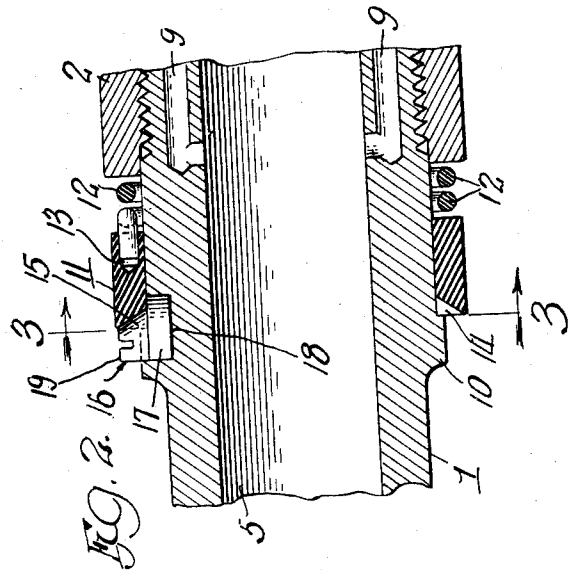
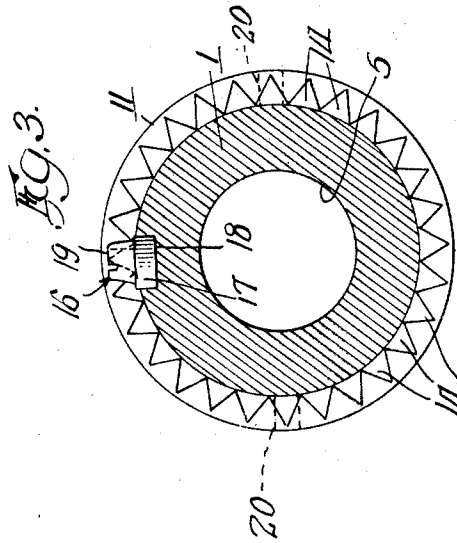
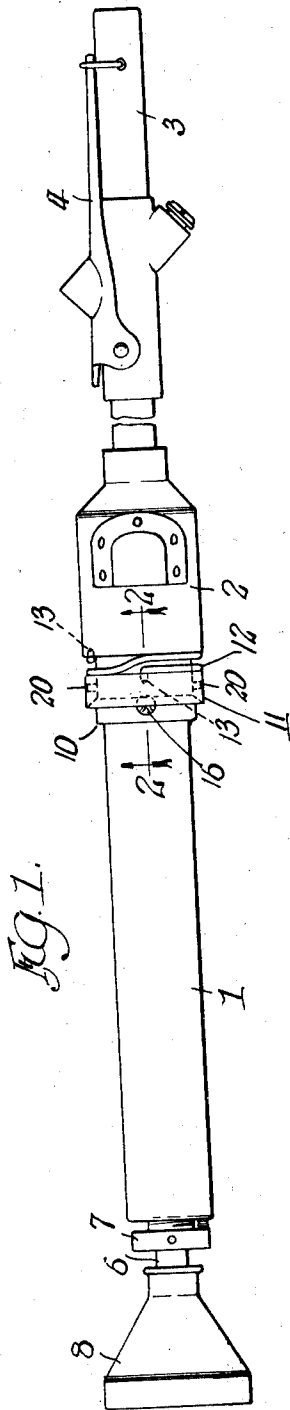


A. LEVEDAHL.
VALVE HOUSING OR HANDLE LOCK FOR PNEUMATIC TOOLS.
APPLICATION FILED JUNE 1, 1920.

1,385,178.

Patented July 19, 1921.



Inventor
Axel Levedahl
by Eugene C. Cullen, Atty.

UNITED STATES PATENT OFFICE.

AXEL LEVEDAHL, OF AURORA, ILLINOIS, ASSIGNOR TO INDEPENDENT PNEUMATIC TOOL COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

VALVE-HOUSING OR HANDLE-LOCK FOR PNEUMATIC TOOLS.

1,385,178.

Specification of Letters Patent.

Patented July 19, 1921.

Application filed June 1, 1920. Serial No. 385,438.

To all whom it may concern:

Be it known that I, AXEL LEVEDAHL, a citizen of the United States, residing at Aurora, in the county of Kane and State of Illinois, have invented new and useful Improvements in Valve-Housings or Handle-Locks for Pneumatic Tools, of which the following is a specification.

In pneumatic tools, the valve housing or handle, as the case may be, has screw-threaded connection with one end of the barrel, and locking devices have been employed for preventing such connection from working loose under the jars and vibrations to which the parts are subjected while the tool is in use.

This invention relates to such locking devices, and has for its objects to improve the construction thereof, and to provide in particular a locking device which will efficiently perform the function for which it is designed.

In the accompanying drawings illustrating a locking device of my invention—

Figure 1 is a side elevational view of a pneumatic sand rammer provided with such locking device;

Fig. 2 is an enlarged fragmentary longitudinal sectional view taken on line 2—2 of Fig. 1; and

Fig. 3 is a transverse sectional view taken on line 3—3 of Fig. 2.

In the drawings, I have shown the locking device of my invention applied to a pneumatic sand rammer of the floor type, such as described and claimed in my co-pending application Serial No. 314,374, filed July 30, 1919, and of which the present application is a division.

