FIG. 1

FIG. 2

FIG. 7

WITNESSES

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This invention has for its object to provide a bathtub having embodied within it the drain, overflow, trap and waste control, thereby simplifying installation by reducing to a minimum the plumbing connections necessary.

Another object of the invention is to embody these necessary features in the bathtub construction that they form an integral part of the bathtub, the shell or casing thereof being a part of the same casting with the bathtub.

Another object of the invention is to condense the space occupied by these necessary adjuncts to the bathtub whereby the tub may be fitted into close quarters.

Another object of the invention is to provide ready access to the trap and the control valve and the removal of the latter with its valve seat for cleaning and repairing.

With the above and other objects in view the invention consists in the bath with integral waste as herein claimed and all equivalents.

Referring to the accompanying drawings in which like characters of reference indicate the same parts in different views,

Fig. 1 is a vertical sectional view of the end of a bathtub constructed in accordance with this invention, the sectional plane thereof being indicated by the line 1—1 of Fig. 3;

Fig. 2 is a sectional view thereof on the plane of line 2—2 of Fig. 1;

Fig. 3 is an end elevation;

Fig. 4 is a sectional view on the plane of line 4—4 of Fig. 1;

Fig. 5 is a sectional view showing a modified form of waste valve operating mechanism;

Fig. 6 is a rear view of the cover-plate for the hand hole, and

Fig. 7 is an enlarged sectional view of the valve seat.

In these drawings, 10 indicates a bathtub of cast iron with vitreous enamel surface having formed integral therewith in the same casting the casing and conduit structure of the waste control in accordance with the present invention. The drain outlet is formed in the bottom or end or, as shown, in both, by slots 11 in the tub wall itself, so that the longitudinal and transverse cross bars between them form a continuation of the enameled surface of the tub. Included in the bottom of the tub and leading from the central drain opening 11 to one side of the center line is a waste conduit 12 terminating in a conical seat 13 within a valve chamber 14 formed integral with said conduit and with the end of the tub proper and extending upwardly at an angle to include the overflow, as will be later described. Formed integral with the valve chamber 14 in the center line of the tub is a trap 15 communicating therewith through a passageway 16 forming a weir to maintain a water level, as shown, and at the side and front of this trap are threaded openings into which may be screwed an elbow 17 forming a waste coupling and a screw plug 18 forming a closure, the two being interchangeable to obtain that location for the waste coupling which is most suitable. Also connecting with the trap is a vent pipe 19 to prevent the trap being siphoned.

In the front of the valve chamber 14 there is a hand hole provided with a flanged and gasketed cover-plate 20 held in place by screws to tightly seal the trapped water. This cover-plate has a projection 21 on its rear face, which terminates in a conical surface 22 tightly fitting the conical seat 13 when the cover-plate 20 is sealed by tightening its screws. A recess 23 in the projection 21 shown as eccentric forms an extension of the waste conduit 13 in communication therewith and passing vertically through the projection 21 is a cylindrical opening forming a valve guide 24, in which a cylindrical valve member 25 is vertically movable. Beneath the recess 23 the opening 24 is reduced in diameter to afford a conical seat 26 for the conical valve face at the lower end of valve 25 so that the discharge of water from the waste conduit 12 through the recess 23 and the lower end of opening 24 is interrupted when the valve is seated. The valve is shown as of the usual tubular form but a central passageway around the projection 21 for the passage of the water from the overflow, as shown in Fig. 2. It will be understood from...
the above that the removable cover-plate for the hand hole carries the valve seat with it, preferably as an integral part thereof, and forms a sealing fit with the waste conduit when the cover-plate is clamped in place.

The overflow for the tub is formed by an opening in the end wall of the tub communicating with the extension 27 of the valve chamber and is guarded by a rounded hood 28 projecting into the tub and formed integral with the wall of the tub and said extension 27, as shown in Fig. 1, so that water overflowing through the opening is conducted through the extension 27 to the valve chamber and out through the trap, as will be readily understood.

For operating the valve a handle member 29 clamped on a shouldered stem 30 rotatably fitting through the hood 28 serves to turn a crank 31 within said hood, which crank is connected by a rod 32 with a bail 33 on the valve. As the handle is turned the crank lifts the valve by means of the connecting rod, the latter being bent, as shown in Fig. 2, to follow the offset or angular shape of the valve chamber.

Provision is made for removing the valve by disconnecting the cover-plate and withdrawing it from the valve chamber and then either unhooking the valve from the connecting rod 32 or disengaging the connecting rod from the crank 31. In this manner both the valve and its seat are removable for cleaning or repairing.

