

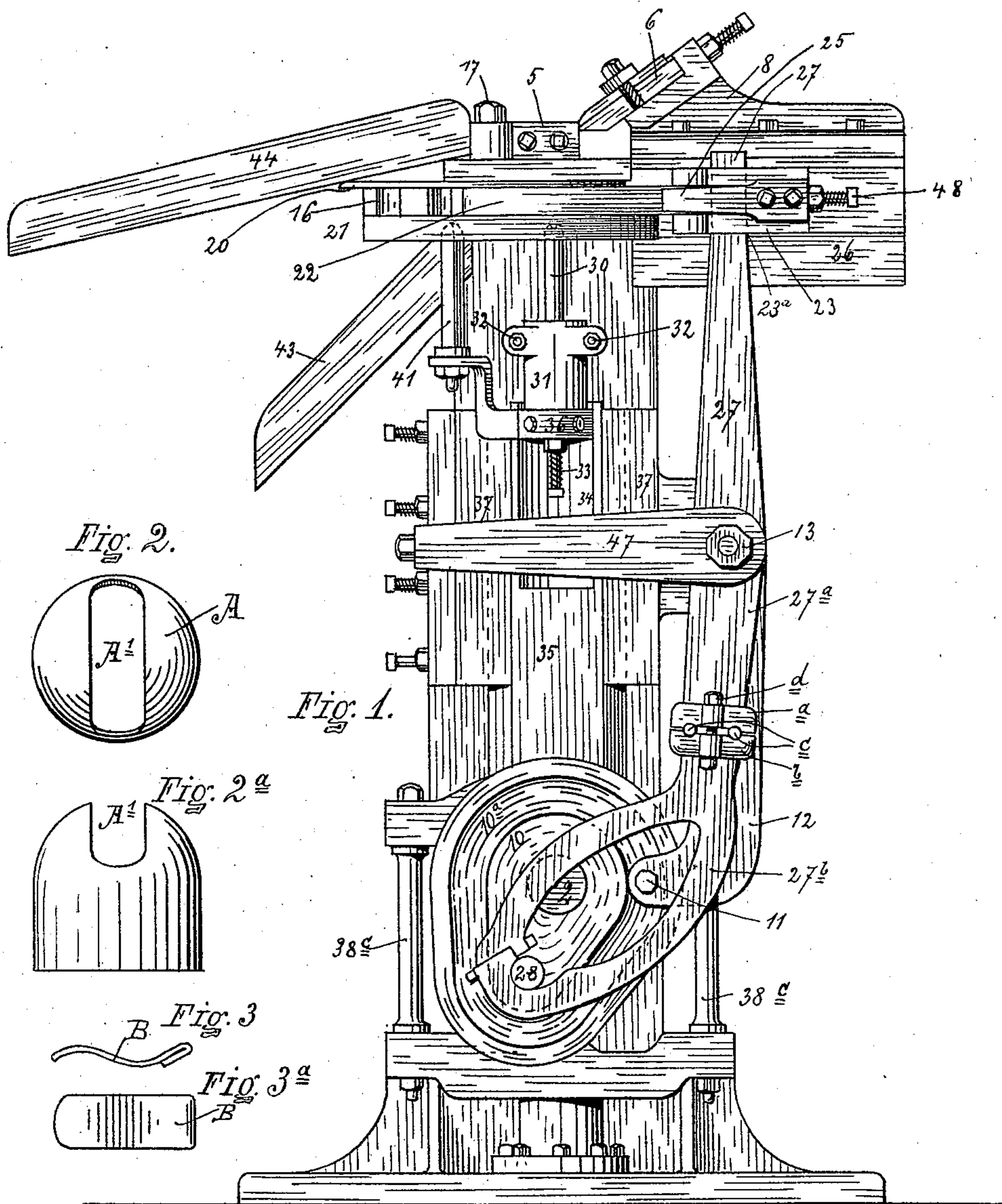
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3 Sheets—Sheet 1.

