

A. R. TRIST.
 DOUBLE OPPOSITELY DISPOSED VALVE.
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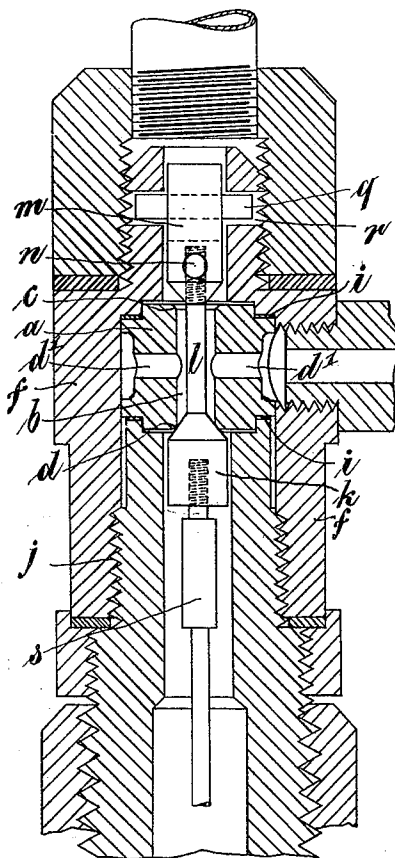


Fig:2.

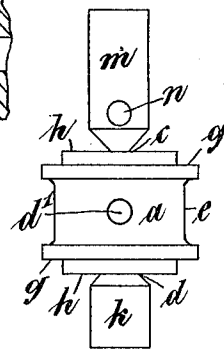
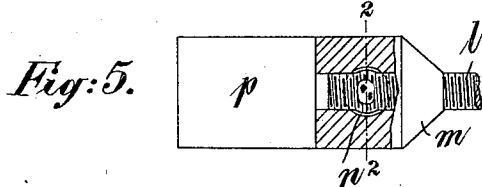
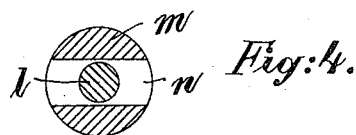
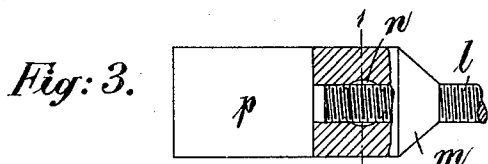


Fig:1.



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DOUBLE OPPOSITELY-DISPOSED VALVE.

1,133,682.

Specification of Letters Patent.

Patented Mar. 30, 1915.

Application filed March 15, 1913. Serial No. 754,500.

To all whom it may concern:

Be it known that I, ARTHUR RONALD TRIST, subject of the King of Great Britain and Ireland, residing at London, England, have invented new and useful Improvements in and Relating to Double Oppositely-Disposed Valves, of which the following is a specification.

This invention relates to double oppositely disposed valves used for the purpose of controlling the flow of liquid from two directions into a third direction and has many applications in the arts and sciences which need not be herein detailed, but by way of example it may be stated that the invention is particularly applicable to devices such as feed regulators for steam boilers which are controlled as to their action by the admission of steam to and the exhaust of steam from the controlling device. In devices of this nature the adjustment of such double valves relative to their seats has to be very accurately made and to have their lift of a very small amount, otherwise the efficient working of the device, which the said valve controls, cannot be effected within the narrow limits which ordinary circumstances demand. It often happens that devices of this nature which have been initially adjusted to fulfil their functions properly by the manufacturers before delivery and when erected carry out such functions satisfactorily, are subsequently interfered with by the attendants by which their efficiency is immediately impaired, and it becomes necessary to send a skilled workman in order to re-adjust the valves to their proper position. This condition of things often arises when the valves leak from any cause and efforts are made to grind them in. In such case it is found to be far preferable to make the whole device as a separate entity so that the old one may be taken out and discarded and the new one be inserted in its place, which can be effected with a proper form of containing valve box in two or three minutes.

