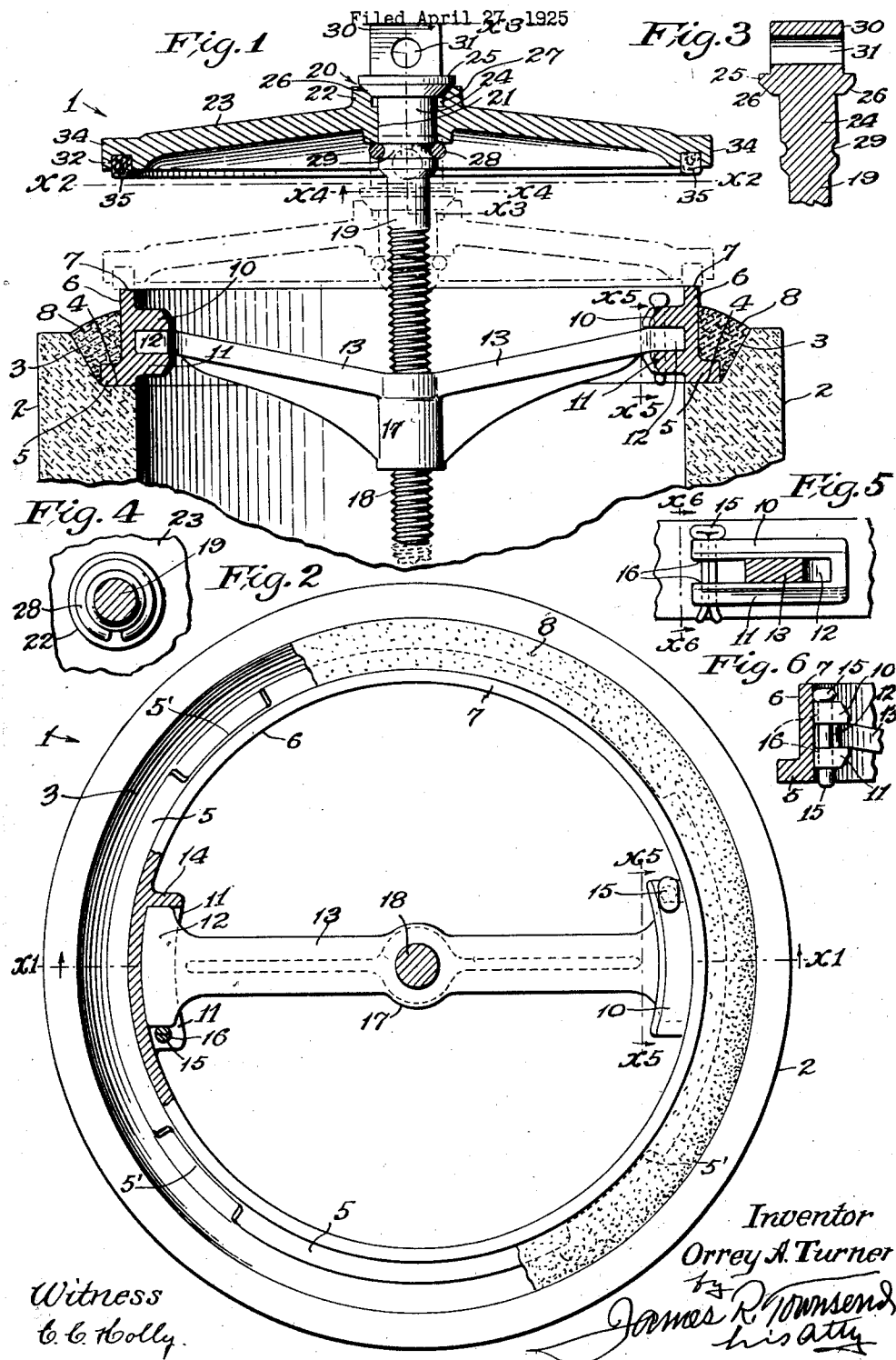


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O. A. TURNER
IRRIGATING VALVE

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UNITED STATES PATENT OFFICE.

ORREY A. TURNER, OF SAN JACINTO, CALIFORNIA.

IRRIGATING VALVE.

