W. R. FISHBURN.

PAWL AND RATCHET MECHANISM.

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Fig. 1.

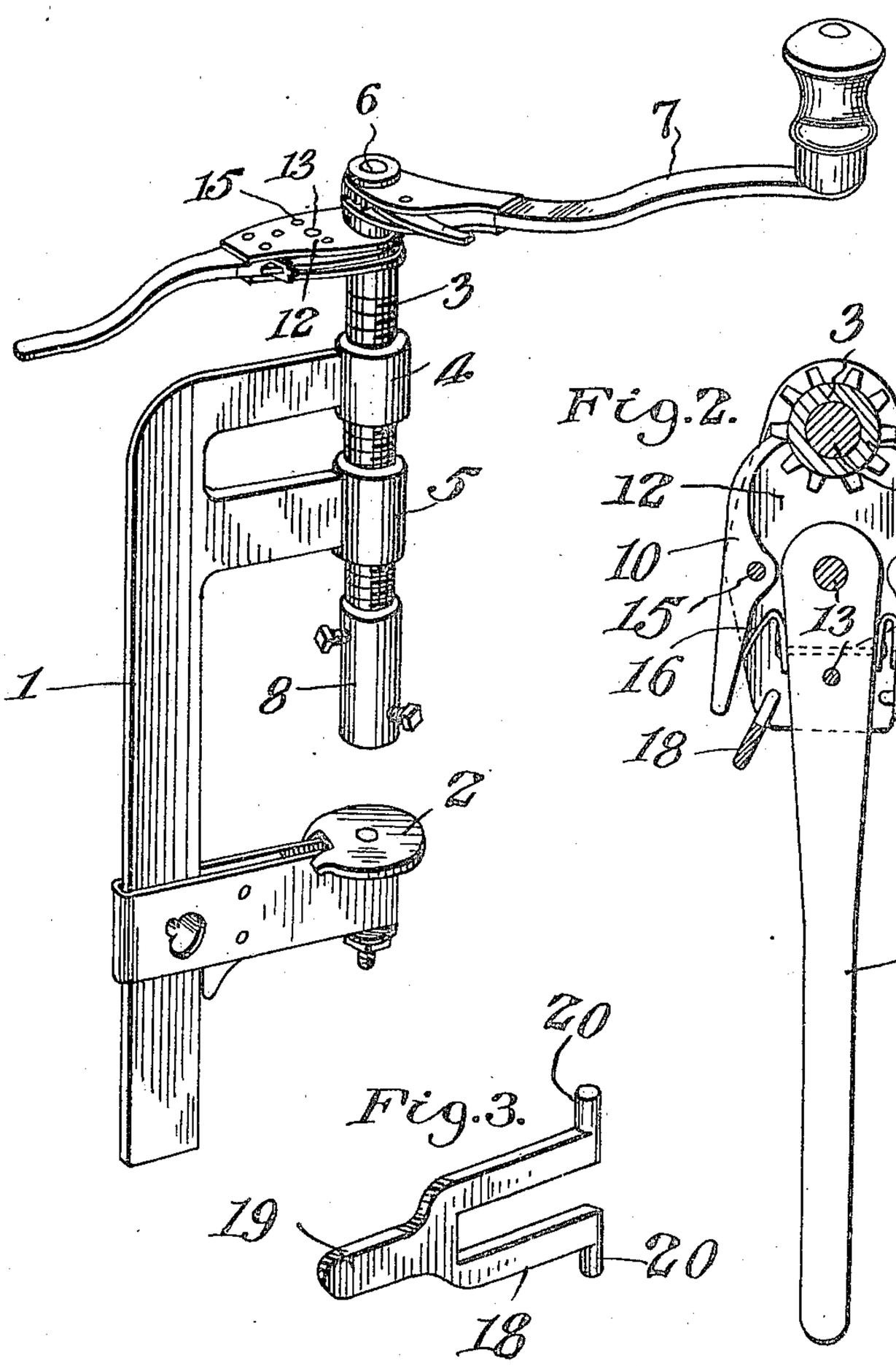

Fig. 2.

Fig. 3.

Witnesses:—

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PAWL-AND-RATCHET MECHANISM.

952,032. Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed September 18, 1909. Serial No. 518,391.

