

R. WRIGHT.

WATER CLOSET FLUSHING VALVE REGULATOR.

No. 514,110.

Patented Feb. 6, 1894.

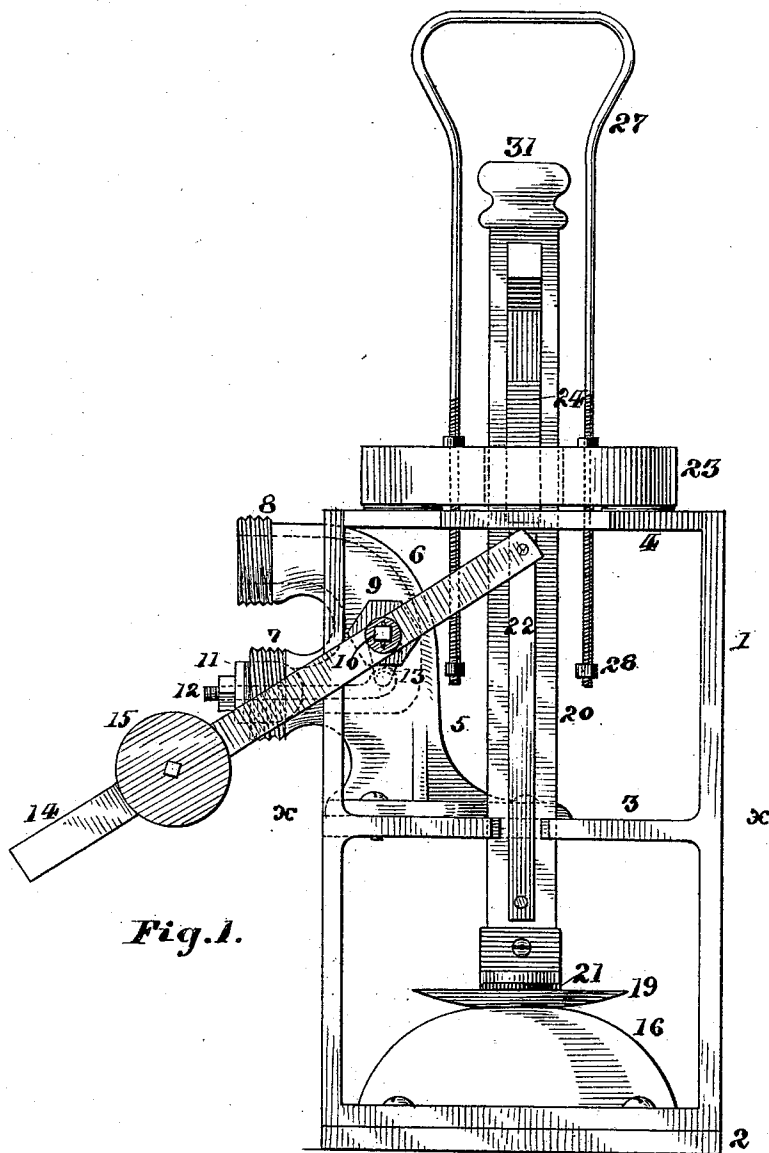


Fig. 1.

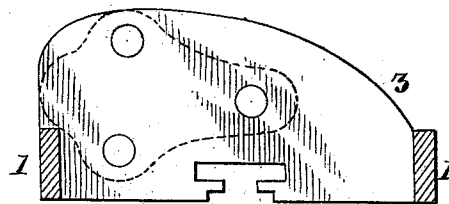


Fig. 3.

Witnessed
Cron Peterson
C. E. Humphrey

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Rufus Wright:
C. E. Humphrey.

Inventor

(No Model.)

