July 1, 1930. L. N. HITCHCOCK 1,769,061

DEVICE FOR FLUSHING DRAIN OUTLETS

Filed Nov. 14, 1928

Fig. 2

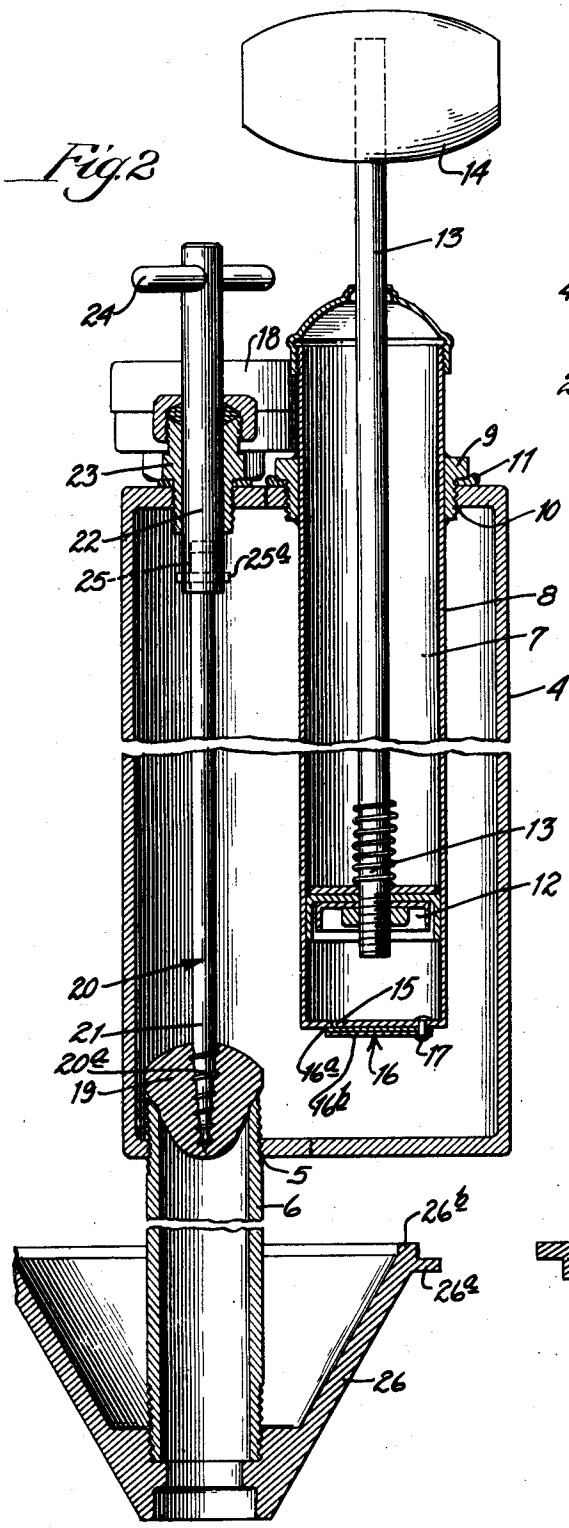


Fig. 1

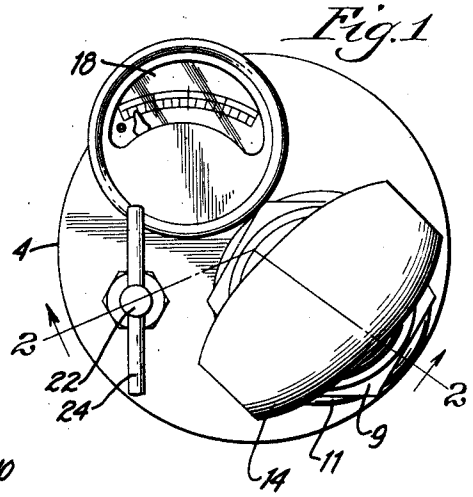
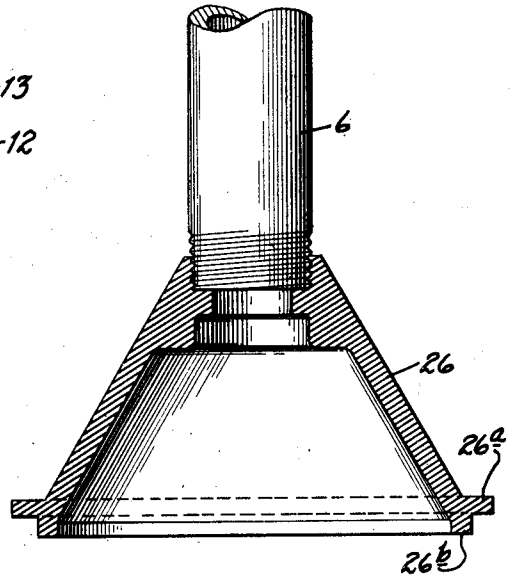


