Oct. 7, 1924. 1,511,017

J. G. BINDER

SINK DRAIN WATER STOP

Filed Sept. 17. 1923

Fig. 1.

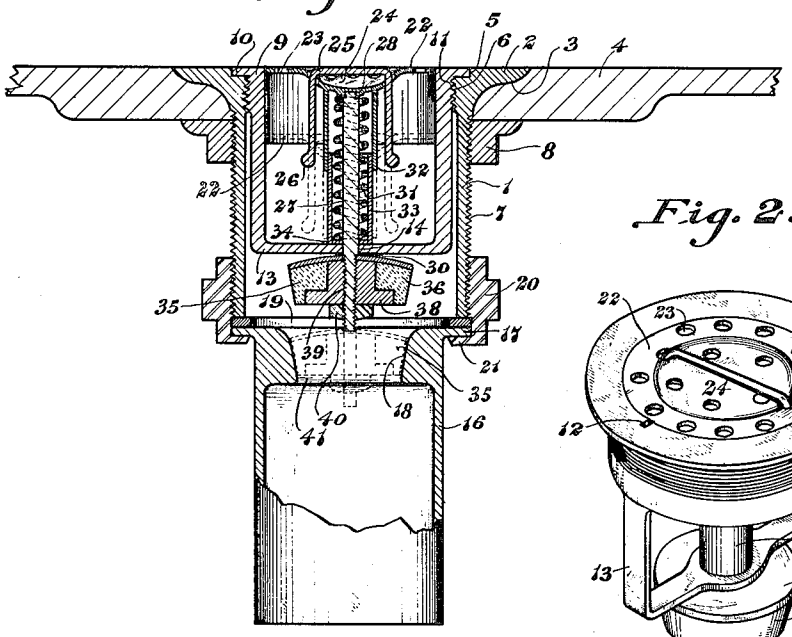


Fig. 2.

Fig. 3.

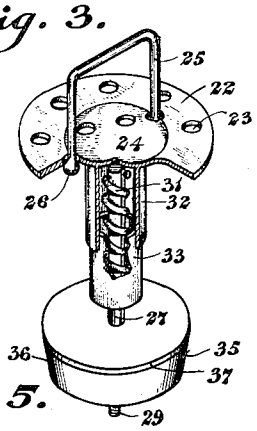


Fig. 4.

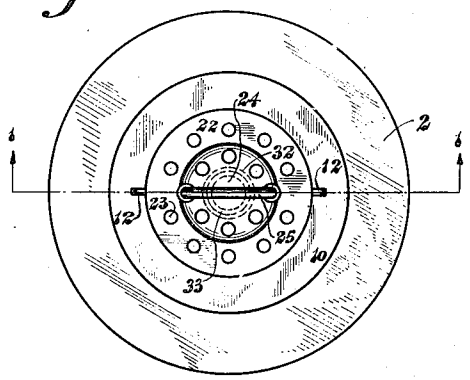
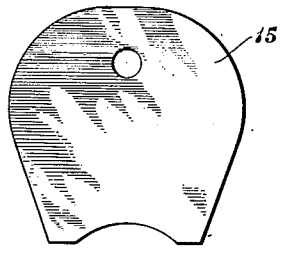


Fig. 5.



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Patented Oct. 7, 1924. 1,511,017

UNITED STATES PATENT OFFICE.

JACOB G. BINDER, OF BROMLEY, KENTUCKY.

SINK-DRAIN WATER STOP.

Application filed September 17, 1923. Serial No. 663,140.

To all whom it may concern:

Be it known that I, JACOB G. BINDER, a citizen of the United States, residing at Bromley, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Sink-Drain Water Stops, of which the following is a specification.

My invention relates to improvements in water stops for sinks, bath tubs and the like.

The objects of my invention are to provide a simple, efficient, convenient and easily operated device for controlling the passage of water from the sink to the waste water pipe.

Another object of my invention is to provide a water stop having its top flush with the sink bottom, thereby avoiding unintentional release of the stopper.

My invention consists particularly in means for closing the opening between the sink proper and the waste water pipe, with a plug or stopper arranged beneath the outlet plate.

