

Dec. 5, 1944.

H. E. PLEASANT ET AL

2,364,314

VALVE ACTUATING LEVER

Original Filed Nov. 21, 1941

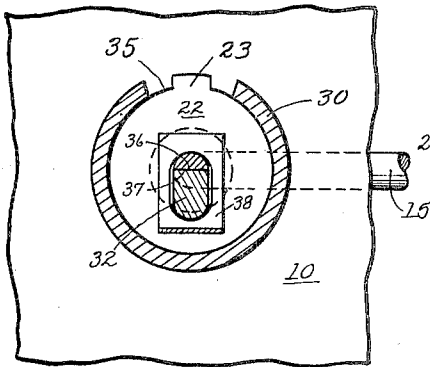


Fig. 3

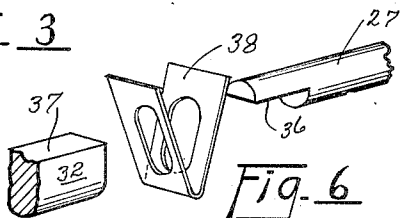


Fig. 6

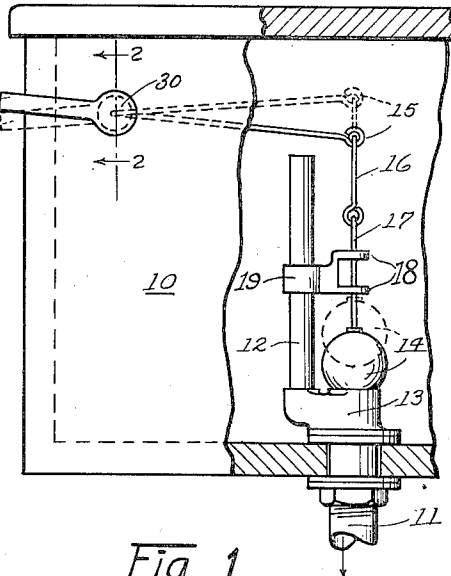


Fig. 1

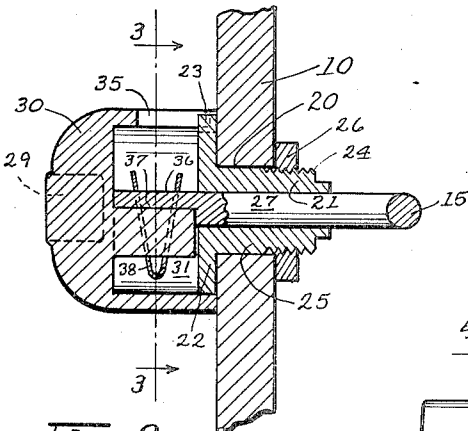


Fig. 2

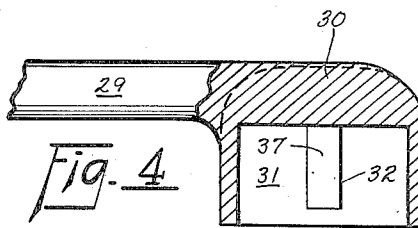


Fig. 4

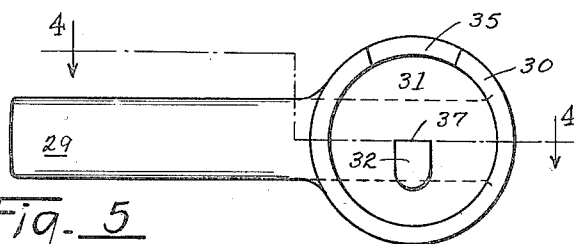


Fig. 5

Witness:  
*Geo. L. Chapel*

Inventor  
*Herman E. Pleasant*  
*Fred M. Keller*

By *Ries and Ries*

Attorneys

# UNITED STATES PATENT OFFICE

2,364,314

## VALVE ACTUATING LEVER

Herman E. Pleasant, Grand Rapids, and Fred M. Keller, Holland, Mich., assignors to Crampton Manufacturing Company, Holland, Mich., a corporation of Michigan

Original application November 21, 1941, Serial No. 419,930. Divided and this application August 3, 1942, Serial No. 453,480

3 Claims. (Cl. 74—548)

The present invention relates to valve actuating levers and more particularly to improvements in handle and valve operating lever assemblies especially adapted for use in connection with flushing tanks.

The instant invention is a modification of and divisional application of that filed November 21, 1941, Serial No. 419,930, finally allowed May 8, 1942, patented September 15, 1942, No. 2,295,686.

The primary objects of the instant invention are to provide an assembly of the general character above indicated which has relatively few parts; to provide such an assembly which is simple yet sturdy in construction; to provide such an assembly which is compact and efficient in use; to provide such an assembly which may be readily and conveniently affixed on the wall of a flushing tank; and, to provide such an assembly which may be economically manufactured.

An illustrative embodiment of the invention is shown in the accompanying drawing, wherein—

Figure 1 is a fragmentary front elevational view of a flushing tank, partly broken away and showing a conventional ball valve device operatively connected with an actuating lever assembly;

Figure 2 is an enlarged sectional view thereof on line 2—2 of Figure 1;

Figure 3 is a sectional view on line 3—3 of Figure 2;

Figure 4 is a fragmentary side elevational view of the handle of the assembly, partly in section on line 4—4 of Figure 5;

Figure 5 is a bottom plan view thereof; and

Figure 6 is a perspective view showing the manner in which one end of the actuating lever is secured to the spindle of the handle by means of a spring clip.

