

E. RAWSON.

TOOL HOLDER.

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Fig. 1.

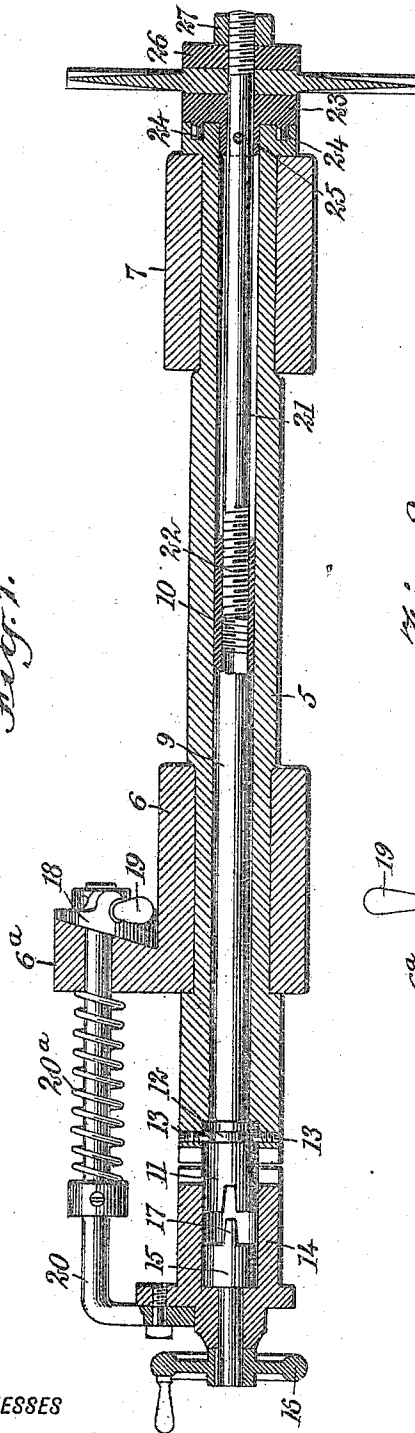


Fig. 2.

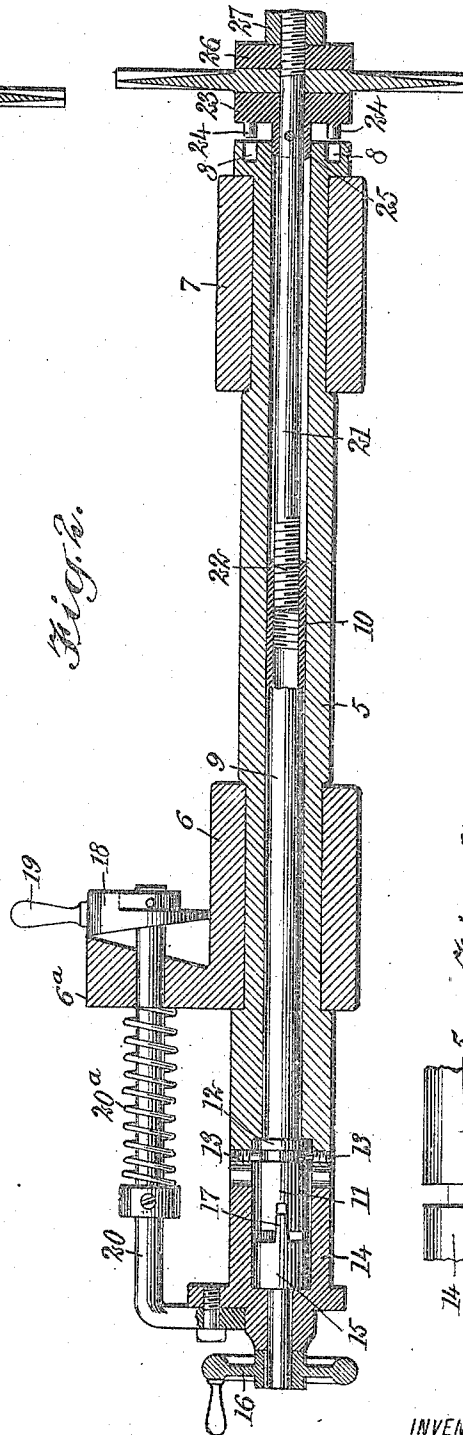
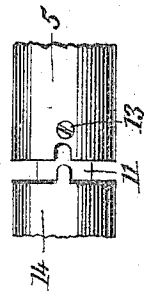


Fig. 3.



WITNESSES

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EDWARD RAWSON, OF LEWISTON, IDAHO.

TOOL-HOLDER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWARD RAWSON, a citizen of the United States, and a resident of Lewiston, in the county of Nez Perce and State of Idaho, have invented a new and Improved Tool-Holder, of which the following is a full, clear, and exact description.

The invention has reference to that class of tool holders or heads as are provided in connection with wood working machines to carry molding knives, milling tools, saws etc.

The invention has in view means by which the tool may be quickly applied and detached from the tool holder, consisting of a locking member journaled in the spindle, a clutch, a wrench journaled in the clutch, movable into and out of engagement with the locking member, and means for moving the clutch to engage and lock the spindle against rotation during the operation of the wrench.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a central vertical section through a machine spindle having my improved tool holder, showing the clutch and wrench disengaged; Fig. 2 is a similar view showing the clutch and wrench engaged, as when removing and applying the tool; and Fig. 3 is a fragmentary view of the adjacent ends of the spindle and clutch.

