Dec. 16, 1930. H. F. KELSO 1,785,198

WATER CLOSET BOWL

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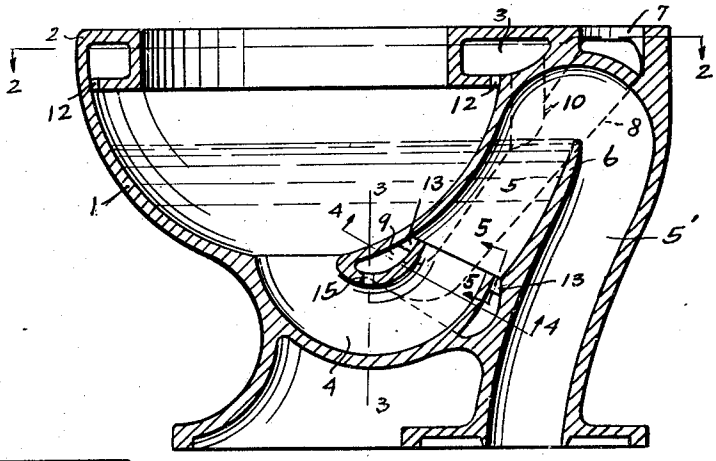

Fig. 1.

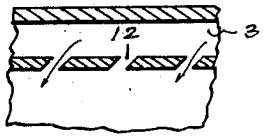

Fig. 6.

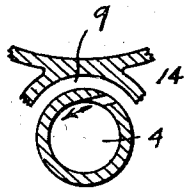

Fig. 3.

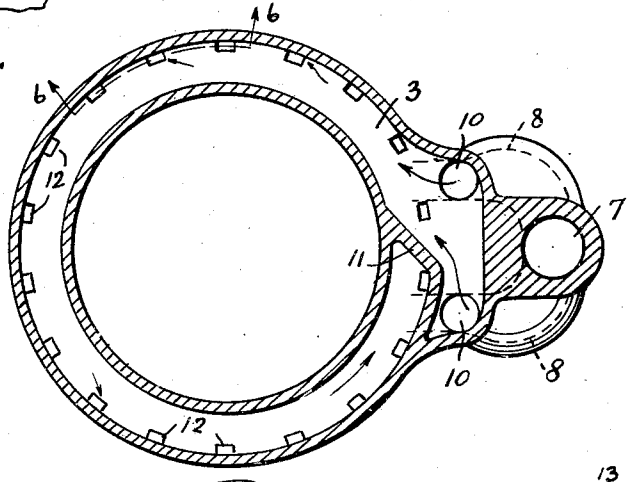

Fig. 2.

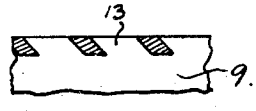

Fig. 5.

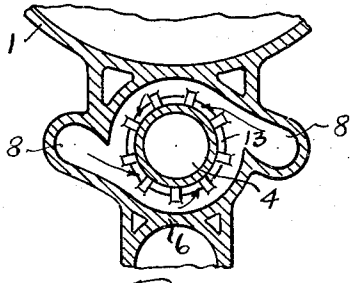

Fig. 4.

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WATER CLOSET BOWL

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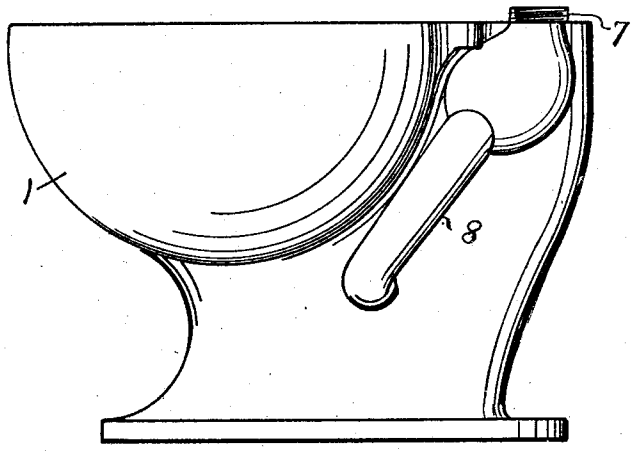

Fig. 7.

