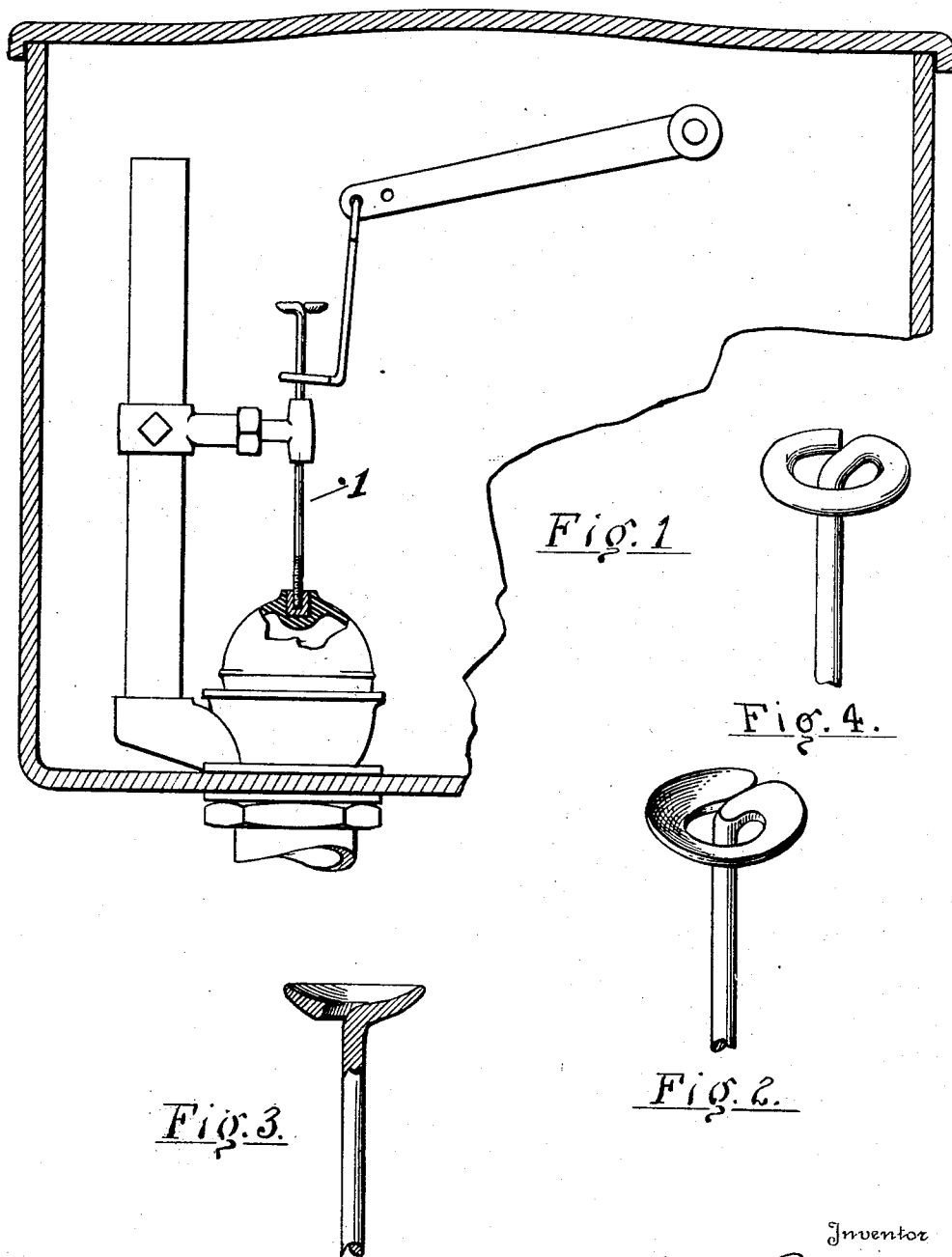


O. P. YOST.
VALVE STEM FOR FLUSH TANK VALVES.
APPLICATION FILED JUNE 1, 1915.

1,203,296.

