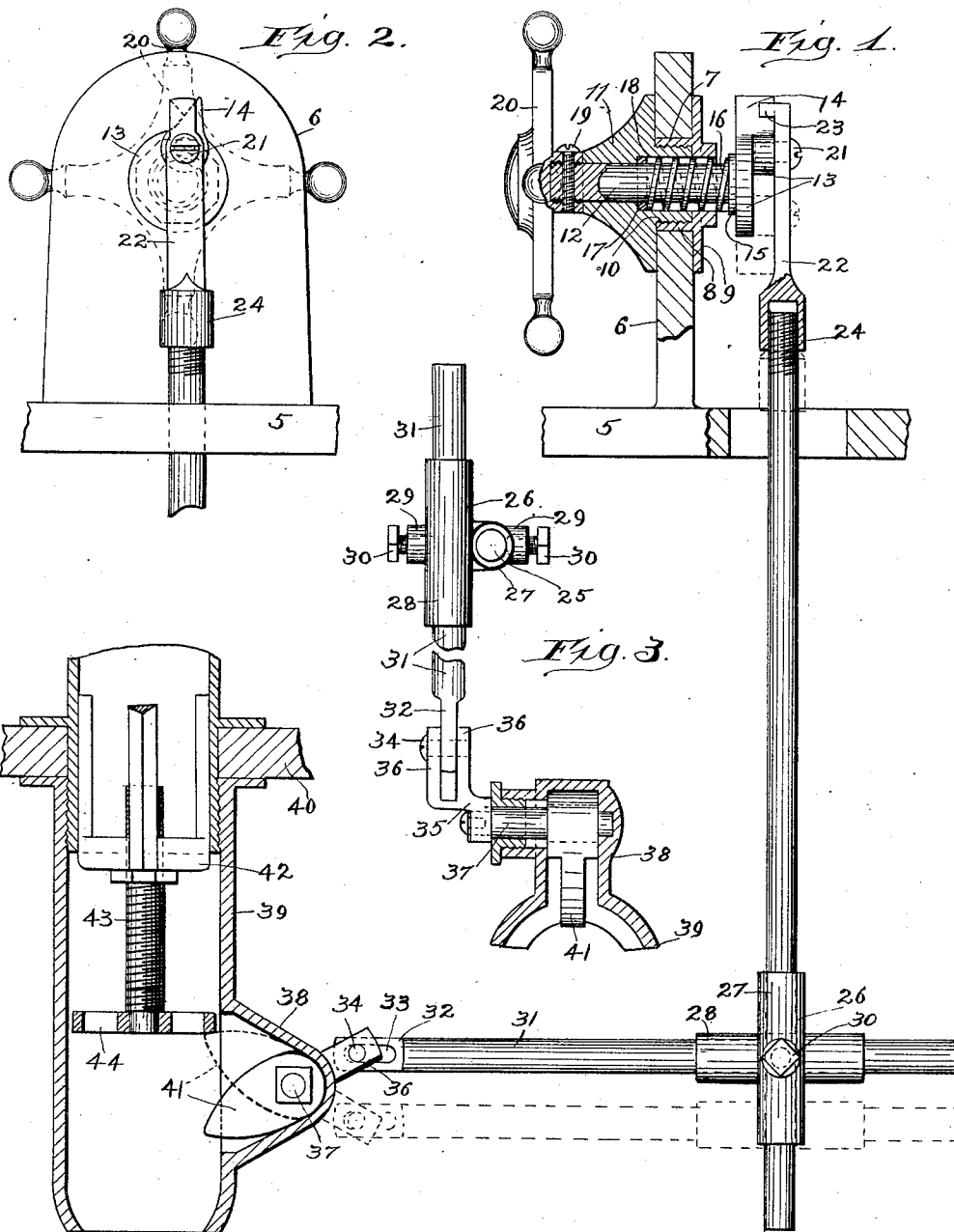


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VALVE OPERATING MECHANISM.
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VALVE-OPERATING MECHANISM.

1,002,953.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES ALLINGHAM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Valve-Operating Mechanism, of which the following is a specification.

This invention relates to improvements in means for operating waste-valves and the like, and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of the invention is to provide a valve operating mechanism which shall be simple and inexpensive in construction, strong, durable and effective in operation, and so made that the main parts thereof will have rectilinear movement in a vertical plane.

Another object of the invention is to furnish rotative means for reciprocating or moving the main parts of the device in a vertical rectilinear plane, which rotative means shall be so constructed that the rotation may be made in opposite directions and so that it will be automatically adjustable with respect to the support on which it is mounted, as well as in such a manner, that it will rest at any desired point in its revolution and will have a positive stop at one point thereof.

