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R. E. CRANE ET AL

WATER CLOSET

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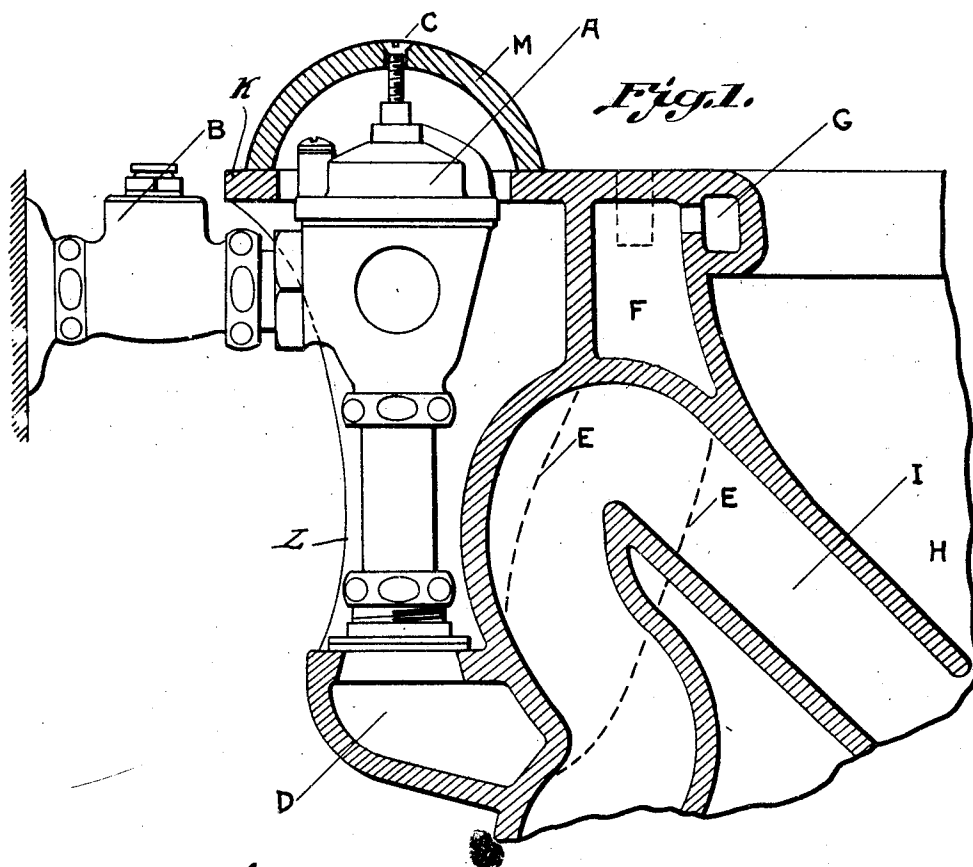
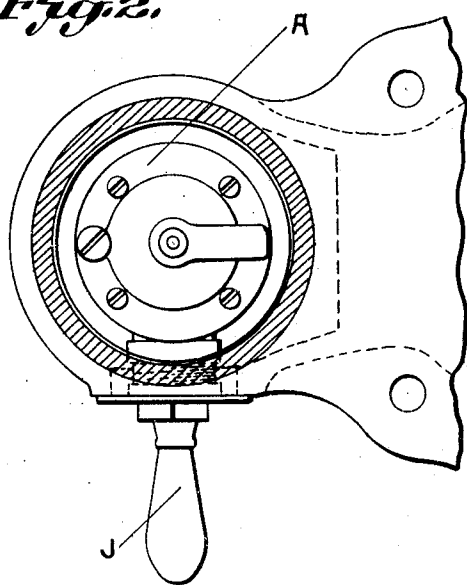


Fig. 2.



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WATER-CLOSET.

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Our invention relates to that style of water closet where a valve is used to regulate the supply of water to the closet bowl.

The object sought after in our invention is to produce a water closet combination which shall leave only the minimum amount of metal fitting exposed as practicable, thus providing a more sanitary fixture, and also providing a fixture which will appear more slightly owing to the concealing of the various joints and connecting nuts covered by the walls of the closet bowl. A further object is to produce in a fixture of this type an inlet connection at a point below the discharge openings in the flush rim of the closet bowl so that the air will be expelled before the water rises, thus doing away with the hissing noise of the combination resulting from air and water, and in addition, to provide adequate means of access for the purpose of repair and replacement of parts when necessary.

We attain these objects in the manner shown in the accompanying drawings, in which Figure 1 is a view partly in section and partly in elevation showing the upper rear part of a water closet bowl containing a flush valve mechanism of conventional type. Figure 2 is a top plan view partly in section showing the location of the flush valve and operating lever.

Reference is made to the patent to Crane Number 804,650, dated November 14, 1905, issued to (R. E. Crane) one of the undersigned applicants, in which a construction similar in many ways is illustrated. The principal objection to the Crane device, which is overcome in the following application, is lack of accessibility, as it is customary to place a closet bowl as close to the wall as possible to save floor space, and with the patented structure above referred to, it was necessary to disconnect the bowl in order to have access to the operating parts of the flush valve. Another important advantage in the present invention over the Crane device is in the water inlet connection to the bowl the same being at a point considerably below the flushing rim so that the water upon entering the bowl, first discharges all air from the inlet pipes supplying the rim, thus overcoming the noise which is present in the Crane patented device owing to the expelling of the water directly into the flushing rim (G) of the bowl, resulting in the driving out both the air in the rim (G) and supply

chamber (F) and the water, thus causing a hissing noise which is very objectionable.

