

June 16, 1936.

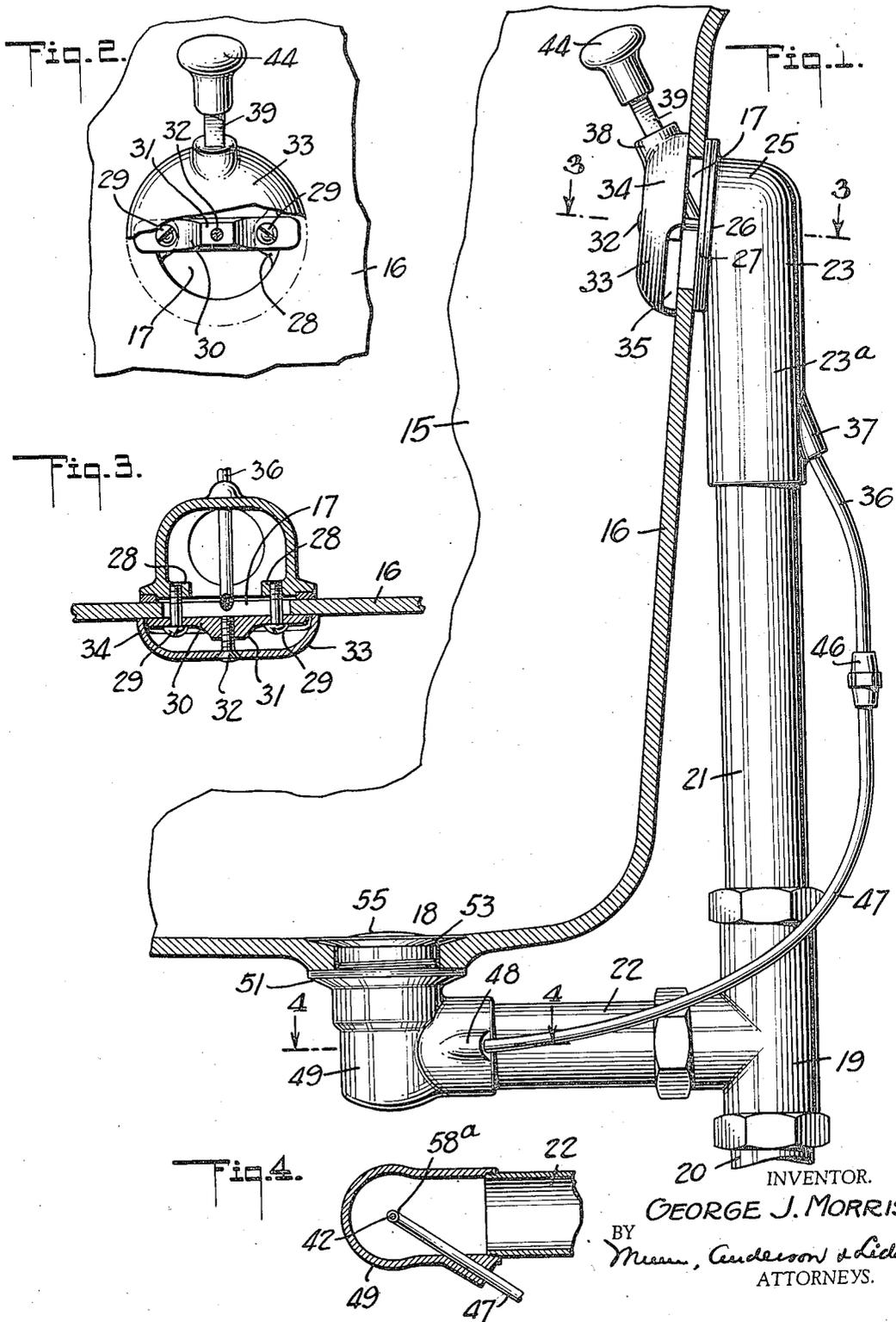
G. J. MORRIS

2,044,253

BATHTUB STOPPER

Filed Nov. 20, 1934

2 Sheets-Sheet 1



INVENTOR.  
GEORGE J. MORRIS  
BY  
Munn, Anderson & Liddy  
ATTORNEYS.

June 16, 1936.