Another object is to provide a valve operating mechanism that will be adjustable to any angle and distance relative to the valve, and that will furnish a maximum movement of the valve by a minimum movement of the operating rod and rotative means therefor when the latter is employed.

Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In order to enable others skilled in the art to which my invention pertains, to make and use the same, I will now proceed to describe it, referring to the accompanying drawing, in which—

Figure 1, is a view partly in section and partly in elevation of a valve operating mechanism embodying the invention showing it mounted on a suitable support and in the act of operating a waste-valve, a por-

tion of which is shown in connection with a valve casing and an outlet mounted on a suitable support; Fig. 2, is a rear view in elevation of the support for the rotary operating means for the operating rod, shown in Fig. 1; and Fig. 3, is a plan view partly in section of a portion of the valve casing showing one of the operating rods shortened for convenience of illustration.

Like numerals of reference, refer to corresponding parts throughout the different views of the drawing.

The reference numeral 5, designates a suitable support which may be a part of a sink, or wash basin, or any other support, and the numeral 6, indicates a vertical wall or support on which the rotative means for operating the valve is mounted. The support 6, is provided with an opening 7, in which is located a nut 8, which preferably has an annular flange 9, to rest against one of the surfaces of the support 6. Engaging the nut 8, is a reduced portion 10, formed on one end of a ferrule 11, which is provided with a central opening to receive a shaft 12, which has on its rear end a crank-arm 13, provided with a projection 14, for the purpose to be presently explained.

Loosely mounted on the shaft 12, against the inner surface of the crank-arm 13, is a washer 15, against which one end of a spring 16, rests, which spring is coiled around the shaft 12, and has its other end resting against a washer 17, loosely mounted on the shaft 12, and located at the inner end of the enlarged part 18, of the opening or bore of the ferrule 11, in which enlarged opening the spring 16, is located. Fixed on the front end of the shaft 12 by means of a screw 19, is a knob or handle 20, employed for turning said shaft. Pivotaly secured to the crank-arm by means of a screw or pin 21, is a link 22, which has on its upper end a forward projection 23, to engage the projection 14, on the crank-arm. The lower portion of the link 22, is provided with a screw-threaded socket 24, to engage the upper end of the vertical operating rod 25, which has mounted on its lower portion a cross coupling which is designated as a whole by the reference numeral 26, and consists of two sleeves 27, and 28, disposed at right angles with respect to one another, yet

joined together one on the other. Each of these sleeves has at about its middle a boss 29, in which is seated a set screw 30, to be used for fixing said sleeves on their respective rods.

Extended through the sleeve 28, is a horizontally disposed operating rod 31, which has one of its ends reduced as at 32, and provided with a slot 33, for the reception and operation of a pin 34, which is extended through suitable openings in a crank 35, which crank is provided with prongs 36, to receive therebetween the reduced portion 32, of the horizontal operating rod, thus furnishing a guide for said reduced portion and relieving the pin of the strain incident to any lateral or wobbling movement which might occur if the prongs or forks were not used. The crank 35, is rigidly secured on one end of a shaft 37, which is journaled horizontally in a hollow extension 38, of the valve casing 39, which may be of any suitable kind and is herein shown as being connected to a support 40. The shaft 37, has rigidly mounted thereon within the extension 38, of the valve casing, a lifting arm 41, which projects into the valve casing 39, and is adapted to engage the lower portion of the valve, so that when the parts are moved to the positions shown by dotted lines in Fig. 1, to the drawing, the valve will be raised to permit of the discharge of water through the waste opening. In the present instance I have shown an adjustable valve which consists of the valve body 42, adapted to move back and forth in the valve casing and having in its lower portion a screw 43, having on its lower end an enlargement 44, by means of which it may be turned, so that the valve 42, may be raised or lowered as may be desired.

From the foregoing and by reference to the drawing, it will be readily understood and clearly seen that by turning the handle or knob 20, in either direction, the vertical, as well as the horizontal operating rod will be actuated in a vertical plane and that as the rod 31, is loosely connected to the crank arm 35, the lifting arm 41, will have a rotary movement on its shaft, whereby a maximum movement of the valve may be had by a minimum movement of the rotary knob or handle. By employing the spring on the shaft 12, it is apparent that it will cause the parts to automatically adjust themselves to the different thicknesses of the vertical support or walls, and the automatic stop at any point of the revolution of the knob and crank arm, will be thereby provided, thus holding the operating rods in any desired position. It is obvious that the projection 14, on the crank-arm 13, will act as a positive stop when the knob 20, and the shaft 12, is turned in either direction.