As shown herein, said tool has a barrel 1 and a valve housing or head 2 having screw-threaded connection with said barrel at one end thereof. To the head is connected a throttle valve stem 3, through which live air is supplied to the tool and controlled by a throttle valve (not shown). This valve is held normally closed by a spring and moved into open position by means of a lever 4 pivoted on the outside of the stem. The barrel 1 has a bore 5, in which reciprocates a piston (not shown), the piston having a rod 6 projecting through a stuffing box 7 in the outer end of said barrel, as illustrated in Fig. 1. The stuffing box structure is described and claimed

in my co-pending application filed May 27, 1920, Serial No. 384,515. To the outer end of this rod is applied a stamper or peen 8. The barrel has the usual passage 9, 9 (Fig. 2) for the operating fluid, the admission and exhaust of which to and from the barrel for reciprocating the piston and its connected rod being controlled by a distributing valve (not shown) of the differential pressure area type, located in the head 2.

As shown in Fig. 2, the valve casing or head 2 has screw-threaded connection with the barrel 1, and to lock such parts together to prevent accidental rotation or turning relatively to each other, a locking device of my invention is employed and constructed as follows. The barrel 1 is provided adjacent such end with an annular rib 10. Surrounding the barrel between the rib and head 2 is a ring 11 rotatably and slidably mounted on the barrel. Interposed between this ring and the head 2 is a coiled expansion spring 12 having several turns about the barrel and having its ends bent in opposite directions to enter pockets 13, 13 in the ring and head, respectively, as shown in Fig. 1. This connects such parts together, but permits the parts to be disconnected when desired to separate them for any purpose. In that edge of the ring 11 opposed to the rib 10 is a plurality of ratchet teeth 14, 14, between any two of which the tooth 15 of a locking key 16 may engage to hold the ring against accidental rotation. Said key 16 is in the form of a plug having a circular base 17 seated to rotate in a socket 18 in the barrel at the rib 11, as shown in Figs. 2 and 3. The key has a slotted head 19 by means of which it may be turned or rotated by a screw-driver or the like to release its tooth 15 from locking engagement with the ring 11. The ring 11 is provided with a plurality of holes 20 for a spanner wrench or the like to turn the ring to increase or decrease the tension of the spring 12. To unscrew the head or member 2 from the barrel, the key 16 is turned out of engagement with the ring, whereupon the head 2 may be unscrewed and the ring 11 and connected spring 12 will follow.

The locking construction described embraces but a few parts, is simple in its construction, and serves to efficiently lock the barrel and head together and prevents the head and barrel from loosening by the vibra-

tions to which the tool is subjected when in use. The ratchet teeth are undercut into the edge of the ring 11, thereby permitting the ring to overlap the base 17 of the key and retain it in its socket 18. Furthermore, the key does not project beyond the barrel a greater distance than the ring and may therefore be flush with the same to prevent the key from interfering in any way with the use of the tool. The spring 12 is coiled to exert a constant force on the head 2 in a direction to screw the head on the barrel, and thus hold the head from turning on the barrel in the opposite direction to unscrew it. The spring takes up any looseness likely to be produced in the connection between the head and the barrel, and the force of the spring may be varied by turning the ring 11.

While I have shown and described my improved locking device as applied to a pneumatic sand rammer, it is of course to be understood that the construction could be equally as well used for locking together the handle and barrel of a pneumatic tool of any other type. Moreover, I do not wish to be confined to the exact details of construction and arrangement of parts shown, as they may be variously changed and modified without departing from the spirit and scope of my invention.

I claim as my invention:

1. In a pneumatic tool, the combination of a barrel, a valve housing having removable connection with said barrel at one end thereof, a ring rotatably and slidably mounted on said barrel, a rib on said barrel, a multiple looped spring encircling said barrel between said ring and said valve housing and having its ends bent in opposite directions and engaged with said housing and ring respectively, and a member for locking the ring against rotation on the barrel.

2. In a pneumatic tool, the combination of a barrel, a valve housing having screw-

threaded connection with said barrel at one end thereof, a ring rotatably and slidably mounted on said barrel, provided with a plurality of ratchet teeth, a multiple looped spring encircling said barrel between said ring and said valve housing, and having its ends engaging both of the same, and a rotatable key on said barrel and having a tooth to engage the ratchet teeth on said ring.

3. In a pneumatic tool, the combination of a barrel, a member having threaded connection with said barrel at one end thereof, a rib on the barrel, a ring rotatably and slidably mounted on said barrel and having ratchet teeth in one edge thereof, a spring encircling said barrel between said ring and said member and having its ends bent in opposite directions and engaging in sockets in said member and ring, respectively, and a key having a base rotatably seated in a recess in said barrel at said rib and overlapped by said ring, said key having a tooth to engage the ratchet teeth on said ring.

4. In a pneumatic tool, the combination of a barrel, a member having threaded connection with said barrel at one end thereof, a rib on the barrel, a ring rotatably and slidably mounted on said barrel and having ratchet teeth in one edge thereof, a spring encircling said barrel between said ring and said member and having its ends bent in opposite directions and engaging in sockets in said member and ring, respectively, and a key having an integral base and head, the former being rotatably seated in a recess in said barrel at said rib and overlapped by said ring, and said head having a tooth to engage the ratchet teeth on said ring and provided with a slot to permit turning of said key.

In testimony that I claim the foregoing as my invention, I affix my signature, this 26 day of May, A. D. 1920.

AXEL LEVEDAHL.