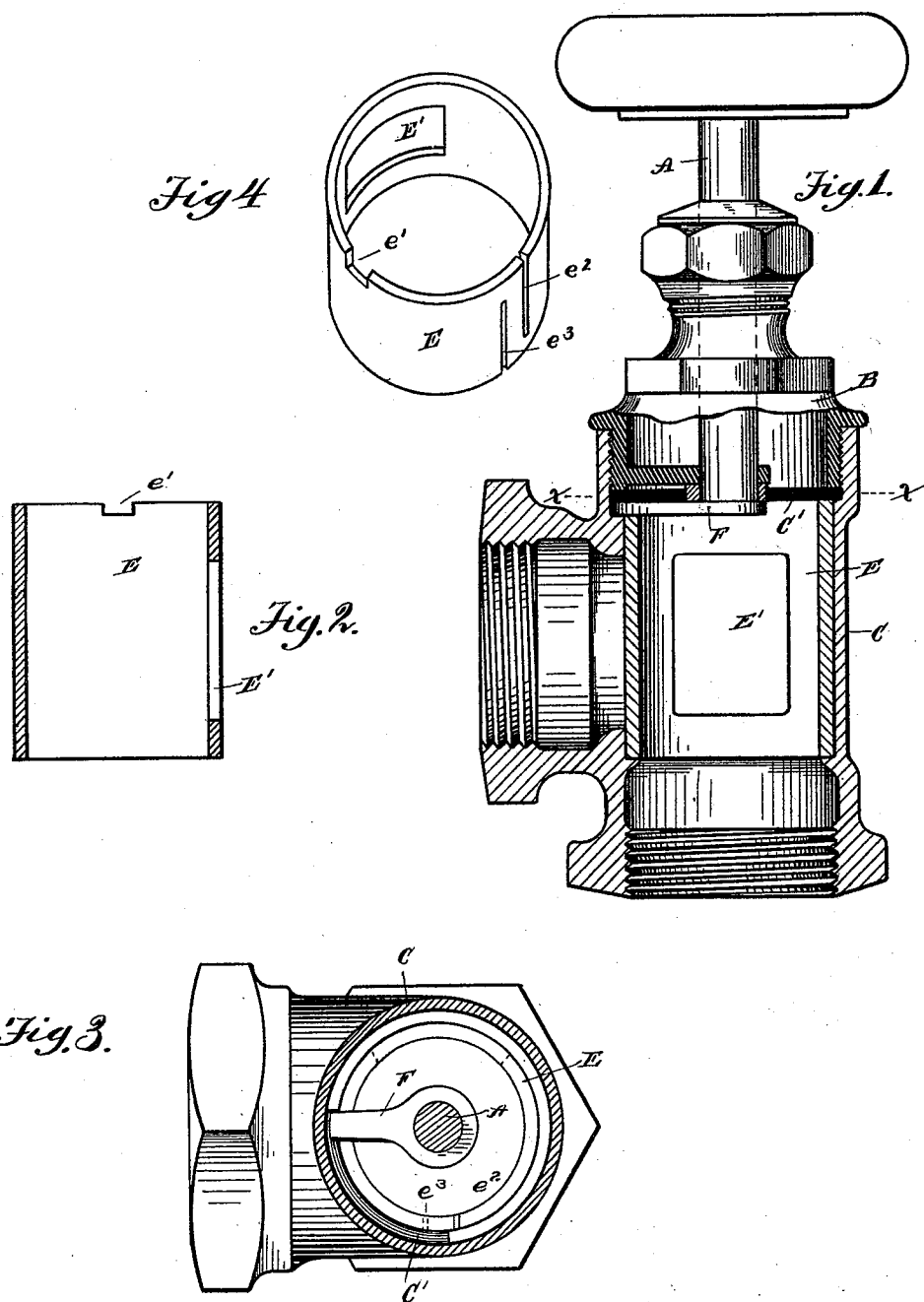


(No Model.)

C. B. HODGES & J. C. WILLS.  
PLUG VALVE.

No. 516,534.

Patented Mar. 13, 1894.



