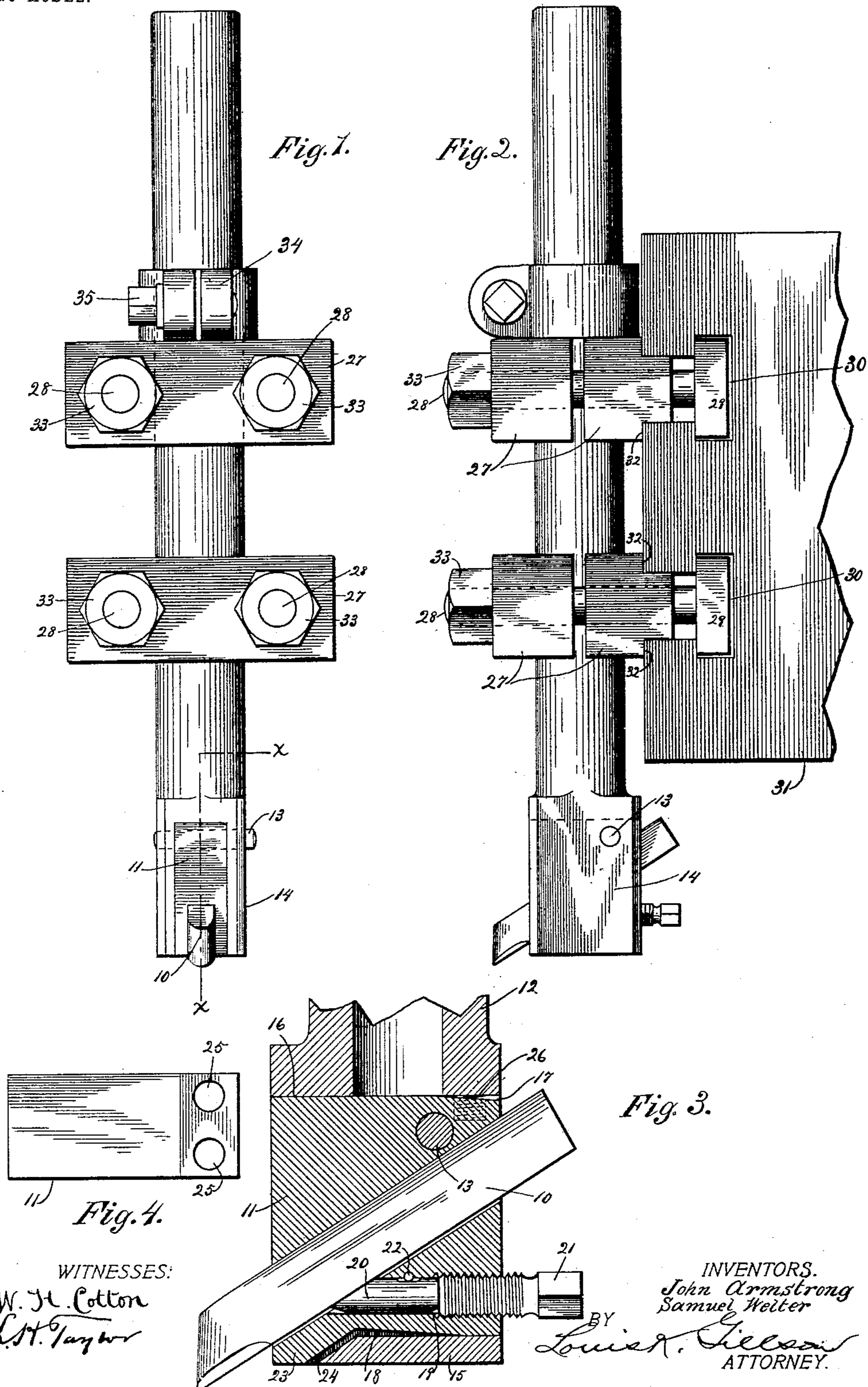


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SLOTTING MACHINE TOOL HOLDER.

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NO MODEL.



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SLOTting-MACHINE TOOL-HOLDER.

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To all whom it may concern:

Be it known that we, JOHN ARMSTRONG and SAMUEL WELTER, citizens of the United States, and residents of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Slotting-Machine Tool-Holders, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

This invention relates to improvements in tool-holders for slotting-machines, and has particular reference to that type in which the cutter is carried by an oscillating member designed to provide a relief motion for the tool on the back stroke of the same.

The invention consists in the combination and arrangement of parts hereinafter fully described, particularly designated in the claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the tool-holder of our invention. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical longitudinal section, on an enlarged scale, on the line *x x* of Fig. 1; and Fig. 4 is a detail of the oscillating cutter-holder.

