M. H. NORTON.

PERFORATING MACHINE.

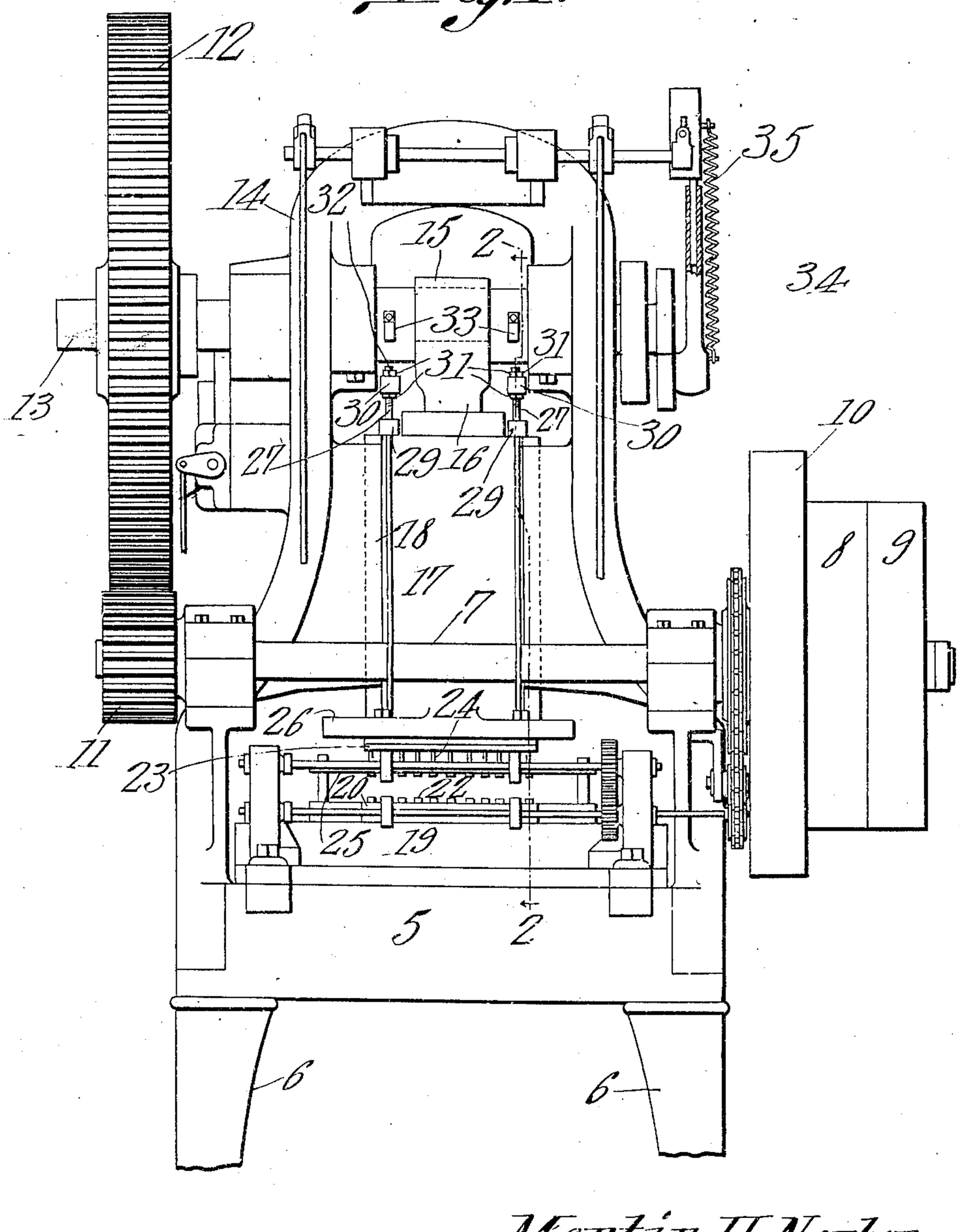
APPLICATION FILED JUNE 6, 1910.

983,756.

