

(No Model.)

A. H. HAMMOND.

MACHINE FOR MAKING REED PLATES.

No. 373,588.

Patented Nov. 22, 1887.

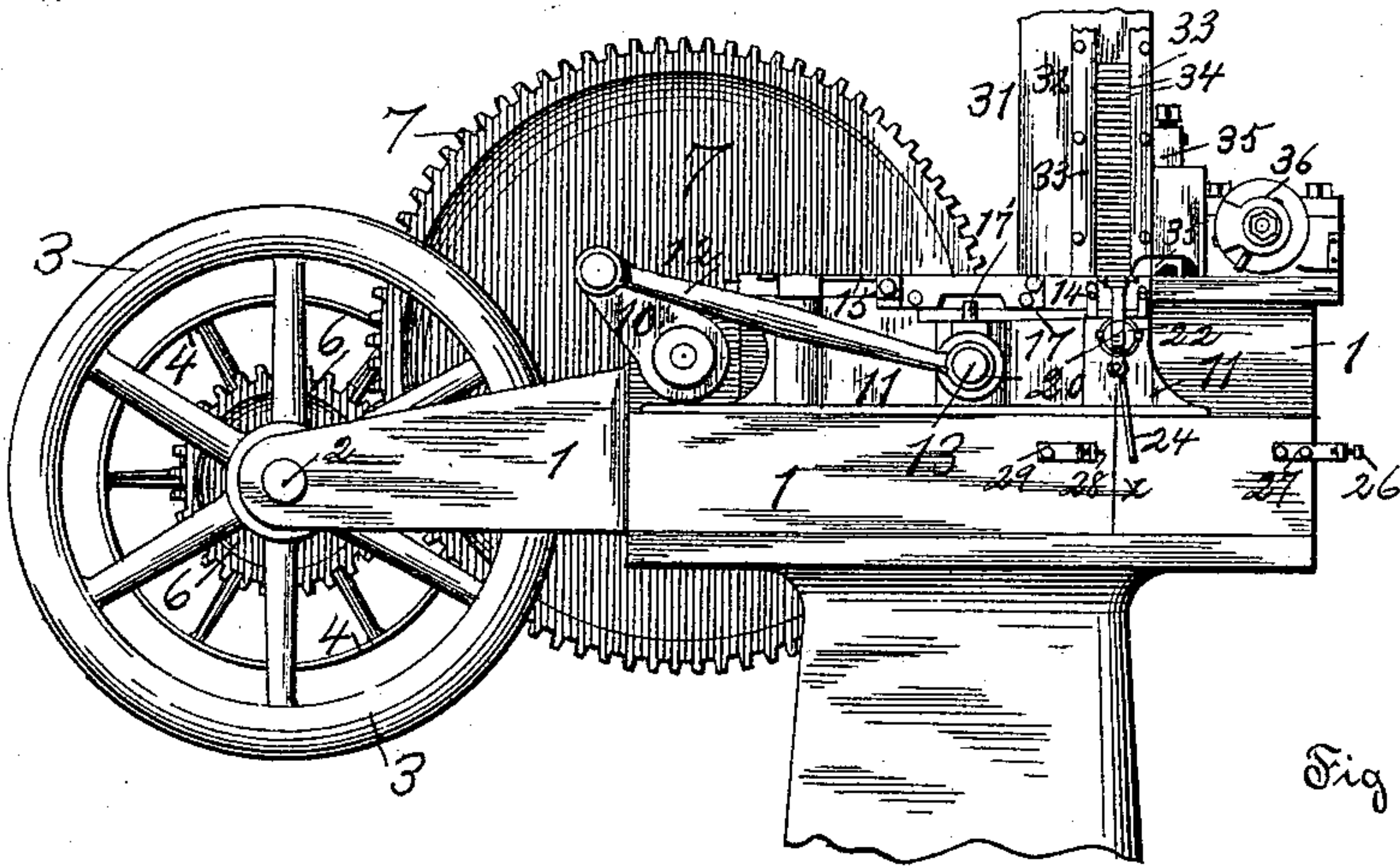


Fig. 1.