My invention consists in the formation of a double valve and seatings oppositely disposed and initially and permanently adjusted as a separate entity so as to comply with the conditions hereinbefore set out.

In order that the invention may be the better understood, I will now proceed to describe the same in relation to the accom-

panying drawings, reference being had to the letters and figures marked thereon.

Like letters refer to like parts in the various figures, in which:—

Figure 1 is an outside view of a double valve with seatings constructed in accordance with my invention. Fig. 2 is a sectional view of a valve box having my invention installed therein. Figs. 3 and 4 are part sectional views of one method of locking the adjustable valve on its stem before such locking is effected, the latter being a section on the line 1—1 of Fig. 3. Figs. 5 and 6 is a similar view after such locking has been effected, the latter being a section on line 2—2 of Fig. 5.

The body *a* has a central aperture *b* with a valve seat *c* and *d* at the upper and lower ends respectively, and has also communicating passages *d'* leading through the side wall to the exterior, provision being made in the form of a groove *e* so as to have an annular passage around the body *a* when inserted in the valve box *f*. The body *a* has faces *g* and necks *h* about which washers *i* can be placed so as to support and form hermetical joints when mounted in the valve box *f* and submitted to jointing pressure by means of a screw *j* or other equivalent device. One valve *k* has a stem *l* which is screwed at the upper end, and on to which is screwed the valve *m* provided with a tapped hole. The adjustment of the valve *k* to the valve *m* can be made by screwing the valve *m* more or less upon the stem *l*. Through the valve *m* is provided a transverse hole *n* somewhat larger in diameter than the diameter of the screwed stem *l* and when the final adjustment of the valves *k* and *m* relative to their seats *d* and *c* respectively the stem *l* is deformed from its circular section as shown in Fig. 4 into a square section as shown at *o* in Figs. 5 and 6 so as to fill up the transverse hole *n* and thus lock the two valves *k* and *m* permanently, so that no further adjustment is possible. If such adjustment is attempted the only result is that the stem *l* will be twisted and probably fractured.

In order to prevent the valves *k* and *m* from being turned while in action the valve *m* is provided with a slot *p* at its upper end with which engages a transverse pin *q* loosely mounted in a hole *r* in the valve box. The gear operating valve can be connected

by a connecting rod *s* to the lower valve $\frac{1}{2}$ as shown in Fig. 2 or in any other equivalent manner.

Although I have described the means of assembly by means of a screw and the locking effect by means of the deformation of the circular stem it is obvious that other equivalent means of adjustment and permanent locking could be effected without departing from the essence of this invention.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent:—

1. A double valve and valve seat unitary element, consisting of, in combination, a valve box having connecting means for a fluid pressure medium, a body having a valve seat on each side oppositely disposed, means on said body for supporting said body at both top and bottom sides in an hermetically jointed manner with the said valve box, means of communication from the center of said body to the exterior through the side walls thereof, one valve having a valve stem, another valve oppositely disposed to the first valve on said valve stem in an adjustable manner, and permanent locking means by which the distance of the two valves from one another can be maintained constant and undisturbable after the amount of opening of the valves on their respective seats has been definitely determined, substantially as described.

2. A double valve and valve seat unitary element consisting of, in combination, a valve box having connecting means for a fluid pressure medium, a body having a valve seat on each side oppositely disposed, means on said body for supporting said body both at top and bottom sides in an hermetically jointed manner within a valve box of suitable form, exit means of communication from the center of said body to the exterior through the side wall thereof, one valve having a valve stem screwed at its end, another valve oppositely disposed to the first valve and having a tapped hole so as to be screwed on to said stem, a hole through the second valve transverse to its axis, the axis of the said transverse hole intersecting the axis of the screwed stem at right angles, the said transverse hole being of larger diameter than the said screwed stem, and a symmetrical enlargement on the screwed stem to fill said transverse hole at the center formed by deforming the screwed stem after the relative adjustment of the valves and their seats in a coaxial manner has been finally made so that such adjustment is finally and permanently locked, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR RONALD TRIST.

Witnesses:

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