Patented Feb. 7, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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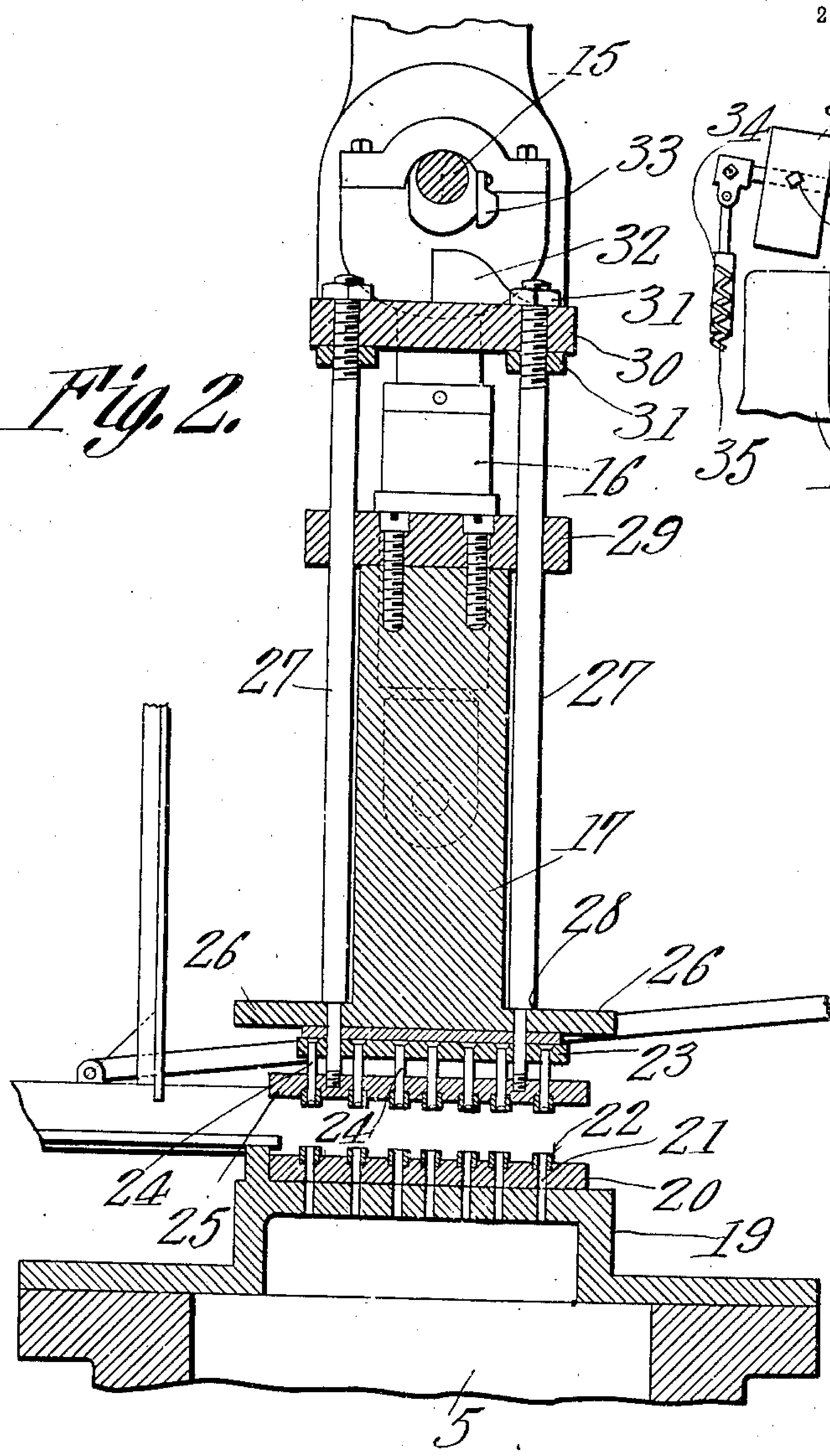
2 SHEETS—SHEET 2.

Fig. 2.