Referring then to the drawing wherein like parts of the assembly shown are designated by the same numerals in the several views, a flushing tank 10, outlet port 11, overflow pipe 12 and valve seat 13 are shown in Figure 1.

The ball valve 14 of Figure 1 is disposed upon its seat 13 as shown in full lines in said view and is elevated therefrom to its position shown in dotted lines through the articulated links 16, 17, the upper of which is pivotally connected to one end of the actuating lever 15 and the lower of which is rigidly secured to the ball valve 14, which lower link 17 is vertically slidably embraced within aligned vertical apertures in the fingers 18 of the bifurcated bracket 19 secured to the overflow pipe 12 in a lateral disposition relative thereto.

The front wall of the flushing tank 10 is provided with an opening 20 therethrough, preferably squared or otherwise non-circular in character and a tubular fixture 21 projected through the opening 20 of the tank and having a flanged head 22 provided with a laterally disposed lug 23 has a threaded shank 24 and an intermediate squared or otherwise non-circular portion 25 embraced within the squared or otherwise non-circular opening 20 of the tank 10.

The actuating lever 15 of the assembly is shown as a rod and its laterally turned portion 27 is provided with a plane recessed end 36 as best shown in Figures 2, 3 and 6.

The handle 29 is provided with a spindle 32 projecting from the chambered recess 31 of its laterally turned head 30, which spindle is provided with a plane longitudinal surface 37 adapted to engage the plane surface of the recessed end 36 of the laterally turned portion 27 of the actuating lever 15, likewise as best shown in Figures 2, 3 and 6.

A spring clip 38 of V-shape and best seen in Figure 6 may be pinched together at its open ends to receive the ends of the spindle 32 and recessed end 36 of the actuating lever 15 whose plane surfaces are fitted in engaging contact with each other whereupon the spring clip 38 is released to maintain them in such relation and to prevent their axial separation.

A lug 23 on the flanged head 22 of the fixture 21 is disposed within the notch 35 forming an opening in the wall of the chambered head 30 of the handle 29 and receiving the lug 23 of the fixture 21 for limiting the rotative movement of the handle 29 and its actuating lever relative to the fixture 21. The opening formed by the notch 35, in addition to limiting the rotative movement of the handle, affords access to the spring clip 38 which is located adjacent said opening and which is exteriorly operable through said opening to grip and release the spindle 32 and the recessed end 36 of the actuating lever.

Since the handle 29 and its actuating lever 15 can not be axially separated without compressing the spring clip 38, it will be seen that tilting of the handle from its position shown in full lines in Figure 1 to its position shown in dotted lines in the same view will lift the ball valve 14 from its seat 13 resulting in flushing of the tank 10 through the outlet port 11.

It will thus be seen that the valve actuating lever assembly herein shown and described is comprised of but few parts, that the assembly is simple yet sturdy in construction, that it is

compact and efficient in use, that it may be readily and conveniently affixed on the wall of the tank and that the assembly is economical in manufacture since the fixture and handle may be die cast.

While but one specific embodiment of the invention has been herein shown and described, it will be understood that certain details of the construction shown may be altered or omitted without departing from the spirit of the invention as the same is defined by the following claims.

We claim:

1. In a device of the class described, a tubular fixture adapted to be fixedly secured through the wall of a tank, said fixture having a flanged head provided with a laterally projecting lug, a handle having a chambered head rotatable on the flanged head of the fixture and provided with an opening receiving said lug and limiting the rotative movement of the handle, said chambered head having a spindle provided with a longitudinal plane surface, an actuating lever having a longitudinal plane surface projected through the tubular fixture with its plane surface in juxtaposition with the plane surface of the spindle, and a clip located adjacent said opening and provided with means for securing the handle and lever together and exteriorly operable through said opening to engage and release said spindle and lever.

2. In a device of the class described, a tubular fixture adapted to be fixedly secured through the wall of a tank, said fixture having a flanged head provided with a laterally projecting lug, a handle having a chambered head rotatable on the flanged head of the fixture and provided with an opening receiving said lug and limiting the rotative movement of the handle, said chambered head having a spindle provided with a longitudinal plane surface, an actuating lever having a longitudinal plane surface projected through the tubular fixture with its plane sur-

face in juxtaposition with the plane surface of the spindle, and means for securing the handle and lever together comprising a V-shaped spring clip provided with an opening through each of its opposite sides tensionally embracing the spindle and lever in said juxtaposition, said clip being located adjacent the opening of the chambered head and exteriorly operable through said opening to grip and release said spindle and lever.

3. In a device of the class described, a tubular fixture adapted to be fixedly secured through the wall of a tank, said fixture having a flanged head provided with a laterally projecting lug, a handle having a chambered head rotatable on the flanged head of the fixture and provided with a recess forming an opening receiving the lug of the flanged head of the fixture for limiting rotative movement of the handle, an actuating lever, said chambered head and actuating lever having cooperating elongated members each having an end portion adapted to overlie the other in complementary fitted juxtaposition, and means for securing said members together in such fitted juxtaposition to prevent interrelative rotative movement and axial separation comprising a V-shaped spring clip consisting of a single piece of sheet metal bent intermediate of its ends to form two walls and having an aperture through each wall thereof of substantially the dimensions equivalent to the cross sectional dimensions of the members at their juxtapositioned fit and through which apertures the fitted members may be projected during compression of the clip by pinching the walls together and within which apertures said members are frictionally retained when such compression is released, said spring clip being located adjacent the opening of the chambered head and being exteriorly operable through said opening to grip and release said members.

HERMAN E. PLEASANT.  
FRED M. KELLER.