

W. A. DAWES.
MACHINE FOR PERFORATING LEATHER.
APPLICATION FILED NOV. 30, 1908.

934,292.

Patented Sept. 14, 1909.

2 SHEETS—SHEET 1.

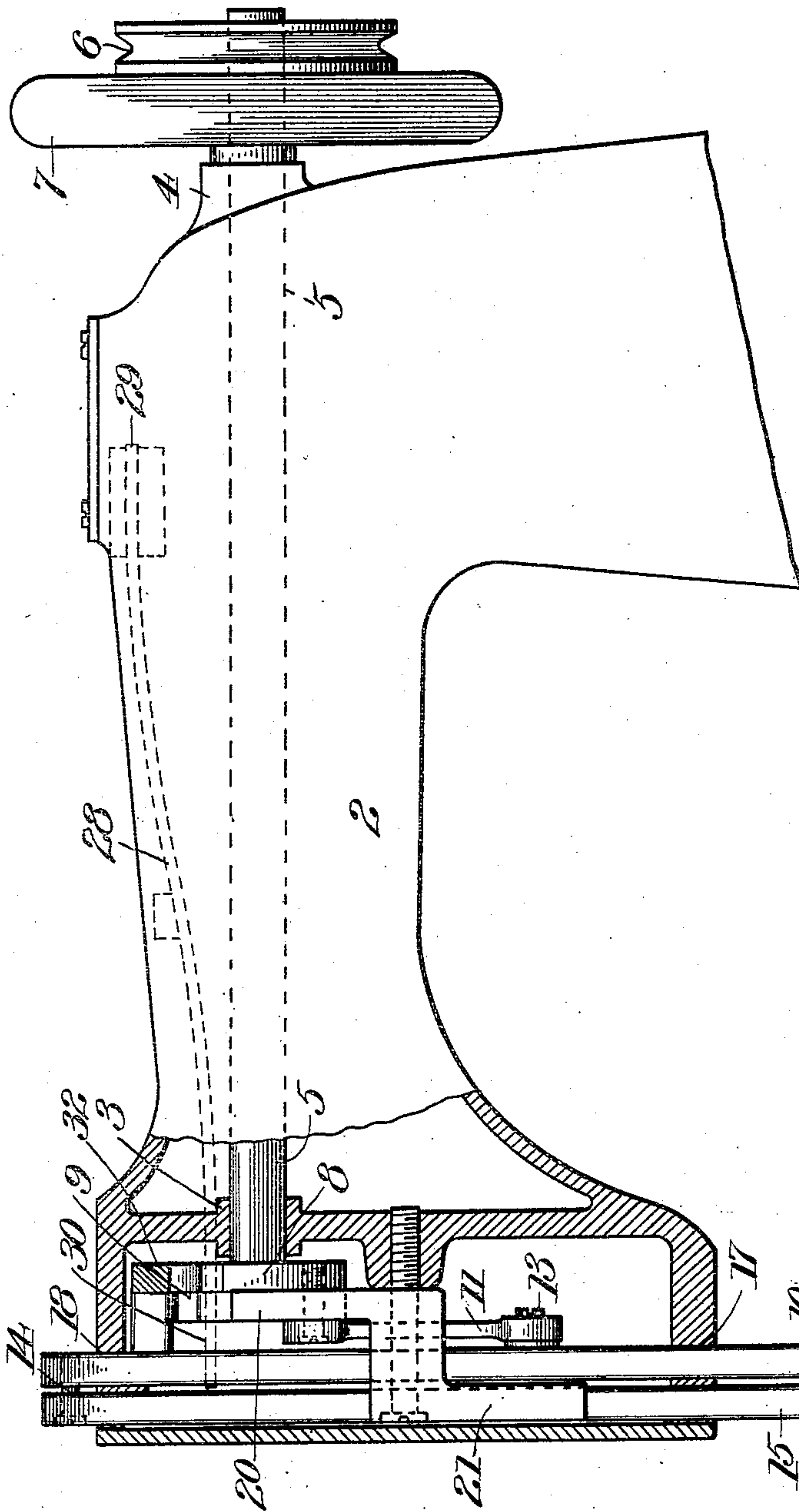
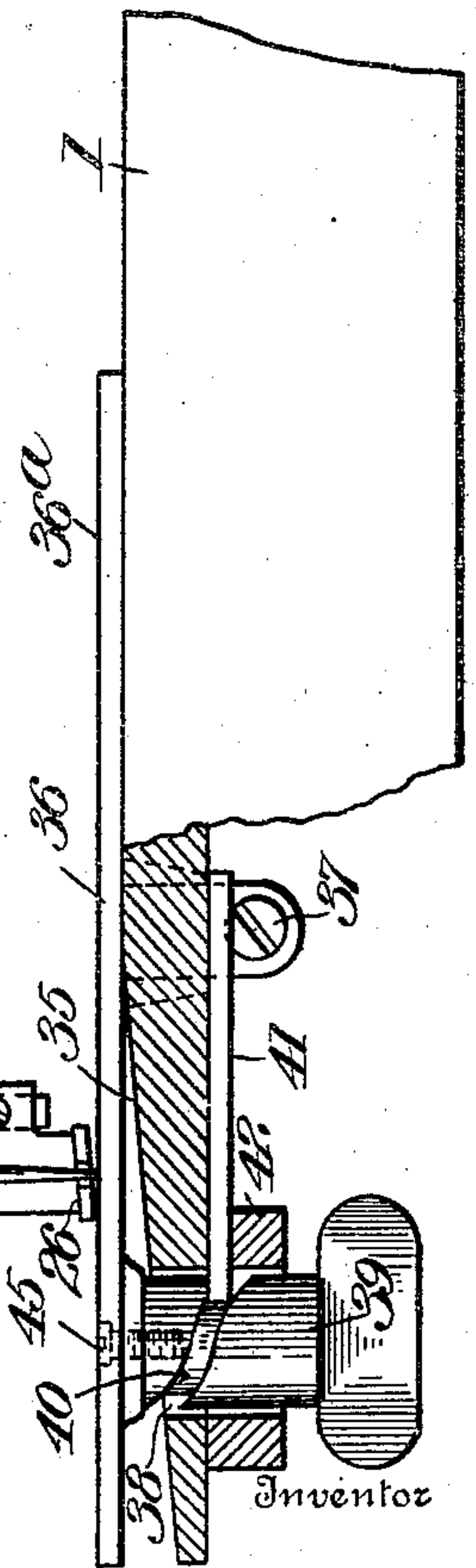
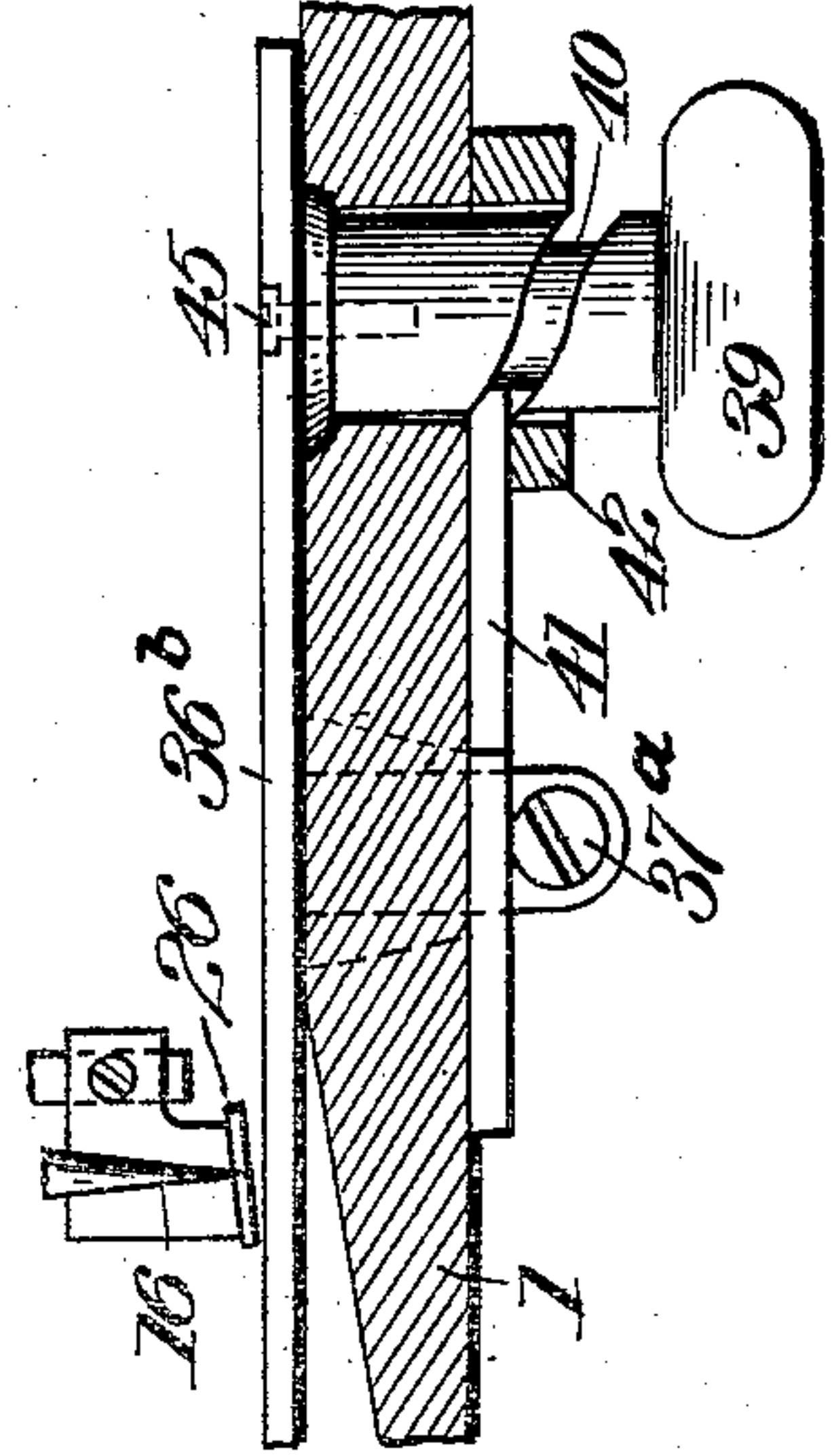


