

W. E. SPENCER.

VALVE.

APPLICATION FILED SEPT. 26, 1916.

1,237,719.

Patented Aug. 21, 1917.

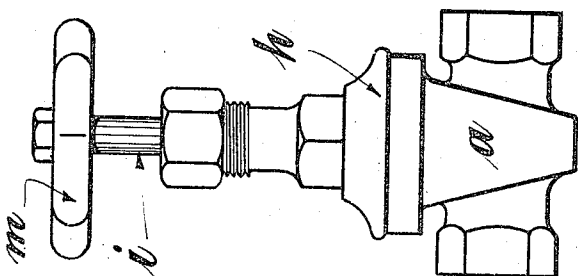
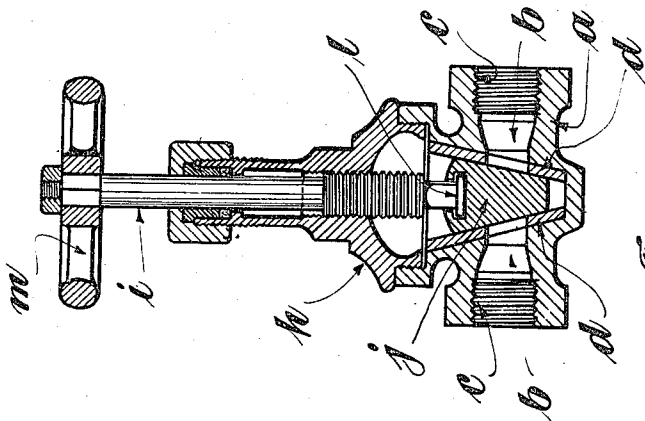
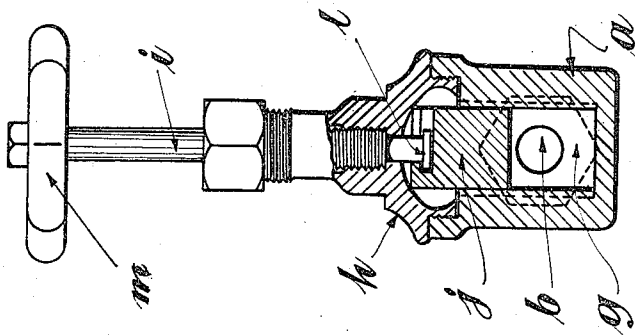


Fig. 1.

Fig. 2.

Fig. 3.

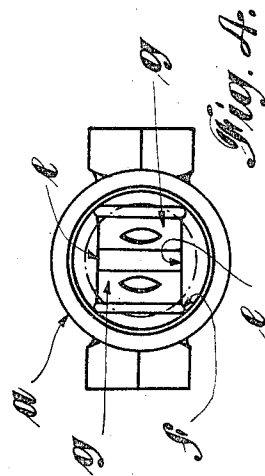
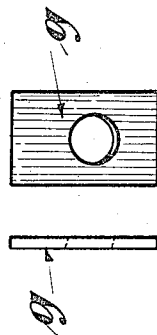


Fig. 4.

Fig. 5.

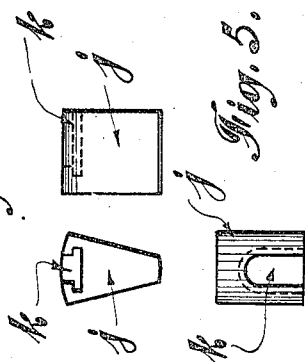


Fig. 6.

Inventor:
William Edward Spencer.

By his Attorney: Walter Gurnea.

UNITED STATES PATENT OFFICE.

WILLIAM EDWARD SPENCER, OF STOCKPORT, ENGLAND.

VALVE.

1,237,719.

Specification of Letters Patent. Patented Aug. 21, 1917.

Application filed September 26, 1916. Serial No. 122,231.

To all whom it may concern:

Be it known that I, WILLIAM EDWARD SPENCER, a subject of the King of Great Britain and Ireland, and residing at Stockport, England, have invented certain new and useful Improvements in or Relating to Valves, of which the following is a specification.

This invention relates to valves and has reference more particularly to the kind of valve commonly known as clear-bore full-way, or straightway gate-valve, in which the valve proper is formed wedge shaped.