C. T. PRATT.  
FERRULE SLOTTING MACHINE.

No. 575,732.

Patented Jan. 26, 1897.



WITNESSES.  
Rich. A. George.  
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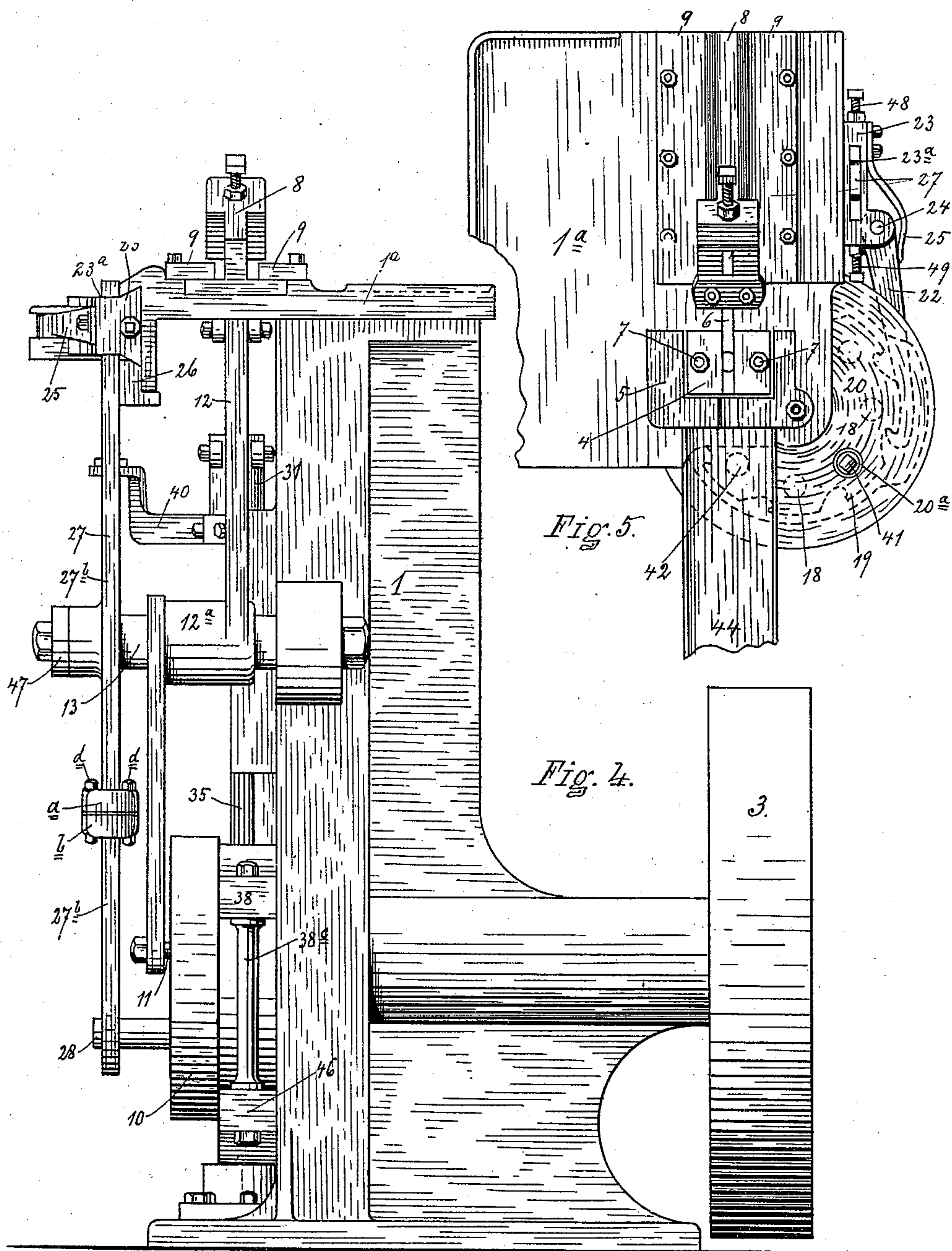