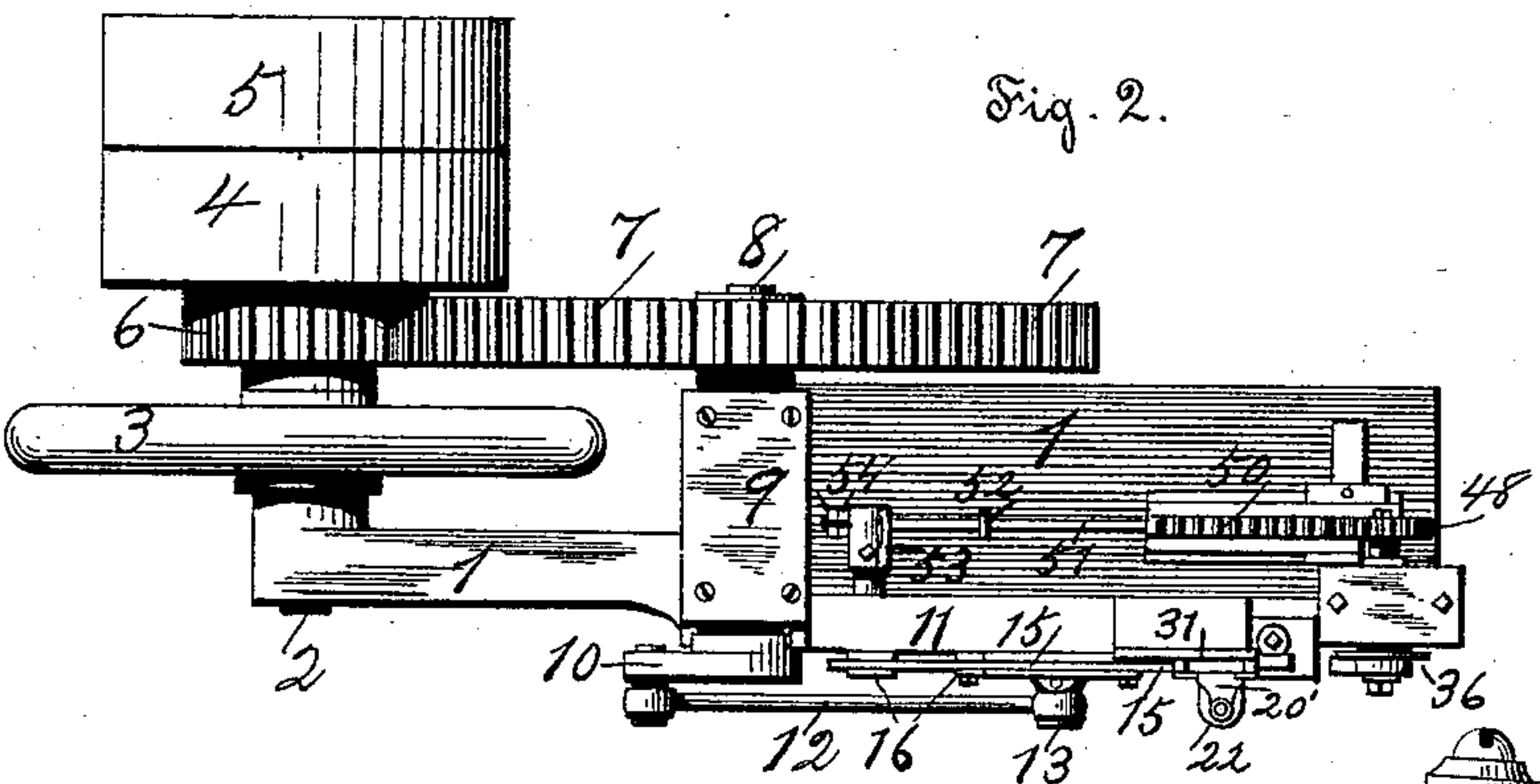


Fig. 2.

