R. W. RHODES.

LOCK FOR HANDLE SLEEVES OF FLUID OPERATED MACHINES.

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1,131,794.

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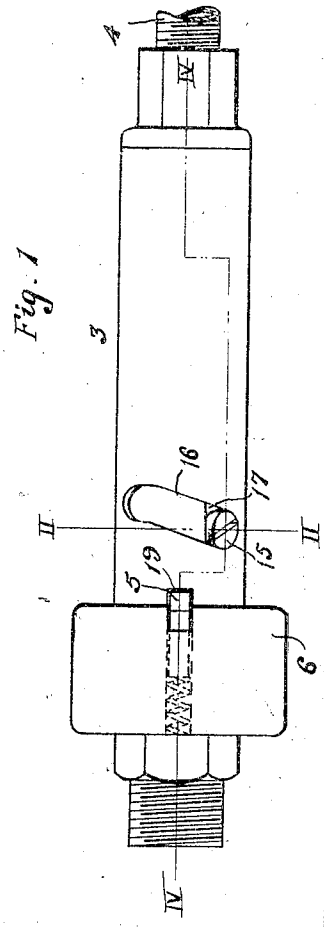


Fig. 1

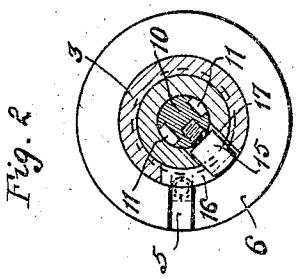


Fig. 2

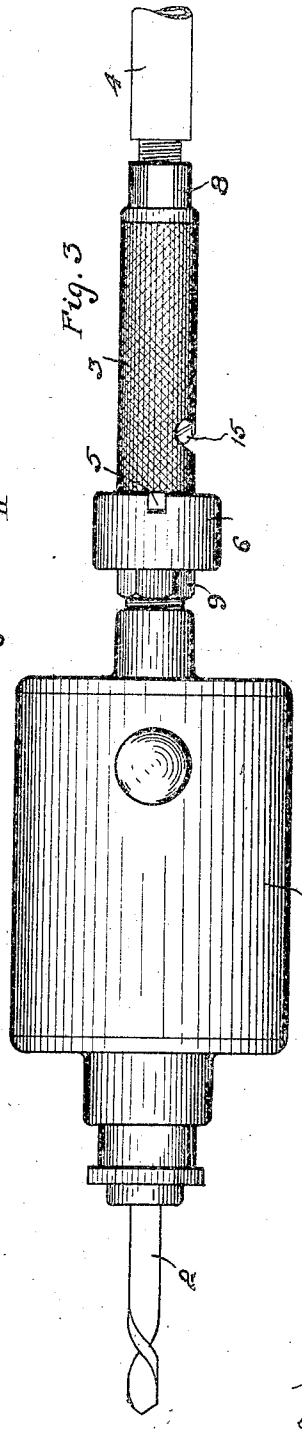


Fig. 3

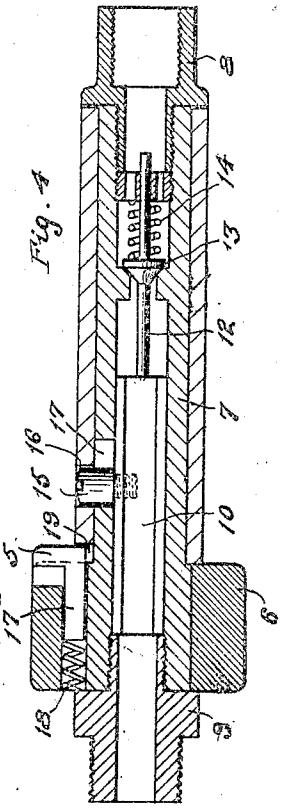


Fig. 4

WITNESSES

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LOCK FOR HANDLE-SLEEVES OF FLUID-OPERATED MACHINES.

