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E. FOOSE
DRAIN FIXTURE FOR SINKS
Filed April 26, 1934

1,976,549

2 Sheets-Sheet 1

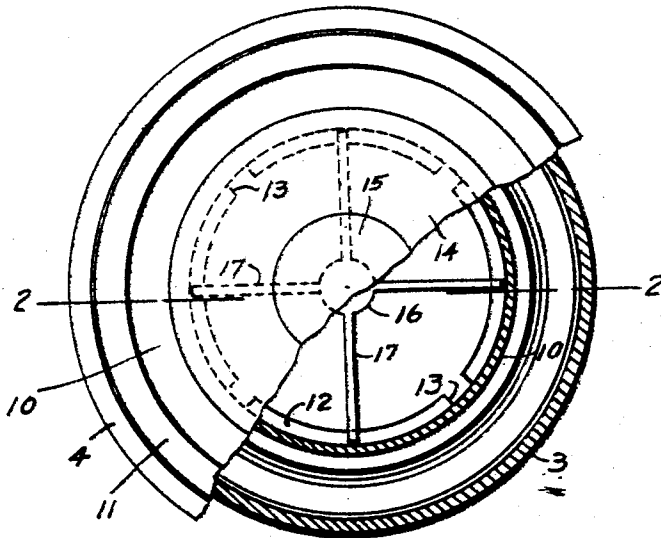


Fig. 1

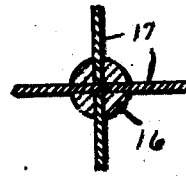


Fig. 3

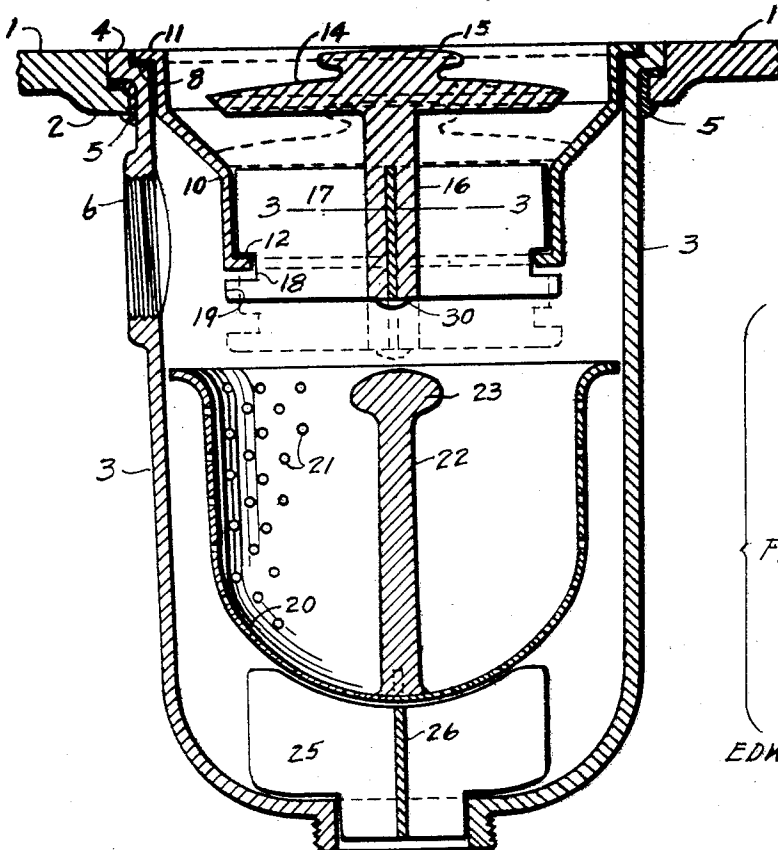


Fig. 2

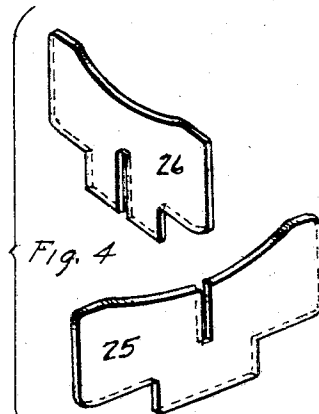


Fig. 4

EDWARD FOOSE Inventor

By

W. F. Keifer

Attorney

Oct. 9, 1934.