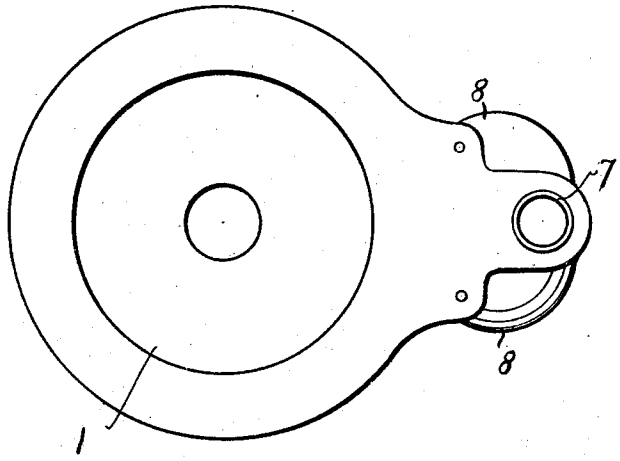

Fig. 8.

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UNITED STATES PATENT OFFICE

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WATER-CLOSET BOWL

Application filed November 25, 1929. Serial No. 409,524.

This invention relates to new and useful improvements in a water closet bowl.

One object of the invention is to provide a bowl of the character described provided with novel means for flushing the bowl with water without creating any objectionable noise during the flushing operation.

Another object of the invention is to provide a water closet bowl which is equipped with a trap whereby the waste pipe will be normally blocked with a pocket of water to prevent the escape of objectionable gases from the waste pipe through the bowl into the room, said bowl being also provided with inlet passageways for the flushing water shaped to set up a whirling movement to the inflowing flushing fluid which will be transmitted to the trapped fluid in said bowl and the contents of the bowl will be flushed under the influence of a centrifugal whirl pool action of the flushing fluid without any suction or siphon action, or noise.

A still further feature of the invention resides in the provision of a water closet bowl provided with flushing fluid inlet openings so disposed that as the bowl is flushed no air will be entrapped in the flushing fluid, and there will be no cross currents to the end that no appreciable noise will be created during the flushing process.

With the above and other objects in view the invention has particular relation to certain novel features of construction, operation and arrangement of parts, an example of which is given in this specification and shown in the accompanying drawings, wherein:—

Figure 1 shows a vertical sectional view of the bowl.

Figure 2 shows a horizontal cross sectional view of the bowl taken on the line 2—2 of Figure 1.

Figure 3 shows a fragmentary vertical sectional view, taken on the line 3—3 of Figure 1.

Figure 4 shows a fragmentary cross sectional view taken on the line 4—4 of Figure 1.

Figure 5 shows a fragmentary sectional view taken on the line 5—5 of Figure 1.

Figure 6 shows a fragmentary vertical sectional view taken on the line 6—6 of Figure 2.

Figure 7 shows a side elevation of the bowl, and

Figure 8 shows a plan view thereof.

Referring now more particularly to the drawings wherein like numerals of reference designate similar parts in each of the figures, the numeral 1 designates the bowl as a whole, having flush rim 2 around the upper margin thereof, formed with an annular chamber 3. At the bottom of the bowl there is the usual trap 4 having up and down outlet legs 5, 5′ which lead into the waste pipe, and provided with the transverse dam 6 which maintains the trapped water at the desired level in the bowl 1. The main water supply line is connected to the inlet connection 7. There are the inlet side channels 8, 8 one on each side of the bowl, whose lower ends terminate in the annular chamber 9 around the up leg 5 of the trap.

Leading up from the respective channels 8, are the water passageways 10, 10, which enter the inlet end of the annular chamber 3. This inlet end of the chamber 3 is separated from the other end by means of the partition 11. The lower side of the flush rim 2 has correspondingly inclined outlet openings 12 spaced apart and arranged adjacent the inner wall of the bowl 1. The inflowing water will be partially diverted up through the passageways 10 into the chamber 3 and will push the air therein ahead so that the water and air will not be intermingled and the water entering the chamber 3 will flow around through said chamber to the partition 11 and will pass through said openings 12, in spiralled fashion, and will set up a whirling or whirlpool motion to the water trapped in the bowl. The flushing water not diverted into the chamber 3 will pass on down into the annular chamber 9 which has the upwardly disposed outlet openings 13 which are inclined or spiralled in a direction corresponding to the direction of the whirling motion of the water set up by the water discharged through the openings 12 and the flushing water will be forced out through these openings 13 and will set up a whirling motion in the water in the trap