Valves of the kind referred to, as usually made, require to be very accurately machined to insure liquid-tight joints and are impracticable with fluids at high pressure.

To obviate these disadvantages it has been proposed to provide renewable valve seats made of soft metal, or of asbestos and rubber intimately mixed and hardened by heat and pressure, said seats being somewhat thicker than the seat holder. The latter comprises an oblong metal casing, with undercut apertures for the seating, which latter may partly engage grooves in the inclined sides of the valve, or the seating may be entirely secured to metal cheeks positioned in the body of the casing by lugs.

The object of the present invention is to improve and simplify the construction and arrangement of such valves.

According to the invention the valve casing is made somewhat after the usual manner with a straight through bore. The inclined sides are provided with renewable valve seats which comprise strips of suitable material, such as asbestos or other fibrous material, vulcanite, or soft metal such as white metal, formed with holes to register with the bore of the casing. Said strips are slid into grooves formed to receive them and secured therein by the cover of the casing.

The valve proper is preferably formed of solid metal, the sides of which are inclined to correspond with the angle of the interior walls of the valve casing and said valve is detachably secured to the valve spindle, a T-slot being provided to receive a head thereon when a rising and falling spindle is used.

In order that the invention may be clearly understood and readily carried into effect it will now be described with reference to the accompanying drawings which show the in-

vention carried into effect in the preferred manner.

Figure 1 is an external view of the improved valve and valve casing.

Fig. 2 is a sectional elevation showing the valve closed.

Fig. 3 is a cross-sectional elevation showing the valve open.

Fig. 4 shows the valve casing in plan, with the top part removed.

Fig. 5 shows a front, end and plan view of the valve proper and

Fig. 6 illustrates the renewable face in front and edge view.

The valve casing *a* is formed with a clear bore *b*, the ends of the casing having screw threads *c* or other means to receive the usual connections. The interior of the casing is provided with opposed inclined faces *d* and parallel side walls *e*, in the ends of which, grooves *f* are formed, whose outer edges constitute continuations of the inclined faces. Sliding within the grooves *f* are the renewable valve seats *g*, which are preferably formed of asbestos, though other substances may be used such as vulcanite or white metal.

The seats *g* are held in place by the valve cap or cover *h* which overlaps the edges of said seats as indicated by the dotted line in Fig. 4, said cap or cover, screw-wise engaging the casing and being formed with screw threads to engage screw threads on the valve spindle *i* after the usual manner.

Referring to Fig. 5, the valve *j* is shown as formed from a solid piece of metal, somewhat wedge-shaped in cross-section, the inclination of the sides or faces corresponding approximately to that of the inclined walls *d*. Upon the top side of the valve, a slot *k* is formed, with over-hung sides, to receive the head *l* on the spindle *i*, in a manner such that the spindle can be readily attached to or removed from the valve and when in position can freely rotate.

A handle *m* is secured to the top of the spindle, by means of which it may be rotated to raise or lower the valve in the usual manner.

The inclination of the valve faces is preferably such, that there is no tendency of the valve to jam or stick however tightly it may be screwed down.

By the above means a full-way clear-bore valve of high efficiency at all pressures is

formed of a minimum number of parts and with the minimum amount of machining, as it is found in practice that no machining is necessary on the inclines *d*.

5 I declare that what I claim is:—

1. A straightway-gate valve comprising a chamber for the valve, the sides of which lie at an angle to each other of about 15° and having renewable and independent plates of asbestos lying against each angular face, in combination with a valve of similar angularity free to move laterally and bed itself against the said asbestos plates when lowered, said plates being held in position by
10 the screwed cap of the valve, as set forth.

15 2. Straightway-gate valves comprising a valve casing formed with a full way bore

and interior opposed inclined faces, grooves on said faces open at the top, asbestos strips in said grooves formed with openings to register with said bore, a screwed top for said casing adapted to cover the end of said grooves, a screwed spindle formed with an interior head, and a solid wedge-shaped valve formed with a T-shaped slot to receive
20 the aforesaid head, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

WILLIAM EDWARD SPENCER.

Witnesses:

F. C. PENNINGTON,

F. J. MEREDITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."