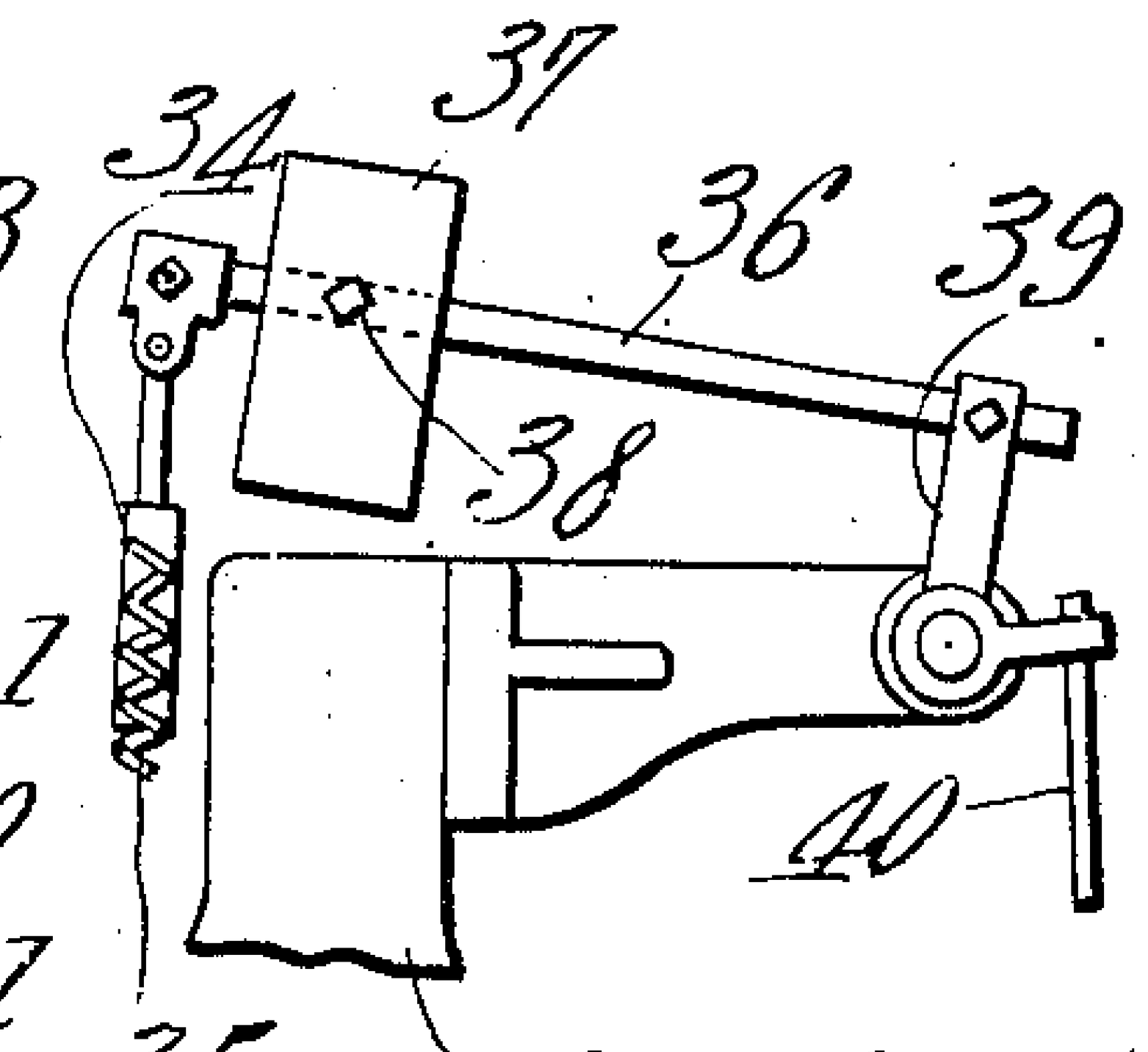
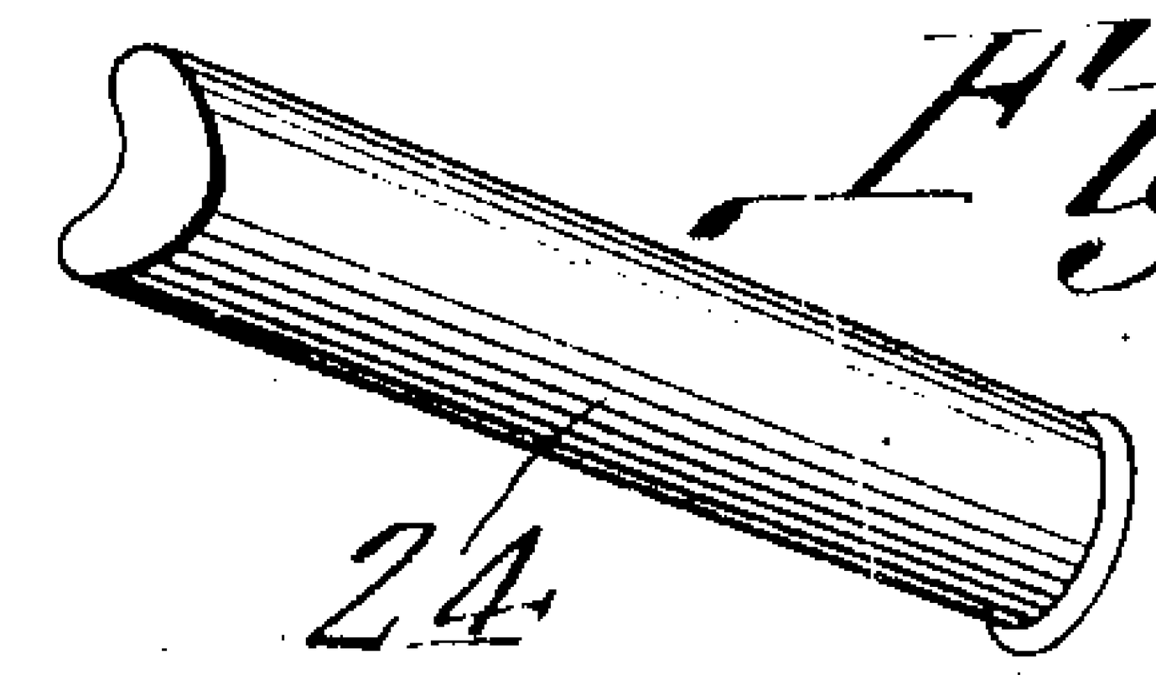


