

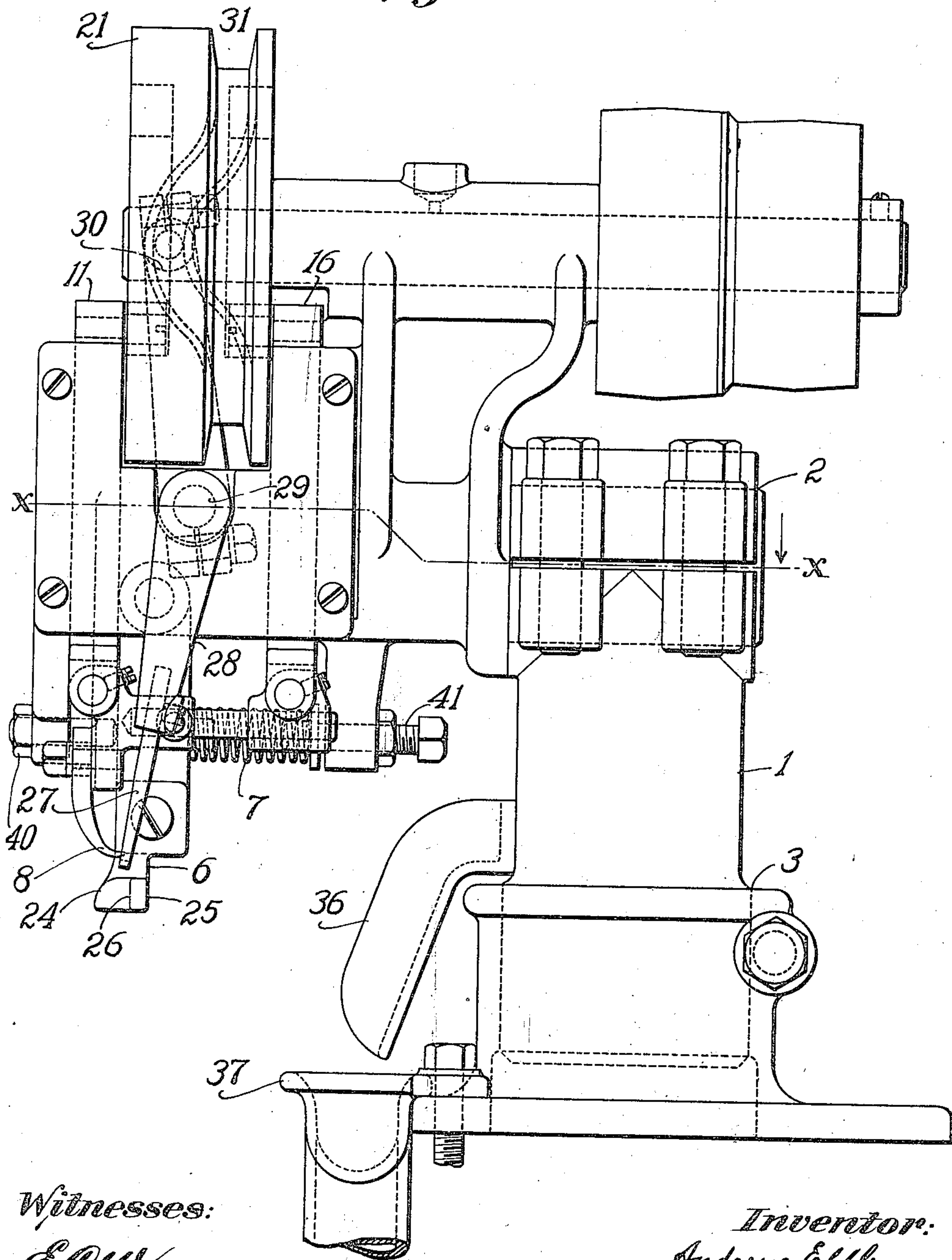
960,294.