Fig. 1.

Fig. 8.



Witnesses

C. M. Walker
B. F. Funk

William A. Dawes

By

Knight Bros

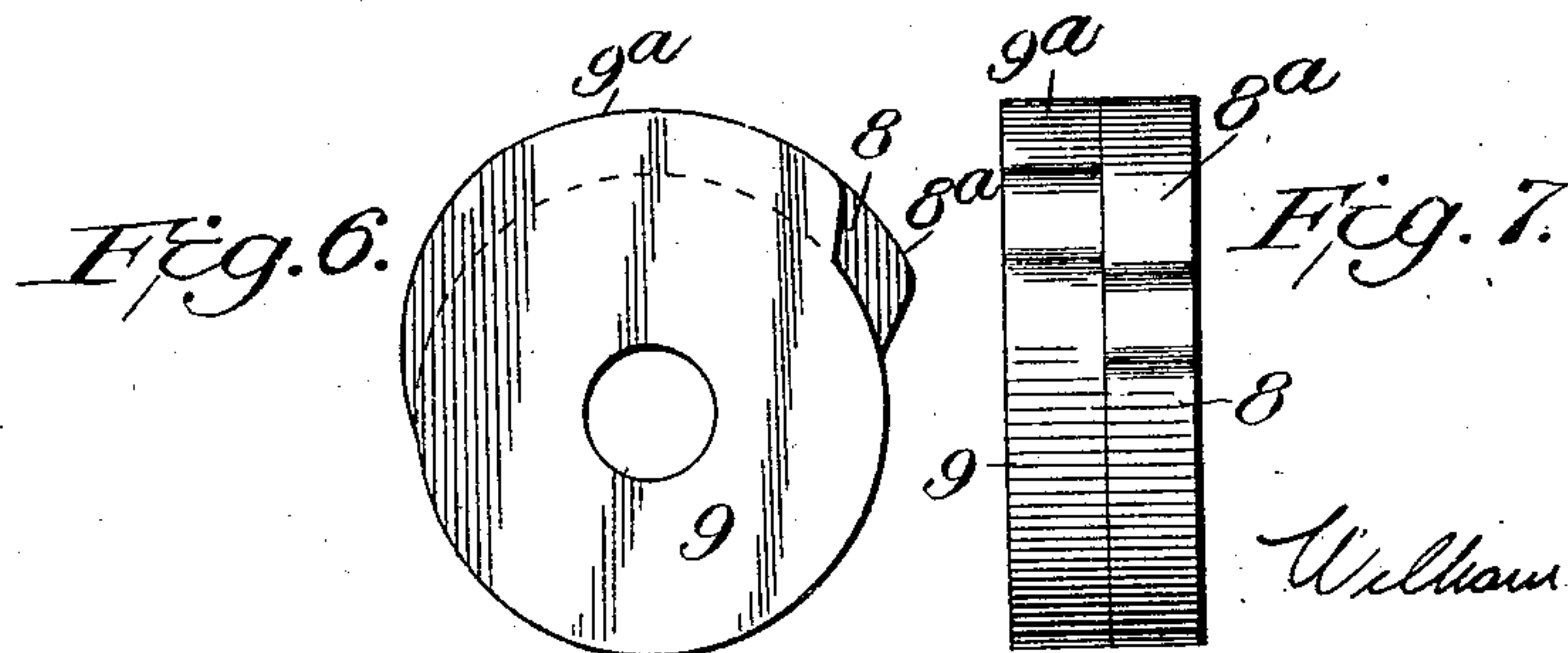
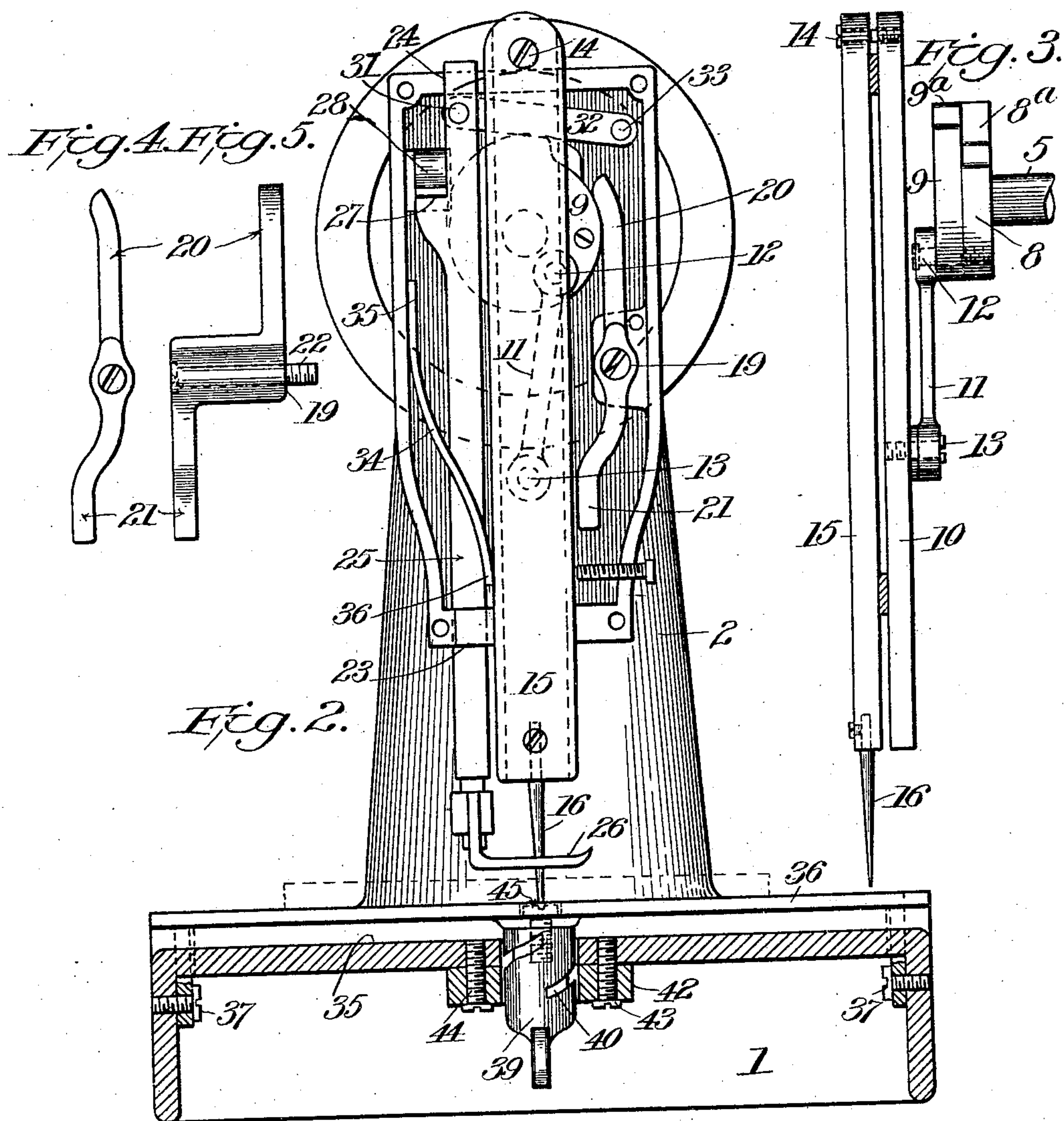
Attorney