which will be augmented by the flushing water forced out from the chamber 9 into the trap through the passageway 15. This last named passageway is also inclined in a direction corresponding to the whirling motion of the water in the trap and accelerates said motion of said water as it passes from the bowl into and through the trap. The entire body of the trapped fluid in the bowl and trap as well as the flushing fluid entering the bowl and trap will thus be given a centrifugal or whirling movement all in the same direction and as the flushing fluid flows in the fluid in the bowl will be pushed ahead out of the bowl and through the upleg 5 of the trap, over the dam 6 and will drop down through the outlet leg 5′ of the trap into the waste pipe.

It is to be noted that the inlet or flushing water does not enter the chamber 3 directly but passes down the channels 8 and thence up through the passageways 10 thus pushing the air ahead and preventing mingling of the air and water in the chamber 3 and the partition 11 diverts all water flowing into the rim chamber in one direction and as it passes through the openings 12 a spiral direction is given to the flushing fluid jetted through the opening 15 will cause a whirling motion of the water in the bottom of the trap 4 which will be accelerated by the spiralled jetting of the water through the outlets 13 around the upleg of the trap.

The flushing fluid passing through the openings 12, 13 and 15 is jetted by said openings around the adjacent walls of the bowl and trap thus keeping said walls clean in addition to imparting the whirl pool action to the volume of water being flushed out of the bowl and thus providing efficient means for carrying off the bowl contents.

It is to be further noted that no siphon action takes place, the discharge water merely falling over the dam 6. This prevents the development of a vacuum or partial vacuum in the down leg 5′ of the trap with the result that there would be no inrush of air through the trap should the bowl entirely empty and the objectionable noise which would attend said inrush of air, is eliminated. As a matter of fact, however, the bowl will not ordinarily entirely empty of water as the flushing fluid will flow in as fast as the bowl discharges.

The drawings and description disclose what is now considered to be a preferred form of the invention, by way of illustration only, while the broad principle of the invention will be defined by the appended claims.

What I claim is:—

1. A water closet bowl having a trap formed with an outlet passageway through which the contents of the bowl may be discharged, there being inlet side channels terminating in series of correspondingly inclined outlet openings arranged about said outlet passageway and also a passageway leading from each channel and merging into common outlet openings arranged about the bowl, said outlet openings being disposed to direct the flushing fluid, in spiralled fashion, about the walls of said bowl, and outlet passageway, respectively.

2. A water closet bowl having an outlet passageway formed into a trap through which the contents of the bowl may be discharged, there being an inlet passageway for flushing fluid which separates into side channels terminating in a series of outlets about said outlet passageway and having side passageways leading from said channels and terminating in a series of outlets about said bowl, the outlets of said series being correspondingly inclined to impart a spiralled direction to the flushing fluid.

3. A water closet bowl having an outlet passageway formed into a trap through which the contents of the bowl may be discharged, there being an inlet passageway for flushing fluid which separates into two side channels terminating in a series of outlets about said outlet passageway, each side channel having a branch passageway which merges and terminates in a series of outlets about the bowl, the outlets of said series about the outlet passageway being correspondingly inclined to impart a spiralled direction to the flushing fluid, the outlets of said series about the bowl being correspondingly inclined to impart a spiralled direction to the flushing fluid, and the outlets of said series being disposed so as to direct said flushing, in spiralled fashion, about the walls of the bowl and outlet passageway.

4. A water closet bowl having an outlet for the contents of the bowl, formed into a trap, means through which flushing fluid may be introduced into the bowl and trap in spiralled fashion about the volume of the contents of said bowl and trap, said means including a rim chamber about the bowl having means therein for directing the flushing fluid around said chamber in a one way direction and also including two side channels terminating in outlets about the trap and a passageway leading from each of said channels, said passageways merging in the inlet end of the rim chamber.

In testimony whereof I have signed my name to this specification.

HOWARD F. KELSO.