My invention further consists in the details of construction and in the parts and combination and arrangement of parts, as herein set forth and claimed.

In the drawing:

Fig. 1 is a central vertical section of my invention applied to a sink taken on line 1—1 of Fig. 4;

Fig. 2 is a perspective view of the drain plate and stopper;

Fig. 3 is a perspective view of a part of the drain plate and stopper partly broken away to show the coil spring encircling the stem of said stopper; and

Fig. 4 is a plan view of my invention.

Fig. 5 is a view of a key.

In the embodiment of my invention as illustrated and which shows a preferred construction I provide a tube 1 having flange 2 which fits in opening 3 of sink bottom 4 and supports said tube therein. Tube 1 is provided with annular seat 5, internal threads 6 and external threads 7 and is secured to the sink bottom by lock ring nut 8.

Duct 9 has flange 10 which is adapted to rest on annular seat 5 when its threads 11 are screwed into engagement with internal threads 6. Duct 9 is provided upon its upper end with key sockets 12 and upon its lower end with web support 13 having hole 14 centrally therethrough. Duct 9 may be inserted or removed from tube 1 by means of key 15 (Fig. 5).

The upper end of waste water or drain pipe 16 is provided with lateral flange 17 and with taper-seat 18. Rubber or fiber washer 19 is interposed between the lower end of tube 1 and the upper side of lateral flange 17. Ring coupling nut 20 having flange 21 is screwed onto said tube until said flange tightly engages lateral flange 17 whereby said tubes are firmly secured together.

Drain plate or disk 22 is provided with a plurality of drain outlets 23. Said plate is centrally dished whereby depression 24 is formed upon its upper side. A bail 25 extends through two of the outlets 23 and its lower ends are provided with retaining knobs 26. The handle end of the bail drops into the depression when in its lower position, but in spaced apart relation from the bottom of said depression whereby it may be readily grasped by the thumb and finger for the purpose of pulling the drain plate from lower to upper position.

Drain plate 22 is provided upon its lower side with stem 27 which is preferably screwed into threaded socket 28. Said stem is provided with threaded end 29 and shoulder 30 and is encircled by coil spring 31 which is housed from water by tube 32 secured to the lower side of drain plate 22 and telescopes over tube 33 having internal flange 34 against which the lower end of said coil spring bears to normally hold the drain plate in its upper or water discharging position. Said telescoping tube is disposed centrally of said drain plate and has its upper end closed, the drain outlets 23 extending through the drain plate outside thereof in order that water and sediment from the sink may be excluded from the interior of said telescoping tube thus protecting the coil spring and permitting it freedom of action. The plug or stopper 35 comprises a hollow downwardly tapered flexible rubber rim 36 interposed between upper concavo-convex centrally orificed brass shield 37 and lead core 38 having internally threaded hole 39 extending vertically therethrough and is adapted to be screwed onto threaded end 29 of stem 27 where it is securely held against shoulder 30 by lock nut 40. The rubber rim 36 is shaped to snugly fit in taper seat 18 as

shown by dotted lines in Fig. 1 thereby closing the discharge outlet 41 when the stopper is depressed whereby the water or other liquid is retained in the sink bowl. Coil spring 31 is of just sufficient expansible strength to normally hold plate or disk 22 in elevated position as shown in Fig. 1. When said disk is depressed to the position indicated by dotted lines in Fig. 1 the frictional engagement of stopper 35 with seat 18 holds it in closed position against the tension of coil spring 31.

The operation of the device is as follows: When it is desired to release the stopper to open the drain simply pull upward on the handle of bail 25 thereby disengaging stopper 35 from taper seat 18 whereupon the drain is opened for the discharge of water therethrough. When it is desired to close the drain, merely press downwardly upon drain plate 22 until stopper 25 carried on stem 27 attached to said drain plate frictionally engages taper seat 18 to the position shown by dotted lines in Fig. 1 whereupon said frictional engagement will hold the stopper in closed position whereby water is retained in the sink.

When the plug is in open position the top of the drain plate and handle are flush with the upper surface of the sink bottom and when said stopper is in closed position said drain plate and handle are considerably below said sink surface, as shown by dotted lines in Fig. 1.

