April 15, 1930. H. A. FELDBUSH 1,754,747

VALVE

Filed July 18, 1928

Fig. 1.

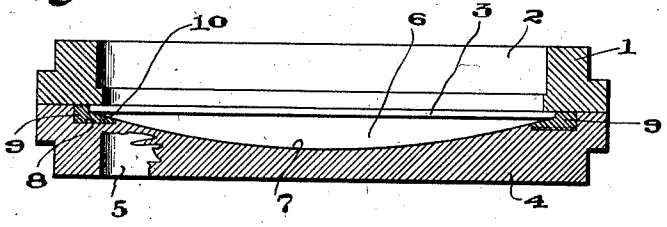


Fig. 2.

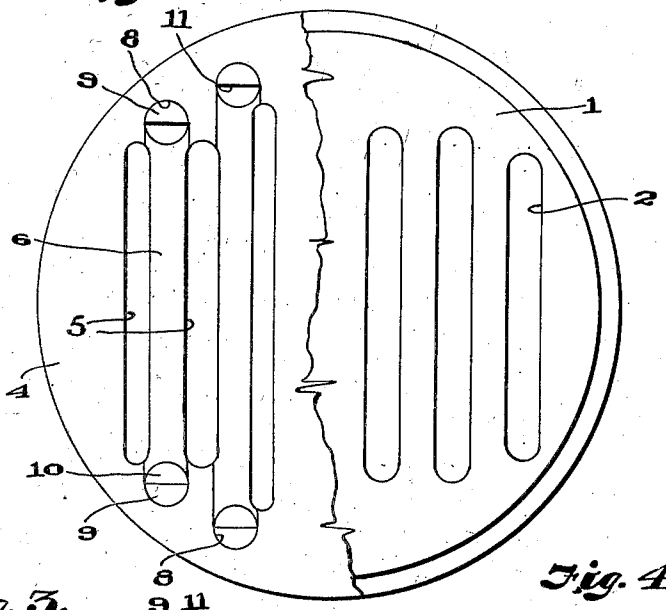


Fig. 3.

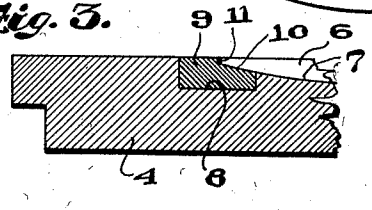
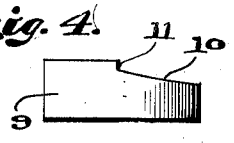


Fig. 4.



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UNITED STATES PATENT OFFICE

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VALVE

Application filed July 18, 1928. Serial No. 293,685.

This invention relates to automatic plate valves of that class described in United States Patents, Reissue 13,991 and 1,341,145 and an object of the present invention is to provide an improved valve of this class in which liability of wedging action of the valve plates at the ends of the abutment surfaces is eliminated as well as the inconveniences contingent with wear at the ends of the abutment surfaces where the valve plates come in contact with the abutment block.

With these objects in view, the invention consists in various features of construction and combination of parts, which will be first described in connection with the accompanying drawings, showing a valve of the preferred form embodying the invention, and the features forming the invention will be specifically pointed out in the claims.

In the drawings:

Fig. 1 is a longitudinal section through the valve.

Fig. 2 is a plan view of the valve with a part of the valve seat broken away.

Fig. 3 is an enlarged detailed section of the valve and

Fig. 4 is an enlarged side elevation of the wear resisting button.

Referring more particularly to the drawings, 1 is a valve seat shown as of circular form and having a plurality of straight ports 2, each of which is controlled by an elastic valve plate 3, which opens against the abutment block or cap 4, the latter being shown as having a series of ports 5 out of line with the ports 2 of the valve seat 1.

The elastic valve plates 3 are held in position and guided without recesses or projections on the valve seat 1, the latter thus being formed and finished as a plain surface coacting with the valve plates in their closed position. The valve plates 3 are held in position side-wise and guided in their opening and closing movements by recesses thus formed in the abutment block or cap 4. The recesses 6 have curved surfaces 7 towards which the valve plates 3 open, so as to permit the latter to bend freely in opening movement, and the side walls of the recesses 6 act to hold the valves in position sidewise in line with the ports 2.

The abutment block 4 has circular recesses 8 drilled therein at the ends of each of the curved abutment surfaces 7 and buttons 9 are inserted in the recesses 8.

In constructing the abutment blocks 4, the cast blocks are milled to provide the curved abutment surfaces 7 off which the recesses 8 are drilled on each end of the curved abutment surfaces, thus eliminating to a large extent the absolute accuracy which would otherwise be required in the milling of the abutment surfaces. The buttons 9, which are preferably formed of steel or hardened material, are milled to provide the slightly curved surfaces 10 thereon which terminate in the abrupt shoulders 11. The buttons are then inserted in the recesses 8 with the milled surfaces 10 aligning with the curved abutment surfaces 7 of the abutment block 4, and forming continuations and the terminals of the curved abutment surfaces. By particular reference to Fig. 1 of the drawings, it will be noted that the curved abutment surfaces 7 and 10 treminate inwardly of the valve seat engaging surface of the abutment block in such a way as to avoid any wedging action of the valve plates 3, and by making the buttons 9 of hardened material, the wear resistance of the abutment block at the point of greatest wear is materially increased thereby, increasing the longevity of the valve.

It will be understood that the invention is not to be limited to the specific construction or arrangement of parts shown but that these may be modified widely within the invention defined by the claims.

What is claimed is:

1. The combination of a valve seat having one or more ports, one or more thin elastic plate forming valves free to permit uniform bending, an abutment block having abutment surfaces for said valve plate, and wear resisting buttons inserted in the abutment block at each end of each of the abutment surfaces, said buttons having part of their upper surfaces milled to continue and form the terminals of the abutment surfaces,

said milled surfaces terminating in abrupt shoulders whereby the entire abutment surfaces will be inwardly of the valve seat engaging surface of the abutment block.

2. The combination of a valve seat having one or more ports, one or more thin elastic plate forming valves free to permit uniform bending, and abutment block having abutment surfaces for said valve plates, and wear resisting buttons inserted in the abutment block at each end of each abutment surface, said buttons having part of their upper surfaces milled to continue and form the terminals of the abutment surfaces, said milled surfaces terminating in transverse shoulders forming stops for limiting the end-wise movement of the valves.

In testimony whereof I affix my signature.

HARRY A. FELDBUSH.