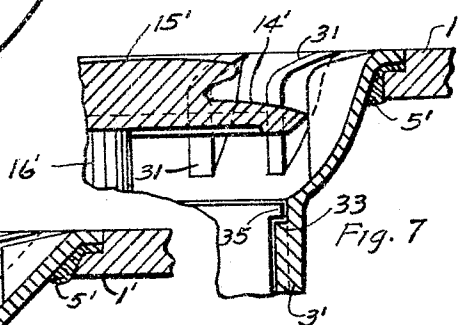
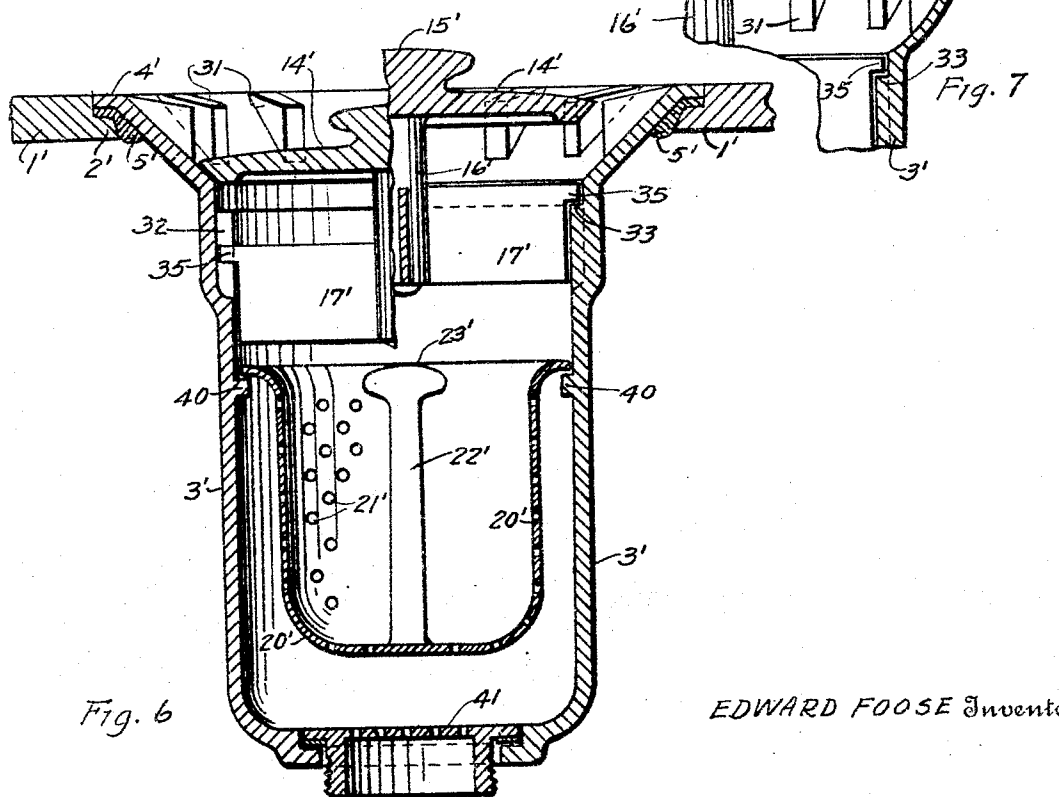
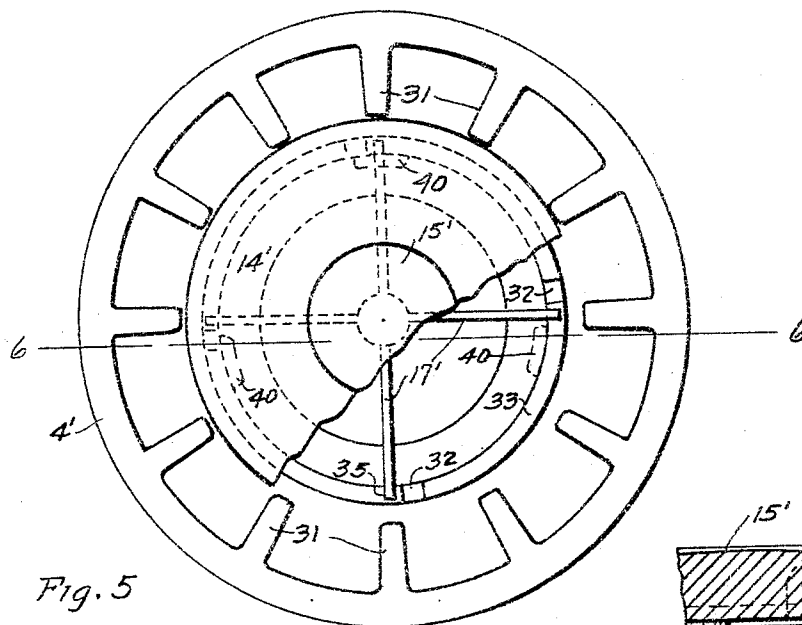
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DRAIN FIXTURE FOR SINKS

