S. A. ROSS.

SHUT-OFF VALVE.

APPLICATION FILED JUNE 2, 1910.

995,485. Patented June 20, 1911.

Fig. 1.

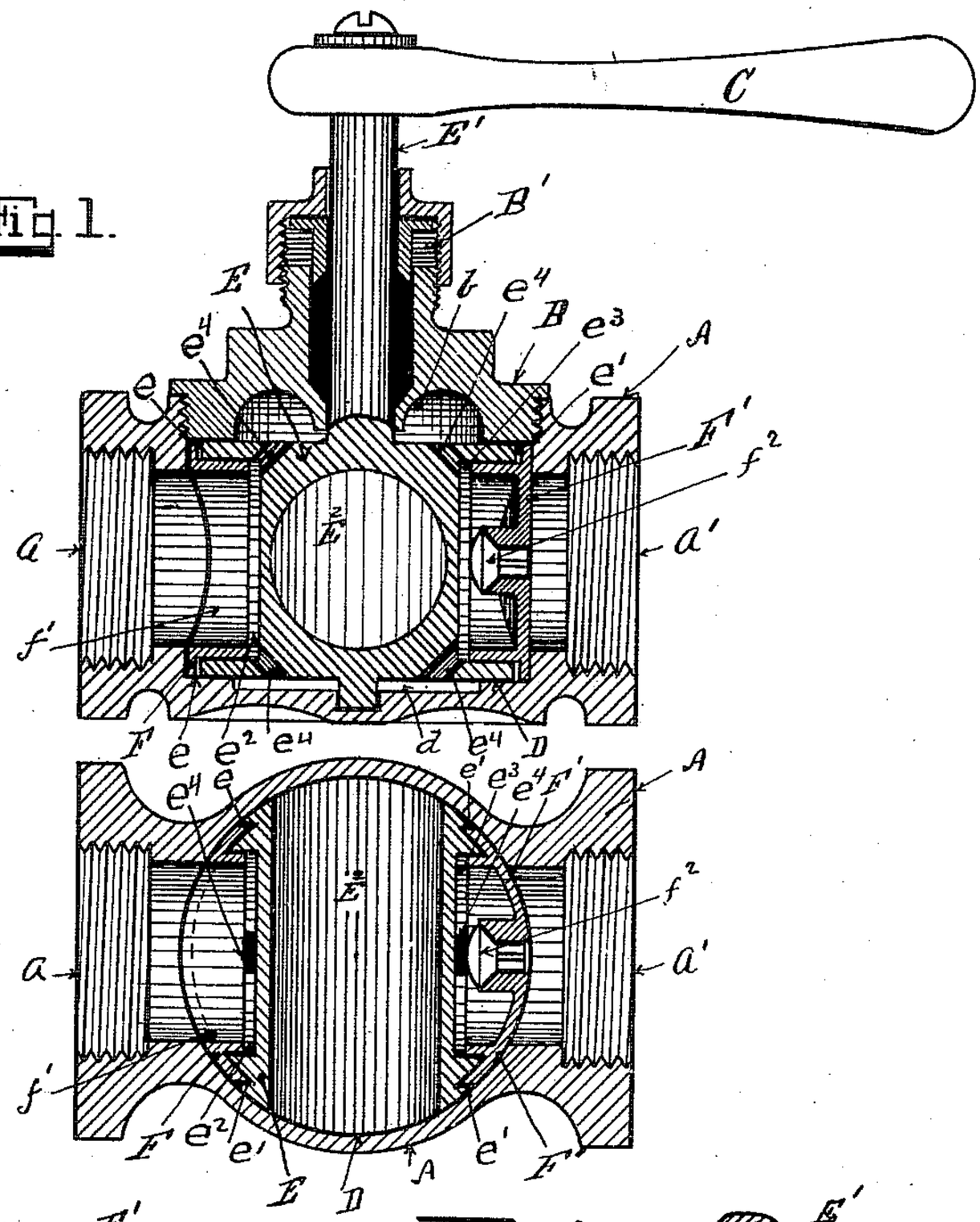


Fig. 2.

Fig. 3.