By using the coupling which unites the vertical and horizontal operating rods, it is manifest that it will afford means for the adjustment of the parts relative to the varied distances between the means for operating the vertical rod and the valve, as well as for the adjustment of the parts relative to a rotative movement and the vertical movement.

In some instances, instead of providing the horizontal rod 31, with the slot 33, the said slot may be omitted and said rod and the crank-arm 35, pivotally connected together in which case the set screw 30, which is ordinarily used to secure the rod 31, in the sleeve 28, may be loosened so as to permit of free movement of the rod 31, in said sleeve, thus in the vertical movement of the rod 25, allowing the rod 31, to play or move through its sleeve.

While I have shown rotary means as illustrated in Figs. 1, and 2, of the drawing, for actuating the operating rod 25, yet other means may be employed therefor, and for this reason I do not desire to be limited to the specific means herein shown and described except where so claimed.

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

1. The combination with a suitably supported valve casing, of a valve therein, a pivoted lifting-arm extended into the casing and adapted to engage the valve, a vertically supported operating rod having at its upper portion a lateral projection, a spring actuated shaft rotatably mounted near the upper end of said rod, a crank-arm on said shaft pivotally connected to the upper portion of the operating rod and having a projection to contact with the projection on said rod, and a connection uniting said arm and the operating rod.

2. The combination with a suitable support having an opening therein, of a ferrule provided with a reduced portion located in said opening and having a bore through the same, a nut engaging the reduced portion of the ferrule on the opposite side of the support therefrom, a rotary shaft extended through the opening in the ferrule, a crank-arm on one end of said shaft, an operating rod pivotally connected at its upper portion to said crank-arm, and a spring encircling the shaft and having at each of its ends means to prevent friction.

3. The combination with a suitable support having an opening therein, of a ferrule provided with a reduced portion located in said opening and having a bore through the same, a nut engaging the reduced portion of the ferrule on the opposite side of the support therefrom, a rotary shaft extended through the opening in the ferrule, a crank-arm on one end of said shaft, an operating

rod pivotally connected at its upper portion to said crank-arm, and a compression spring encircling said shaft.

4. The combination with a suitably supported valve casing, of a valve therein, a shaft journaled on the casing, a lifting arm connected to said shaft and extended into the casing for engagement with said valve, an operating rod supported for vertical movement, and a horizontal connection loosely united to said shaft and adjustably horizontally connected to the operating rod and mounted for bodily movement in a vertical plane.

5. The combination with a suitably supported valve casing, of a valve therein, a pivoted lifting arm extended into the casing and adapted to engage the valve, a crank on the shaft of said arm, an operating rod supported for vertical movement, a horizontally disposed rod loosely secured at one of its ends to said crank and adapted for bodily movement in a vertical plane, and a coupling uniting the vertical and horizontal rods for vertical and horizontal adjustment.

6. The combination with a suitably vertically disposed support having an aperture therein, of a suitable fitting rigidly secured in said aperture, a bore longitudinally through the fitting, a manually operative crank shaft extended through the bore and having a crank arm thereon and provided with automatic means for longitudinal adjustment of the shaft in the bore and for preventing the gravity of the crank arm from turning said crank shaft.

7. The combination with a suitably vertically disposed support having an aperture therein, of a suitable fitting rigidly secured in said aperture, a bore longitudinally

through said fitting, a manually operative crank shaft extended through the bore and having a crank arm thereon and provided with automatic means for longitudinal adjustment of the shaft and for checking a too free rotation thereof and having a vertically disposed connection pivotally secured to said crank arm and means therewith for preventing a complete revolution of the shaft.

8. A valve of the character described consisting of a suitably supported casing having a valve therein, a lifting arm journaled in said casing for operating said valve, an operating rod supported for vertical movement, a coupling arranged for vertical adjustment on said rod, a horizontally disposed connecting rod having horizontal adjustment with said coupling and mounted for bodily vertical movement therewith, said connecting rod having one of its ends pivotally secured with the journal of said lifting arm.

9. A valve of the character described consisting of a suitably supported casing having a valve therein, a lifting arm journaled in said casing for operating said valve, an operating rod supported for vertical movement, a coupling on said rod for vertical adjustment thereon and having a longitudinal bore therethrough, a horizontally disposed connecting rod supported in said bore for bodily vertical and longitudinal movement with said coupling, said connecting rod having one of its ends pivotally secured with the journal of said lifting arm.

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