No. 880,127. PATENTED FEB. 25, 1908.

H. H. CRAMER.

TURNING PLUG.

APPLICATION FILED OCT. 8, 1906.

Fig. 1.

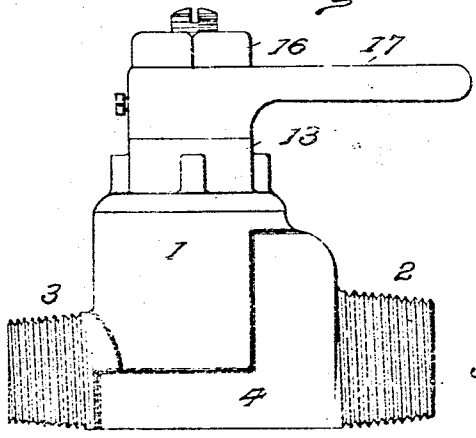


Fig. 3.

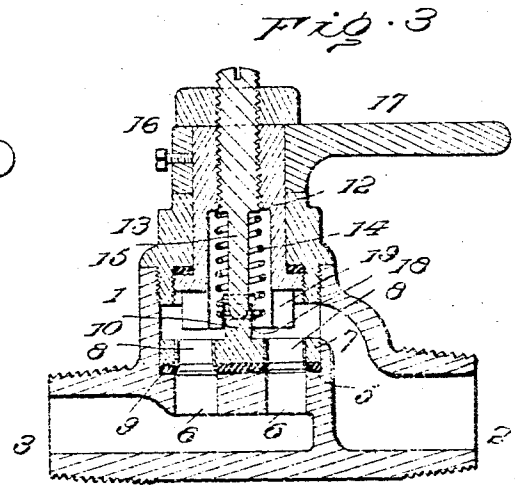


Fig. 2.

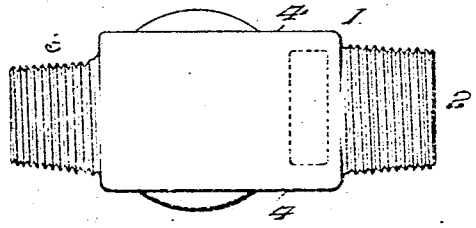


Fig. 4.

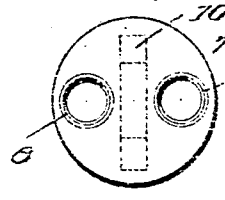


Fig. 5.

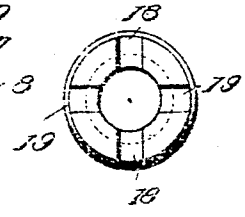


Fig. 6.

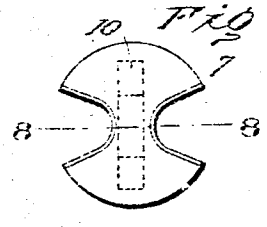


Fig. 7.

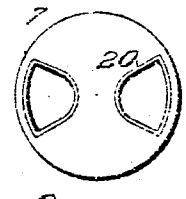


Fig. 8.

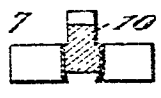


Fig. 9.

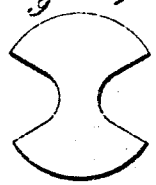
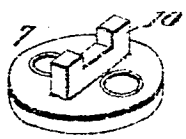


Fig. 10.



Witnesses

Inventor

H. H. Cramer

By,

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UNITED STATES PATENT OFFICE.

HERBERT H. CRAMER, OF DENVER, COLORADO.

TURNING-PLUG.

No. 880,127. Specification of Letters Patent. Patented Feb. 25, 1908.

Application filed October 8, 1906. Serial No. 338,634.

To all whom it may concern:

Be it known that I, HERBERT H. CRAMER, of the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Turning-Plugs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This turning plug is primarily designed for use in connection with rock drills and other air operated appliances, and the objects are, first, to enable the casing to be held in a vise without danger of injuring the threaded extensions; secondly, to insure the retention in place of a soft valve facing under all conditions; thirdly, to positively hold the valve disk against its seat when there is pressure through the casing toward the under side of the valve; and lastly, to enable the handle and valve stem to be placed in different positions relatively to the valve disk.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation. Fig. 2 is a bottom plan view. Fig. 3 is a vertical longitudinal sectional view. Fig. 4 is a bottom face view of the valve disk. Fig. 5 is a lower end view of the valve stem. Figs. 6 and 7 are views of modified forms of the valve disk. Fig. 8 is a cross sectional view on line 8–8, Fig. 6. Fig. 9 is a view of the valve facing employed in connection with the forms of disk shown in Figs. 6 and 7. Fig. 10 is a view in perspective of the valve disk.