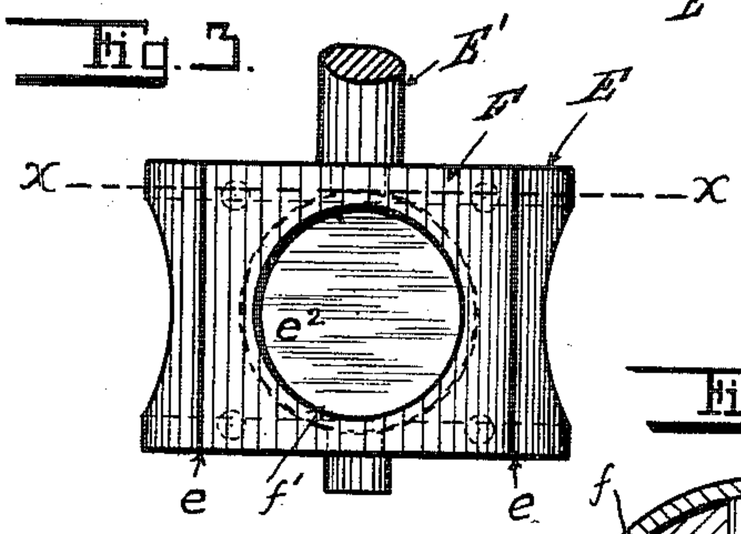


Fig. 4.

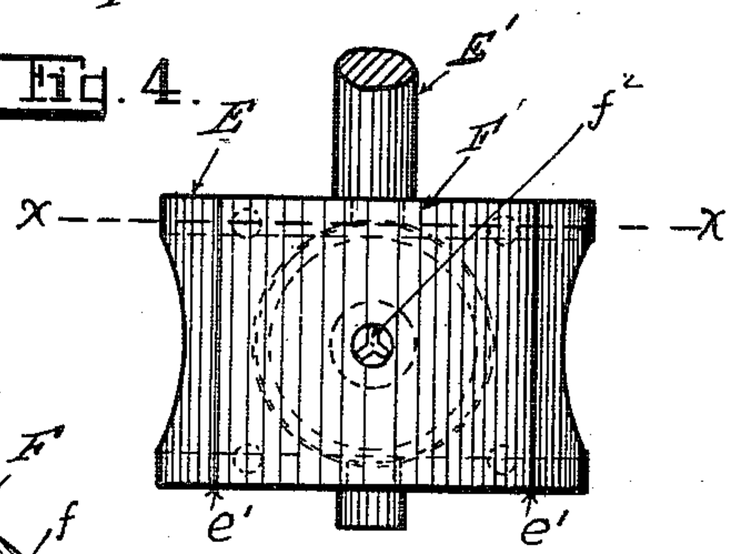
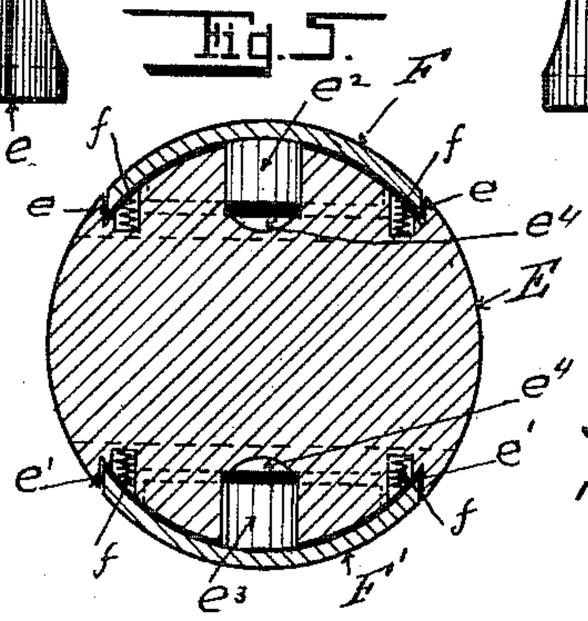


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

SAMUEL A. ROSS, OF ERIE, PENNSYLVANIA.

SHUT-OFF VALVE.

995,485. Specification of Letters Patent. Patented June 20, 1911.

Application filed June 2, 1910. Serial No. 564,597.

To all whom it may concern:

Be it known that I, SAMUEL A. ROSS, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Shut-Off Valves; 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention relates to shut-off valves, and has for its object the production of a balanced expansible valve, provided with sediment removing mechanism whereby the reversal of the valve operates to blow off any sediment accumulating in the valve.

The features of my invention are hereinafter fully set forth and described and illustrated in the accompanying drawings in which:

Figure 1, is a vertical central section of the valve when closed. Fig. 2, is a horizontal section thereof. Fig. 3, is a side elevation of the valve plug showing the sediment deposit chamber therein. Fig. 4, is a view in elevation of the opposite side of the valve plug. Fig. 5, is a horizontal section of the valve plug on the line x—x in Figs. 3 and 4.