Fig. 3



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DEVICE FOR FLUSHING DRAIN OUTLETS

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My invention relates to devices for flushing, with air, the drain outlets of lavatories, water-closets, bath-tubs, sinks and the like, to remove obstruction accumulations therein, and more particularly to that type of device comprising a receptacle for the storage of compressed air supplied thereto by a pump, the receptacle having an outlet through which the air may be directed into the drain-outlet to be flushed, and valve means for opening the receptacle to the drain-outlet to the end that a relatively large volume of air, under relatively high pressure, may be suddenly released for flow to the drain-outlet.

One of my objects is to provide a device of the character stated which may be readily, conveniently, and effectually used by one person without requiring the aid of another.

Another object is to provide a construction which may be used to the maximum effectiveness, for flushing drain-outlets covered with strainers, as in the case of kitchen sinks, and drain-outlets presenting sockets, as in the case of bath tubs.

Another object is to generally improve upon devices of this general character to the end that they will be better adapted to perform the work for which they are provided; and will be simplified and rendered more compact and positively operating; and other objects as will be manifest from the following description.

Referring to the accompanying drawings:

Figure 1 is a plan view of a device of the general character above stated constructed in accordance with my invention.

Figure 2 is a section taken at the irregular line 2—2 on Fig. 1 and viewed in the direction of the arrow, a portion of the discharge-pipe for the compressed air and a portion of the air-receptacle, being broken away, and the cup at the outlet thereof being positioned for use with drain-outlets of the socket type, such as are commonly provided in bath-tubs; and

Figure 3, a view in side elevation of the lower end of the discharge-pipe of the device with the cup at the outlet thereof positioned for use in connection with strainer-equipped drain-outlets, as for example in the case of sinks.

The particular construction shown comprises a receptacle for compressed air shown as, and preferably, in the form of a cylinder 4 containing an opening 5 in its lower end into which is screwed the upper end of a rigid discharge pipe 6, the upper end of this pipe extending above the bottom of the cylinder.

Extending through the upper end of the cylinder 4 and into the interior thereof, is a hand-pump represented generally at 7, this pump comprising a cylinder 8 provided about its upper end portion with a gland 9 screwing into the opening 10 in the cylinder 4 through which the cylinder 8, downwardly extends, the gland 9 being in the form of a nut and screwing down upon a gasket shown at 11. Reciprocable in the pump cylinder 8 is a piston 12 connected with a reciprocable stem 13 which extends upwardly through the top of the cylinder 8 and is equipped with a hand-grip 14 by which to operate the piston.

The bottom of the cylinder 8 contains an opening 15 normally closed by a flap-valve 16 secured to the bottom of cylinder 8, as by a rivet 17, this valve serving to permit air, compressed by the pump 7, to discharge into the receptacle 4, but prevent its escape back into the pump-cylinder.

It will be understood that by operating the pump 7 air-pressure to the desired degree may be built up in the receptacle 4, the latter preferably opening into a pressure-gage 18 mounted on the top of the receptacle 4.

The device also comprises valve means for controlling the discharge of the built-up pressure from the receptacle 4 through the discharge pipe 6, the valve means shown comprising a valve proper 19 preferably formed of rubber and of the general conical shape shown and adapted to extend downwardly into the upper open end of the pipe 6 and effectually close the latter against escape of the air therethrough as shown in Fig. 2. The valve proper 19 is mounted on the lower end of a valve stem 20, the latter being preferably threaded at 20^a, the thread being such as in the case of ordinary wood screws, at which

the stem is screwed into the valve proper 19.

The stem 20 is preferably formed of two sections, the lower section 21, which is directly connected with the valve 19 as stated, and an upper section 22 which extends slidingly through a stuffing box 23 in the top of the receptacle 4, its upper end being provided with a finger grip 24 by which the valve 19 may be readily raised and lowered.

The connection between the sections 21 and 22 is preferably of such character as to permit of the shifting of the valve 19 in any direction in a horizontal plane to permit it to conformingly seat upon the upper end of the pipe 6 and form a tight joint. Such a connection is provided in the arrangement shown by forming a socket 25 in the lower end of the stem-section 22 into which the upper end of the stem-section 21 loosely extends, and connecting these sections together by a pin 25^a mounted in the lower end of the stem-section 22 and extending loosely through the section 21.