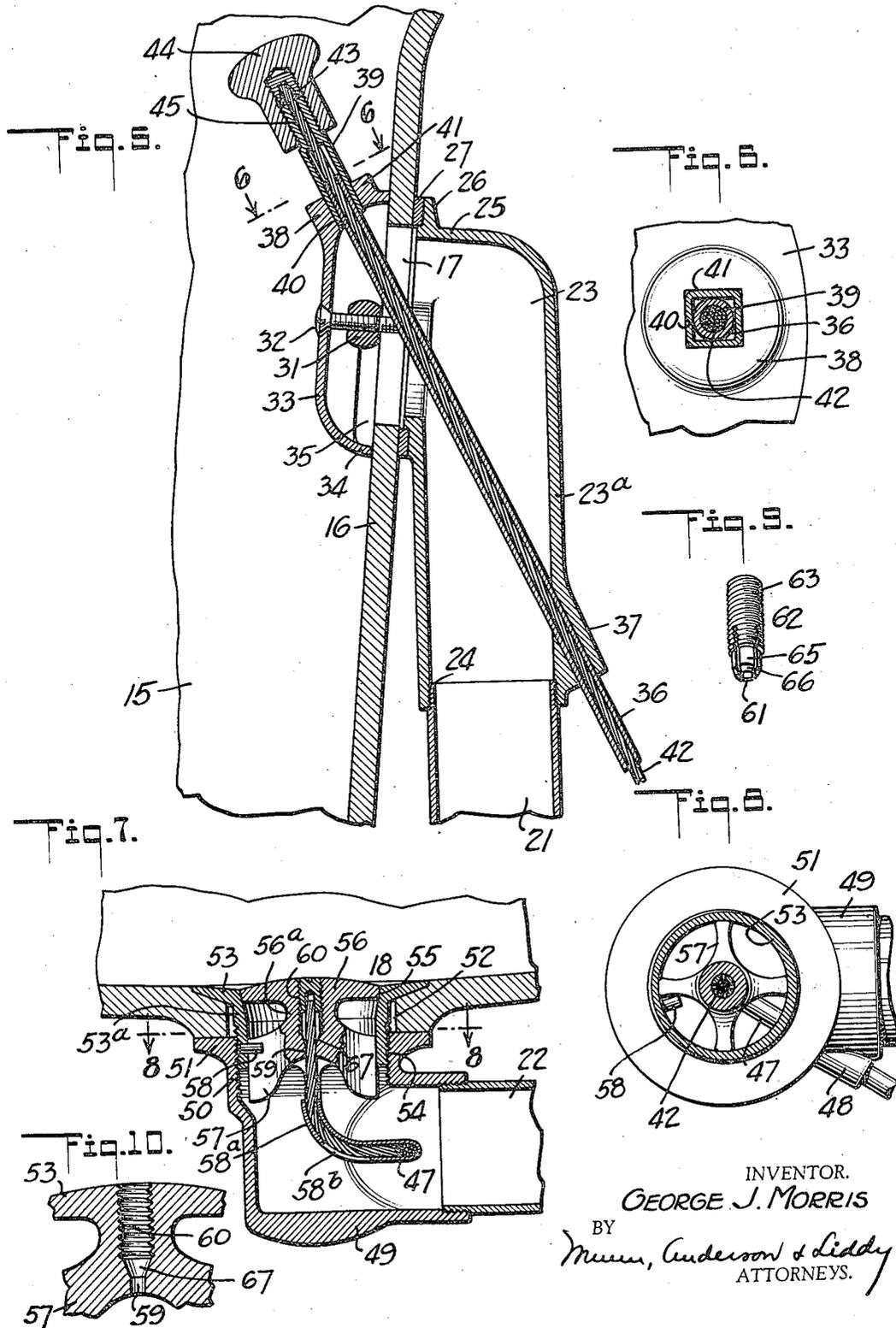
G. J. MORRIS

2,044,253

BATHTUB STOPPER

Filed Nov. 20, 1934

2 Sheets-Sheet 2



INVENTOR.  
GEORGE J. MORRIS  
BY  
Munn, Anderson & Liddy  
ATTORNEYS.

## UNITED STATES PATENT OFFICE

2,044,253

## BATHTUB STOPPER

George J. Morris, Los Angeles, Calif.

Application November 20, 1934, Serial No. 753,960

12 Claims. (Cl. 4-203)

This invention relates to bath tub stoppers, and has for an object the provision of new and positively acting means for conveniently controlling adjustment of the stopper.