A. EPPLER.
TACK PULLING MACHINE.
APPLICATION FILED JUNE 24, 1907.

Patented June 7, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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A. C. Richardson.

Inventor:

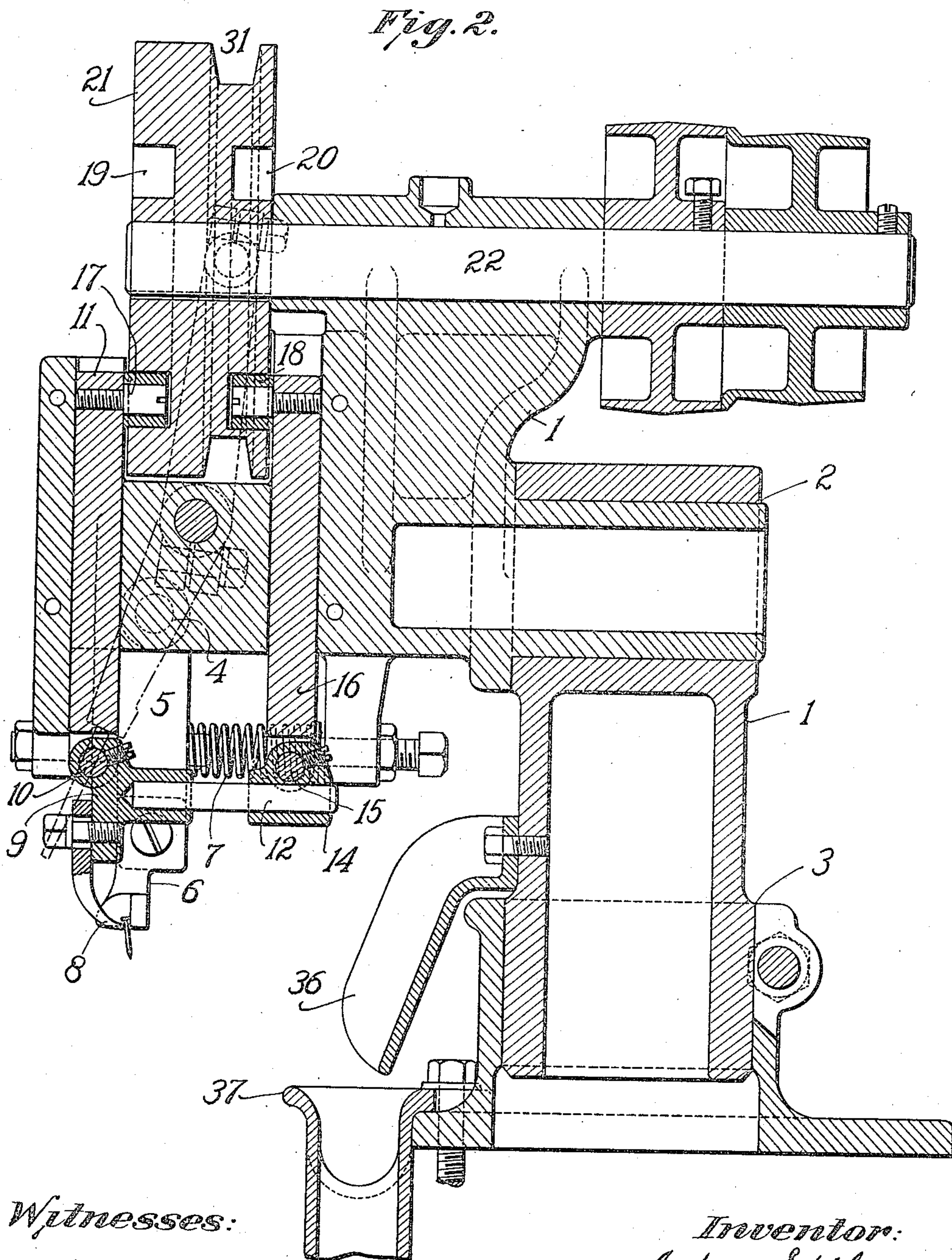
Andrew Eppler
by his Attorneys
Phillips Van Coven & Fish

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3 SHEETS—SHEET 3.