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This invention relates more particularly to valves mounted upon the top of stand-pipes and adapted to be opened and closed for the purpose of furnishing a regulated flow of water from the stand-pipe when desired.

An object of the invention is to provide a valve of this kind, which will be lighter and cheaper than those now commonly used, and which will be also more convenient for opening and closing.

Another object is to make provision for avoidance of all leakage when the valve is closed and to fit the valve for being hand operated throughout the major part of the closing and opening operations, and for being given the final seating, and the release from such seating by a convenient use of a handle or wrench.

In valves of the character to which this valve relates the valve is in the form of a cover carried by a threaded stem, which screws down through a cross bar which is detachably fitted to the valve seat and in practice said valve seat is cemented to the upper end of the stand-pipe. Said stand-pipe may be ten inches more or less inside diameter and a feature of this invention is the construction whereby the interior of the valve seat is practically flush with the interior of the stand-pipe.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description and the appended claims.

The accompanying drawing illustrates the invention.

Figure 1 is a central vertical fragmental section through the discharge end of a stand-pipe on line x^1 , Fig. 2, showing an irrigating valve that is constructed in accordance with this invention; and also showing an open position of the valve cover by full lines and a closed position by dotted line.

Fig. 2 is a fragmental section on line x^2 , Fig. 1, showing a plan view of the stand-pipe and valve seat.

Fig. 3 is a fragmental longitudinal section on line x^3 , Fig. 1, showing a detail of the bearing end of the valve stem.

Fig. 4 is a fragmental cross section on line x^4 , Fig. 1, showing a detail of the clincher ring that is utilized for securing the valve cover on the valve stem bearing.

Fig. 5 is a fragmental section on line x^5 , Figs. 1, 2, with the valve seat detached from the stand-pipe.

Fig. 6 is a section on line x^6 , Fig. 5.

An irrigating valve 1 is adapted to be secured to the discharge end of a stand-pipe 2 that is fragmentally shown in the drawing.

The pipe 2 is adapted to be connected to a water irrigation system, not shown, but which is well understood in the art.

The pipe 2 is provided with a tapered recess 3 that extends inwardly from the discharge end of the pipe and which terminates at a shoulder 4 on which the flanged end 5 of the annular base member 6 of valve 1 is adapted to be seated.

The base member 6 extends down into the recess 3 about half of its length so that when the flanged end 5 is seated on the shoulder 4 the rim 7 that forms the valve seat of the band 6 will extend above the end of the pipe 2; and after the base member 6 is seated in the recess 3 it is secured in place by cement 8 which preferably is rounded up from the top end of pipe 2 toward the rim 7.

As shown in Fig. 2 the flange of the end 5 can be recessed as at 5' and these recesses are filled with cement to aid in holding the base member 6 in a fixed position and to resist axial movement when considerable rotatable force is applied to open or close the valve.

It is understood however, that the base member 6 can be secured to the end of the pipe 2 in any well known manner.

Preferably the inner diameters of the pipe 2 and base member 6 are substantially the same; so that when the valve 1 is fully open that a full flow of water can freely discharge from the pipe 2.

The base member 6 has oppositely arranged inwardly extending integral supports 9 on its inner periphery that comprises upper and lower parallel flanges 10, 11, that are spaced apart and arranged to receive and support the ends 12 of a removable cross bar 13.

Each of the supports 9 is provided with a rib 14 that is arranged at the ends and integral with its respective flanges 10, 11; that form stops for engaging the ends 12 of the cross bar 13 when it is in place.

The cross bar 13 is slightly less in length

than the inner diameter of the base member 6 so that it can be inserted lengthwise into the band a sufficient distance to register with the space between the flanges 10, 11 of the supports 9; and then turned on its axis until the ends 12 engage the stops 14; and the stops 14 are arranged relative to one another so that such an axial movement of the cross bar 13 can be accomplished.

The ends 12 of the cross bar 13 are secured between the flanges 10, 11 by means of cotter pins 15 that are adapted to extend through registering opening 16 through the ends of the flanges 10, 11 and the openings are oppositely arranged to the stops 14.

The cross bar 13 has a centrally arranged screw box 17 through which the threaded end portion 18 of a stem 19 is adapted to be reciprocated by rotation.

