No. 699,818. Patented May 13, 1902.

J. J. RYLANDS.

VALVE.

(Application filed Aug. 9, 1901.)

(No Model.)

FIG. 1.

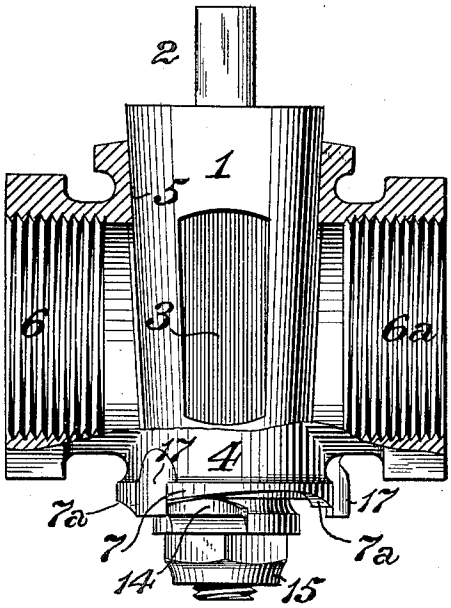


FIG. 2.

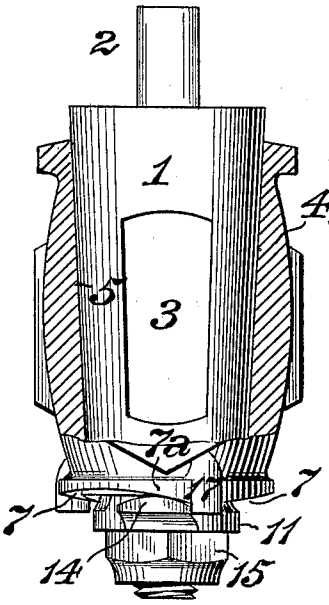


FIG. 3.

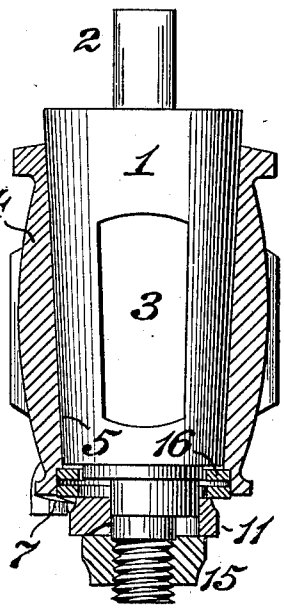


FIG. 4.

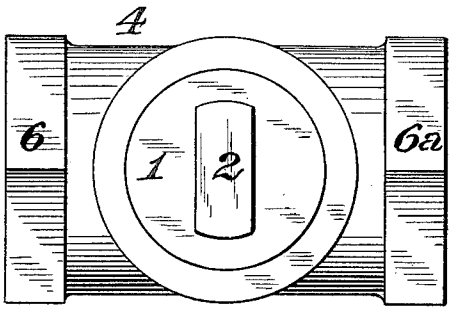


FIG. 5.

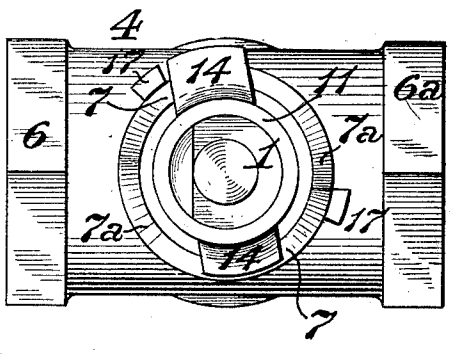


FIG. 6.

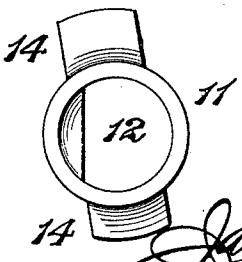
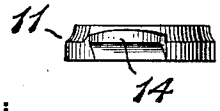


FIG. 7.



WITNESSES:

James C. Herron.

S. R. Bell.

INVENTOR

James J. Rylands

by Howson & Sell

Att'y.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES J. RYLANDS, OF MILLVALE, PENNSYLVANIA, ASSIGNOR TO HOMESTEAD VALVE MANUFACTURING COMPANY, OF HOMESTEAD, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

VALVE.

SPECIFICATION forming part of Letters Patent No. 699,818, dated May 13, 1902.

Application filed August 9, 1901. Serial No. 71,488. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. RYLANDS, of Millvale, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Valves, of which improvement the following is a specification.

My present invention relates to turning plug valves or cocks of the class or type which are provided with accessory locking devices and is an improvement upon that for which Letters Patent of the United States No. 622,083 were granted and issued to the Homestead Valve Manufacturing Company as my assignee under date of March 28, 1899.

The object of my invention is to provide a valve of the type above indicated which may be manufactured at lower cost than those of prior constructions, the movable member of which will be effectively locked or held closely to its seat in both open and closed positions, and which may be readily released from either of said positions and moved into the other.