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2 Sheets-Sheet 2



EDWARD FOOSE Inventor

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W. F. Keifer

Attorney

UNITED STATES PATENT OFFICE

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DRAIN FIXTURE FOR SINKS

Edward Foose, Wheeling, W. Va.

Application April 26, 1934, Serial No. 722,433

16 Claims. (Cl. 4-287)

This invention relates broadly to plumbing fixtures, and more particularly to drain fixtures for sinks, and it has for its primary object the provisions of a drain fixture having a stopper which may be adjusted to permit or to prevent the flow of water into the drain without removing the stopper from the fixture.

Another object of this invention is to provide a device of the character mentioned in which a strainer is disposed beneath the stopper, so that the sink may be drained and refilled without cleaning the strainer, and yet without leaving a residue of small particles of solid or semi-solid matter in the sink.

And still another object of this invention is to provide a drain fixture the stopper and strainer of which may be removed for cleaning with a minimum of effort, and without the use of tools.

And a still further object is to provide a device of the character mentioned in which the stopper, when in its closed position, lies below the bottom of the sink, and when in its open position lies but slightly, if at all, above the level of the bottom of the sink, thus at no time affording an appreciable obstruction to the sliding of dishes or other objects thereover.

In describing my invention in detail, reference will be made to the accompanying drawings, in which—

Figure 1 represents a top plan view of a fixture embodying my invention;

Figure 2 represents a vertical sectional view thereof taken on the line 2—2 of Fig. 1;

Figure 3 is a fragmentary horizontal sectional view taken on the line 3—3 of Fig. 2;

Figure 4 is a perspective view of the strainer-supporting members, showing method of assembling same;

Figure 5 is a top plan view of a fixture embodying a modified form of my invention;

Figure 6 is a vertical section of the same taken on the line 6—6 of Fig. 5; and

Figure 7 is a fragmentary sectional view of another form of drain.

In the drawings, in which like designating characters distinguish like parts throughout the several views, the numeral 1 indicates the bottom of a sink having the usual flanged drain opening 2. Seated upon the flange of said opening is the annular flange 4 of a casing 3. Said casing terminates, at its lower extremity, in a threaded drain nipple 7, designed to be connected to a drain pipe (not shown), and the joint between said casing and said sink is made tight, as by metal calking 5. Said casing 3 may also, if desired, be

tapped, as at 6, for the reception of an overflow pipe (also not shown).

The casing 3 has formed upon the uppermost part thereof adjacent to its interior wall an annular shoulder 8 upon which rests the corresponding flange 11 of a funnel 10. Said funnel carries, at its lowermost point, an inwardly directed annular ledge or flange 12 in which has been cut, at 90-degree intervals, notches or guideways 13. A stopper 14, bearing on its upper surface a knob 15, and carrying on its under surface a stem 16, is designed, when seated, to close said funnel 10 so as to prevent the flowing of liquids therethrough. The lower portion of said stem 16 is quadrid, as most clearly shown in Fig. 3, and receives within the kerfs thereof a pair of crossed fins or guide members 17. Said fins are soldered or spot-welded to said stem, as at 30. Each of said fins has a recess 18 cut in its outer edge so as to form shoulders which, when said stopper is in its open position, shown in full lines in Fig. 2, are designed to rest upon the flange 12, and the portion of said fins 17 lying above said recess form guides to slide vertically through the notches 13 of the flange 12 when said stopper is rotated to such a position that said fins register with said notches, thus permitting said stopper to fall to its closed position, shown in dotted lines in Fig. 2. The portions of said fins lying below the recesses 18 extend outward from the stem 16 a sufficient distance, as at 19, to form fingers which, when said fins are slid upward through said notches 13, engage the lower portion of the neck of the funnel 10 so as to prevent complete withdrawal of said stopper and associated parts from said funnel, and also, at the same time, afford means for enabling said funnel, stopper and associated parts to be lifted as a unit, from said casing, by the exertion of manual lifting power applied to the knob 15. The various interacting parts of said funnel and stopper assembly are preferably so proportioned that, when said stopper 14 occupies either its open or its closed position, no part of said stopper extends above the adjacent level of the sink-bottom 1, so that no obstruction is thereby afforded to the sliding of vessels or utensils thereover.