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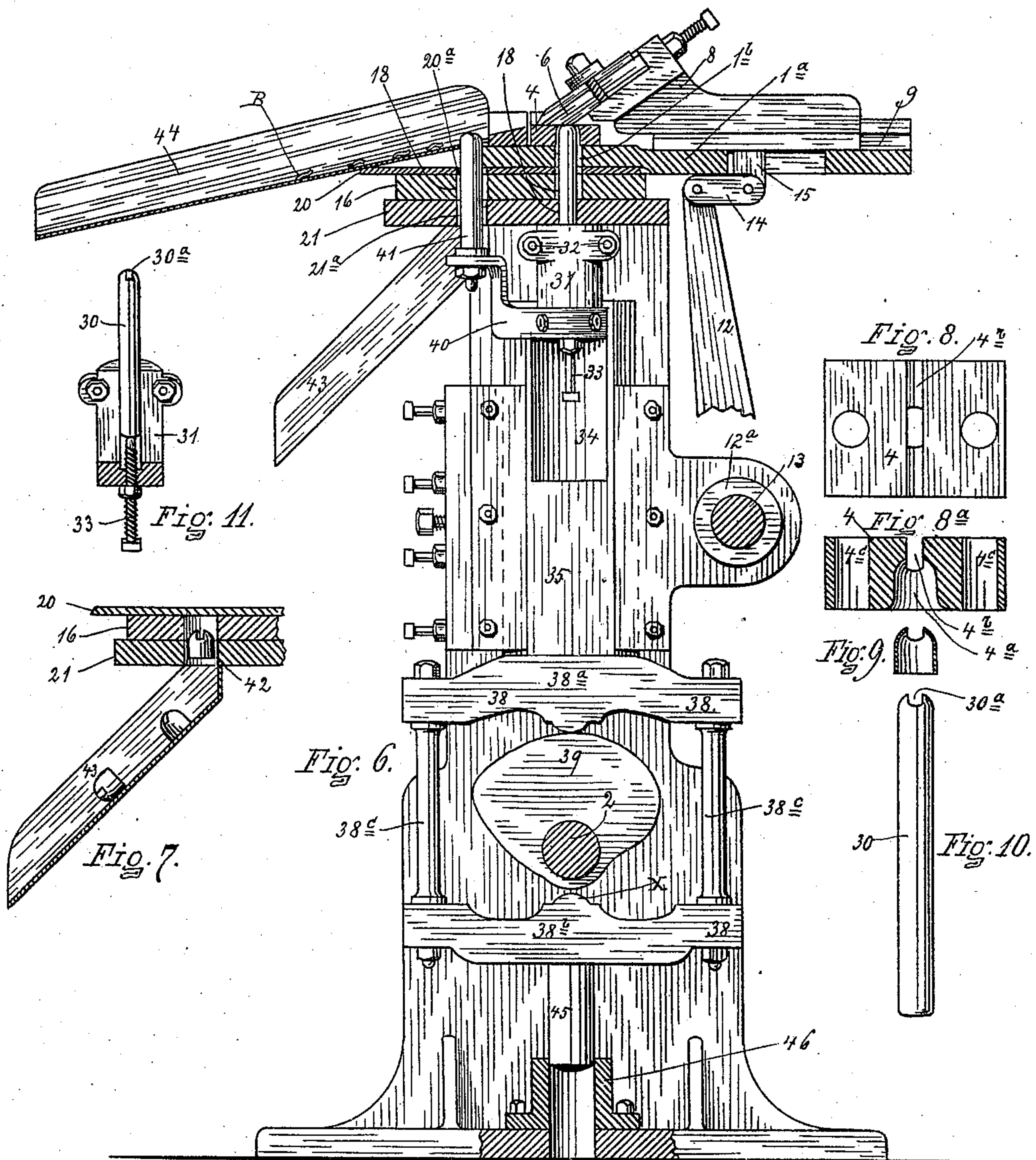
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# UNITED STATES PATENT OFFICE.