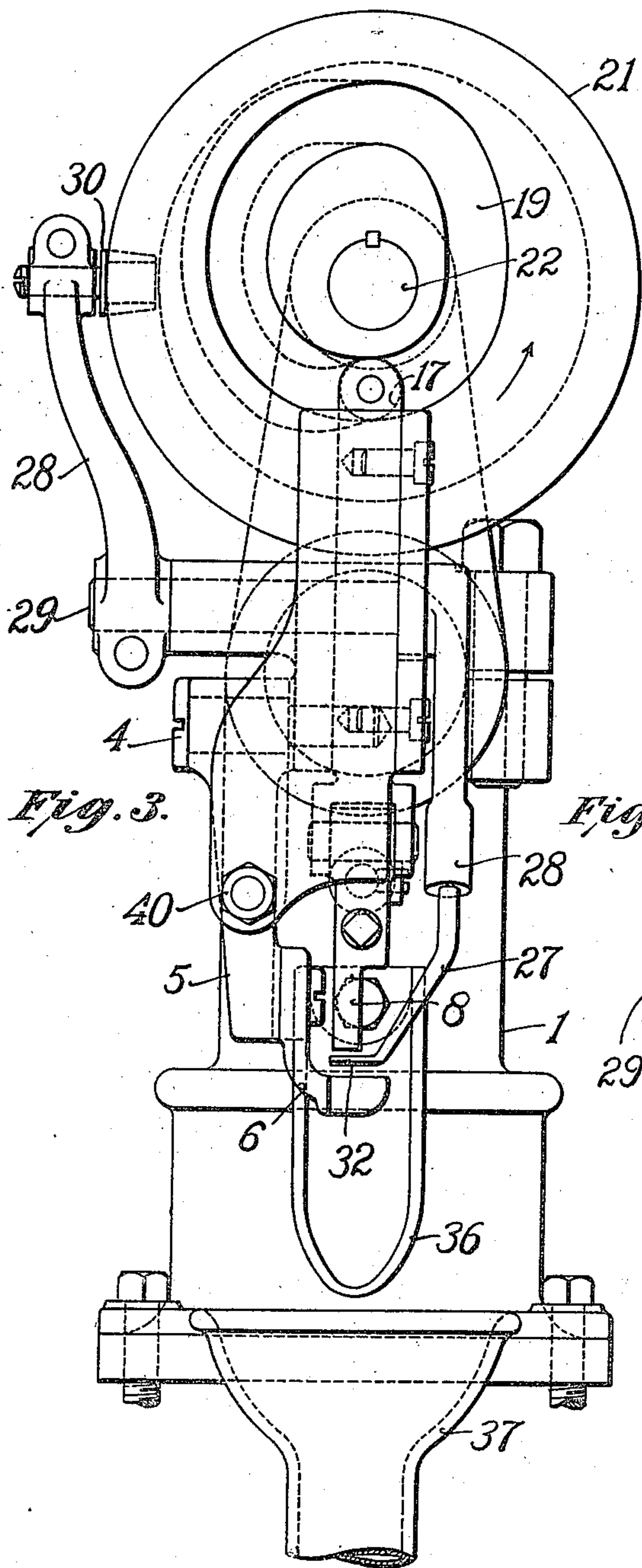