1,131,794. Specification of Letters Patent. Patented Mar. 16, 1915.

Application filed July 8, 1914. Serial No. 849,740.

To all whom it may concern:

Be it known that I, ROBERT W. RHODES, a citizen of the United States, residing at Greensburg in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in locks for Handle-Sleeves of Fluid-Operated Machines, of which the following is a specification.

The invention relates to a safety lock for a motor handle in which a rotary sleeve acts both as the means for controlling the supply of fluid to the machine and as a supporting handle. The invention has for its objects the provision of a lock which can be easily operated by the thumb of the hand grasping the rotary sleeve; the provision of a lock which presents no projecting parts capable of injuring the hand of the operator in case the tool of the machine sticks, causing the body of the machine and its handle to rotate; and the provision of a lock of cheap, simple construction which can be applied to the existing types of handles. One embodiment of the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side view of a handle provided with my improvement, Fig. 2 is a section on the line II—II of Fig. 1, Fig. 3 is an assembly plane view showing the arrangement of the handle and drilling machine, and Fig. 4 is a section on the line IV—IV of Fig. 1.

Referring first to the general arrangement of the parts illustrated in Fig. 3, 1 is a fluid operated motor which may be of any approved type; 2 is the tool of the machine, in the present instance a drill; 3 is the handle sleeve, by the rotation of which the supply of fluid to the machine is controlled; 4 is a pipe or tube by means of which fluid under pressure is supplied through the handle to the machine; 5 is a reciprocatory lock by means of which the sleeve 3 is releasably held in its closing position; and 6 is the collar in which the lock or catch 5 is housed.

By reference to Fig. 4 it will be seen that the handle member, on which the sleeve is mounted, is hollow for the passage of fluid and that at one end it is provided with a connection 8 to which the fluid supply pipe 4 is secured. It is provided at its other end with a connection 9 by means of which the handle is secured to the drilling machine 1. Mounted for longitudinal reciprocation with regard to the handle member 7 is the rod 10, such rod having on opposite sides the grooves 11 shown in Fig. 2 for the passage of air from one end of the handle to the other. This rod 10 bears at its rear end against the stem 12 of the valve 13 such valve being normally held in closed position by means of the spring 14. The rod 10 is provided with a screw having the head 15 guided in the slot 17 in the member 7 and engaging the oblique cam slot 16 in the sleeve 3 (Fig. 1).

When the sleeve 3 and screw head 15 are in the position indicated in Fig. 1 the admission valve 13 is closed and the parts occupy the position indicated in Fig. 4. When, however, the sleeve 3 is rotated to the position indicated in Fig. 3 the screw head 15 and valve 13 are cammed to the right. The foregoing construction of valve and sleeve and the operation thereof as above described is well known in the art, and my invention lies particularly in the means for releasably locking the sleeve 3 in the position indicated in Fig. 1, which means will now be described.

The forward end of the handle member 7 preferably has a shrunk fit with the collar 6, though any other desired means may be employed for securing the parts rigidly together. The interior of the collar 6 is slotted at one side, as indicated in Fig. 4, and in this slot is mounted the stem 17^a of the head or lock 5, such locking being normally held in the position indicated in Fig. 4 by means of the spring 18.

The rotary sleeve 3 is provided at its forward end with a locking notch or recess 19 with which the lock 5 engages as indicated in Fig. 4 when the sleeve 3 is rotated so as to permit of the closure of the valve 13 by the spring 14, the head 15 at such time engaging the extreme end of the slot 16 as indicated in Fig. 1.

When it is desired to open the valve 13 the operator grasps the sleeve 3, pressing his thumb against the lock 5 which movement disengages it from the locking recess in the forward end of the sleeve 3. The sleeve can then be rotated to the position of Fig. 3 at which time the head 15 engages the other end of the slot 16 and the valve 13 is cammed to open position. At this time the catch or lock 5 occupies the position indicated in Fig. 3 with its top and end faces

flush with the top and end faces of the collar 6 so that the lock is substantially housed in the collar.