CHARLES T. PRATT, OF CLAYVILLE, NEW YORK.

## FERRULE-SLOTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 575,732, dated January 26, 1897.

Application filed February 1, 1895. Renewed November 27, 1896. Serial No. 613,715. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES T. PRATT, of Clayville, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Ferrule-Slotting Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form part of this specification.

My invention relates to a machine particularly intended for slotting ferrules.

In the drawings which accompany and form a part of this specification, and in which similar letters and figures of reference refer to corresponding parts in the several views—  
Figure 1 shows a side elevation of my machine. Fig. 2 shows a top view of a ferrule after it has been operated on by the machine. Fig. 2<sup>a</sup> shows a side elevation of the same. Figs. 3 and 3<sup>a</sup> show an edge and top view of the chip cut from the ferrule. Fig. 4 shows another side elevation from that shown in Fig. 1. Fig. 5 shows a plan view of the top of the machine. Fig. 6 is a vertical section of the machine, parts being removed. Fig. 7 shows details of the discharging mechanism. Fig. 8 shows a plan view of the holding-die. Fig. 8<sup>a</sup> shows a vertical section of the die-plate. Fig. 9 is a section of a ferrule after being cut or slotted. Fig. 10 shows details of the plunger for holding the ferrules while being cut. Fig. 11 shows details of construction of the plunger-holding clamp.

Referring to the reference-numerals in a more specific description of the device, 1 indicates the frame, which is of an upright character and is provided with a table-like portion 1<sup>a</sup> on the upper end, and in the lower portion of which the driving-shaft 2 has bearing and is provided with a driving-wheel 3. On the top of the frame is secured the die-plate 4, preferably surrounded by walls 5 on three sides to secure it with greater certainty. The die-plate 4 is provided with a recess 4<sup>a</sup> in its under side of a shape and size to receive the ferrule to be operated upon. Across the top of the die extends a slot 4<sup>b</sup>, in which the planer chisel or tool 6 is adapted to operate.

The die is also provided with openings 4<sup>c</sup> for the reception of the bolts 7, which secure it to the frame. The planer-tool 6 is mounted on a sliding planer-head or carriage 8, which is mounted in guides 9 9 on top of the frame in line with the slot 4<sup>b</sup> in the die-plate. For operating the planer-knife with a reciprocal motion there is provided a cam 10, secured on the end of the shaft 2, with a cam-groove 10<sup>a</sup>, adapted to receive the projection or roller 11 on the lower end of the arm 12. The arm 12 is provided with a hub 12<sup>a</sup>, which is mounted on a shaft 13, secured in the middle portion of the frame in such a manner as to allow the arm 12 to rock on the shaft 13 as a pivotal point. The upper end of the arm 12 is connected by means of a link 14 with a projection 15 on the under side of the carriage of the planer-head 8.

For feeding the ferrules to the knife there is provided a rotary disk 16, mounted on a pivot at 17 and provided with a series of holes, as shown in dotted lines at 18 18, constituting pockets, and of a size to receive the ferrules to be operated upon. This disk is provided with teeth on its edge, as shown in dotted lines in Fig. 5 at 19, corresponding in number and position to the holes or pockets 18 in the disk. The disk 16 is located between the upper plate 20 and under plate 21, which constitutes a part of the frame.