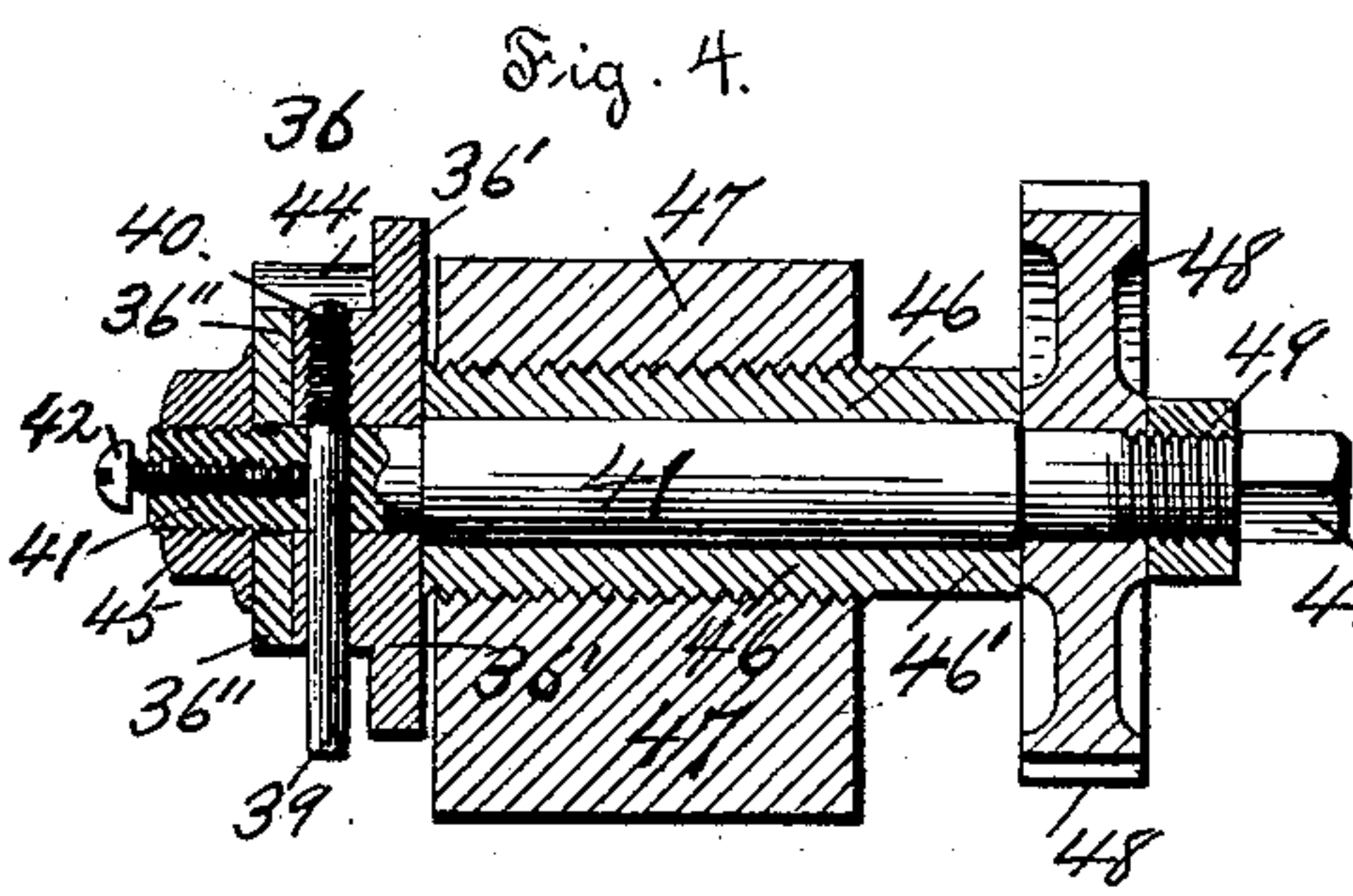


Fig. 4.