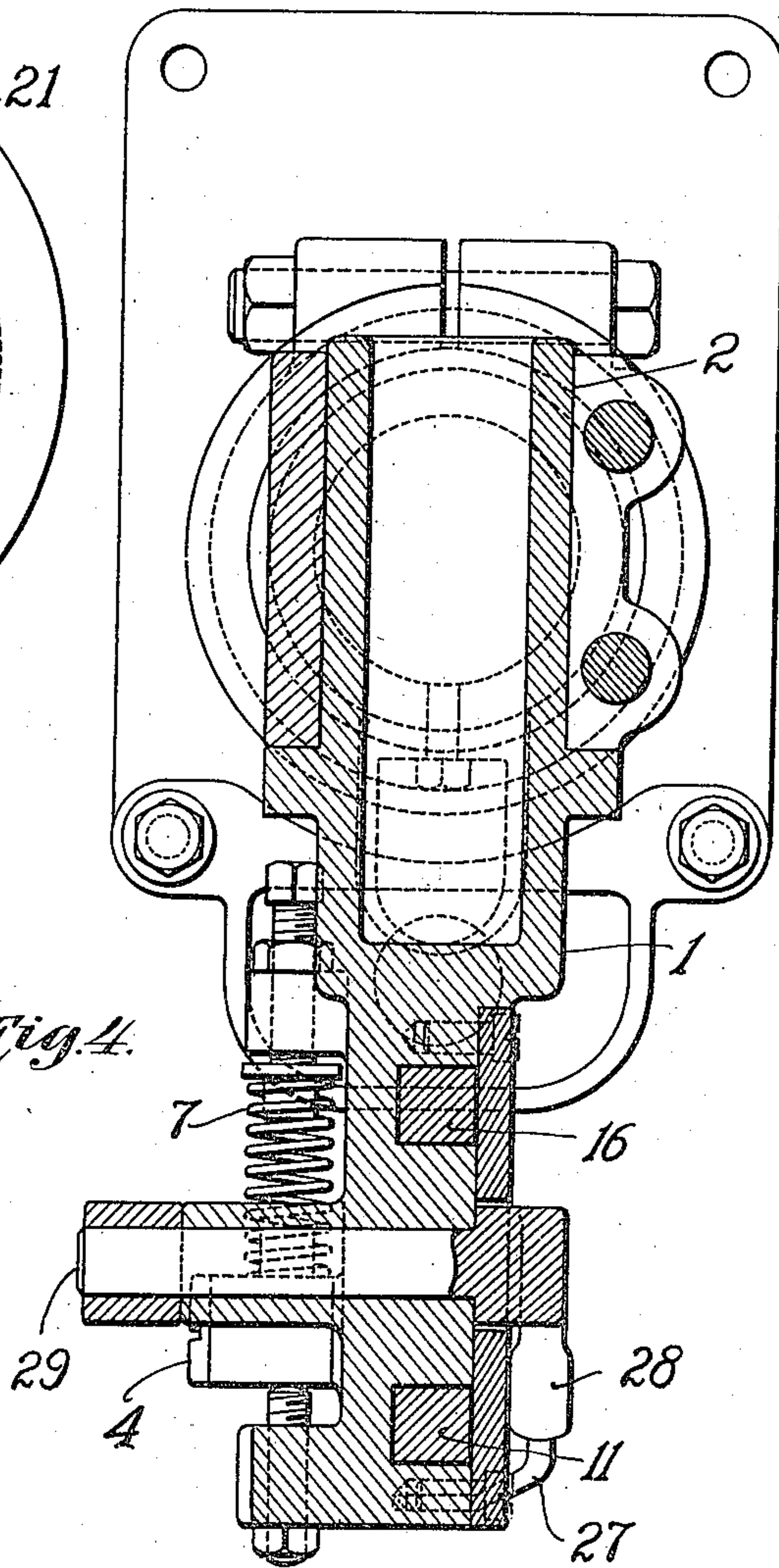