A further object is to provide motion imparting means between the stopper and an exposed part of the tub which can be removed from or connected with the stopper as and when desired and without necessitating changes in adjustment or the removal from the tub of parts or fittings whose adjustment from a normal position should not be changed or interfered with after original installation thereof.

Another object is to provide controlling means for bath stoppers in which the stopper can be easily removed from the controlling means whenever occasion therefor arises and without necessitating removal of the controlling means from the tub.

More specifically speaking, it is an object of the invention to provide in the combination of parts employed a novel form of overflow escutcheon which constitutes a support for the actuating portion of the stopper controlling means, the same serving to dispose said actuating portion in a position where convenient access can be had thereto.

Another object is to provide a novel assemblage of co-operable parts of simple and inexpensive construction, the forms and arrangements of which are such as will enable them to readily adapt themselves to standard fittings, such as the overflow pipe, T-couplings and pipe sections.

Another object is to provide in combination with a movably supported stopper, means for preventing same from turning, and means for operatively co-ordinating movements thereof with movements of the controlling connection with which it co-acts.

To enable others skilled in the art to fully comprehend the underlying features of the invention, that they may embody the same in various modifications in structure and relation contemplated, drawings depicting a preferred form have been annexed as a part of this disclosure, and in such drawings, similar reference characters denote corresponding parts throughout all of the views, of which

Figure 1 is a vertical section through a portion of a bath tub showing the invention applied thereto;

Figure 2 is an inner face view of a portion of the overflow end of the tub showing the form of escutcheon employed, parts being shown broken away for the purpose of clearness;

Figure 3 is a section taken on line 3-3 of Figure 1;

Figure 4 is a horizontal section on line 4-4 of Figure 1;

Figure 5 is a vertical section through a portion of the tub, showing the controlling means for the stopper;

Figure 6 is a section on line 6-6 of Figure 5; Figure 7 is a vertical section through a portion of the bottom of the tub and through the stopper; Figure 8 is a section on line 8-8 of Figure 7; Figure 9 is a perspective view of the stopper confining element;

Figure 10 is a section through a portion of the stopper showing the part thereof which receives and co-acts with the confining element.

The numeral 15 illustrates a bath tub of well-known construction, the end wall 16 of which is formed with an overflow opening 17; 18 the stopper assembly at the bottom of the tub; 19 a T-coupling connected, respectively, with a waste pipe 20, an overflow pipe section 21 and a short outlet pipe section 22, the latter adapted to co-act with the assembly 18, as will appear presently.

Exteriorly of the end wall 16 of the tub is a hollow fitting 23, the same provided with a depending linear branch 23a having threaded connection at 24 with the upper end of the pipe section 21. The upper end of said fitting has a lateral or angular branch 25, formed with an annular flange 26 to overlap the wall 16 around the opening 17 and to allow for the application of a sealing element 27 between the outer face of said wall 16 and the confronting face of said flange. The branch 25 is formed with internal lugs 28. On the inner face of the wall 16 and clamped thereagainst by screws 29, which latter have operative connection with the respective lugs 28, is a cross bar 30, the same having a central boss 31 to receive a screw 32. The screw passes through the central portion of an escutcheon 33 of a size to cover the opening 17. The escutcheon is provided with an annular flange 34 whose marginal edge bears closely against the inner face of the wall 16, as is made possible by means of the screw fastening 32. The flange 34 is slotted at 35 whereby overflow water from the tub can find passage to the overflow pipe 20.

Passing through the opening 17 at an obtuse angle is a length of flexible tubing 36. This tubing extends angularly through the branch 23a of fitting 23 and through an angular external boss 37 on the fitting and, as illustrated, the upper end of the tubing passes upwardly through the escutcheon 33; through an angular boss 38 formed

on the latter and into a cable securing sleeve 39. The sleeve 39 has a portion 40 of angular cross section which is slidable in a correspondingly formed opening 41 in said boss 38. A wire cable 42 extends through the tubing and through the securing sleeve and same is soldered at its upper end to the sleeve or at 43, the said end of the cable being housed within a manipulating knob 44 which is threadedly secured to the portion 45 of said sleeve. It follows from what has been said that the knob may be manually moved axially of the boss 38 and that the sleeve is held against turning in said boss, thus preventing the cable 42 from twisting.