The pin 25^a also operates, in conjunction with the lower end of the stuffing box 23, as a stop to prevent the lifting of the valve proper 19 entirely out of the pipe 6.

By employing the valve mechanism shown and described a quick release of the air pressure to the discharge pipe 6 may be effected.

The lower end of the rigid pipe 6 is provided with a device 26 shown as of general cup form and so constructed that when positioned on the pipe 6 as shown in Fig. 2 it may be caused to tightly fit, at its lower tapering end, drain-outlets of varying sizes such as are commonly provided in bath tubs and lavatories, and when positioned reversely on the pipe 6 as shown in Fig. 3 may be used in connection with other forms of drain outlets such as strainer outlets as in the case of kitchen sinks and drain outlets of water-closets.

The cup is preferably provided with a peripheral annular flange 26^a located above its terminal lower edge 26^b to form with the sides of the bowl of a water-closet at the outlet of the latter, a tight joint, supplementing the joint made with the bowl at the lower terminal edge 26^b of the cup.

Where it is desired that disinfectant be supplied to the drain-outlets in the flushing thereof with air, this may be conveniently accomplished by pouring the desired amount of disinfectant into the receptacle 4, as for example through the discharge pipe 6, the valve 19 having been preliminarily unseated.

While any desirable form of valve controlling the discharge of air, compressed by the pump 7, into the receptacle 4 may be provided, it is preferred that this valve be of the flap type and of the construction shown comprising flatwise-opposed strips 16^a and 16^b of rubber and spring metal, such as spring steel, respectively.

The improvements described make for simplicity and economy of structure; facilitates the use of the device, it being possible for one person, without the aid of another person, to readily operate it; and adapts the device for use with a large variety of drain outlets; and accomplishes other advantages as will be manifest from the foregoing.

While I have illustrated and described a particular construction embodying my invention, I do not wish to be understood as intending to limit it thereto as the same may be variously modified and altered without departing from the spirit of my invention.

What I claim is new and desire to secure by Letters Patent, is:—

1. A device of the character set forth, comprising a receptacle for the storage of compressed air, a pump connected with said receptacle and having an outlet communicating with the interior of said receptacle, said receptacle having an outlet, and a reciprocable valve controlling the discharge of the air from said receptacle through said outlet located in said receptacle and having a valve-proper and a stem extending lengthwise of said receptacle.

2. A device of the character set forth, comprising a receptacle for the storage of compressed air, a pump connected with said receptacle and having an outlet communicating with the interior of said receptacle, said receptacle having an outlet, and a reciprocable valve controlling the discharge of the air from said receptacle through said outlet, comprising a valve proper, and a sectional stem, the sections of which are flexibly connected together, one of said sections being connected with said valve proper and the other thereof sliding in an opening in a wall of said receptacle.

3. A device of the character set forth, comprising a receptacle for the storage of compressed air, a pump connected with said receptacle and having an outlet communicating with the interior of said receptacle, said receptacle having an outlet, and a reciprocable valve controlling the discharge of the air from said receptacle through said outlet, comprising a valve proper, which in seating extends into the outlet of said receptacle, means for operating said valve proper and stop means for preventing withdrawal of said valve proper from said receptacle-outlet.

4. A device of the character set forth, comprising a receptacle for the storage of compressed air, a pump connected with said receptacle and having an outlet communicating with the interior of said receptacle, said receptacle having an outlet, and a reciprocable valve controlling the discharge of the air from said receptacle through said outlet, comprising a valve proper, which in seating extends into the outlet of said receptacle, a

sectional stem, the sections of which are flexibly connected together, one of said sections being connected with said valve proper and the other thereof sliding in an opening in a wall of said receptacle, and stop means for preventing withdrawal of said valve proper from said receptacle-outlet.

5. A device of the character set forth, comprising a receptacle for the storage of compressed air, a pump connected with said receptacle and having an outlet communicating with the interior of said receptacle, said receptacle having an outlet, and a reciprocable valve controlling the discharge of the air from said receptacle through said outlet, comprising a valve proper, which in seating extends into the outlet of said receptacle, a sectional stem, one of said sections being connected with said valve proper and the other thereof sliding in an opening in a wall of said receptacle and means flexibly connecting said sections together and forming a stop for preventing withdrawal of said valve proper from said receptacle-outlet.

LOUIS N. HITCHCOCK.