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2 SHEETS—SHEET 2.

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Inventor

William A. Dawes

Witnesses

C. H. Waeker
B. F. Funk

By

Knight Bros

Attorney

UNITED STATES PATENT OFFICE.

WILLIAM A. DAWES, OF LA CROSSE, WISCONSIN.

MACHINE FOR PERFORATING LEATHER.

934,292.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed November 30, 1908. Serial No. 465,197.

To all whom it may concern:

Be it known that I, WILLIAM A. DAWES, a citizen of the United States, residing at the city of La Crosse, in the county of La Crosse and State of Wisconsin, have invented certain new and useful Improvements in Machines for Perforating Leather, of which the following is a specification.

This invention relates to a machine for preparing leather or similar material to receive nails, pegs or similar fastening devices.

The machine forming the subject matter of the present application is illustrated as being adapted to prepare the soles of shoes or the like, which soles are to receive nails which are subsequently driven into place.

One of the objects of the invention is to provide means whereby a row of holes or perforations may be mechanically made in the leather and the material to be punctured may be fed along on the work plate by a step by step feed so as to successively space openings a predetermined distance apart.

Another object of the invention is to provide means whereby the angle of inclination of the openings may be determined by a suitable adjusting device.

Other objects and advantages of the invention will be apparent from the following description, it being understood that changes in form, proportion and minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

In the drawings, Figure 1 is a view partly in elevation and partly in section through the arm and base of the machine embodying my invention. Fig. 2 is an end view of the arm showing the puncturing mechanism in elevation, the face plate at the end of the arm being removed. Fig. 3 is an edge view of the awl member and bar and coöperating mechanism therefor. Fig. 4 is an elevational view of a fit lever for successively advancing the material to be worked. Fig. 5 is a plan view of said lever. Fig. 6 is a plan view of the cams for operating the presser foot and awl bar. Fig. 7 is an edge view of said cams, and Fig. 8 shows a modified form of mounting the work plate.

