Feb. 13, 1934. R. E. CRANE ET AL 1,947,439

CLOSET BOWL

Filed Dec. 28, 1931

Fig. 1.

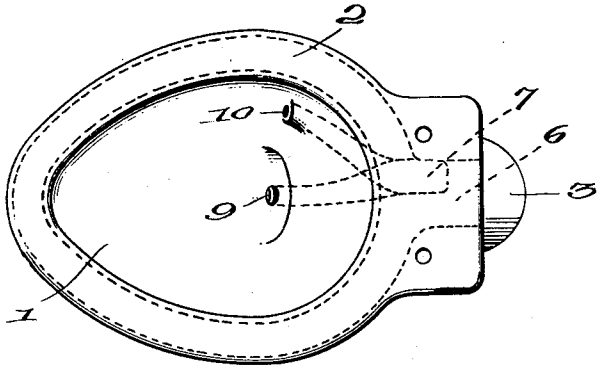
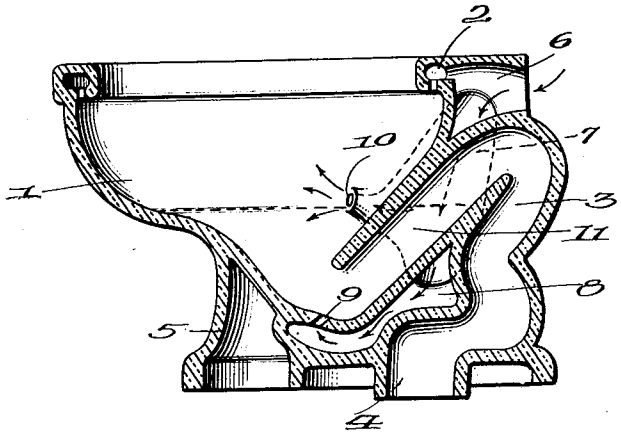


Fig. 2.



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CLOSET BOWL

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3 Claims. (Cl. 4—69)

This invention relates to certain improvements in closet bowls and particularly to a novel arrangement and method of flushing these bowls.

In the conventional bowl, there is usually a rim flush and in some instances the rim flush is provided with an ejector jet for forcing the water through the up leg or trap of the bowl.

It is likewise old to provide a jet entering the main part of the bowl in combination with a rim flush and this jet has also been tangentially arranged with respect to the sides of the bowl.

It is also old to provide the rim flush with slanting outlet openings for producing a swirling motion of the flushing water as it enters the bowl, but none of the former constructions is capable of producing the same result, or operating on the same principle as in applicants' combination of devices.

The object of the present invention is to provide a bowl wherein a lower jet directed upwardly through the up leg of the bowl trap, herein referred to as the ejector jet, cooperates with a substantially horizontal vortex producing tangential jet and the rim flush, so that first, the sides of the bowl are washed, then the horizontal jet directed against the sides of the bowl, causes a fan of water to give a still more thorough washing of the sides of the bowl. These two washes combine in a circular motion with the help of the ejector jet to produce a vortex in the bowl and a continuation of the vortex to the up leg of the bowl trap. A further object is to accomplish this with a single supply chamber from which the three water sources are diverted to their respective points of discharge.

A still further advantage is that by the present construction and arrangement of jets and method of operation, it is possible to provide a deeper water seal in connection with the vortex than is possible without the help of the ejector jet to lift the vortex through the up leg of the bowl. For this reason a deep seal bowl can be produced and at the same time a bowl that will operate quickly and with a smaller amount of water than would be possible without the combination of jets coacting in the manner described.

The preferred embodiment of the invention is illustrated in the accompanying drawing in which

Figure 1 is a plan view and

Figure 2 is a vertical sectional view of the improved bowl.

Referring to the drawing in detail the bowl 1 of any improved or well known design is provided with a rim flush 2, a bowl trap 3 and the necessary soil connection 4 together with a supporting base 5, all of which can be of the usual or conventional design.

Associated with the rear upper portion of the bowl is an inlet chamber 6 to which is connected in any improved manner the water supply pipe, not shown, for flushing the bowl.

Communicating with this chamber 6 and formed preferably as an integral part of the bowl is a water chamber 7, said chamber in turn communicating with a passageway 8 terminating in an ejector nozzle 9. This chamber 7 also supplies a tangential jet 10, the outlet opening of this jet being arranged substantially at the water line of the bowl and so formed as to direct the stream in a slightly upwardly direction but substantially horizontal with respect to the water line of the bowl, this jet 10 being disposed to one side of the inner part of the bowl as shown. With this arrangement the water discharged from the jet 10 in a tangential manner against the sides of the bowl causes a spreading or fanning of the water both upwardly and downwardly and at the same time producing a vortex or swirling action of the water in the bowl.

The ejector jet 9 above referred to is directed upwardly into the up leg 11 of the bowl trap and in the actual operation of the device causes a continuation of the vortex or swirling action of the water of the bowl in the up leg 11 of the trap.

Cooperating with the tangential jet 10 and the ejector jet 9 is the rim flush 2, so that upon the proper proportioning of the size of these jets and the simultaneous operation thereof, the walls of the bowl are completely flushed.

As hereinbefore stated, the combined effect of the three pressure jets as shown produces a novel flushing operation not possible with any previously designed or constructed bowls of this general type. The fact that the tangential jet 10 is disposed substantially at the water line of the bowl, not only products a direct swirling or vortex action of the water in the bowl but a portion of the water ejected is forced around and up the sides of the bowl, combining with the rim flush to produce a complete washing of the entire portion of the bowl above the water line as well as producing a forcible agitation of the body of water normally standing in the bowl.

What is claimed is:

1. In a siphonic closet bowl, the combination with a common water supply chamber, of a rim flush, a substantially horizontal tangentially directed jet located approximately at the water line of the bowl and an upwardly directed ejector jet at the lower part of the up leg of the bowl trap,

all simultaneously operated to produce a vortex action in the bowl and a siphonic action in the up and down leg of the bowl trap.

2. In a siphonic closet bowl, the combination with a common water supply chamber, of a rim flush, a substantially horizontal tangentially directed jet located approximately at the water line of the bowl and an upwardly directed ejector jet at the lower part of the up leg of the bowl trap, said jets being properly proportioned as to size with respect to each other and functioning simultaneously to produce in the bowl, a complete wash down, a swirling action in the form of a vortex and an ejection through the up leg of the bowl trap.

3. In a siphonic closet bowl, the combination with a water supply chamber formed as an integral part of the bowl, of means for supplying water to this chamber at the upper rear portion of the bowl, a flushing rim, a fan shaped current producing tangential jet discharging into the bowl approximately at the water line of said bowl, an upwardly directed ejector jet at the lower portion of the up leg of the bowl trap, said flushing rim and jets each communicating with said supply chamber and the outlets from the flush rim and jets being properly proportioned as to size with respect to each other so that when functioning simultaneously they will produce in the bowl, an exhausting of the up leg of the bowl, a pulling down of the water level therein and causing a vortex action in the bowl between the simultaneously operated jets.

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