Patented Oct. 31, 1916.



Witness
Harold O. Van Antwerp

Inventor
Oliver P. Yost
By Palmer A. Jones.
Attorney

UNITED STATES PATENT OFFICE.

OLIVER P. YOST, OF CHATHAM, ONTARIO, CANADA, ASSIGNOR TO WOLVERINE BRASS WORKS, OF GRAND RAPIDS, MICHIGAN, A CORPORATION OF MICHIGAN.

VALVE-STEM FOR FLUSH-TANK VALVES.

1,203,296.

Specification of Letters Patent.

Patented Oct. 31, 1916.

Application filed June 1, 1915. Serial No. 31,496.

To all whom it may concern:

Be it known that I, OLIVER P. YOST, a citizen of the United States of America, residing at Chatham, Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Valve-Stems for Flush-Tank 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.

My invention relates to improvements in valve stems for flush tank valves, and more particularly to such valve stems when made from a single piece of material. Such valve stems are substantially one eighth of an inch in diameter and provided with a head, the plane of which is at right angles to the stem proper. Such valve stems have been made in a variety of ways, viz: by bending the top end of the stem at right angles forming an L head, also by bending the top end of the stem at right angles and then back forming a T head. These two forms give very poor service, for that, the short bent portion frequently breaks off, and also for that, they very frequently get caught on the adjacent parts, thus preventing the ball valve from seating, and thus rendering the device inoperative. It has been found very desirable to provide such valve stems with a semi-spherical head, for that, such construction effectually prevents the head of the stem from becoming caught on the adjacent parts, and it also gives the results of a ball or universal joint. The present method of producing such valve stems with a semi-spherical head is, to machine the semi-spherical head from a solid bar, of the proper diameter, and rivet the machined heads onto the stems. This is both an expensive and inefficient means of construction, for that, it is very difficult to rivet the heads onto the stems so that they will stay in place, unless the stem is first shouldered; the head put on, and the end of the stem then riveted down onto the head. Such a construction is effective in holding the head in place, but is very expensive to produce,

and at the same time is a weak construction, for that, in shouldering the one eighth inch diameter stem to receive the head, leaves the stock at the shoulder portion of the stem so weak that valve stems produced in this way are very easily broken.

By utilizing the construction according to my present invention I have effectually and cheaply overcome all of the before stated difficulties, as will hereinafter be more fully described and particularly pointed out in the claim, reference being had to the accompanying drawings in which:

Figure 1, is a vertical section of a flush tank showing my improved construction of valve stem in operative position and relation to the adjacent parts; Fig. 2, is an enlarged perspective of the upper or head end of a valve stem showing my improved construction of the head; Fig. 3, a side elevation of the same with the head and part of the stem in vertical section; and Fig. 4, a perspective of the head and part of the stem as the same is first formed from wire, before the head portion is flattened and formed semi-spherical.

Like numbers refer to like parts in all the figures.

1 is my improved form of construction of valve stem, shown in operative position and relation to the adjacent parts. (See Fig. 1.)

Referring to Fig. 4, which shows the head portion and part of the stem as the same is formed from wire on an automatic machine. These pieces are then put into a forming die, and by one blow the wire is flattened and formed into the semi-spherical shaped head, (as shown in Figs. 2 and 3), after which operation the required screw thread is chased on the other end to provide means for attachment to a valve. By this method of construction I obtain a strong, symmetrical, construction, formed from a continuous piece of round wire, the head of which has a continuous semi-spherical concavo-convex surface at approximately right angles to the axis of the stem.

The utility and operation, and the means of construction of the device are so obvious that further description would be superfluous.

I claim:

As a new article of manufacture, a flush tank valve stem of the class described, consisting of a continuous piece of wire, one
5 end of which is bent at substantially right angles to the stem portion, the wire of said bent portion being formed into a coil axially about said stem portion, said coil being

flattened and formed into a semi-spherical concavo-convex body, the other end of said 10 stem portion being provided with means for attachment to a valve member.

In testimony whereof I hereunto affix my signature.

OLIVER P. YOST.

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