F. J. COUCH.

VALVE.

APPLICATION FILED JULY 25, 1919.

1,416,175.

Patented May 16, 1922.

Fig. 2

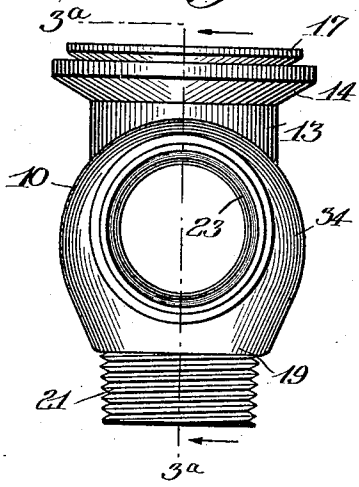


Fig. 1

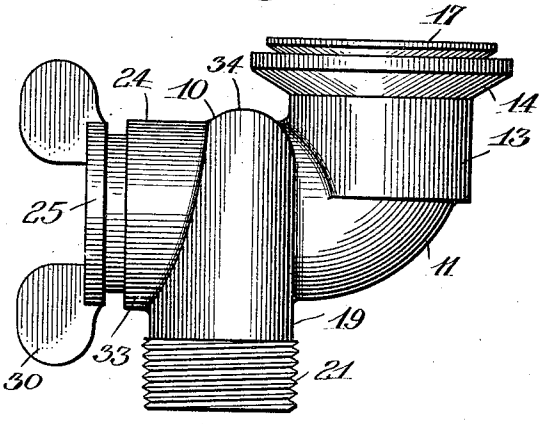


Fig. 3

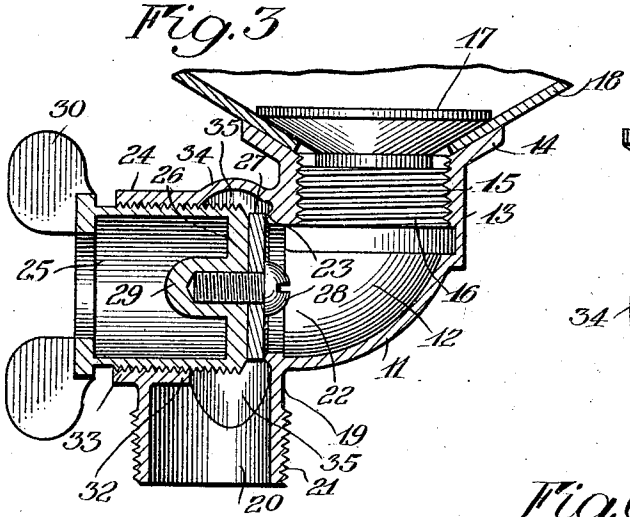


Fig. 5

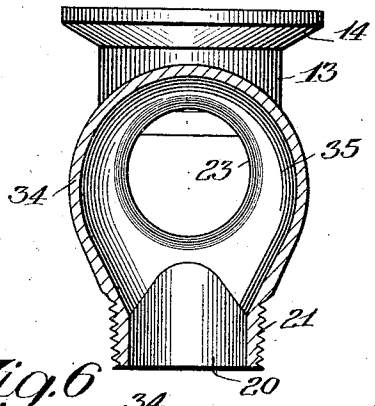


Fig. 4

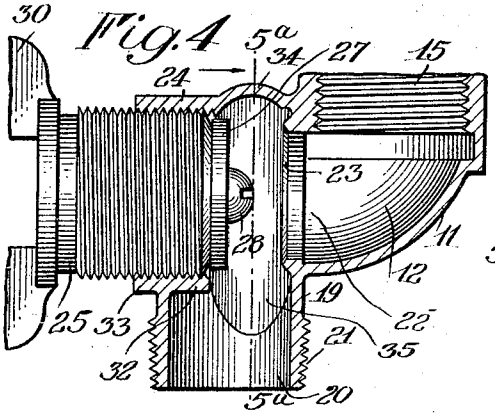
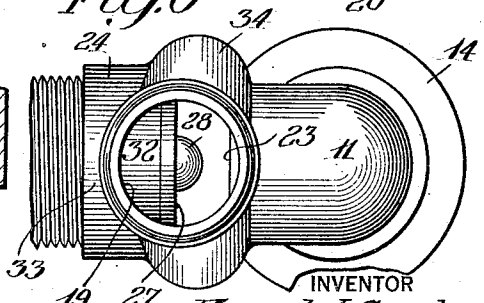


Fig. 6



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VALVE.

1,416,175. Specification of Letters Patent. **Patented May 16, 1922.**

Application filed July 25, 1919. Serial No. 313,204.

To all whom it may concern:

Be it known that I, FORREST J. COUCH, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Valves; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference numerals marked thereon.

This invention relates to valves, and more particularly, to valves capable of being adapted for use as faucets, drain cocks, and similar devices for controlling the flow of liquids, the chief object of the invention being to provide in a simple and inexpensive form of construction a compact, quick acting and convenient valve of the above character. To these and other ends the invention consists in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claim at the end of the specification.