Opposite the opening for the handle stem the extension 27 has a plugged opening 34 for use in inserting or removing the valve stem, or which may be used as shown in Fig. 5 to receive a bearing plug 35 having a crank stem 36 turning therein for operating the valve, said stem 36 being provided with a crank arm 37 at its outer end, connected by a link 38 with an operating means, not shown, in the wall above.

By means of this invention the bathtub is made to contain its own trap and waste and outlet fitting as an inherent part thereof, requiring only the coupling of the elbow 17 with the waste pipe and the coupling of the vent opening with the vent pipe to complete the waste connections therefor and embodying within itself the waste control and operating means therefor. Also with this invention the waste valve and its seat are readily accessible and the parts are so condensed that the entire waste assembly may be placed within an ordinary wall with a minimum height between the bottom of the tub and the sewer drain connection. In actual practice the water level of the trap may be half an inch above the bottom of the apron 39 of the tub, which is tiled into the floor, and the center line of the outlet of the trap within one and a half inches from the enameled surface of the tub bottom. The invention also provides a drain outlet formed by the enameled wall of the tub itself, obviating the necessity for the use of metal drain covers and this, together with the integral built-in guarded overflow, dispenses with all metal attachments for the porcelain-lined tub.

Although the valve is shown as offset from the center line of the bathtub through the drain outlet, in order to accommodate the waste fitting 17 at said center line to conform with the usual roughing-in practice, it is obvious that the valve may be located on said center line and, by means of suitable elbows, the waste fitting may be coupled with the sewer connection.

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

1. A bathtub having a drain outlet, a valve chamber integral with the tub, an integral waste conduit connecting the drain outlet with the valve chamber, there being a hand hole in the valve chamber, a cover-plate for the hand hole, a recessed projection on the cover-plate having a sealing fit with the waste conduit, said projection having a transverse opening, a valve seat formed therein, and a valve fitting in the opening and seated on the seat for controlling communication between the waste conduit and the valve chamber.

2. A bathtub having a drain outlet, a valve chamber integral with the bathtub, an integral waste conduit connecting the drain outlet with the valve chamber and terminating in a seat, there being a hand hole in the valve chamber, a cover-plate for the hand hole, and a valve and valve seat carried by the cover-plate and fitting on said seat to control communication between the waste conduit and the valve chamber.

3. A bathtub having a drain outlet and an overflow opening, a valve chamber integral with the bathtub and communicating with the overflow opening, an integral waste conduit connecting the drain outlet with the valve chamber and having a seat, there being a hand hole in the valve chamber, a cover-plate for the hand hole, a valve and valve seat carried by the cover-plate and fitting on the said seat for controlling communication between the waste conduit and the valve chamber, and means for conducting water from the valve chamber.

4. A bathtub having a drain outlet, a valve chamber integral with the bathtub, an integral waste conduit connecting the drain outlet with the valve chamber and having a seat, a hand hole cover on the valve chamber, a valve and valve seat carried thereby and fitting on the said seat, and a trap integral with the valve chamber for conducting water therefrom.

5. A bathtub having a drain outlet and an overflow opening, a valve chamber integral with the bathtub communicating with the
overflow opening, a waste conduit connecting the drain outlet with the valve chamber and terminating in a seat, said valve chamber having a hand hole, a cover-plate for the hand hole, a valve and seat on said cover-plate fitting on said seat, and a trap integral with the valve chamber through which water is discharged therefrom.

6. A bathtub having a drain outlet and a hooded overflow opening, a valve chamber integral with the bathtub and communicating with the overflow, an integral waste conduit connecting the drain outlet with the valve chamber and terminating in a conical seat, there being a hand hole in the valve chamber, a cover-plate for the hand hole, a recessed projection on the cover-plate having a conical end fitting on the conical seat and having an opening therethrough forming a valve seat, a valve member fitting in said opening and seated on the valve seat and controlling communication between the waste conduit and the valve chamber through said recess and opening, an operating member mounted in the hood of the overflow opening, and a connecting rod connecting it with the valve and contained within the valve chamber.

7. A bathtub having a drain outlet and a hooded overflow opening, a valve chamber integral with the bathtub and communicating with the overflow opening, a waste conduit connecting the drain outlet with the valve chamber and terminating in a conical seat, there being a hand hole in the valve chamber, a cover-plate for the hand hole, a recessed projection carried thereby and having a conical end fitting on the conical seat, and an opening forming a valve seat, a valve member fitting in the opening and seated on the valve seat for controlling communication between the waste conduit and the valve chamber, and a trap integral with the valve chamber through which water is discharged therefrom.

In testimony whereof, I affix my signature.

FRANK G. BROTZ.