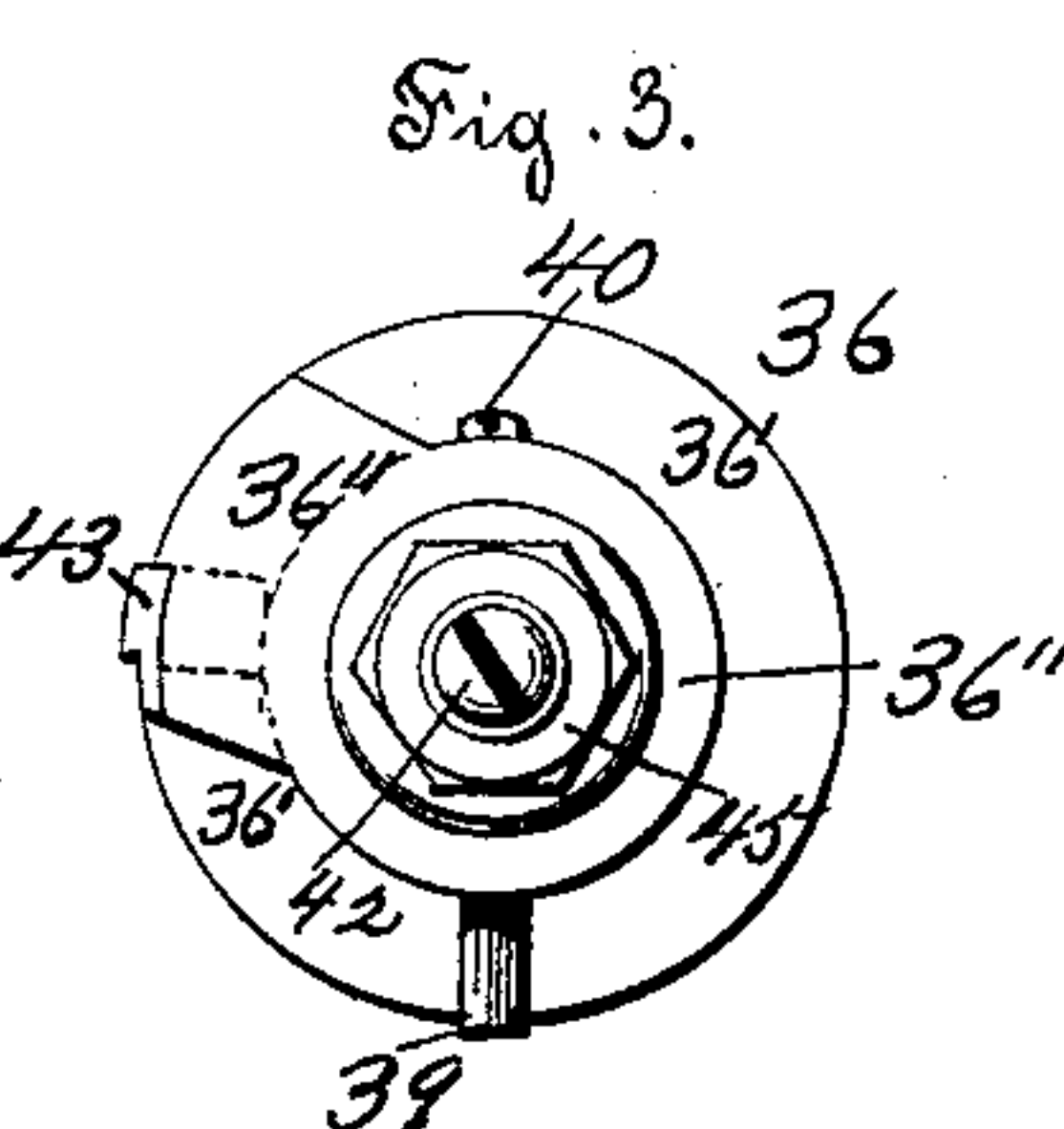


Fig. 3.