Referring now to the drawings by numerals of reference, 1 designates the base on which is supported an arm 2 of appropriate construction. The arm 2 is provided with

bearings 3 and 4 in which is a shaft 5. On one end of the shaft 5 is the pulley 6 through which the shaft 5 may be driven from a belt or other suitable driving mechanism (not shown). The shaft 5 is also provided with the usual fly wheel 7. On the end of the shaft 5, opposite to that on which the pulley 6 and fly wheel 7 are located, are a plurality of cams 8 and 9. The cam 8 is provided with a lever actuating, peripheral portion 8^a which slightly overlaps a similar portion 9^a on the cam 9. On the front end of the arm 2 is a vertical reciprocatory bar 10 connected to one of the cams (in this instance the one designated 9) by a link 11. One end of the link 11 is connected to the cam 9 at a point eccentric to its axis as at 12. The other end of said link has a loose connection with the bar 10 as at 13. To the upper portion of the bar 10 is a connection 14 for the awl bar 15 provided with an awl 16 at its lower end. The bar 10 is held against any sidewise movement by its guides 17 and 18, but the bar 15 is permitted to have a lateral movement, the lower end of said bar 15 being swung from the connection 14 and it may be actuated by a lever 19, best shown in Figs. 4 and 5. The lever 19 is provided with an arm 20 adapted to be engaged by the cam 9 so as to impart movement to the arm 21 from right to left, Fig. 3, and inasmuch as the arm 21 will contact with an edge of the bar 15, said bar will be swung on its pivot 14 which constitutes the connection between 1 and the bar 10. The lever 19 is fastened to the end of the arm by a suitable fastening device designated by the numeral 22.

Adjacent to the bars 10 and 11 and guided in bearings 23 and 24 in the end of the arm 2 is a vertical reciprocatory presser bar 25, having at its lower end a presser foot 26 of approved construction. The presser bar 25 is provided with a shoulder 27 against which a spring 28 is adapted to bear said spring 28, in this instance being illustrated as a leaf spring anchored at one end 29 to the arm 2 and having its free end 30 resting upon said shoulder 27 so as to exert force in a downward direction on said bar 25. The bar 25 is connected at 31 to a link 32, the opposite end of said bar 32 being pivotally connected to the arm 2 by a suitable fastening device 33. The link 32 is in line with the cam 8 and out of line with the cam 9. 34 designates a spring fixed at 35 to the arm

2 and provided with the free end 36 which bears against the edge of the bar 15 opposite to that against which the arm 21 bears. Thus the spring 34 and the arm 21 will exert
5 opposing forces to each other.

As heretofore stated one of the purposes of the invention is to provide means whereby the opening made by the awl may be inclined, that is the opening may assume an
10 angle between the horizontal and vertical, and the means for accomplishing this is best shown in Figs. 1 and 2.

The base plate 1 is provided at its front portion with the beveled or inclined face 35; above which is a work plate 36. The work
15 plate 36 is pivotally connected to the base 1 at 37. The base 1 is provided with a vertical opening 38 through which projects a turn button 39, having a spiral groove 40 in its
20 periphery. The spiral groove is engaged by a projecting finger 41 fixed to the base 1 and a guard ring 42 is connected to the base 1 below finger 41, and said guard ring 42 may be fastened thereto by suitable devices 43
25 and 44, best shown in Fig. 2.

