

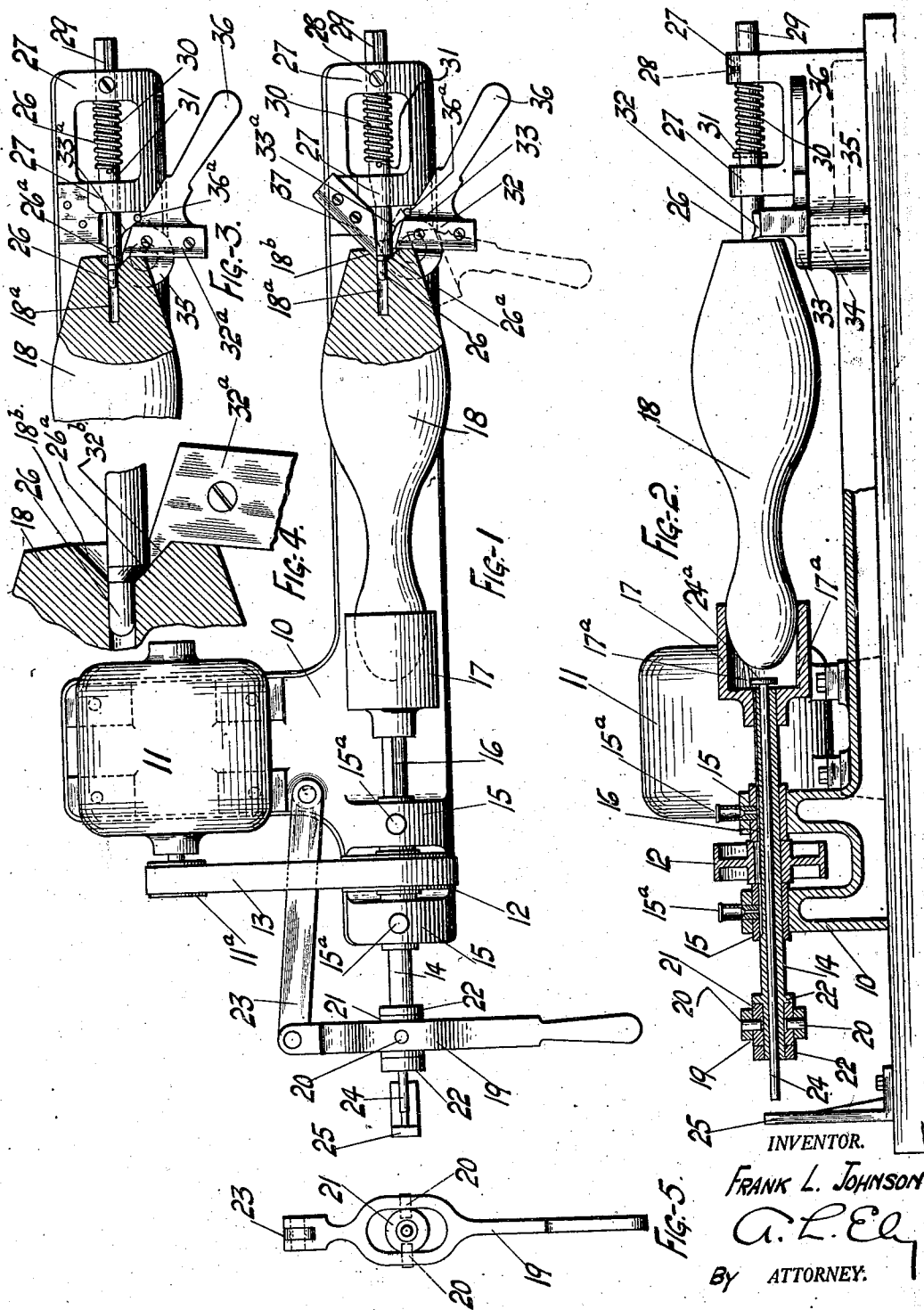
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MACHINE FOR REDRESSING TENPINS OR THE LIKE

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MACHINE FOR RE-DRESSING TENPINS OR THE LIKE.

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This invention relates to wood-working machinery and particularly to machinery for redressing ten pins, duck pins, and the like.

The purpose of the invention, in general, is to provide an apparatus capable of being inexpensively constructed particularly for the use of owners of bowling alleys, whereby they can redress their own pins at a considerable saving of time and expense. Accordingly the end in view is a light, motor-driven unit in which a pin may be readily mounted and from which it is easily removed, the unit being adapted to rotate the pin at a rapid rate and also adapted to redress the bottom of the pin so that it will stand in the proper manner on the alley.

The foregoing and other objects will be better understood when the following description of the invention is read in connection with the accompanying drawings which illustrate the same, it being understood that the invention is not limited to the specific forms thereof illustrated and described.

Of the accompanying drawings:

Figure 1 is a plan partly in section of one form of device embodying the invention;

Figure 2 is a side elevation partly in section thereof;

Figure 3 is a part plan of a modified form of the redressing device;

Figure 4 is an enlarged detail thereof; and

Figure 5 is a detail end elevation of the feeding lever.