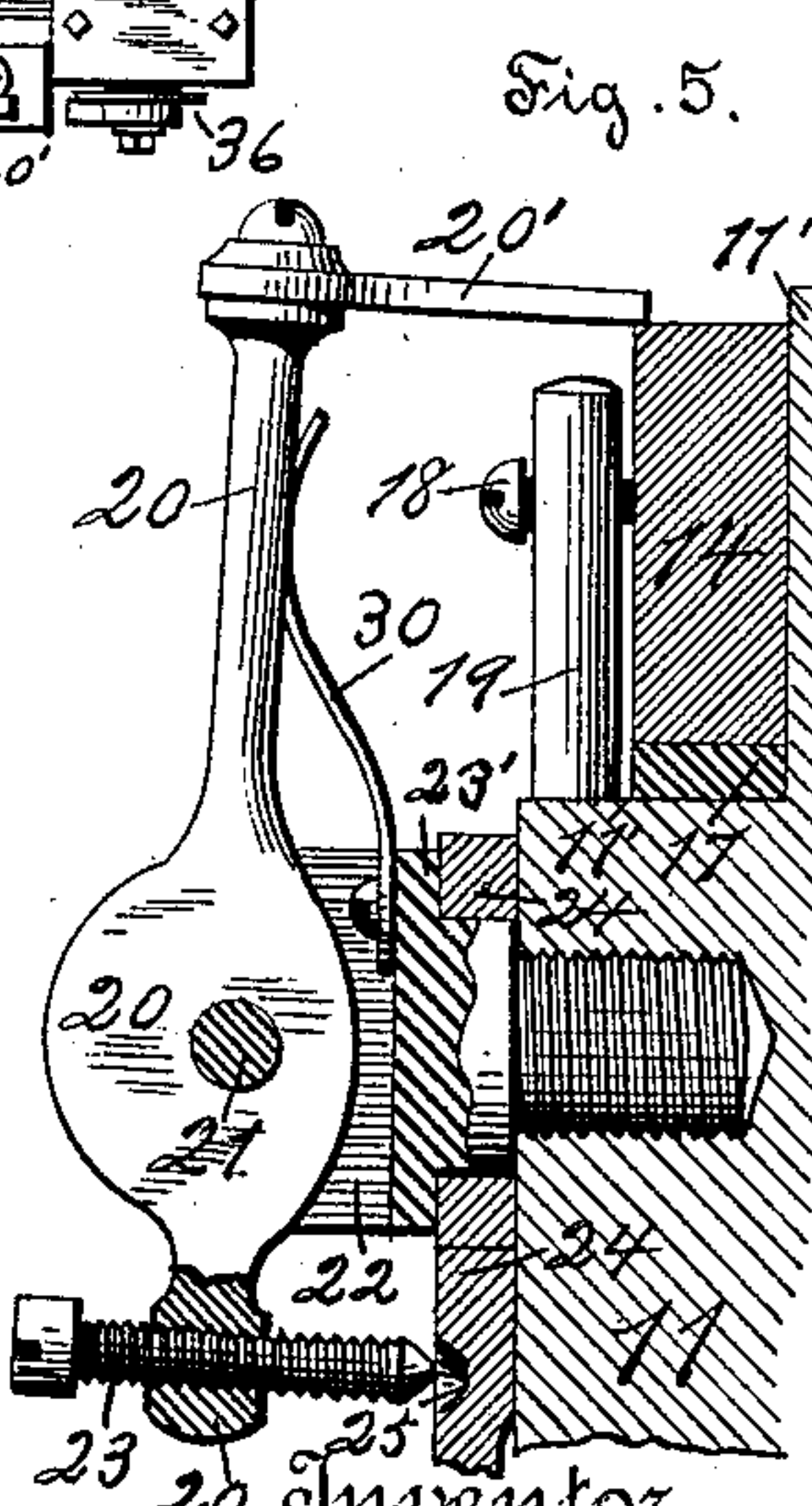


Fig. 5.

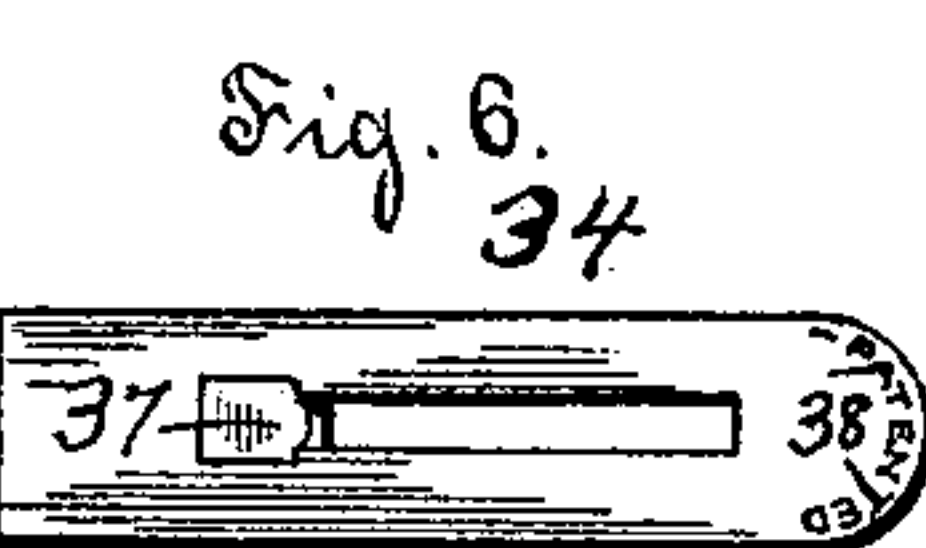


Fig. 6.

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# UNITED STATES PATENT OFFICE.

ANDREW H. HAMMOND, OF WORCESTER, MASSACHUSETTS.

## MACHINE FOR MAKING REED-PLATES.

SPECIFICATION forming part of Letters Patent No. 373,588, dated November 22, 1887.

Application filed August 8, 1887. Serial No. 246,402. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW H. HAMMOND, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Machines for Manufacturing Reeds for Musical Instruments; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings forming a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to an automatic machine for performing certain work in the process of manufacturing reeds for musical instruments, to wit: planing off the surface of the reed-plate, forming a depression therein at the point where the reed-tongue is to be secured to the reed-plate, and stamping or lettering the end of the reed-plate, as indicated in Figure 6 of the drawings, and fully set forth in the Letters Patent of the United States granted to me October 19, 1886, No. 351,049, and to which reference is hereby made for a more detailed description of the reed-plate which my machine is designed to manufacture.

The object of my invention is to produce an automatic power-machine for manufacturing reed-plates of the description referred to, and illustrated in Fig. 6 of the drawings forming a part of this specification; and my invention consists in certain novel features of construction, arrangement, and combination of the several parts of said machine, as will be hereinafter fully described, and the nature thereof indicated by the claims.

Referring to the drawings, Fig. 1 is a front view of the machine. Fig. 2 is a plan view of the same. Figs. 3 and 4 are detail views, on an enlarged scale, of the die-holder and dies and parts connected therewith—viz: Fig. 3 is a front view, and Fig. 4 is a vertical central section. Fig. 5 represents, on an enlarged scale, a vertical section through the clamping mechanism at line *x*, Fig. 1, to be hereinafter fully described, and Fig. 6 illustrates the work which the machine performs on the reed-plate—viz., forming a depression therein at the point where the reed-tongue is to be attached and stamping or lettering the end of the reed-plate.

In the accompanying drawings, 1 is the frame of the machine, on one side of which is supported the main driving-shaft 2, upon which are secured the hand-wheel 3, the tight and loose pulleys 4 and 5, and the gear 6, which meshes into the larger gear, 7, firmly secured upon the shaft 8. Said shaft 8 turns in the bearing 9, forming a part of the frame 1, and has at its forward end the crank 10, which gives to the slide 11 a reciprocating motion by means of the connecting-rod 12, which is secured at 13 to the slide 11.