Fig. 4.

Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

MARTIN HENERY NORTON, OF NEWPORT, VERMONT.

PERFORATING-MACHINE.

983,756. Specification of Letters Patent. Patented Feb. 7, 1911.

Application filed June 6, 1910. Serial No. 565,257.

To all whom it may concern:

Be it known that I, MARTIN H. NORTON, a citizen of the United States, residing at Newport, in the county of Orleans and State of Vermont, have invented a new and useful Perforating-Machine, of which the following is a specification.

This invention relates to improvements in chair-seat perforating machines of that type illustrated in the Patent No. 807,295, the object of the invention being to remedy certain defects, and to make the machine more successful in operation; and to this end the invention consists in a novel construction and arrangement of parts to be hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of the machine showing the improvement hereinafter referred to. Fig. 2 is a vertical section on the line 2—2 of Fig. 1. Fig. 3 is a perspective view of one of the punches. Fig. 4 is a fragment of the blank feeding mechanism.

Referring more particularly to the drawings, 5 indicates the table of the machine, which, as shown, is supported on legs 6. The frame of the machine supports a transverse drive-shaft 7, carrying on one end tight and loose pulleys 8 and 9, and a balance wheel 10. To the opposite end of the shaft is fixed a pinion 11 which is in mesh with and drives a spur gear 12 carried by a transverse shaft 13 journaled in bearings on the upper portion of the frame of the machine, the latter being indicated at 14, it being arranged in a suitable manner to support the several parts constituting the machine.

The shaft 13 has a crank 15 which is connected by an adjustable link 16 with a vertically reciprocating slide 17, mounted in ways 18 secured to the inner sides of the frame 14. Between the shaft 13 and the gear 12 is interposed a suitable clutch mechanism, and as the same forms no part of the present invention, a detailed description thereof need not be entered into. A reciprocating movement is imparted to the slide 17 from the driving pulley through the shaft 7, gears 11 and 12, and crank shaft 13 at such times as when the clutch of the gear 12 is in engagement.

On the table 5 is mounted a bed 19 which is suitably perforated to allow the scraps from the punches and dies to pass therethrough. On this bed is mounted a die plate 20 containing a series of punch holes 21 with bushing 22 as disclosed in the Patent No. 807,295, heretofore referred to.

At 23 is indicated the punch carrier, the same being suitably secured to the slide 17. The punches are indicated at 24, they being formed with a concave cutting end as clearly shown in Fig. 3, which gives four shearing edges. The punches will be so set that the shearing edges cut across the grain of the wood. This arrangement makes the punches cut easy, and gives a clean cut.