The operation of the device is as follows:

The closet bowl shown in the drawings is provided with a main basin (H), of which only a portion is shown. The water is supplied to this basin by means of a water closet flush valve (A) of a conventional type which is supplied through a control or shut-off valve (B). To provide a housing for concealing the valve A in vertical position behind the bowl or basin H, said basin is constructed with a recess defined by a rearwardly extending lower shelf comprising an inlet chamber D and an upper rearwardly extending shelf K, said shelves being connected by spaced vertical walls L. In order that access may be had to the valve for adjustment and repairs, an opening is formed in the upper shelf K adapted to be covered by a cap M fastened to the main fixture and held in place by means of screw (C). When the valve A is opened, flushing water is discharged into an inlet chamber (D) by means of an ordinary type of connecting nut, from which it flows upwardly through a special channel, indicated by the dotted line (E), thus connecting the inlet chamber (D) with rim supply chamber (F), from which the water passes into a flush rim (G) and is discharged into the basin (H), through suitable openings in the underside of flush rim (G) into basin (H) from whence, by means of a siphonic action, ordinarily understood by those skilled in the trade, the supply water together with any other contents of the bowl (H) flows outwardly through the trap (I). It will also be readily understood by those skilled in the art that the entire bowl is connected to a suitable system of drainage pipes which take care of the waste water.

In repairing this device it will be readily seen that it is only necessary to remove the screw (C) and the china valve cover (M) which will make the valve accessible for adjustment or repair.

It will also be readily appreciated by those in the trade that the ingenious arrangement of connecting the outlet of the valve to a point considerably below the flushing rim of the bowl permits the water to rise gradually up the passage indicated by the dotted lines (E) in such manner as to first expel any air that may be present in either the said channel or the rim supply chamber (F) before the water enters the chamber, thus resulting

in a much more quiet operation than is possible in the operation of the original Crane device formerly referred to.

We are aware that prior to our invention there have been many attempts to conceal the flush valve within the closet bowl but many of these have many disadvantages, such as requiring the water chamber to hold the entire pressure of the water, lack of accessibility, or difficulty of manufacture in the ceramic fields because of strains in the ware during the shrinking while undergoing the firing operation. We are also aware that it is not new to supply a bowl from a point at a lower level than the flushing rim, but the practical combination of features shown in our invention as described is thought to be new within the scope of the following claims:

1. A combination with a water closet bowl having a recess in the rear of sufficient size to receive a flushing valve mechanism, means for supplying water to a valve mechanism located in said recess and an outlet leading upwardly from said recess to a flush rim for flushing said closet bowl and of a china shelf above said recess through which a portion of said valve projects, substantially as described.

2. The combination with a water closet bowl having a recess in the rear of sufficient size to receive a flushing valve mechanism, of means for supplying water through a valve mechanism located in said recess, a passage leading upwardly from said recess to a flushing rim for flushing said closet bowl, a control valve mechanism in said recess and a china shelf above said recess, an opening in top of said recess through which access may be had to said valve, substantially as described.

3. In a closet combination, a bowl, a valve housing recess at the rear of the bowl, said recess extending from the top of the bowl downwardly to a point below the nominal water level of the bowl, a chamber located at the bottom of the recess, a passage connecting the chamber to the flushing rim of

said bowl and a valve in said recess to control the flow of water to the bowl.

4. In a closet combination, a bowl having a rearwardly projecting supply chamber substantially below the top of the bowl, an opening through the top of said supply chamber, a passage connecting with said chamber and leading upwardly to the rim of the bowl and a valve connected to the opening of the supply chamber for controlling the water to the bowl.

5. In a closet combination, a bowl having a valve housing recess at the rear thereof, a rearwardly extending supply chamber opening into the bottom of the recess, a passage leading from said chamber to the rim of the bowl, a valve in the recess connected to the supply chamber and a removable cap on top of the chamber to permit access to the valve.

6. A closet combination comprising a bowl, a valve housing recess at the rear of said bowl, a water supply inlet in the bottom of the recess, a passage connecting with said inlet and leading upwardly for supplying water to the bowl, a valve in the recess communicating with the supply inlet and means for operating said valve.

7. In a closet combination, a bowl having a trap, a valve housing recess at the rear of the bowl, a water supply inlet in the bottom of the recess, a passage connecting with said inlet and extending upwardly and to one side of the trap and having an opening into the inlet at the bottom of the bowl and a valve in the chamber for controlling the water supply.

8. In a closet combination, comprising a bowl, having a valve housing recess at the rear, a valve in said recess, a rearwardly extending chamber below the nominal water level of the bowl at the bottom of said recess and connected with said valve and a cap above the recess to permit access to the valve.

In testimony whereof we affix our signatures.

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