It will be seen that the foregoing locking construction is an advantageous one for several reasons. In the first place the device is very easily operated since the lock 5 is in position to be operated by the operator's thumb when he grasps the handle so that the hand which grips the handle can perform the two functions of releasing the lock and turning the sleeve. The construction is a compact and simple one and can be readily applied to existing handles, all that is necessary being the addition of the collar with the lock and the shortening and notching of the sleeve 3. Another advantage lies in the fact that the lock does not in any way interfere with the hand of the operator since it presents no projection tending to injure the hand in case the drill should stick in the work and the machine and handle commence to revolve rapidly and forcibly about the drill as an axis. Various modifications of the construction might obviously be made without departing from the invention as set forth in the claims. It is not necessary that the housing for the catch be made in the form of a separate collar, or in the form of a collar at all, and the lock construction might be variously modified, the only requirement being that it coöperate with the recess at the forward end of the sleeve when it is in position to cut off the supply of fluid to the handle. The sleeve might also be made to control the admission of fluid through the handle by means differing widely from those illustrated and described.

What I claim is:

1. In combination in a fluid operated machine, a handle provided with a fluid supply passage therethrough, a rotary sleeve for controlling the supply of fluid through the handle provided with a locking recess at its front end, and a spring held lock carried by the handle and engaging the said recess in the sleeve when the sleeve is in position to cut off the supply of fluid to the machine, the said lock being retracted and housed when the sleeve is in position to admit a supply of fluid to the machine.

2. In combination in a fluid operated machine, a handle provided with a fluid supply passage therethrough, a rotary sleeve for controlling the supply of fluid through the handle provided with a locking recess at its front end, a collar at the front end of the sleeve, and a spring held lock carried by the collar and engaging the said recess in the sleeve when the sleeve is in position to cut off the supply of fluid to the machine, the said lock being housed in the collar when the sleeve is in position to admit a supply of fluid to the machine.

3. In combination in a fluid operated machine, a handle provided with a fluid supply passage therethrough, a rotary sleeve for controlling the supply of fluid through the handle provided with a locking recess at its front end, a housing member carried by the handle and opposing the front end of the sleeve, and a reciprocatory lock carried by said housing member and engaging the said recess in the sleeve when the sleeve is in position to cut off the supply of fluid to the machine.

4. In combination in a fluid operated machine, a handle provided with a fluid supply passage therethrough, a rotary sleeve for controlling the supply of fluid through the handle provided with a locking notch in its forward edge, a housing member carried by the handle and opposing the said forward end of the sleeve, a reciprocatory catch carried by the housing member and spring pressed into engagement with the said notch when the sleeve is in position to cut off the supply of fluid to the machine, the said catch being retracted into the housing member when the sleeve is in position to admit fluid pressure to the machine.

5. In combination in a fluid operated machine, a handle provided with a fluid supply passage therethrough, a rotary sleeve for controlling the supply of fluid through the handle provided with a locking recess at its front end, and a yieldingly held lock carried by the collar and engaging the said recess in the sleeve when the sleeve is in position to cut off the supply of fluid to the machine, the said lock projecting above the surface of the sleeve and in position to be engaged by the thumb of the operator.

6. In combination in a fluid operated machine, a handle provided with a fluid supply passage therethrough, a rotary sleeve member for controlling the supply of fluid through the handle, an opposing member constituting a part of the handle and fixed thereto, and a spring actuated lock carried by one of the said members, the other member being provided with a recess to receive the said lock when the sleeve is in position to cut off the supply of fluid to the machine, and the said lock being housed in the member carrying it when the sleeve is in position to admit a supply of fluid to the machine.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

ROBERT W. RHODES. [L. S.]

Witnesses:
H. W. Muir,
W. G. Shaffer.