To all whom it may concern:

Be it known that I, WILLIAM R. FISHBURN, a citizen of the United States, residing at Birkvill, in the county of Norton and State of Kansas, have invented certain new and useful Improvements in Pawl-and-Ratchet Mechanisms, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to improvements in ratchet lever mechanisms, and more particularly one especially designed for use on drills.

The object of the invention is to provide a simple and practical double pawl and ratchet controlled hand lever with improved means for holding the pawls in operative position.

With the above and other objects in view, the invention consists of the novel construction, combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings in which—

Figure 1 is a perspective view of a portable drill having my invention applied thereto; Fig. 2 is a horizontal section showing the pawl and ratchet mechanism, and Fig. 3 is a perspective view of one of the pawl catches.

Referring more particularly to the drawings, 1 denotes a body bar or member of a portable drill, 2 an adjustable work support upon the same, 3 denotes a feed screw working through a guide sleeve 4, and a nut 5 at one end of the body, 6 denotes a rotary spindle arranged in the feed screw and having at its upper end a crank handle 7 connected to it by a pawl and ratchet mechanism, and at its lower end a drill or tool socket member 8. The feed screw 3 is adapted to be rotated in either direction by my improved pawl and ratchet mechanism which comprises a ratchet wheel 9 fixed to, or integral with, the upper end of the feed screw. Co-acting with the ratchet wheel is a pair of pawls 10, 11 arranged between opposing plates 12 which are secured by transverse fastenings 13 to the flat outer faces of a hand lever 14, and have their outer ends formed with bearing openings to receive the unthreaded portion of the feed screw. The pawls 10, 11 are pivoted intermediate their ends on transverse pivots 15 arranged in the plates 12 on opposite sides of the lever, and the outer ends of said levers are curved inwardly and beveled to co-act with the teeth of the ratchet wheel 9. Two angular leaf springs 16 having their inner ends secured by a transverse fastening 17 to opposite edges of the lever 14, are adapted to have their free ends press against the inner portions or ends of the pawl levers 10, 11 to actuate their outer ends toward the ratchet wheel. Said inner ends of the pawl levers are adapted to be engaged by U-shaped catches 18 which retain the pawls in retracted position. Each of the catches 18 is of substantially U-shape having at its closed end an extension forming a finger piece, and at the ends of its parallel arms outwardly projecting pivot studs or trunnions 20 to rotate in opposing bearing openings in the plates 12. It will be seen upon reference to Fig. 2, that when the inner end of either of the pawls is pressed inwardly to retract its outer end from engagement with the ratchet wheel, the co-acting catch may be swung from said inner end to hold the pawl in retracted position.

In operating my improved ratchet mechanism it will be seen that either one of the other two pawls will be held in retracted position by its catch so that when the lever 14 is oscillated the free pawl will intermittently rotate the ratchet wheel. After the feed screw has been actuated in one direction the desired distance, the one pawl is released and the other one retracted so that when the lever is again oscillated the feed screw will be moved in the opposite direction.

Having thus described the invention what is claimed is:

The herein described pawl and ratchet device consisting of a rotatably mounted shaft, a ratchet wheel on said shaft, a flat bar having an enlarged end and a reduced end forming a handle, spaced plates arranged on opposite sides of the large end of the bar and having their projecting ends formed with openings to rotatably receive said shaft, said plates being disposed on opposite sides of the ratchet wheel and being of greater width than the enlarged end of said bar, the side portions of said plates being formed intermediate their ends with pivot openings and adjacent their inner ends with pivot openings, transverse fastenings passed through the plates and the bar, pawls

arranged between the plates on opposite sides of the bar and having enlarged intermediate portions and curved beveled outer ends to engage the teeth on the ratchet wheel, transverse pivots arranged in the intermediate portions of the pawls and the pivot openings in the intermediate portions of said plates, V-shaped leaf springs having their inner ends engaged with the opposite edges of the enlarged portion of the bar, and their outer ends bearing against the inner ends of said pawls, a fastening passed through the bar and the inner ends of said springs to unite the latter to the bar, and a pair of independent U-shaped catches each having spaced arms formed with outwardly projecting trunnions to rotate in the pivot openings at the inner ends of said plates, the closed outer ends of said catches being reduced to form outwardly projecting finger pieces, said catches being adapted to engage the inner ends of the pawls to hold the latter in retracted position.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILLIAM R. FISHBURN.

Witnesses:
J. A. DIBBLE,
R. L. DIBBLE.