The unthreaded end of the stem 19 is provided with a ground bearing 20 that is adapted to extend through an opening 21 in a boss 22 of the cover 23.

The bearing 20 comprises a cylindrical hub portion 24 that is adapted to form a water tight fit between its periphery and the wall of the opening 21; and also to form a substantial bearing that is adapted to be turned in the opening 21 when the cover 23 is in frictional engagement with the rim 7.

Adjacent the top end of the hub 24 the stem 19 is enlarged with an annular flange 25 that has a tapered face 26 that is adapted to be seated in a flanged end of the opening 21 and form a dust and water tight fit between the flange and cover.

Preferably the opening 21 is enlarged to provide a small annular opening 27 around the hub 24 adjacent and under the annular flange 25 into which sediment or dust can pass that may enter inward past the flange 25.

The bearing 20 is rotatably secured in the cover 23 by means of a split ring 28 that is milled into an annular recess 29; and the ring is fitted into place so that it will hold the tapered face 26 of the flange 25 in water tight engagement with the beveled face in the boss 22, and also hold the parts together so that it requires considerable force to rotate the hub 24 in the opening 21.

A squared end 30 having an opening 31 is provided on the unthreaded end of the stem 19 to facilitate turning it on its axis either with a handle or wrench.

The cover 23 has an annular recess 32 on its underside and adjacent its rim 34 into which is fitted the usual packing ring 35 that is of suitable dimensions to fit snugly over the rim 7 when the cover is seated and forms a water tight enclosure.

In operation the cover 23 is rotated by hand to spin the stem 19 on its axis to move the cover to primarily opened or closed position; it being understood that the tight

fit of the cover to the stem is sufficient to overcome the frictional resistance of the screw 18 in the screw box 17, except when the cover engages the valve seat rim 7.

Assuming that the valve 1 is in open position as indicated by full lines in Fig. 1, and it is to be closed. To close it an attendant would first grasp the rim of the cover 23 and spin it on its axis in a direction that would drive the screw 18 down through the head 17. This would cause the cover 23 to rapidly descend into engagement with the rim 7 and primarily close the valve. Then the attendant would take a handle or wrench and additionally rotate the stem 19 to force the cover 23 into a water tight engagement with the rim 7; it being understood that in this final movement only the stem 19 turns on its axis; and the only movement of the cover is downward toward the rim 7.

The valve is quickly opened by a reverse movement of parts. That is, the cover is first loosened by use of a handle or wrench; after which the attendant utilizes the cover as a leverage to spin the stem 19 and force the cover upward to open position.

I claim:

1. The valve set forth comprising an annular band adapted to be secured to the discharge end of a stand-pipe, said band having an inner diameter that is substantially the same dimension as the inner diameter of the stand-pipe; a rim integral with said band that is adapted to form a valve seat; a cross bar arranged inside of said band; a stem having a threaded end portion adapted to be reciprocated by rotation through said cross bar; a hub integral with and adjacent the other end of said stem; a cover rotatably secured to said hub and adapted to be revolved to initially move the same into engagement with said rim to close said valve; a split ring extending into an annular recess in said stem adapted to hold said cover on said hub; and an enlarged end on said stem whereby it can be rotated by a tool, for finally sealing the said cover upon the valve seat.

2. The valve set forth comprising an annular band adapted to be secured to the discharge end of a stand-pipe; a rim integral with said band that is adapted to form a valve seat; oppositely arranged supports integral with and extending inwardly from the inner periphery of said band; a cross bar connected to said supports; a stem having a threaded end portion adapted to be reciprocated by rotation through said cross bar; a hub integral with and arranged adjacent the other end of said stem; a cover rotatably and tightly fitted to said hub; an annular flange integral with said stem; a slit ring seated in an annular recess in said stem and adapted to hold said cover on said hub and against said annular flange, said cover adapted to be revolved to initial engagement

with the valve seat; and a squared end formed on said stem whereby it can be turned with a wrench to move said cover into final engagement with said rim, the
5 tight fit between the cover and the hub being for the purpose that the cover can be used as a leverage to spin said stem on its axis when said cover is disengaged from said rim.

In testimony whereof, I have hereunto set
my hand at San Jacinto, California, this
10 21 day of April, 1925.

ORREY A. TURNER.