The cutter 10 is secured in an oscillating member or block 11, pivoted at the lower end of a cylindrical shank or stem 12. The block 11, as shown, is mounted on a pin 13, the ends of which are fitted into depending arms or extensions 14 at the lower end of the shank 12 and which are connected by a tie or bridge piece 15. It is to be noted that the extensions 14 form a housing for the block 11 and that the tie-piece 15 strengthens the housing and provides a firm support for the block 11. Tools of this character having an oscillating relief-block usually have the cutters arranged horizontally. This is objectionable, inasmuch as when the edge of the cutter is located above the lower edge of the block it is impossible to get down to the bottom of the slot to be formed. To avoid this and to provide means whereby the same cutter may be used to operate to the full depth of a slot, the cutter is in the present instance mounted so as to pass diagonally across or through its carrying-block, its edge projecting downwardly, and then the cutter may be so ad-

justed that its point will extend past or, if desired, at least to the lower edge or bottom of the block 11.

In order to permit of the rocking of the block 11, which is shown in the drawings as rectangular, the pivot-pin 13 passes therethrough near the rear upper corner thereof, as clearly shown in Fig. 3, the lower end of the shank 12 providing, as at 16, an abutment against which the block bears when the cutter is on its downward stroke. The upper face of the block 11 at the corner adjacent the pivot-pin 13 is beveled, as at 17, to enable the block to move, and the lower face of said block is beveled, as at 18, for the same reason.

Passing horizontally through the block 11 is an aperture 19, which enters the diagonal opening in which the cutter 10 is seated. In the forward end of the aperture 19 is seated a clamping-pin 20, the face thereof adjacent the cutter being beveled, so as to conform to the inclination of the adjacent face of the tool of the cutter, and this pin is forced forward against the cutter, so as to hold the same by means of a bolt or screw 21. The pin 20 is provided with a recess on one face through which passes a pin 22 to hold the pin 20 from falling out when the cutter 10 or bolt 21 is removed.

The lower side of the pin 20 is given a slight curvature at the ends in order to permit the pin a slight rocking movement. When the cutter 10 is clamped in position by screwing down the screw 21, the pin 20 impinges the cutter and is slightly tilted thereby. Upon releasing the screw 21 and giving the cutter 10 a tap at its forward end the pin 20 will readily release its grip and resume its normal position.

In order to strengthen the lower wall of the aperture 19 to better resist the pressure due to the cutter-clamping device, a projection or extension 23 is provided at the corner of the block adjacent and under the front end of the tool, and the rear face of this extension is inclined, as at 24, and bears when the block is depressed against a correspondingly-shaped face at the forward end of the tie-piece 15. The projection 23 also serves as a guard to prevent chips from slipping or being thrown

rearwardly from the cutter into the space between the bottom of the block 11 and the tie 15 and interfering with the free movement of the block.

5 Seated in sockets 25 in the upper face of the block 11 and back of the pivot-pin 13 are expansion-springs 26, such springs reacting against the lower face of the shank 12 to thrust the cutting-tool forward.

10 The shank 12 is clamped between two sets of blocks 27. Passing through coinciding apertures in the adjacent ends of the blocks 27 are bolts 28, provided with squared heads 29, which are seated in a pair of horizontal T-grooves 30 on the front face of a slide 31. 15 The rear of each of the pairs of blocks 27 is provided with a shoulder 32, which bears against opposite walls of the T-grooves. The outer ends of the bolts 28 are provided with 20 nuts 33, and it will be readily understood that when such nuts are screwed home the blocks 27 will be clamped to the slide 31 and at the same time the stem 12 will be securely clamped between the blocks 27.

25 Vertical and lateral adjustment of the tool is attained by unloosening the nuts 33, at which time the blocks 27 may be moved laterally and the shank 12 adjusted vertically.

In order to prevent the shank falling out 30 from between the blocks 27 when the nuts 33 are loosened, a collar 34 is provided and located on the stem above the upper pair of clamping-blocks 27. If it be desired to adjust the cutter so as to cut to a certain depth, 35 the collar 34, which is provided with a bolt 35 for clamping it to the shank, may be loosened and adjusted to the proper position. Then when the nuts 33 are unscrewed the shank will drop down, but be held in the de- 40 sired position by the collar 34, resting on the upper pair of clamping-blocks 27.

The cutter may be adjusted angularly simply by releasing the nuts 33 and turning the stem. Motion is imparted to the slide 31 in the usual manner. 45

In the operation of the tool on the down stroke of the slide the springs 26 press the block 11 outwardly, moving its upper face against the abutment 16 and thrusting the cutting-tool forward. On the upstroke of 50 the slide the block retreats, yielding to the pressure against the work on the tool, and thereby permitting the tool to be retracted without exerting appreciable pressure against the surface being operated on. 55

We claim as our invention—

1. In combination, a shank having an aperture opening transversely through its body and prolonged laterally at one end through the shank end; a tool-holding block located 60 within the aperture and extended at its forward end into the lateral extension thereof and having a tool-socket disposed obliquely as to the axis of the shank and opening at its forward end through the extension of the 65 block; and a pivot-pin securing the block to the shank and located back of the tool-socket and adjacent the rearward end thereof.

2. In combination, a shank, an oscillatable block carried by the shank and having a di- 70 agonal aperture and a horizontal opening entering the aperture through the rear face of the block, a tool seated in the aperture, a pin in the opening having an inclined face engaging the tool, such pin being curved on its 75 under face at the ends, and a screw entering the aperture and bearing against the pin.

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In presence of—

PAUL ARMSTRONG,
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