The turn button 39 has a loose rotative connection with the work plate 36, said turn plate being connected to said plate 36 by the fastening device 45. Thus it will be appar-
30 ent that by turning the button 39 to the right (Fig. 1), the rearwardly extending portion 36^a of said plate 36 will rest flat upon the base 1 so that said plate 36 will be caused to assume a horizontal position at
35 right angles to the awl 16, therefore, the reciprocation of the bar 15 will be effective in causing the awl 16 to puncture the material vertically. If however, the turn button 39 is turned from right to left (Fig. 1),
40 the forward portion of the plate 36 will be caused to approach the beveled face 35 of the base 1, and dependent upon how closely the forward portion of said plate 36 approaches said beveled face will be the angle of in-
45 clination of the opening. It will be apparent that the variable adjustment enables the awl to make the openings at any angle between two extremities. In Fig. 8 is shown a slightly modified structure for effecting this
50 same result. In this instance the work plate 36^b is fulcrumed at 37^a which point is intermediate the awl 6 and the turn button 39 as shown. The principle of operation will be readily obvious and need not, therefore, be
55 described in detail.

Attention is directed to the fact that the active peripheral portion of the cam 8 will be effective in lifting the free end of the link 32 in advance of any actuation of the
60 lever 19, therefore, the presser foot 26 will be lifted in advance of any sidewise movement of the awl bar 15 and, as soon as the shifting movement of the awl bar takes place to shift the material to be operated
65 upon along the work plate, the actuating

portion of the cam 8 will have passed, and there will be a dwell in the cam for a determined period of its rotative movement which will be ineffective in actuating the link 32 during this time. The presser foot 26 will
70 be resting upon the work to hold it clamped upon the work plate, and it will be thus held until the awl bar has receded to withdraw the awl and then advance to make a new hole. The cams 8 and 9 may be constructed
75 from a single block or they may comprise two disks suitably fastened to each other.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a machine of the character described, the combination with a shaft and a reciprocating bar driven from said shaft; of an awl-bar pivoted to and swingingly carried
80 by said reciprocating bar, and means operable through the shaft for swinging said awl-bar.

2. In a machine of the character described, the combination of a rotating shaft; a reciprocating bar driven from said shaft; an
90 oscillating awl-bar pivotally suspended by one end from said reciprocating bar, and a means operable through the shaft for oscillating said awl-bar.

3. In a machine of the character described, the combination with an awl-bar rising and falling in a vertical plane; of a work plate mounted to swing about an axis to one side of said vertical plane; and means mounted
95 on the other side of said vertical plane for adjusting the work plate angularly about its axis.

4. In a machine of the character described, the combination with a rotating shaft; of a member receiving reciprocatory motion from
100 said shaft; an awl-bar swingingly mounted on said member, a cam on said shaft; and a rocking member actuated by said cam and adapted to swing said awl-bar laterally.

5. In a machine of the character described, the combination with a shaft; of a reciprocatory bar; an awl-bar pivotally swung by one end to said reciprocating bar; a cam mounted on said shaft and adapted to impart a reciprocating movement to said reciprocatory bar; means coöperating with said cam to impart a swinging movement to said awl-bar; a reciprocatory presser foot; a second cam mounted on said shaft; and means coöperating with said second cam and said presser foot to impart an intermittent movement to said presser foot.

6. In a device of the class described, the combination with the base plate and puncturing mechanism; of a work plate carried
120 by said base, and means rotatable about a vertical axis for changing the angle of inclination of said work plate.

7. In a machine of the character described, the combination with a mechanism for pro-
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viding nail openings in leather; of a stationary base; a work plate pivoted to said base; and means for swinging said work plate on its pivot.

5 8. In a machine of the class described, the combination with a means for making nail holes and a base therefor; of a work plate pivotally connected to said base, a turn button connected to said work plate and having
0 a spiral groove and a finger carried by said base and engaging said groove.

9. In a machine of the character described, the combination with the awl and means for operating the awl; a stationary base below
5 said awl, said base being provided with faces at an angle to each other; a work plate

pivotally mounted on said base; and means for adjusting said work plate to lie flat on either of said faces.

10. In a machine of the character de- 20 scribed, the combination with the stationary base; of an awl-bar mounted above said base; a base plate pivoted to said base; and a cam-movement device for adjusting the
25 work plate about its pivot.

The foregoing specification signed at La Crosse, Wis. this 5th day of November, 1908.

WILLIAM A. DAWES.

In presence of—

J. E. HIGBEE,

JAMES THOMPSON.