The tubing 36 is detachably coupled at 46 to a similar length of tubing 47 whose lower end passes through a boss 48 on an elbow 49. The vertical branch 50 of said elbow is provided with an annular flange 51 which bears against the under side of the bottom of the tub 15 at the outlet opening 52. A hollow cylindrical valve guide 53 has a neck 53a extending into said opening 52 and same is threaded at 54 to said branch 50 of the aforementioned elbow 49. Said guide is formed with an annular valve seat 55 against which a vertically movable valve disk 56 is adapted to engage, as shown in Figure 7. The disk 56 is provided with a depending shank 56a having a spider 57, and extending from the guide 53 and disposed against an adjacent arm of the spider is a stop pin 58, the same thus co-acting with the valve disk to hold same against rotary motion, thereby preventing the cable 42 from twisting. The cable, on leaving the tubing 36, continues through the section 47 and, as shown in Figure 7, the portion of the section contained in the elbow 49 is curved vertically upwardly at 58a to align axially with the disk 56, thus enabling the lower end of the cable 42 to be drawn upwardly through said portion 58a to a point where it can be readily threaded through an axial reduced passage 59 in the valve disk and disposed within an enlarged bore 60 in the disk where it is extended into the bore 61 of a cable securing element 62. This element (Figures 7 and 9) consists of a threaded shank 63 having adjustable connection with the walls of the bore 60, and, as illustrated, said element is split linearly at 64 to provide relatively resilient jaws 65 whose free ends are tapered at 66 to engage the tapered surface 67 within the bore 60. It thus follows that when the securing element is turned in the disk 56, as herein provided for, the jaws 65 will be made to securely grip the cable and thereby fixedly connect the cable with said disk.

When the invention is installed as shown herein, the knob 44 can be pulled in an upward direction to fully close the disk 56 against its seat 55 or same can be depressed so as to impose a load on the cable sufficient to elevate the disk and hold it spaced apart therefrom to render the stopper assembly active for the discharge of water from the tub.

Essentially, the invention consists of the aforementioned stopper assembly; the fitting 23; elbow 49; the tubing sections 36 and 37; the escutcheon 33; and the control cable 42. These parts may be readily installed in the tub and operatively connected with stock fittings, such as the customary overflow discharge pipe 21, the base outlet 22 and the T-coupling 19. The tubing sections 36 and 47 are formed of copper and same may be flexed as desired when installing the invention so that the respective terminals thereof can

be operatively related to the respective fittings 33 and 49.

I lay particular stress upon the manner in which the cable 42 connects the manipulating knob 44 with the stopper or plug 56. It will be noted that the overall length of the tubing sections 36 and 47 is less than that of the cable 42. In consequence thereof, it follows that when the securing sleeve 39 is firmly clamped to the upper end of the cable, the opposite end of the cable, when installing the invention, can be threaded through the tubing sections until said opposite end is co-axial with the valve guide 53 and disposed above the upper end of the portion 58 of tubing section 47, at which time said opposite end of the cable can be threaded through the bore 59 where it can receive the securing device 62. The device 62 can then be turned to advance the flared faces 66 thereof against the flared face 67, at which time the cable will be securely attached to said plug 56. When this is accomplished, and assuming the knob 44 to occupy the position shown in Figure 5, the plug 56 will be held tightly against its co-acting slot 55. Torsional strains occurring in the cable will be effectively resisted by the pin 50 and the angular sleeve 39, the latter co-acting with the boss 38 and the former with an adjacent limb of the aforementioned spider 57.

I wish also to stress the novel forms and arrangement of the parts 23 and 33 and the manner in which one of these parts co-acts with the other, whereby to enable the tubing section 36 to be correlated with the part 33 after the part 23 has been securely sealed against the tub. It follows also that after the device is installed, should it become necessary at any time to remove the cable 42, this can be done by first removing the part 33 without in any manner affecting the intended water-tight seal between the tub and the aforesaid flange 26.

It will be noted in Figure 7 of the drawings that the portion 58a through which the aforementioned cable passes is slotted at 58b to enable any water that might settle in the tube to readily drain therefrom.