2 Sheets—Sheet 2.

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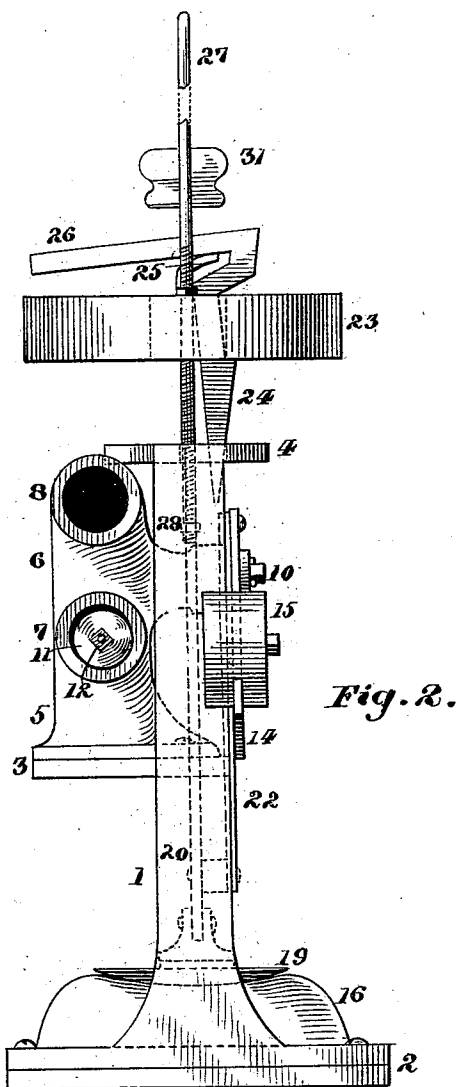


Fig. 2.

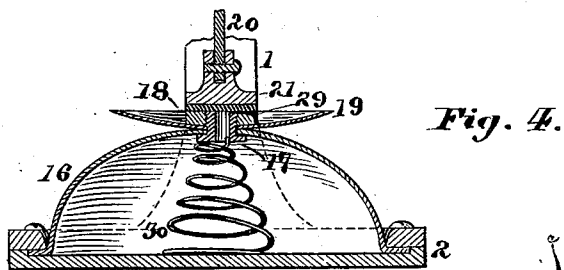


Fig. 4.

Witnessed

Iron Peterson
C. E. Humphrey

Witnessed
B. H. S.

Rufus Wright:

C. E. Humphrey.

UNITED STATES PATENT OFFICE.

RUFUS WRIGHT, OF AKRON, OHIO.

WATER-CLOSET-FLUSHING-VALVE REGULATOR.

SPECIFICATION forming part of Letters Patent No. 514,110, dated February 6, 1894.

Application filed February 23, 1892. Serial No. 422,536. (No model.)

To all whom it may concern:

Be it known that I, RUFUS WRIGHT, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Water-Closet-Flushing-Valve Regulators, of which the following is a specification.

My invention has relation to improvements in devices for regulating the operation of flushing valves for water-closets, urinals and analogous apparatus, in which an elastic diaphragm is used to retard the opening of the valve; and the object of my invention is to produce devices which shall generally open the flushing valve, and allow it to rapidly close after having flushed the basin, thereby preventing the waste of water and, also retaining the elastic diaphragm in its normal shape, and preventing it from becoming hardened in a distorted form from continued pressure.

To the aforesaid object my invention consists in the peculiar and novel construction, arrangement and combination of parts hereinafter described and then specifically pointed out in the claims, reference being had to the accompanying drawings forming a part of this specification.

In the accompanying drawings in which similar reference numerals indicate like parts in the different figures: Figure 1, is a front elevation of my invention; Fig. 2, a side elevation of the same; Fig. 3, a section of the same at the line *x, x*, of Fig. 1, and Fig. 4, a vertical central section of the base, the elastic diaphragm and immediately connected parts hereinafter described.

Referring to these drawings, 1, is a supporting frame, ordinarily of cast iron consisting of two uprights provided with a base 2, and two shelves 3, 4.

On the shelf 3, a plan of which is shown in Fig. 3, is mounted a bracket 5, being a U shaped tube 6, having screw-threaded terminals 7, 8, for the entrance and discharge of water respectively and through the center of the curve an opening guarded by a stuffing box 9, for the insertion and operation of a valve stem 10. The outer end of the terminal 7, is internally cup-shaped and in it is a similarly shaped valve 11, of elastic material,

as rubber, mounted on a rod 12, which extends into the inlet pipe and is pivotally connected with the outer end of a crank arm 13, mounted inside of said pipe on the valve stem 10, as shown in dotted lines in Fig. 1.

On the outer end of the stem 10, is a rocking bar 14, on which is a sliding adjusting weight 15, held by a binding screw, the object of which bar is hereinafter described.

On the base 2, and having its edges clamped between the base and the lower ring of the frame 1, is a hollow, elastic diaphragm of rubber, hemispherical in shape having fastened in its center an air tube 17, on which is clamped by a screw-threaded nut 18, a metallic saucer-shaped disk 19.