The slide 11 consists of a block moving back and forth in the frame 1, and being held therein by dovetail projections at the top and bottom. Said slide 11 has upon its upper surface at its forward end a table, 14, adapted to receive the reed-plate preparatory to the same being operated upon, and which is held in its proper longitudinal position on said table, in this instance by means of an adjustable bar, 15, supported in the lugs 16, projecting out from the slide 11. The forward end of said bar 15 rests upon the table 14, and bears against the rear end of the reed-plate, causing said reed-plate to be moved along with said table.

In order to make the table 14 vertically adjustable, I employ a wedge-shaped key, 17, which rests upon the projecting part 11' of the slide 11, and is held in place by means of a set-screw or nut, 17', provided with a cam-surface, and screwing into the slide 11. Said wedge 17 extends under the table 14, and thus supports said table. By loosening the set-screw 17' and moving the wedge 17 in one direction or the other the elevation of the table 14 may be altered as desired, and held in place by tightening the set-screws 18, which are held in posts 19, secured upon the slide 11. (See Fig. 5.)

At the right end of the slide 11 is secured the clamping-lever 20, whose function is to clamp the reed-plate laterally, and thus hold it on the table 14 during the operation of planing and stamping, which will be hereinafter described. The clamping-lever 20 is pivoted at 21 in the holder 22, which is screwed into the slide 11, (see Fig. 5,) and has at its upper end the clamping-blade 20', with its outer end extending over the table 14, and arranged at such a height that it will, in the operating po-



sition, press against the outer edge of the reed-plate and hold it on the table 14, fast between the end of the blade 20' and the projecting part 11" of the slide 11. (See Fig. 5.) Through the lower part of the clamping-lever 20, below the pivot-point 21, extends a screw, 23, which is adjusted so that its inner end will rest or bear on the surface of the lever 24, which is supported and pivoted on a shoulder, 23', of the holder 22, and extends down therefrom. (See Fig. 1.)

The lever 24 is provided with a counter-sunk hole, 25, adapted to receive the end of the screw 23, so that by swinging the lower end of the lever 24 around its pivot-point at the end of the forward motion of the slide 11, and which in this instance is done by means of a set-screw, 26, supported in a stand, 27, secured to the frame 1, the screw 23 will enter the hole 25, and thus release the upper part of the clamping-lever 20 and the blade 20' from pressing against the edge of the reed-plate, and allow said plate to drop off or be removed from the table 14 of the slide 11. Upon the return-stroke of the slide 11 the end of the swinging lever 24 will strike at the proper time against the set-screw 28, supported in a stand, 29, secured to the frame 1, and cause the end of the screw 23 to move out of the hole 25 and the upper part of the clamping-lever 20 and blade 20' to move inward and clamp another reed-plate preparatory to the same being operated upon, and this operation is repeated every time that the slide 11 is moved forward and back.

In order to give perfect freedom to the reed-plate, a spring, 30, is secured at its lower end to the holder 22, and presses outward at its upper end against the upper part of the clamping-lever 20, thus forcing the screw 23 to enter the hole 25 at the proper time, as above described.

Returning to the frame 1, it will be seen that at the right, and directly over the clamping-lever 20, a reservoir or trough, 31, is provided, consisting of a piece of sheet metal, 32, and projecting vertical bars 33, for holding the reed-plates 34 before the same are operated upon by the machine. Said reed-plates 34 are placed one above the other and drop by their own weight at the proper time onto the table 14 of the slide 11, just in front of the end of the bar 15, and are held in place thereon by means of said bar 15 and the clamping-lever 20, in the manner hereinbefore described, so that the forward movement of said slide 11 carries the reed plate under the shaving or planing tool 35, adjustably supported in the frame 1, where the top surface of the reed-plate is planed, leaving the reed-plate of uniform thickness. Said reed-plate is then ready to receive the impressions which will be made by the dies in the rotary holder 36.

The work to be performed by the dies in the holder 36, as before indicated, is the making of the depression 37 in the reed plate 34 at the point where the tongue is to be attached to

said plate, and also the lettering 38 at the end of the reed plate, or other desirable lettering, (see Fig. 6,) and to accomplish which, in the present instance, I employ two dies secured in the holder 36.