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

ANDREW EPPLER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TACK-PULLING MACHINE.

960,294.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed June 24, 1907. Serial No. 380,390.

To all whom it may concern:

Be it known that I, ANDREW EPPLER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Tack-Pulling Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to machines for pulling lasting tacks from a lasted boot or shoe preparatory to sewing, and has for its object to simplify the construction of this class of machines, and render them more certain and accurate in operation and less liable to breakage of parts, particularly of the tack pulling mechanism proper.

Like machines of the prior art the machine herein disclosed involves, generally speaking, cooperating jaws for pulling the tacks, and an ejector which removes the pulled tack from the tack pulling jaw and discharges it into a suitably placed hopper, the present invention being directed to improvements in the construction and arrangement of the tack pulling jaws whereby the tack is seized with a yielding grip and breakage of the jaws due to inequality in the diameters of tacks obviated, another preferable feature of such construction and arrangement being that the tack is given a substantially vertical pull, or pull substantially at right angles to the line of tacks, whereby the objectionable tendency of tacks to wedge between the pulling jaws is remedied.

The present invention is also directed to the ejector and its correlation to the tack pulling jaws, whereby the ejector is enabled to act upon a pulled tack close to the point at which it is being pulled, and to discharge it in a direction transverse to the line of tacks, a feature of great importance when it is desired to collect the tacks in a hopper or other receptacle.

The present invention also contemplates improvements in the actuating mechanism

of the movable tack pulling jaw and in the construction, organization and mode of operation of other features of the machine, the advantages of which will be obvious to those skilled in the art, and which will be hereinafter more fully pointed out in this specification and defined in the claims.

The accompanying drawings illustrate a preferred embodiment of the several features of the present invention, Figure 1 being a side elevation, Fig. 2 a longitudinal vertical section, Fig. 3 an end elevation looking toward the front of the machine, Fig. 4 a sectional view taken on line $x-x$, Fig. 1.

Similar reference numerals indicate like parts throughout the several views.

In the drawing 1 represents the frame of the machine, which may be of any suitable construction, being conveniently arranged for angular adjustment by means of the rotatable connection 2, and for vertical adjustment by means of the vertically sliding connection 3. Pivoted at 4 to a fixed part of the frame 1 is a vertical swinging lever 5, which carries at its lower end the tack pulling jaw 6. A suitably arranged spring 7 normally tends to press the lever 5 toward the front of the machine, its forward movement being limited by a suitably placed stop 40 in frame 1. The tensions of the spring 7 may be adjusted by means of the bolt 41.

The above described arrangement is such that the tack pulling jaw 6 while having no substantial vertical movement, so that it acts as a vertically fixed abutment to hold the work while the tack is being pulled, is free to yield horizontally and transversely to the line of tacks so that the grip of the tack pulling jaws upon the tacks is a yielding one, controlled by the tension of spring 7, and the liability of breakage of the jaws is obviated. The other tack pulling jaw 8 is mounted upon one arm of an angle lever 9 pivoted at 10 on a slide 11, free to reciprocate vertically in suitable ways in the frame 1; the other arm of the angle lever 9 is in the form of a sleeve or socket in which plays a rod 12 secured in a sleeve 14, pivoted at 15, on a slide 16 also free to reciprocate ver-

tically in suitable ways in frame 1. The slides 11 and 16 carry respectively the cam rolls 17 and 18 which engage respectively with the cam grooves 19 and 20 in the disk 21 which is mounted upon and driven by the main shaft 22 of the machine. The vertical movement of the slide 11 raises and lowers the pivot 10 upon which the lever 9 is mounted, and the vertical movement of the slide 16, through the sleeve 14 and rod 12, impart to the lever 9 a rocking movement about the pivot 10. The cam grooves 19 and 20 are so timed with relation to each other that the conjoint movement of the slides 11 and 16 imparts to the jaw 8 a downward movement and then a substantially horizontal movement until the tack to be pulled is firmly engaged between the jaws 8 and 6, at which time the jaw 8 is given a substantially vertical movement away from the shoe to effect the pulling of the tack. It will be noted in this connection that the bottom of jaw 6 is substantially L-shaped, having a part 24, extending across the line of tacks, and acting to hold down the shoe at both sides of such line, and a part 25 extending parallel with the line of tacks, and having a substantially vertical face 26 adjacent to said line and extended above the heads of the tacks. The arrangement is such that the jaw 8 seizes a tack just below its head, pressing the tack against the vertical face 26 of the jaw 6, and the vertical movement of the jaw 8 then occurring, the tack is drawn by a vertical pull and without any danger of the tack becoming wedged between the jaws 8 and 6.