There are no upwardly projecting fastening parts by which the device is secured to the sink bottom but the upper surface of the device is always either flush therewith or partly below the upper surface of said bottom so that there is no upwardly projecting part to interfere with articles, such as dishes, which may be placed in the sink, or to obstruct the free use of the sink for its intended purposes.

An advantage of the invention consists in the removable feature of the duct which carries the drain plate and plug thus permitting its convenient removal upwardly through the sink for repairs and this is accomplished by engaging key 15 in key sockets 12 and turning the key for removing or inserting the duct as the case may be.

Another advantage of the invention consists in the provision of means whereby the ordinary chain attached to a stopper is eliminated.

My invention is simple in construction, compact in arrangement and convenient in operation.

While I have shown and described a particular construction, combination and arrangement of parts, it will be understood that my invention is capable of modification without departing from its scope or spirit as defined in the claims.

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

1. In a sink drain water stop, a sink having a drain outlet, a tube mounted therein with its top substantially flush with the upper surface of the sink bottom, a drain pipe, means for coupling said tube to said pipe, a duct mounted in said tube with its upper end flush therewith, a supporting web depending from said duct and having a hole centrally therethrough, a perforated vertically slidable drain plate mounted in said duct, a stopper connected to said drain plate and spaced apart therefrom, a spring interposed between said drain plate and web to normally hold said drain plate in upper position and a drop handle whereby said duct and stopper are adapted to be raised from closed to open position.

2. In a sink drain water stop, a sink having a drain outlet, a tube mounted therein with its top substantially flush with the upper surface of the sink bottom, a drain pipe, means for coupling said tube and pipe, a duct mounted in said tube with its upper end flush therewith, a supporting web depending from said duct and having a hole therethrough, a stem attached to said drain plate and extending downwardly therefrom, a stopper secured to said stem, a flanged tube mounted over said stem upon said web, a tube attached to said drain plate and extending downwardly therefrom telescopically over said flanged tube, a coil spring interposed between said stem and said telescopic tubes and having one end engaging said drain plate and the other end engaging said flanged tube whereby said drain plate is normally held in its upper position, a stopper attached to said stem, a seat for said stopper, and a drop handle whereby said drain plate and stopper are adapted to be raised from closed to open position.

3. In a sink drain water stop, a sink having a drain outlet, a tube mounted therein and depending therefrom, a drain pipe attached to said tube and having a seat in its upper end, a duct mounted in said tube and having an orificed web depending therefrom, a detachable stem depending from said drain plate, a coil spring embracing said tube between said drain plate and web, a flanged tube surrounding said coil spring and engaging the lower end thereof, a tube depending from said drain plate and telescopically engaging said flanged tube, a stopper mounted on said stem and means for moving said drain plate and stopper vertically for the purpose of opening and closing said drain.

4. In a sink drain water stop, a sink having a drain outlet and a tube mounted therein and having a flange whereby its upper end is supported flush with the upper surface of the bottom of said sink, a lock ring

nut mounted on said tube against the lower surface of said sink whereby said tube is held in secure position, a duct screwed into said tube and having its top flush therewith, an orificed web depending from said duct, a perforated sink drain plate mounted in said duct, a stem depending from said drain plate through said web, a coil spring surrounding said stem between said drain plate and web, a telescopic tube surrounding said coil spring, a stopper on said stem and means for slidably moving said drain plate and stopper.

5. In a sink drain water stop, a sink having a drain outlet, a tube mounted therein and having its top substantially flush with the upper surface of said sink bottom, a drain pipe connected to said tube, a duct having key sockets therein whereby it is adapted to be screwed into said tube with its top flush therewith, a perforated drain plate yieldably and slidably mounted in said duct and having its upper surface dished, a drop bail extending through perforations in said drain plate and having its handle adapted to rest substantially flush with the upper surface of said drain plate and having retaining knobs upon its lower ends, a stem attached to said drain plate, a stopper upon said stem and a telescopic tube adapted to house said yieldable means, substantially as set forth and for the purposes specified.

JACOB G. BINDER.