By referring to Figs. 3 and 4 the construction of the die-holder 36 will be readily understood. In this instance it consists of two parts, 36' and 36". The former, 36', forms and is the enlarged head of the shaft 41, and holds the die 39, for making the depression 37 in the reed-plate. One end of the die 39 rests against the inner end of the screw 40, which renders a very accurate adjustment, as to the depth of the depression 37 in the reed-plate, possible. The die 39 is retained in its proper position in the holder 36' by a set-screw, 42, which enters the forward end of the shaft 41, and bears against the die 39, as clearly shown in Fig. 4. The lettering-die 43 is held in the part 36" of the holder 36, and the inner end of the die-stem bears against the periphery of the part 36". The part 36" is centrally supported on the outer end of the shaft 41, and held against the part 36', or the enlarged head of the shaft 41, in any desired position, by means of the nut 45. A lug, 44, extends out from the part 36" and rides upon the periphery of the holder 36'. (See Figs. 3 and 4.)

The difference in length of reed-plates to be manufactured on my machine renders a change in the relative position of the two dies 39 and 43 necessary, and this result is obtained by loosening the nut 45, secured upon the end of the shaft 41, and moving the holder 36", carrying the lettering-die 43, around on the shaft 41 until the desired position of said lettering-die 43 relatively to the position of the die 39 is reached, and then tightening up the nut 45.

In order to provide for accurate adjustment laterally of the die-holder 36, I preferably use a sleeve, 46, provided with a thread on its periphery, which is a counterpart of the thread in the bearing 47 of said sleeve. Said sleeve serves as the bearing proper for the shaft 41, and is fitted closely between the die-holder 36 and driving-gear 48 to avoid lateral motion of the shaft 41. The end 46' of the sleeve which projects beyond the bearing 47 is adapted for engagement with a wrench or other means to turn the same; and said sleeve, holding the shaft 41, having the die-holder 36 thereon, may be turned in either direction, carrying said shaft 41 and die-holder 36 to any desired lateral position.

The shaft 41 and the die-holder 36 thereon is rotated by means of the gear 48, secured upon the inner end of said shaft 41, and held in place in this instance by means of a nut, 49. Said gear 48 meshes with and is operated by the rack 50, supported and sliding in ways formed on the frame 1. (See Fig. 2.) To the inner end of said rack 50 is attached a rod, 51. Said rod has a shoulder or adjustable check-nut, 52, thereon, and passes loosely through a stud, 53, extending out from the slide 11. (See Fig. 2.)



At the outward side of the stud 53 are secured two adjustable check-nuts, 54, upon the end of the rod 51, forming a positive stop or shoulder against which the stud 53 strikes.

5 The space on the rod 51 between the check-nuts 54 and the shoulder or check-nut 52 on said rod is thus fixed and so adjusted that upon the forward movement of the slide 11 the rack 50, for operating the gear 48, will remain stationary while the reed-plate is being carried under the planing-tool, immediately after which the stud 53, attached to and moving with said slide 11, engages with the shoulder or nut 52 on the rod 51, attached to the rack 50, thus moving forward said rack 50 and rotating the gear 48, and with it the shaft 41 and die-holder 36, causing the dies 39 and 43 to operate at the proper time upon the reed-plate 34, supported upon the table 14 and carried along with the slide 11 in the manner as above described. Upon the return movement of the slide 11, after the reed-plate 34 has been operated upon by the dies, the stud 53 will engage the check-nuts 54 upon the end of the rod 51 and move said rod and the rack 50 connected therewith back to their first position, thereby turning the gear 48 and the shaft 41 and die holder 36 back into their normal position.

30 The operation of my improved machine will be readily understood from the above description, in connection with the drawings, by those skilled in the art, and briefly is as follows: A number of reed plates or blanks, partially manufactured, are placed in the reservoir 31, the lowest one of which will rest upon the top of the table 14, supported on the slide 11, and be held in its proper position thereon by the rod 15 and the blade 20' of the clamping-lever 20. The large gear 7 is revolved, causing the slide 11, through the intervention of the connecting-rod 12 and crank 10, to be pushed forward, carrying the reed-plate under the planing-tool 35 and under the dies 39 and 43, supported in the die-holder 36, said die-holder being rotated at the proper time to have the dies operate on the reed-plate by means of the gear 48 and the rack 50, in the manner hereinbefore fully described. After the reed-plate has been operated upon by the dies the clamping-lever 20 releases said reed-plate, which is then dropped down out of the way. The slide 11 is then drawn back into its first position by the continued revolution of the gear 7 and another reed-plate dropped onto the table 14 from the reservoir 31 preparatory to being operated upon in the manner above described.

It will be understood that the details of construction of the several parts of my machine may be varied somewhat from what is herein described and shown in the drawings without departing from the principle of my invention. A third die may be employed, secured in the die-holder 36, if desired, for stamping a letter upon the rear end of the reed-plate.