For operating the disk 16 to carry the ferrules into position to be slotted there is provided a hook-like pawl 22, adapted to engage the teeth 19 on the edge of the disk and mounted on a sliding carriage 23, being pivoted thereto at 24 and held into engagement with the teeth 19 by a spring 25. The carriage 23 is mounted on guides 26 on the sides of the frame and is operated by a lever 27, pivoted on the outer end of the shaft 13. The lever 27 engages the slide or carriage 23 by being passed through an opening 23<sup>a</sup> in the carriage or slide and is adjustably held in the opening by set-screws 48 and 49. The lever 27 is actuated by the pin 28, projecting from the face of cam 10 and engaging the lower end of the lever 27 in the cam-shaped opening 29. The lever 27 is formed in two parts 27<sup>a</sup> and 27<sup>b</sup>, the lower part containing the cam-shaped opening which engages with the pin 28. The adjacent ends of the two parts are enlarged,



as shown at *a* and *b*, and between the parts are introduced small rollers, as shown at *c*, there being provided in the contiguous faces of the two parts slight grooves for the reception of the rollers. The two parts are then secured together by bolts *d*. This arrangement is provided so that in the event that all of the several parts of the machine are not so timed as to work harmoniously and the disk 16 becomes stuck or held by parts of the machine the arm 27 will break at the joint just described, the bolts *d* being broken.

In readjusting the machine it is only necessary to supply new bolts *d*, which can be done at a trifling expense. It will be understood that the bolts *d* are of a size and strength to operate the pawl and disk under normal conditions. Directly beneath the cavity 4<sup>a</sup> in the under side of the die-plate 4 there is provided in the plate 21 an opening which receives the upper end of the plunger 30. This plunger is held in a clamp 31, which is cylindrical in form, slotted from the top, and provided with clamp-bolts 32 for clamping the plunger and a set-screw 33 in its lower end to support the lower end of the plunger. The upper end of the plunger is rounded to conform to the interior of the ferrule and is provided with a slot 30<sup>a</sup>, conforming to the slot to be cut in the ferrule. The size of the plunger 30 is such that it will engage quite snugly in the ferrule. The plunger-clamp 31 is received in the semicircular recess 34 in the upper end of the slide 35 and is held in position by a clamp 36. The slide 35 moves in the ways or guides 37 37 and is provided with a yoke 38 on its lower end, consisting of the parts 38<sup>a</sup> and 38<sup>b</sup>, connected by columns 38<sup>c</sup>. This yoke surrounds the cam 39, mounted on the shaft 2, and is provided with bearing-faces *x* and *y*, adapted to engage the cam, whereby the slide 35 and plunger 30 are operated by the cam 39.

For holding and guiding the lower end of the yoke 38 there is provided on the lower portion of the yoke a guide-pin 45, which slides through the sleeve 46, fixed on the base of the frame. On the upper end of the slide 35 is secured an arm 40, which carries the pin 41, projecting upwardly, operating with the plunger 30 and passing through an opening 21<sup>a</sup> in the plate 21 and a coinciding opening 20<sup>a</sup> in the upper plate 20. The pin is also adapted to pass through the openings or pockets in the disk 16 when they coincide with the openings 21<sup>a</sup> and 20<sup>a</sup>. The pin 41 is preferably made square at its upper end and in height substantially corresponds with that of the plunger 30.

In the plate 21 is provided a discharge-opening 42, Fig. 7, (also shown in dotted lines at 42 in Fig. 5,) which is located in the plate 21 to coincide with the pockets 18, arranged in a circle around the pivotal point of the disk. Beneath the opening 42 is located the discharge-spout 43.

44 is a discharge-spout for the chips, one

end of which is arranged adjacent to the die-plate 4.

47 is a brace for supporting or steadying the outer end of the shaft 13 and extends from the outer end of the shaft to the side of the frame and is secured to each.