A hollow machine spindle 5 is journaled in bearings 6 and 7, at which points it is reduced in diameter to prevent relative endwise movement, and at its forward end is constructed with one or more recesses 8, two being shown, arranged at diametrically opposite points. Within the rear end of the spindle is journaled a locking member 9, having a tubular internally-threaded inner end portion 10, and a head 11 at its outer end which is received in a counterbored portion of the spindle, and is provided with a circumferential groove 12, within which one or more screws 13 project from the spindle to hold the locking member in place. The head of the locking member is also transversely slotted and journaled in a clutch 14 which is adapted to engage the spindle and forms an extension of the rear end portion thereof. Within the rear or outer end portion of the clutch is journaled a wrench 15, the shank

of which is reduced in diameter and provided with an operating handle 16 at the outside of the clutch. The wrench has a screw-driver point 17 movable into engagement with the slotted head of the locking member when the clutch is engaged with the spindle, as shown in Fig. 2. The rear bearing 6 has an offset portion 6^a constructed with an inner inclined or cam face coacting with the corresponding or counterpart face of a cam 18, the cam having an operating handle 19 and secured to the inner end of an arm 20, which in turn is connected at its opposite and outer end to the clutch 14, the arm having an offset end portion and the clutch having a collar by which this connection is effected. Interposed between the portion 6^a of the bearing and a collar on the arm 20 is a surrounding spring 20^a.

An arbor or shank 21 for carrying the tool has an inner threaded end 22 adapted to engage the tubular threaded end 10 of the locking member, and is provided at its outer end portion with a fixed collar 23 which has projecting pins 24 on its inner face adapted to engage in the recesses 8 of the spindle, and a boss 25 of a diameter to slidably fit within the bore of the spindle and properly center the arbor and tool at this end. The tool is secured to the arbor in any suitable manner, that shown being the conventional nut and washer 26 and 27 respectively.

In practice it will be found advantageous to provide a number of arbors 21 having various tools as are in use applied thereto, and when removing one tool and applying another the cam 18 is thrown to the position illustrated in Fig. 2, drawing the clutch and wrench inwardly and respectively engaging them with the spindle and the locking member, the engagement of the clutch operating to lock the spindle against rotation, whereby when the wrench is revolved a relative rotary movement is set up between the locking member and the arbor, which in the case of removing the tool unscrews these parts at their threaded connection, when the tool together with the arbor may be removed and the arbor having the next tool required is inserted in the spindle and the operation of the wrench reversed to thread the locking member and arbor together, with the projections 24 of the collar 23 entering the recesses 8 and preventing the arbor from unscrewing by the action of the tool. On turning the cam 18 to the position

shown in Fig. 1, the spring 20^a throws out the clutch 14 and the wrench 15, and permits of the spindle 5 and locking member 9 revolving independently thereof.

5 Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The combination of a revoluble spindle, a clutch, a tool carrier, a locking member
10 revoluble in the spindle and having means to engage and release the tool carrier by a rotary movement and lock the tool carrier to the spindle, a wrench journaled in the clutch, movable into and out of engagement
15 with the locking member, means for moving the clutch to engage and lock the spindle against rotation, and means for revolving the wrench.

2. The combination of a revoluble spindle,
20 a clutch, a tool carrier, a locking member revoluble in the spindle and having means to engage and release the carrier by a rotary movement and lock the tool carrier to the spindle, a wrench journaled in the
25 clutch, and means to simultaneously move the clutch and wrench respectively into engagement with the spindle and locking member.

3. The combination of a revoluble spindle,
30 a clutch for locking the spindle against rotation, a tool carrier, a locking member revoluble in the spindle having means to engage and release the tool carrier by a rotary movement and lock the carrier to the
35 spindle, and means to revolve the locking member.

4. The combination of a revoluble spindle, a tool carrier, a locking member revoluble in the spindle having means to engage and
40 release the tool carrier by a rotary movement and lock the carrier to the spindle, means for locking the spindle against rotation, and means for revolving the locking member, carried by the means for locking
45 the spindle.

5. The combination of a revoluble spindle, a clutch for locking the spindle against rotation, a tool carrier, a locking member revoluble in the spindle having means to engage and release the tool carrier by a rotary movement and lock the carrier to the
50 spindle, an arm connected with the clutch, a cam for operating the arm to move the clutch into engagement with the spindle, a spring for retracting the clutch when the
55 cam is released, and means for revolving the tool locking member when the clutch is engaged.

6. The combination of a revoluble spindle, a tool carrier, a locking member having a
60 threaded engagement with the carrier to draw the carrier inwardly and lock it to the spindle, a clutch for locking the spindle against rotation, means for operating the clutch, and a wrench for revolving the tool
65 locking member carried by the clutch.

7. The combination of a spindle, an arbor, a locking member journaled in the spindle, having a threaded engagement with the arbor to draw the arbor inwardly and
70 lock it to the spindle, a wrench for revolving the tool locking member to release and connect the arbor therewith, and means for moving the wrench into and out of engagement with the locking member.
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8. The combination of a spindle, a locking member revoluble within the spindle, an arbor threaded to the locking member, having means to engage the outer end thereof, and means to revolve the locking member,
80 movable into and out of engagement therewith.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD RAWSON.

Witnesses:

J. HOWARD HOWE,
S. E. ARANT.