What is claimed is:

1. In a stopper adjusting mechanism for bath tubs, an overflow escutcheon; a vertically movable outlet stopper; a flexible cable to one end of which the stopper is secured; means in which the cable is encased and disposed for longitudinal movement; and manually controlled means slidable in the escutcheon and to which the opposite end of the cable is secured, whereby to enable the stopper to be moved respectively in two directions when the sliding means is correspondingly moved.
2. In a stopper adjusting mechanism for bath tubs, an overflow escutcheon; a vertically movable outlet stopper; a flexible cable to one end of which the stopper is secured; means in which the cable is encased and disposed for longitudinal movement; manually controlled means slidable in the escutcheon and to which the opposite end of the cable is secured, whereby to enable the stopper to be moved respectively in two directions when the sliding means is correspondingly moved; and means for holding the sliding means against turning movement.
3. In a stopper adjusting mechanism for bath tubs, an overflow escutcheon; a vertically movable outlet stopper; a flexible cable to one end of which the stopper is secured; means in which the cable is encased and disposed for longitudinal

movement; manually controlled means slidable in the escutcheon and to which the opposite end of the cable is secured, whereby to enable the stopper to be moved respectively in two directions when the sliding means is correspondingly moved; means for holding the sliding means against turning in the escutcheon; a combined guide and seat for the stopper; and means for holding the stopper against turning relatively to the seat.

4. In a device of the class described, a hollow overflow fitting having a flanged end adapted to fit against one face of a bath tub annularly of the overflow opening of the tub; means adapted to be positioned at the opposite face of the tub at the overflow opening; means for attaching the first means to said fitting to secure the flange against the tub; an escutcheon extending over said first means; and means for securing the escutcheon to said first means.

5. A stopper for bath tubs comprising a valve disk having an axial passage for the reception of an actuating cable; and cable clamping means having relatively movable jaws between which one end of a cable can be clamped; and means on the disk for moving the jaws to clamping and unclamping positions relatively to each other.

6. A stopper assembly for bath tubs comprising a valve guide having a valve seat; a disk movable vertically relatively to the seat; means for holding the disk against turning movement; and means by which one end of a flexible cable can be secured to said disk.

7. A valve disk having a threaded bore into which one end of an operating connection can be received, and clamping means adjustable axially of the bore for securing the disk to an operating connection.

8. As an article of manufacture, a valve disk having a threaded bore, and a passage disposed axially of the bore and communicating therewith and adapted to receive a lifting element and enable same to be extended into said bore, there being a flared surface at the juncture of the bore with said passage; and means adjustable longitudinally in said bore and provided with relatively movable jaws between which one end of a lifting element can be clamped and said jaws having flared faces engageable with said flared surface to move the jaws relatively with respect to each

other during movement of the adjusting means in said bore.

9. The combination with a valve guide having an annular valve seat; a valve disk mounted to move vertically in the guide and being engageable with said seat; means for holding the disk against turning in the guide; and means on the disk for securing same to one end of an actuating element.

10. The combination, with an overflow pipe including a hollow fitting and means for securing the fitting to a bath tub exteriorly thereof and at the overflow opening in the tub; an escutcheon; and means for detachably securing the escutcheon to said first means; of a stopper assembly to which the overflow pipe is connected, to enable water to drain from the assembly to said pipe, and including a valve seat and a disk co-operable with the seat and adapted to move relatively thereto; and manually controlled means at the escutcheon for moving the disk to respectively cover and uncover said seat.

11. In an organization of the class described, a hollow fitting having means for securing same to a bath tub at the overflow opening thereof and provided with an escutcheon; a stopper assembly including a hollow fitting having means for securing same to an outlet opening in the bottom of a tub and including a valve seat and a disk movable relatively to the seat; flexible tubing having one end extended into the second fitting and having its opposite end passing through the first fitting and terminating at the escutcheon; a cable contained in the tubing and having one end secured to said disk; and means at the escutcheon to which the other end of the cable is secured and by which means the cable can be controlled to move the disk relatively to its seat.

12. In a device of the class described, a hollow fitting having a valve seat, a disk supported to move relatively to the seat; a tube having a portion extending into the fitting and terminating in a position which is co-axial with the disk, and a flexible cable movably encased in the tube and having a portion extending axially of the line of movement of the disk and secured to the latter, whereby on movement of the cable in the tube, the disk will be moved relatively to said seat.

GEORGE J. MORRIS.