May 28, 1929. M. LOTZ 1,714,606

ACID COCK

Filed Oct. 24, 1927

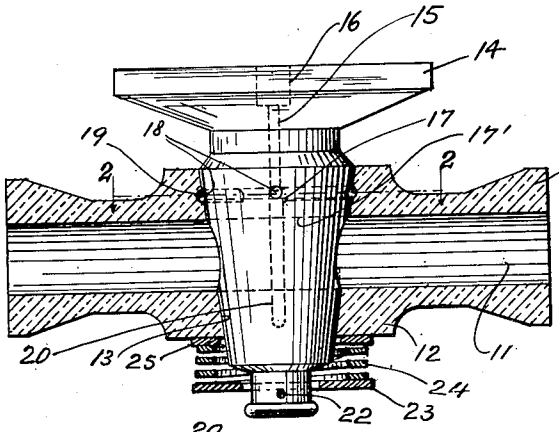


Fig. 1.

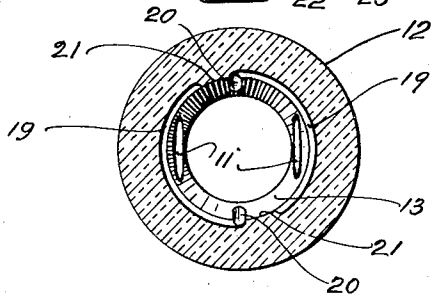


Fig. 2.

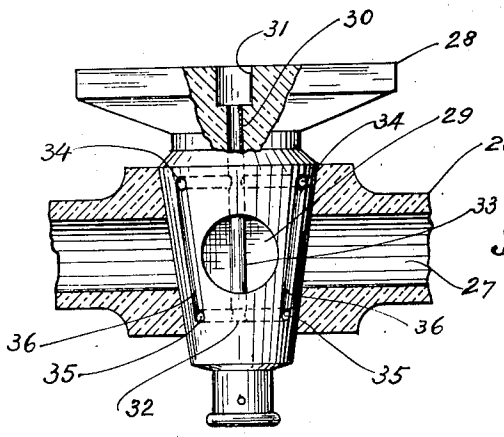


Fig. 3.

INVENTOR
Mathew Lotz
BY Paul W. Klein
ATTORNEY

Patented May 28, 1929. 1,714,606

UNITED STATES PATENT OFFICE.

MATHEW LOTZ, OF PERTH AMBOY, NEW JERSEY.

ACID COCK.

Application filed October 24, 1927. Serial No. 228,162.

This invention relates to cocks in general and particularly to acid cocks provided with means for self-lubrication.

The principal object of my invention is to provide simple and inexpensive means, which may be incorporated in the process of manufacturing of these cocks for lubricating it while in use.

In order to make the matter in view more comprehensible, it will be well to mention the present mode of operation. Acid cocks are made of ceramic material resisting the action of the acid. In order that they may be operated, it is necessary to close the supply of acid passing through the cocks by another cock in the line, remove the key from the body, and grease it. This necessitates interruption of the operation, the consequence of which is loss of time and money. The present invention is designed to eliminate entirely the interruption of operation, and at the same time, make it easier for the operator to lubricate the cock.

The foregoing objects will be more fully apparent from the accompanying drawings, and the following specification.

Referring to the drawings, Figure 1 is a longitudinal cross sectional view through an acid-proof cock, the key being shown in side elevation.

Figure 2 is a transverse cross sectional view taken on line 2—2 of Figure 1.

Figure 3 is a modified form of my cock, partially in vertical cross section.

Referring to the figures, numeral 10 denotes a cock body made of earthware, and provide with a port 11. The cylindrical portion 12 of the body has the usual cone-shaped opening 13, for receiving the key 14, which is ground into intimate contact with the inner surface of the body. Key 14 is provided with a central bore 15, terminating at its upper end in enlargement 16, for receiving a pipe connection (not shown). The lower end of passage 15 terminates at 17, above through-going ports 17′ of the cock. From the lower end of passage 15, lead four radial passages 18, for supplying grease into two nearly semi-circular grooves 19, provided at the surface of the body (see Fig. 2). These peripheral grooves issue into downward vertical grooves 20, which are located between the through-going port openings of the body. The semi-circular peripheral grooves are spaced from each other by solid portions 21 of the body.

The provision of these solid portions is rather important, particularly in providing proper seating surfaces between key and body. If those semi-peripheral grooves would be continuous, i. e., circular, objectionable ridges would be formed into the key surface, and therefore a tight fit between key and body would be made impossible. The vertical groove portions 20, terminate short of the bottom end of the body, and tend to lubricate practically the entire surface of the key, while the latter is being turned. The lower portion of the key is reduced in size and is preferably provided with a transverse opening for receiving a pin 22, adapted to engage a washer 23, against which bears a spring 24, resting at its other end, against washer 25. In this manner, the key is drawn downwards by the action of the spring 24, and is kept in permanent engagement with the surface of the body.

In Figure 3, there is shown a modified form of my device in which body 26 is shown having again through-going ports 27. A key 28 is ground into the conical inner opening of the body and is provided with a through-going port 29, which registers with ports 27 of the body. In this case, also a central passage 30 is provided in the key. The upper part of that passage is enlarged at 31, for receiving proper pipe connections. The difference between the previously explained design, and that of Figure 3, lies in that passage 30 passes right through port 29, into the lower portion of the key, and terminates at 32. Into this passage 30 is inserted an acid-resisting tubular member 33, preferably made of lead. Two tiers of radial passages are provided in the body of the key, the upper passages 34 being located above the ports 27 and 29, respectively, while the lower passages 35 are located below those ports, and connect with lead pipe 33, through which grease is supplied into surface grooves 36, provided in the key. These surface grooves preferably communicate with the corresponding radial passages 34 and 35, and are so located, that, when the key is in closed position, the grooves are on both sides of ports 27. The same spring, washer, and pin arrangement for the key may be provided also in connection with Figure 3, although it is not illustrated. In this case, the gooves in the body are eliminated entirely, and the surface grooves 26 in the key, are adapted to take their place.

Due to the fact that all circular grooves are eliminated in this construction, the grinding of the key into intimate contact with the body is greatly facilitated.

While I have shown specific constructions of my idea, be it understood that variations and changes may be made, without departing from the broad scope of my invention, for which I claim:—

1. An acid-proof self-lubricating cock, comprising an acid-proof body and an acid-proof key ground and turnable therein, a central and a plurality of radial passages provided in said key, a combination of horizontal and vertical independent passages provided in said body, said horizontal passages communicating with the radial passages of said key.

2. An acid-proof lubricating cock, comprising a body and a key having intimate contacting surfaces, both having registering ports, a central and radial passages provided in the key, and a plurality of grooves provided at the contacting surface of said body, said grooves being independent from each other and each comprising a peripheral leg issuing in a vertical extension disposed between the ports of the body.

3. An acid-proof lubricating cock, comprising a body and a key, both having ports, registering with each other, a central passage and a plurality of radial passages provided in said key, two independent grooves formed in said body and each comprising a nearly semi-circular portion terminating in a vertical portion, the latter located between the ports of the body, said nearly semi-circular portions being spaced from each other by parts of the inner surface of the body, and adapted to communicate with said radial passages of said key.

4. In an acid-proof lubricating cock as per claim 3, spring means associated with the bottom of said body and the lower portion of said key for keeping the latter under tension and in permanent engagement with the former.

Signed at Perth Amboy in the county of Middlesex and State of New Jersey, this 11th day of October, A. D. 1927.

MATHEW LOTZ.