Having thus described my improvements in

machines for manufacturing reeds for musical instruments, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for manufacturing reeds for musical instruments, the combination, with a slide upon which the reed-plate to be operated upon is supported, and means for clamping said reed plate on said slide, of a rotary die-holder carrying dies for operating on the reed plate, and means for rotating said die-holder, in the manner substantially as shown and described.

2. In a machine for manufacturing musical reeds, the combination, with a slide and means for supporting and operating the same, of a table upon which the reed-plate rests, supported on said slide and capable of vertical adjustment by means of a wedge shaped key interposed between said slide and table and said key, and means for clamping the table and key in position after adjustment, substantially as set forth.

3. In a machine for manufacturing musical reeds, the combination, with a slide upon which the reed-plate to be operated upon is supported, of means for clamping the reed-plate laterally, consisting of a clamping-lever supported on said slide, a pivoted lever, also supported on said slide and provided with a depression therein adapted to receive at the proper time the end of a screw projecting out from the lower end of the clamping-lever, and stops to engage said pivoted lever at the proper time to cause the clamping-lever to operate to clamp the reed-plate preparatory to its being operated upon, and to release it after it has been operated upon, all constructed and operated in the manner substantially as shown and described.

4. The means for clamping the reed plate laterally upon its support while it is being operated upon, consisting of a lever, 20, pivoted at 21, and carrying a clamping-blade, 20', at its upper end, and an adjustable screw, 23, at its lower end, and a spring, 30, in combination with a lever, 24, pivoted at its upper end and provided with a depression, 25, therein for the purpose stated, and set-screws 26 and 28, adapted to engage the lever 24 at the proper time to cause the clamping-lever 20 to operate to clamp and to release the reed-plate, in the manner substantially as shown and described.

5. In a machine for manufacturing musical reeds, the combination, with a slide for carrying the reed-plate to be operated upon, of a rotary die-holder carrying dies for operating on the reed-plate, substantially as set forth, and means for operating said die-holder in connection with said slide, substantially as shown and described.

6. In a machine for manufacturing musical reeds, the combination, with a slide for carrying the reed-plate, of a rotary die-holder for operating on said plate, in the manner substantially as set forth, and mechanism to regu-



late and control the action of said die-holder in connection with the movement of said slide, substantially as shown and described.

7. In a machine for manufacturing musical reeds, the combination, with a slide for carrying the reed-plate and a rotary die-holder for operating on said reed-plate, of mechanism to regulate and control the action of said die-holder in connection with the movement of said slide, consisting of a gear secured on the die-holder shaft, a rack for operating said gear, a rod extending out from said rack and provided with adjustable check-nuts to engage with a stud extending out from said slide, and said stud, all constructed and operated substantially as shown and described, and for the purpose stated.

8. In a machine for manufacturing musical reeds, the combination, with a slide for carrying the reed-plate to be operated upon and an adjustable planing or shaving tool, of a rotary die-holder carrying dies for operating on the reed-plate, in the manner substantially as set forth, and mechanism connecting said die-holder with the slide to cause the dies to operate upon the reed-plate immediately after the planing operation, substantially as shown and described.

9. The combination, with a slide, 11, a stud, 53, extending out therefrom, and the rotary die-holder 36, carrying dies for operating on the reed-plate, of the die-holder shaft 41, gear 48, secured thereon, rack 50, for rotating said gear, and rod 51, connected with said rack and provided with adjustable nuts 52 and 54, between which the stud 53 extends for the purpose stated, all constructed and operated substantially as shown and described.

10. The rotary die-holder 36, made in two parts, each part carrying a die for operating

on the reed-plate, the relative position of said dies being adjustable by changing the relative position of the parts of the die-holder, substantially as set forth, and for the purpose stated.

11. In the rotary die-holder 36, carrying dies for operating on a reed-plate in the manner substantially as set forth, the combination, with the holder 36', carrying a die, 39, and a screw, 40, for adjusting said die, of the holder 36'', carrying a die, 43, and centrally supported, and adapted to be moved around on the part 36', to adjust the relative position of the dies, and to be clamped to said part 36', substantially as shown and described.

12. The combination, with a rotary die-holder carrying the dies for operating on a reed-plate, in the manner substantially as set forth, and the die-holder shaft, of means for supporting said shaft in such a manner that said shaft and the die-holder secured thereon may be adjusted laterally, substantially as shown and described.

13. The combination, with the die-holder 36, carrying the dies for operating on the reed-plate, substantially as set forth, and the die-holder shaft 41, on which said die-holder is secured, and the gear 48, fast on said shaft, of a sleeve, 46, extending between the die-holder 36 and gear 48, and forming a bearing for the shaft 41, said sleeve having a thread on its exterior surface adapted to engage with a thread in the bearing 47, so that said sleeve may be moved endwise to adjust the lateral position of the die-holder 36, substantially as shown and described.

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Witnesses:

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