At 25 is indicated a stripping plate which is loosely carried by the slide 17. The punches pass through the stripping plate, and the latter is provided with a series of bushings similar to those shown and described in the Patent No. 807,295. On opposite sides of the slide, at the bottom thereof, are outstanding flanges 26 through which loosely pass stems 27 which are connected to the stripper plate 25, these stems passing loosely through the punch carrier 23. Above the flanges 26, the stems are shouldered as indicated at 28, said shoulders engaging the top of the flanges 26, and thereby limiting the downward movement of the stems, and consequently the downward movement of the stripper plate also. To the top of the slide 17, on opposite sides thereof are secured guide bars 29 for the stems 27, the latter passing loosely through openings made in the ends of said bars projecting from the slide. Above the guide bars 29, the stems carry a cross head 30, said cross head being secured by nuts 31 screwed on the stems above and below the same. The cross head is formed with a lug 32 which is in the path of a cam 33 on the crank shaft 13. This cam, when it engages the lug, depresses the cross head, and by reason of the connection between the cross head and the stems, and the connection between the stems and the stripper plate, the latter is lowered. Four of the herein described rods 27 are connected to the stripper plate, these rods being located in pairs on opposite sides of the crank 15. Each pair of rods carries a cross head, and each cross head is provided with a lug 32, a cam 33 being also provided for each lug.

In operation, the blanks are fed between the die plate 20 and the punches 24 by a feed mechanism, which need not be here described. The blank is perforated, by the punches when the slide 17 moves downwardly. When the stripper plate 25 en-

gages the blank it is pushed upwardly slightly, whereupon the lugs 32 come in the path of the cam 33. The cams are so positioned on the shaft 13 that they engage the lugs at the end of the punching operation. When the punches start to move upwardly, the stripper plate moves downwardly, and strips off the blanks from the punches.

The advantages of operating the stripper plate as herein described is that the large number of springs disclosed in the Patent No. 807,295, are dispensed with, these springs being unreliable in action, and the cause of considerable delay by reason of frequent breakage.

At 34 is indicated a pitman which is a portion of the blank feeding mechanism. As shown in Fig. 1, this pitman is in two telescoping sections which are yieldingly connected by a coiled spring 35. By providing this yielding pitman there is no danger of the mechanism breaking in case any of the blanks should stick, which frequently happens by reason of the varying thickness thereof.

To one end of the pitman 34 is connected an arm 36, on which arm is adjustably mounted a weight 37 to assist the spring 35 in drawing the pitman sections together. The weight is held in adjusted position by means of a set screw 38. The arm 36 is connected to one of the arms of a bell crank lever 39, to the other arm of which is connected a rod 40 which latter in turn is connected to the blank feeding mechanism, said mechanism being the same as the one illustrated in the Patent No. 807,295, in view of which a detailed description thereof will not be entered into.

What is claimed is:

1. The combination of a reciprocating slide, punches carried by the slide, a shaft for operating the slide, sliding stems carried by the slide, said stems having shoulders, and the slide having stops engageable by said shoulders, a stripper plate for the punches carried by the stems, a cross head connected to the stems, and means engageable with the cross head for actuating the stems to operate the stripper plate.

2. The combination of a reciprocating slide having outstanding flanges at its lower end, punches carried by the lower end of the slide, shouldered stems extending loosely through the flanges of the slide, the shoulders of the stems being engageable with said flanges, a stripper plate for the punches carried by the stems, guides on the upper end of the slide, said guides being engageable by the stems, a cross head carried by the stems, and means engageable with the cross head for actuating the stems to operate the stripper plate.

3. The combination of a reciprocating slide, punches carried by the slide, a shaft for operating the slide, sliding stems carried by the slide, said stems having shoulders, and the slide having stops engageable by said shoulders, a stripper plate for the punches carried by the stems, a cross head connected to the stems, a lug on the cross head, and a cam on the shaft into the path of which cam the lug extends.

4. The combination of a reciprocating slide having outstanding flanges at its lower end, punches carried by the lower end of the slide, shouldered stems extending loosely through the flanges of the slide, the shoulders of the stems being engageable with said flanges, a stripper plate for the punches carried by the stems, guides on the upper end of the slide, said guides being engageable by the stems, a cross head carried by the stems, a lug on the cross head, a shaft operatively connected to the slide, and a cam on the shaft into the path of which cam the lug extends.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

MARTIN HENERY NORTON.

Witnesses:

E. A. Spevner,

James L. Sullivan.