WITNESSES  
*J. Clough.*  
*W. S. Bradford*

INVENTORS:  
*Charles B. Hodges*  
*and John C. Wills*  
*J. Parker & Burton*  
Attorneys.

# UNITED STATES PATENT OFFICE.

CLARENCE B. HODGES AND JOHN C. WILLS, OF DETROIT, MICHIGAN.

## PLUG-VALVE.

SPECIFICATION forming part of Letters Patent No. 516,534, dated March 13, 1894.

Application filed April 17, 1893. Serial No. 470,787. (No model.)

*To all whom it may concern:*

Be it known that we, CLARENCE B. HODGES and JOHN C. WILLS, citizens of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Plug-Valves; and we 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to plug valves, making them more elastic and less liable to wear, and the arrangement of the several parts is fully hereinafter described.

In the drawings, similar letters refer to similar parts.

Figure 1 is an elevation of the valve, the casing and stem broken away in part to show the interior with the valve and attachments. Fig. 2 is a vertical section of the valve. Fig. 3 is a cross section on the line  $x-x$  of Fig. 1. Fig. 4 is the valve shown in Fig. 1, in perspective.

A represents the valve stem with handle at upper end and a bar F at the lower end.

B is the upper part of the casing with a gland or stuffing box; and C, the lower or valve barrel having proper outlet and inlet ports.

The valve E, of Fig. 1, is represented in perspective in Fig. 4. This valve is a shell, and on the upper inner face is a notch  $e'$ , which engages the end of the bar F. The shell or hollow cylinder E has a port  $E'$  cut in one side, and opposite this port two slits  $e^2$  and  $e^3$  are made in the shell,—one,  $e^2$ , from the top nearly to the bottom, and the other,  $e^3$ , from the bottom nearly to the top, thus giving an elasticity to the casing, it being free to move when the parts are open, but, when closed, the pressure on the interior expands the shell and presses it firmly against the casing, perfectly closing the outlet port, while the wear will be continually taken up, and when suddenly heated it will not “stick,” as the expansion would be taken up by the spring of the wings. At the top of the barrel is a recess  $C'$ , and the stop bar F is prolonged beyond the outside of the valve E, so as to move in this recess, which is of such length as to allow a quarter revolution of the valve, thus

preventing its turning beyond the position of open or shut. As the shell E is of the same length as the interior of the barrel C, all end-wise motion of the valve is prevented. The shells can be cast and the openings cored out, but we prefer to make them of tubing, simply slitting one side for the elastic wings, and cutting out the port and notch.

We are aware that hollow cylindrical valves have been used, but, in our own device, the stop bar being directly attached to the valve stem and the valve loosely connected with it by the stop bar engaging in the notch on the top of the valve, it is relieved from all strain and can therefore be made thinner and more elastic, and thus, under pressure, fits more snugly to the barrel and the wear can be better taken up.

What we claim is—

1. In a hollow cylindrical valve, with ports at right angles, the combination of the valve stem having an attached stop bar with a tubular valve, with notch  $e'$  and slits  $e^2$   $e^3$ , and a valve casing having a recess to receive the end of the stop bar, substantially as and for the purpose described.

2. In combination with a cylindrical valve casing provided with suitable inlet and outlet ports, and a suitable recess to receive the end of a stop-bar, a tubular valve having no end walls and provided with a notch  $e'$ , and made elastic by slits  $e^2$ ,  $e^3$ , a valve-stem provided with a bar adapted to engage with and rotate the valve, and also to engage in said recess, and thereby limit the rotation of the valve, substantially as and for the purpose specified.

3. The combination of a valve casing having a recess for the end of the stop bar, a tubular valve provided with an engaging notch for the stop-bar, valve stem provided with a stop-bar at its engaging end, said stop-bar engaging with the valve and the recess in the casing and being adapted to rotate the valve, substantially as and for the purposes described.

In testimony whereof we sign this specification in the presence of two witnesses.

CLARENCE B. HODGES.  
JOHN C. WILLS.

Witnesses:

CHARLES F. BURTON,  
EFFIE I. CROFT.