To this end my invention, generally stated, consists in the combination of a plug-valve, a body in which said valve is fitted to seat and turn, an inclined cam-face formed on the exterior of the valve-body adjacent to one end of the valve, and a locking device rotatable with the valve and abutting against said cam-face at one of the limits of traverse of the valve.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a view, partly in side elevation and partly in longitudinal central section, of a valve embodying my invention, the valve-plug being shown in closed position; Fig. 2, a view, partly in elevation and partly in transverse central section, of the same with the plug in open position; Fig. 3, a complete transverse central section, also with the plug in open position; Fig. 4, a plan or top view with the plug in closed position; Fig. 5, a bottom view, also with the valve in closed position and with the nut of the locking-collar removed; and Figs. 6 and 7, plan and side views, respectively, of the locking-collar.

In the practice of my invention I provide a valve or cock 1, which is of plug form and is formed integral with or secured to a stem or projection 2 to receive a wrench, handle, or other appliance by which it may be given a quarter-turn to move it from open to closed position, and vice versa. The plug 1, which in the instance shown is tapered, is provided with a straightway port 3 and is fitted to turn in a correspondingly-bored seat 5 in a valve body or shell 4, having at its opposite ends nozzles or connections 6 6^a, which may be either threaded, as shown, or flanged for connection with pipes between which communication is to be controlled by the valve.

One or more pairs of oppositely-inclined cam or wedging faces 7 7^a, two pairs being, as shown, preferably employed, are formed upon the body 4 adjacent to the lower or smaller ends of the plug 1 and its seat 5, the inclination of one of the cam-faces 7 of each pair extending downwardly or outwardly toward a point at which the port 3 of the valve-plug is closed to the end nozzles 6 6^a and at which it is desired that the plug should be locked in such closed position and the inclination of the other cam-face 7^a of each pair extending downwardly or outwardly toward a point at which the port of the valve-plug opens free communication between said nozzles. Projections 17 may be formed upon the valve-body between the adjacent outer or deeper ends of the cam-faces 7 7^a to indicate the limit to which the plug is to be turned for full opening or full closure, or a pin may be inserted in the larger end of the plug to similarly indicate its position relatively to marks or projections on the valve-body.

A locking-collar 11, having a central opening 12, which is squared or flattened either partially or entirely, is fitted on and around a correspondingly-formed portion of the valve-plug 1, adjacent to the lower end thereof, said collar being provided with a peripherally-extending locking dog or dogs 14, each of which in the opening and closing movements of the plug 1 travels over the surface of one of the cam-faces 7^a or 7, as the case may be, and by the wedging or clamping action which it exerts in connection therewith and with the

faces of the plug and its seat locks the plug in position at the terminal of either of its movements. The plug can be readily released from such locked position when desired by the application of the manual power of the operator in the opposite direction. The locking-collar 11 is held upon the plug with the capacity of easy removal and replacement whenever required by a nut 15 engaging screw-threads on the plug. A spring 16 may be interposed between the locking-collar and the plug in order to force the same to a close bearing with its seat when in positions intermediate between those of full opening and full closure.

It will be obvious to those skilled in the art that my invention is applicable without change of principle or substantial variation of structure to valves having cylindrical instead of tapered bodies, the clamping action in such case being exerted upon a top bearing on the valve-body instead of upon a bearing lateral to the plug, as in the instance shown.

The structural economy of a valve embodying my invention will be seen from the facts that no stuffing-box is required and that the cam-faces being wholly exterior to the valve-body the latter may be easily molded and the cam-faces do not require to be finished by hand or machine work.

I claim as my invention and desire to secure by Letters Patent—

1. The combination of a rotary plug-valve, a body in which said valve is fitted to seat and turn, and which is unbroken peripherally except by lateral pipe connections, an inclined cam-face formed on one end of the valve-body, in position to limit the traverse of the valve in one direction, and a locking device connected to the end of the valve which adjoins the cam-face, said locking device being freely movable throughout the middle portion of its traverse and abutting against the cam-face adjacent to one of the limits of said traverse.

2. The combination of a valve, a body in which said valve is fitted to seat and turn, oppositely-inclined cam-faces formed on the exterior of the valve-body adjacent to one end of the valve-seat, and a locking device rotatable with the valve and abutting against one of said cam-faces in the open and in the closed positions of the valve.

3. The combination of a valve, a body in which said valve is fitted to seat and turn, two opposite pairs of oppositely-inclined cam-faces formed on the exterior of the valve-body adjacent to one end of the valve-seat, and a locking-collar rotatable with the valve and having opposite locking arms or dogs, each abutting against one of the cam-faces of each pair in the open and in the closed positions of the valve.

4. The combination of a valve, a body in which said valve is fitted to seat and turn, two oppositely-inclined cam-faces formed on the exterior of the valve-body adjacent to one end of the valve-seat, an indicating projection interposed between said cam-faces, and a locking device rotatable with the valve and abutting against one of said cam-faces in the open and in the closed positions of the valve.

JAMES J. RYLANDS.

Witnesses:
J. SNOWDEN BELL,
CLARENCE A. WILLIAMS.