Referring to the drawings, 1 designates the casing; 2 the inlet extension and 3 the outlet extension, both of which are exteriorly threaded and are on substantially the same plane. In some instances the extension 3 may be the inlet and the extension 2 the outlet. The opposite sides of the casing are flattened, as at 4, 4, Figs. 1 and 2, the cross section of the casing through the flattened portions being of greater diameter than that of either of the extensions, thereby enabling the casing to be readily held in a vise without injuring the threaded portions.

Centrally within the casing is a valve seat 5 which is formed with two ports 6, and seated thereon is the valve disk 7 also formed with ports designed to coincide with the ports 6. These ports of the valve disk are fitted with short tubes 8, the lower ends of which project slightly beyond the bottom face of the valve disk, and their extreme lower edges are flared so as to retain in position a facing 9, preferably of leather. This facing is of such thickness that the tubes 8 will not extend entirely therethrough. By expanding the ends of the tubes the facing is held in place and prevented from dropping off when the valve is taken apart, and is also prevented from sagging when passing over ports 6 of the valve seat, thus preventing the edges from engaging or buckling when the valve is being turned on its seat. On its upper face the valve disk is provided with a rib 10.

12 designates the valve stem which is suitably packed and held within the casing by a bonnet 13. The lower portion of this stem has a bore to accommodate the coil-spring 14 which bears downwardly on rib 10, serving thereby to hold the valve disk to its seat. This spring is sufficient when the device is used as a throttle valve or a blow-off cock, but where there is pressure from the under side of the valve disk, it is desirable to provide additional means for positively holding the valve disk to its seat, and for this purpose I employ a plug 15 located centrally within the spring 14 and designed to engage the upper edge of rib 10, the upper portion of said plug being threaded and working in a threaded opening in stem 12 beyond which it projects to receive a jam nut 16. The operating handle 17 may also be retained in position by this jam nut, but ordinarily the handle is primarily secured to the valve stem preferably by riveting. The lower end of the valve stem is formed with two sets of oppositely disposed slots 18, 19, to accommodate rib 10, and thus interlock the stem with the valve disk. The two sets of slots being at right-angles to each other, the position of the handle and the stem relatively to the valve disk may be readily changed.

In some instances it is desirable to form enlarged ports in the valve disk, in which event, if the ports intersect the periphery of the disk, as shown in Fig. 6, or at their outer edges are parallel with such periphery, as shown in Fig. 7, the valve disk is preferably formed with flared lips 20, as shown in said figures, and in either event, the valve facing will be retained by the said lips after the manner specified in connection with tubes 8.

It will be understood, of course, that the

valve facing need not necessarily be of leather, as it may be of any suitable metal cast or otherwise secured to the under face of the valve disk.

From what has been said it will be readily observed that I have provided a very simple and inexpensive form of turning plug especially adapted for use in connection with appliances operated by compressed air. The parts are readily removable, since the valve casing may be easily secured in an ordinary vise without danger of injuring the threaded lateral extensions thereof, and while for ordinary purposes the coil-springis sufficient to insure the proper seating of the valve, yet when the pressure is against the under side of the valve, its seating may be rendered positive by the adjustment of the screw plug 15.

I claim as my invention:—

1. A turning plug comprising a casing having a valve seat formed with ports, a valve disk having ports, and lips circumjacent to each port of the valve disk, a facing for the latter retained in place by said lips, and means for turning said disk.

2. A turning plug comprising a casing having a valve seat formed with ports, a valve disk also having ports, tubes fitted in said latter ports and projecting beyond the face of the disk, a facing for said disk retained in place thereon by said tubes, and means for turning said disk.

3. A turning plug comprising a casing having a valve seat, a valve disk fitted thereon, a stem formed at its end to engage said disk, said stem having a central bore and a threaded opening leading from such bore, a spring located within said bore and engaging said valve disk, and an adjustable plug having a threaded portion working in said threaded opening, said plug being also designed to engage and hold said disk.

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

HERBERT H. CRAMER.

Witnesses:
E. S. HAMILTON,
E. HEDENSKOG.