamming the lower engaging end of the movable jaw firmly upon the materials held between it and the opposing fixed jaw. The mechanism thus permits a speedy approximate closing movement to the jaws, followed by a wedging and powerful final closing movement.

Referring to Fig. 1 of the drawing, the pincer closing rod 42 has its upper end jointed to a pin 47 carried in the forked end of the horizontal arm of a bell crank lever 48 fulcrumed at 49 upon a transverse pin carried in the split and clamped upper ends of two supporting arms rising from and constituting parts of the pincer carrier 22. The depending arm of the bell-crank 48 carries a transverse pin 50, clamped therein by a screw 51, the laterally projecting ends of said pin being loosely jointed to the front end of a link 52, extending rearwardly as shown. Obviously, longitudinal reciprocation of this link 52 by suitable means will rock the bell-crank 48 and cause vertical reciprocation of the pincer closing rod 42 and consequent opening and closing movement of the movable pincer jaw 36 with reference to the fixed jaw 34.

From the above described construction the characteristic operation of the pincer or gripper jaws in their opening and closing movements will be sufficiently clear to those skilled in the art, it being noted that the described and shown details of structure constitute only one of the many forms the invention may assume, said invention being definitely defined in the claims hereunto attached.

Claims:

1. A lasting machine comprising pincer jaws one of which is movable and hung by a link to the other, and a wedging pusher for the movable jaw to move the latter first without and then with and by wedging action.

2. A lasting machine comprising pincers, including fixed and movable jaws, a roller on each, a jaw closing rod having a wedge adapted for entrance between said rollers and connection between said rod and said movable jaw, and independent of said wedge, for imparting closing movement thereto.

3. In a lasting machine, the combination of two pincer jaws, connections between said jaws whereby they are relatively movable, a wedge for closing said jaws, and a rod connected to said jaws independent of the wedge to move them simultaneously when they are closed.

4. In a lasting machine, the combination

of two pincer jaws, connections between said jaws whereby they are relatively movable, a wedge movable with respect to each of said jaws for closing said jaws, and a rod connected to said jaws independent of the wedge to move them simultaneously when they are closed.

5. In a lasting machine, the combination of two pincer jaws, connections between said jaws to permit them to open and close, a

wedge movable with relation to both of said jaws to close the same, and means to move the jaws when closed by the wedge.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

THOMAS H. SEELY.

Witnesses:

CHAS. W. GEER,
ARTHUR W. CALVER.