The construction and arrangement of the ejector and its correlation to the jaws 8 and 6 will now be described.

The ejector 27 is mounted upon a lever 28, pivoted at 29 on the frame 1. The lever 28 carries at its upper end a cam roll 30 taking into a cam groove 31 in the disk 21, the rotation of the disk 21 thereby imparting an oscillating movement to the ejector 27. The relation of the above described movement of the ejector to that of the jaw 8 is such that after the jaw 8 has been moved vertically to bring the head of a tack above the vertical space 26 of the jaw 6, the horizontal toe 32 (see Fig. 3) of the ejector 27 engages the tack between said jaws and discharges it in a direction transverse to the line of tacks, the toe 32 of the ejector passing just beneath the jaw 8 and above the jaw 6 and engaging the tack close to the point in the shoe from which it was drawn. After the tacks have been discharged from the jaws by the ejector they strike a deflector 36 and thence fall into the hopper 37, both of which are secured to the frame of the machine.

The nature and scope of the present invention having been indicated and a ma-

chine embodying the several features of the invention in their preferred form having been specifically described, what is claimed is:

1. A tack pulling machine, having, in combination, a tack pulling jaw, a jaw cooperating therewith, mechanism acting independently of the tacks for relatively actuating the jaws to engage and pull a tack and yielding means to permit the jaws to accommodate themselves to tacks of different diameters.

2. A tack pulling machine, having, in combination, a tack pulling jaw, a yieldingly mounted jaw cooperating therewith to pull the tacks from the shoe, and mechanism for relatively actuating the jaws.

3. A tack pulling machine, having, in combination, a tack pulling jaw, a laterally movable spring controlled jaw cooperating therewith, and mechanism for actuating the tack pulling jaw to grip a tack between the jaws.

4. A tack pulling machine, having, in combination, a jaw provided with a vertical face extending parallel to the line of tacks, a tack pulling jaw vertically movable with relation to said first mentioned jaw and means to actuate the tack pulling jaw.

5. A tack pulling machine, having, in combination, a tack pulling jaw operating transversely to the line of tacks and a jaw cooperating therewith substantially L-shaped at the bottom, having a part extended across and a part extended along the line of tacks.

6. A tack pulling machine, having, in combination, a pair of relatively vertically movable tack pulling jaws and an ejector acting to engage the tack above one jaw and below the other.

7. A tack pulling machine, having, in combination, a tack pulling jaw, a jaw cooperating therewith, and an ejector movable transversely to the direction in which tacks are fed to said jaws and engaging a tack in close proximity to the point in the shoe from which it was pulled.

8. A tack pulling machine, having, in combination, a tack pulling jaw, a jaw cooperating therewith, and an ejector movable transversely to the line of tacks between said jaws to engage a tack.

9. A tack pulling machine, having, in combination, tack pulling mechanism comprising a tack pulling jaw, and mechanism for actuating said jaw consisting of a pair of reciprocating slides, upon one of which the tack pulling jaw is pivotally mounted, and to the other of which said jaw is connected by rocking and sliding connections, and means to actuate the slides.

10. A tack pulling machine, having, in combination, a tack supporting jaw, a tack pulling jaw vertically movable with relation

thereto and means for causing the jaws to yieldingly engage a tack and thereby accommodate themselves to tacks of different diameters.

and a tack pulling jaw vertically movable with relation thereto.

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

10

ANDREW EPPLER.

Witnesses:

FRED O. FISH,

BENJAMIN PHILLIPS.

5 11. A tack pulling machine, having, in combination, a tack supporting jaw yieldingly mounted to move laterally and accommodate itself to tacks of different diameters