In the drawings:

Figure 1 is a side elevation of a valve embodying the present invention.

Figure 2 is an end elevation of the same as seen from the left in Figure 1, with the valve body removed.

Figure 3 is a section on the line 3^a—3^a of Figure 2, but with the valve body in closed position and illustrating the attachment of the valve to a container.

Figure 4 is a similar view with parts broken away, showing the valve body in open position.

Figure 5 is a section on the line 5^a—5^a of Figure 4.

Figure 6 is a bottom plan view of the valve.

Similar reference characters throughout the several views indicate the same parts.

The valve herein shown and described illustrates but one of the possible embodiments of the invention, being merely that embodiment which is preferred at the present time as best incorporating the principles involved. The casing of the valve is indicated generally at 10, having preferably an angularly extending, tubular portion 11 providing a passage 12 which may be employed as the inlet passage of the valve, this portion terminating in a head 13 carrying an attaching flange 14. The interior of head 13 is threaded, as at 15, and a similarly threaded tubular plug or sleeve 16 is adapted for engagement with the threaded portion of the head, the plug having a flange 17 substantially parallel with the flange 14, these flanges being adapted for engagement with the member to which the valve is to be connected, as, for instance, the tapered bottom of a container indicated at 18. This means of attachment of the valve casing to the container or other body not only provides a fluid tight connection which is quickly and easily established but also affords a connection which is to some extent flexible, permitting a slight movement of the valve casing when the latter is subjected to a blow or to an undue strain, being in this respect superior to the riveted form of attachment frequently employed.

The casing is also formed with a tubular portion 19, providing a passage 20 which may be employed as the outlet passage of the valve, this portion being exteriorly threaded as at 21 for engagement with a container, or piping, or such other parts as it may be desired to connect with the valve. Passages 12 and 20 communicate directly with each other through an opening indicated at 22 about which is formed a valve seat 23 of the usual or any suitable construction.

A guiding and supporting bore for a valve body is formed in the casing at 24, the valve body being preferably substantially cylindrical in form, as indicated at 25, having a closed inner end 26 to which is secured a washer 27 of leather, rubber or other suitable material, by means of a screw 28 engaging in a threaded socket in a boss 29 on the end of the valve body. The latter has formed on its opposite end convenient manipulating fingerpieces, indicated at 30, the valve body and bore 24 having threaded engagement with each other so that by means of the fingerpieces 30 the valve body may be rotated to move it longitudinally of the bore, toward and from seat 23 for closing or opening the valve.

In order to prevent leakage of fluid between the valve body and its bore, it is desirable to provide the bore with a threaded surface of substantial minimum length in order that a sufficient number of threads there-

on may be constantly in engagement with the valve body. This end has previously been attained by extending the bore to a considerable distance on the outside of the casing entailing the disadvantage of increasing the overall dimensions of the valve which is frequently objectionable, especially where the latter must be employed in restricted spaces. This disadvantage is overcome in the present invention by extending or projecting the wall of the bore 24 into the passage 20 of the tubular portion 19 as indicated at 32, so that a desirable length of bore is obtained with but a short extension of the bore exteriorly of the casing as indicated at 33.

The projection of the bore wall into passage 20 would ordinarily obstruct the flow of fluid through the passage, but this is compensated for and obviated by forming the casing wall with an expanded portion 34, extending around the path of movement of the valve body, so as to provide a substantially annular space 35, communicating with passage 12 over the valve seat 23 and extending exteriorly of the bore wall 32 and communicating with passage 20 outside of the latter. By this means a comparatively small opening movement of the valve body away from its seat opens up quickly a large passageway for fluid which, flowing in the passage 35, communicates with passage 20 of the valve without restriction by the bore wall 32.

The above described form of construction provides a valve which is simple in construction, having few parts and requiring little metal for its manufacture, and which is quick acting in that it requires but a few turns of the valve body to open communication of substantially uniform area between the inlet and outlet passages. It is apparent, of course, that while passages 12 and 20 have for convenience in description been referred to as inlet and outlet passages, respectively they may be employed in reversed relation.

The valve is very compact in construction and convenient in operation, and may be readily attached or fitted to the parts with which it may be desired to use it, presenting as well, a neat and attractive appearance.

I claim as my invention:

A compact quick-acting valve comprising a casing formed with communicating inlet and outlet passages, a valve seat on the casing about one of said passages, said casing having a bore formed therein with a screw threaded wall a portion of which projects partially across the other of said passages, and a screw threaded valve body in said bore cooperating with said seat, said casing having a portion of its wall expanded adjacent said seat to provide a substantially annular space about the path of movement of the valve body and communicating with said other of said passages exteriorly of said projecting portion of the bore wall to compensate for the obstruction of the fluid by the latter.

FORREST J. COUCH.