The machine is put in operation by power applied to the shaft 2, and as the cam 39 on the shaft is rotated, through the medium of the yoke 38 and slide 35 and connecting parts, a reciprocal up-and-down movement is given to the plunger and the pin 41 from the position shown in Fig. 1 to that shown in Fig. 6. When the plunger and pin 41 are in the position shown in Fig. 6, the attendant slips a cup-shaped ferrule, as *A*, as shown in Figs. 2 and 2<sup>a</sup>, omitting the slot *A'* therein, onto the pin 41, which as the pin goes down is carried through the opening 20<sup>a</sup> in the plate 20 and into the hole or pocket 18 in the disk 16. The lower edge of the ferrule becomes engaged on the top of the plate 21, the hole 21<sup>a</sup> therein fitting closer to the pin than those above, and is stripped off, leaving the uncut ferrule in the pocket. When the downward movement of the pin 21 is completed, the arrangement and timing of the parts are such that the pawl 22 will be operated to move the disk 16 ahead the distance between the pockets 18. When the pin comes up through the coinciding hole or pocket in the disk 16, another uncut ferrule is applied by the attendant, to be left in the disk as the pin descends, as before described. The machine being thus fed, the uncut ferrules are carried around until they come under the die 4, when as the plunger 30 comes up through the pocket 18 of the disk it engages the ferrule and passes it up through the opening in plate 20 coinciding with the opening 1<sup>b</sup> in the table and carries it into the die-plate, where it is held in the chambered recess 4<sup>a</sup> thereof tightly, as in a press. When so held the timing of the parts is such that the tool or chisel 6 is moved from the position shown in Fig. 1 to that shown in Fig. 6, passing along the slot 4<sup>b</sup> in the top of the die, passing through the recessed end 30<sup>a</sup> of the plunger, and cutting the chip *B* (shown in Figs. 3 and 3<sup>a</sup>) out of the rounded end on the top of the ferrule, forming the slotted opening *A'*. After the cut is made the plunger descends, carrying the ferrule down with it until it is stripped off by the plate 21, leaving the cut ferrule in one of the pockets 18 in the disk 16 to be carried around until it comes opposite the opening 42, when it drops through into the chute 43 and is delivered into a suitable receptacle.

When all the pockets of the disk 16 are full, the operation is continuous, one of the ferrules being forced into the die and cut at the same time that the pin 41 comes up into position for the attendant to place an uncut ferrule on in feeding the machine. The chips are discharged through the chute *B*, extending from the side of the die into another receptacle.



It is evident that numerous changes in and from the construction herein described may be made without departing from the equivalents of my construction, and that my machine, with slight modifications, is adapted to numerous other uses.

What I claim as new, and desire to secure by Letters Patent, is—

10 1. The combination of a chambered die slotted from the top into the chamber, a movable holding device entering the chamber, a tool operating in the slot of the die, and mechanism for operating the tool, substantially as set forth.

15 2. The combination of a die having a chambered recess from one side, a transverse slot from the opposite side of the die entering the chambered recess, a movable holding device operating in the chamber, a tool capable of advancing in the slot, and mechanism for operating the tool, substantially as set forth.

20 3. The combination of a rotary disk having pockets arranged around its pivotal point, mechanism for intermittently moving the disk, a plate or table on one side of the disk having a discharge-opening with which the pockets are adapted to register, an upwardly-moving plunger operating through the perforation in the plate or table and through the  
30 pocket and hole into which the plunger operates, and cutting mechanism arranged to

operate transversely to the plunger through the die and means for operating the plunger and cutting mechanism, substantially as set forth.

35 4. A two-part slide-operating lever having small rollers introduced between the contiguous ends of the two parts, bolts for securing the two parts together with the rollers introduced between them, constituting a rupturable joint as a safety device, substantially as set forth.

40 5. The combination in a ferrule-slotting machine, of a reciprocating slide 34 carrying a plunger 30 and a feeding-pin 41, a disk or bed-plate 21 having perforations through which the pin and plunger operate, a feeding-disk having pockets arranged around its pivotal point and adapted to coincide with the pin and plunger openings in the bed-plate, a  
50 chambered holding-die into which the plunger operates, having a transverse slot in its upper side, a tool or chisel operating in the slot and mechanism for operating the slide, the feeding-disk and tool or chisel, combined, substantially as set forth.

In witness whereof I have affixed my signature in presence of two witnesses.

CHARLES T. PRATT.

Witnesses:

JAMES S. GREEN,  
JOHN DEMPSEY.