Referring to the drawings, 10 is a base casting on which the various parts of the device are mounted. On the base 10, a motor 11 may be mounted whereby the unit will be self contained. The motor 11 may be dispensed with where other sources of power are available for driving a work-rotating pulley 12. In the present case the latter is driven by a belt 13 which is driven by a pulley 11^a on the motor.

Pulley 12 is keyed onto a shaft 14 which may be hollow as shown and which is arranged to slide and rotate in bearings 15, 15 formed on base 10, a key-way 16 being provided in the shaft to permit of the sliding thereof relative to pulley 12 which is arranged on the shaft between bearings 15. Oiling devices 15^a, 15^a may be provided for bearings 15. Shaft 14 has secured on one end, a chuck 17 so formed as to receive

and grip the head of a pin indicated at 18, the chuck 17 being formed as a hollow cylinder having tapering ribs 17^a, 17^a on its inner surface for gripping the head of the pin. The shaft 14 is arranged to be slid in bearings 15 by a lever 19 pivoted at 20, 20 to a sleeve 21 which is held on shaft 14 by collars 22, 22 the inner one of which may be formed on the shaft as shown. Lever 19 is pivoted on a link 23 which is pivoted on base 10. Slidable within the shaft 14 there is arranged a pin ejector rod 24 having a head 24^a thereon extending into the chuck 17. An ejector stop 25 is mounted so as to engage the rear end of the ejector rod when the dressing operations are complete for the purpose of forcing the head of the pin 18 out of the chuck.

For rotatably mounting the bottom of the pin 18 in alignment with chuck 17, a center 26 is employed. The center 26 is slidably mounted in bearings 27, 27 formed on base 10 and is held against rotation therein by a key 28 projecting into a key-way 29 in the center 26. A compression spring 30 is arranged on center 26 between the outer bearing 27 and a pin 31. The pins 18 have the usual apertures 18^a extending upwardly into their bottoms into which the center 26 is adapted to fit. The center has an enlarged tapered shoulder 26^a which is adapted to bear against the countersunk portion 18^b which provides the base on which the pin is supported in use. Accordingly spring 30 normally will urge the pin 18, and the chuck 17 to the left as shown in the drawing.

Arranged for cutting operations on the bottom of the pin is a tool 32, mounted on a support 33 which is pivoted on a pin 34 extending into a socket 35 formed in the base 10. The cutting edge of the tool 32 is arranged so as to intersect the axis of the pivot as clearly apparent from Figures 1 and 2. The support 33 has formed thereon a hand lever 36 by which it may be operated to first dress the bottom and then the sides of the pin adjacent the bottom, the tool being invariable to the dotted line position shown in Figure 1 for this latter purpose. A stop pin 36^a is arranged for engagement with the support 33 which is notched at 33^a, so as to provide means for limiting movement of the lever 36 in either direction.

For dressing the countersunk portion 18^b of the pin, a second stationary tool 37 is employed, the tool 37 being suitably sup-

ported on base 10. Instead of providing a second tool, as shown in Figure 1, a tool 32^a (Figures 3 and 4) may be substituted for tool 32. As best shown in Figure 4 this tool is provided with an offset cutting edge 32^b adapted to dress the countersink, at the same time the bottom of the pin is dressed.

In operation, the pin 18 is mounted in the chuck 17 and on center 26, it is sanded, either before or after dressing while held away from the tools 32, 32^a or 37 by spring 30. Lever 19 is then operated to feed the bottom of the pin against tools 32 and 37 or against tool 32^a while in the position shown in full lines in Figure 1 or in Figures 3 and 4. After the bottom is properly dressed the tool 32 or 32^a is swung to the dotted line position (Figure 1) and its lower surface is also dressed. The reconditioned pin may now be removed by drawing the chuck 17 backwardly by lever 19, this causing ejector rod 24 to engage stop 25 whereby the pin is pushed out of the chuck.

Modifications of the invention may be resorted to without departing from the spirit thereof or the scope of the appended claims.

What is claimed is:

1. A machine of the class described, comprising a tool, a shiftable chuck, and a shiftable center, yielding means for urging the

chuck and center in one direction when the work is supported thereby so as to hold the work away from the tool, means for shifting the chuck and center to carry the work against the tool, an ejector in the chuck and means operable on the ejector, when the chuck and center are shifted so as to carry the work away from the tool, whereby the work will be ejected from the chuck.

2. A machine of the class described comprising, means for supporting and rotating the work, a tool, means for relatively shifting the means and the tool, a pivoted mounting for the tool, the cutting edge of said tool being on a line intersecting the axis of the pivot whereby the tool may operate successively on an end and on the surface of the work, or vice versa, to dress the edge of the work defined by said end and said surface.

3. A machine for redressing tenpins or the like comprising, means for supporting and rotating the work, and a pivotally mounted tool, said tool having cutting edges for simultaneously dressing a countersink in the bottom of the pin and the bottom of the pin, said tool being pivoted with the cutting edge for dressing the bottom intersecting the axis of the pivot so as to be swung to a position to dress the surface of the work adjacent the bottom.

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