In the shelves 3, and 4, are ways, in Fig. 3, in which is a vertically sliding bar 20, having at its lower end a cushion 21, of soft vulcanized rubber, arranged to rest on and close the air tube 17. The lower end of the bar 20, and the inner end of the bar 14, are connected by a link 22, so that the descent and rise of the bar 20, will rock the bar 14, and open and close the valve 11.

On the bar 20, above the shelf 4, is a sliding weight 23, which is graduated to overcome its resistance of the weight 15, and elasticity of the diaphragm 16, when raised and held against the bar 20.

In the front of the opening in the weight 23, in which the bar 20, fits, is a narrow front opening, indicated by dotted lines in Fig. 1, at a right angle with the main opening, in which fits and slides a wedge shaped bar 24, the lower end of which tapers to a thin edge, and thence increases until nearly the depth of the opening in the weight 23, where it is reduced by a square shoulder forming a latch to engage the lower face of the weight 23, and thence rising of the reduced size, is bent forward, and returned backward terminating in a slightly inclined arm 26, the whole suspended in a fulcrum 25, attached to the bar 20, and so adjusted that the weight of the arm overbalances the opposite part and constantly rocks the lower point of the bar 24, outward, as shown in Fig. 2. The lower end of the bar 24, rests in an opening in the shelf 4, similar to, and in vertical adjustment with the opening in the weight 23, in which the larger part of the wedge portion of the bar

24 rest. A handle 27, of heavy wire passes through the weight 23, to which it is fastened by upper and lower nuts, the lower fitting in a recess and not shown, the ends of which pass through the shelf 4, and are provided with nuts 28, to constitute stops for their upward movement.

When it is desired to flush the basin with which the apparatus is connected, the weight 23, is raised by the handle 27, until it passes the shoulder of the bar 24, which swings under it thereby sustaining it with bar 20, when the handle 27, is released. The weight 23, thus supported forces the bar 20, down, thereby compressing the diaphragm 16, its pressure thereon being gradually brought thereon by the disk 19, and the air allowed to escape slowly through a small vent 29, in the nut 18, and it simultaneously rocks the lever 14, opening the valve 11. As the bar 20, continues to descend the lower end of the bar 24, is forced inward by the opening in the shelf 4, until as the weight 23, reaches the shelf it is pushed so far inward as to release the weight 23, and pass through the orifice therein, and is immediately forced upward with the bar 20, by force of the diaphragm 16, and weight 15, and restored to its normal position thereby rocking the lever 14, closing the valve 11, and having the weight 23, resting on the shelf 4. The difference between the weight of the bar 20, and the elastic upward force of the diaphragm 16, is regulated by moving the weight 15, on the lever 14, and to increase the force of the diaphragm 16, I inclose therein a coiled spring 30, as shown in Fig. 4.

On top of the bar 20, is a knob 31, by pressing on which the bar 20, may be forced down, and the flushing valve operated, without using the handle, weight or latch just described.

By the apparatus just described I accom-

plish a three-fold purpose: first, of furnishing sufficient water to flush the basin, and immediately, automatically arresting its flow that would otherwise waste; second, I preserve the diaphragm and prevent it becoming rigid from being held continually in a compressed position; and, third, I provide a device by which it may be instantly flushed for any period of time without using the other parts.

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

1. In a flushing valve regulator the valve and a rocking lever to open and close it combined with a vertically sliding bar arranged to rock said lever, an elastic diaphragm arranged to be compressed by said bar when it is forced down, and raise it when the force is removed, and a weight to force said bar down and a latch to retain the weight on the bar during its descent, and release it at the end of the downward stroke, substantially as shown and described.

2. In a flushing valve regulator, the valve and a rocking lever to open and close it, and a vertically sliding bar arranged to rock said lever and a detachable weight to force said bar down, and an elastic diaphragm arranged to be compressed by the bar in its descent, and raise it when the weight is released, combined with an adjustable weight on said rocking lever to regulate the resistance to the descent of the bar and assist the diaphragm in raising it, substantially as shown and described.

In testimony that I claim the above I hereunto set my hand.

RUFUS WRIGHT.

In presence of—

C. E. HUMPHREY,
C. P. HUMPHREY.