In these drawings, A, indicates the valve shell, of which, a, is the inlet and, a', the outlet; B, indicates the cap closing the top of the shell, A. The valve shell, A, is bored out so as to form a cylindrical plug chamber, D, therein which is closed at the top by means of the screw cap, B. The valve plug, E, is provided with the usual stem, E′, extending upward through the cap, B, and stuffing box, B′, thereon, where it is provided with an operating handle, C.

The valve plug, E, is provided with a passage, E^2, therethrough of the full size of the inlet and outlet openings, a, and a', of the valve shell, and on opposite sides thereof it is cut away at e, and e', and on the inlet side thereof a chamber, e^2 is formed which operates as a sediment receiving chamber, and on the opposite side of the plug, E, there is formed another chamber, e^3. In the recesses e, and e', there are curved pressure plates, F, and F′, which have springs, f, behind them to force them normally outward against the inside of the chamber, D; and through the plate, F, on the inlet side of the valve there is an opening, f', corresponding to the sediment chamber, e^2, and in the center of the plate, F′, in the chamber, e^3, there is provided a small check-valve, f^2, which operates as a blow-off opening. In the valve plug, E, there are also small passages, e^4, which connect the chambers, e^2, and e^3, and also with the recess, b, in the cap, B, above the plug, E, and with the recess, d, in the valve shell, A, under the plug, E, so that the pressure operates against the top and bottom of the plug, and also operates under the pressure plates F, and F′, so as to hold them out firmly against inside of the shell A.

In operation the valve is mounted in a pipe with the inlet, a, thereof toward the source of the fluid supply to be shut off. Then when the valve plug is turned to the position shown in Figs. 1 and 2, the valve is in a closed position and the pressure of the fluid acting under the pressure, plate F, and through the passages, e^4, b, and d, and thence under the pressure plate, F′, operates to hold the pressure plates, F and F′, firmly seated against the inner walls of the valve shell, A, and thereby insure a tight closure of the valve. Meanwhile any scale or sediment accumulating at the inlet side of the valve passes into the sediment chamber, e^2, so that when the valve is opened it will not be carried between the shell and valve plug, as is the case in ordinary plug valves, as this valve-plug carries with it the sediment chamber and the sediment contained therein. To blow off any sediment accumulating in the sediment chamber, e^2, the valve plug is temporarily turned completely around so that the pressure plate, F, containing the sediment chamber is toward the outlet, when the pressure operates to open the check valve, f^2, and permits fluid to pass therethrough and through the passages, e^4, b, and d, and thence into the bottom of the sediment chamber, e^2, and blow the contents thereof out of the discharge end of the valve shell, after which the valve plug can be turned back a quarter turn to allow fluid to run freely therethrough, or back to its normally closed position. By these means I am enabled to prevent scratching or cutting of the valve plug by reason of scale or sediment working in between it and the inside of the valve shell, and am also enabled by means of the fluid actuated pres-

sure plates, F and F′, on the valve plug, to produce a valve which has a large passage way, and is at the same time both tight and easy to operate under all conditions.

Having thus described my invention so as to enable others to construct and operate the same, what I claim as new and desire to secure by Letters-Patent is:

1. The combination in a shut-off valve, of a valve-plug having chambers in opposite sides thereof, pressure plates mounted in said chambers one of which pressure plates having a sediment chamber therein, a check in the other pressure plate, and a valve body having fluid passages therein communicating with the chambers in which the pressure plates are mounted, substantially as set forth.

2. The combination in a shut-off valve of a valve-plug having chambers in opposite sides thereof and passages connecting with said chambers, fluid actuated pressure plates mounted in said chambers one of which plates being provided with a sediment chamber, a check-valve in the opposite pressure plate, and a valve-body inclosing said valve-plug mechanism, substantially as set forth.

3. The combination in a shut-off valve, of a valve-plug having chambers in opposite sides thereof and passages connecting with said chambers, fluid actuated pressure plates mounted in said chambers, one of which plates has a sediment chamber therein, a check valve in the other pressure plate, and a valve body inclosing said plug having passages at the ends of the plug communicating with the passages therein leading to the chambers in the plug, whereby when the plug is in a closed position fluid will pass through said check-valve and said passages to the pressure plate on the opposite side of the plug and blow sediment out of the sediment chamber in said plate, substantially as set forth.

In testimony whereof I affix my signature, in presence of two witnesses.

SAMUEL A. ROSS.

Witnesses:
JOHN L. WELLS,
H. M. STURGEON.