Slidably received within said casing 3 is a strainer 20 having a plurality of perforations 21 formed therein and having a centrally disposed stem 22 extending upwardly from the bottom thereof and terminating in a knob 23 designed to facilitate manual removal of said strainer from said casing, as for cleaning. Said strainer rests upon crossed supports 25 and 26 which bear

- at their lower extremities portions which sub-
trude into the drain nipple 7 so as to prevent
said support from sliding about within said cas-
ing, and, at the same time to afford a minimum
5 of hindrance to the flowing of liquids thereby.
Manifestly, said sink may be drained and re-
filled many times under ordinary conditions of
use before cleaning of said strainer will be neces-
sary; and, as will also readily appear, refuse
10 caught in said strainer when the sink is drained,
because it lies underneath the stopper, will not
foul the water when said sink is refilled, although
said strainer be not cleaned before the sink is so
refilled.
- 15 In the modification shown in Figs. 5 to 7, in-
clusive, of the drawings, the upper portion of the
casing 3' slopes downwardly and inwardly in
the form of an inverted truncate cone, and has
formed integrally therewith on its upper surface
20 a plurality of relatively short radial ribs 31, the
purpose of which will be hereinafter explained.
Formed within the interior walls of the casing 3'
are two opposing pairs of radially disposed ver-
tical channels or grooves 32 and also formed
25 within said walls adjacent to the mouth thereof
is an annular ledge 33. Said grooves are de-
signed to receive slidably therein the outer edges
of guides or fins 17' carried by the stem 16' of
a stopper 14'. Each of said fins is also offset
30 so as to form a finger 35 designed to seat upon
the ledge 33 when said stopper is in its raised,
or open, position, as shown in Fig. 7 and on the
right side of Fig. 6. When said stopper and as-
sociated parts are rotated, as by manual opera-
35 tion, to such a position that the fingers 35 regis-
ter with the channels 32, said fingers slide down-
wardly through said channels, which serve as
guideways for said fingers, until said stopper
seats upon the adjacent portion of the casing
40 3', as shown on the left side of Fig. 6, so as to
prevent the flowing of liquids therethrough.
Said stopper 14' is preferably of such a size, and
the fingers 35 and the ledge 33 so disposed with
reference to said stopper that when said stopper
45 is in its open position the outer circumference
of said stopper lies sufficiently close to the ribs
31 to prevent the passage of large particles of
solid matter therebetween. Manifestly, said
stopper and attached parts may be lifted verti-
50 cally upward out of said casing, as for cleaning,
no obstruction to such movement being provided.
And when said stopper assembly is so removed
ready access is afforded to the strainer, which
may also be manually removed for cleaning.
- 55 Formed upon the interior walls of said casing
3' at convenient points is a series of supports 40
(three being shown) upon which rests the flared
lip of the strainer 20'; and the lower end of said
casing 3' may also, if desired, be equipped with
60 a second strainer 41.
- I claim—
1. A plumbing fixture comprising a casing de-
signed to be attached to a sink, a stopper asso-
ciated with said casing, and means associated
65 with said casing and said stopper permitting the
latter to be set in either open or closed position
with respect to the former without complete re-
moval of said stopper from said casing, said
stopper, when in its closed position, lying lower
70 than the adjacent portions of said sink, and when
in its open position lying substantially even with
the adjacent portions of said sink.
2. A plumbing fixture comprising a casing de-
signed to be attached to a sink and having a drain
75 opening therein, a stopper designed to close said
opening, guideways associated with said casing,
and guides carried by said stopper and designed
to slide in said guideways.
3. A drain fixture for sinks comprising a casing
having associated therewith vertical guideways, 80
and a stopper carrying therebeneath vertical fins
designed to slide in said guideways.
4. A drain fixture for sinks comprising a casing
having vertical guideways associated therewith, 85
an annular ledge associated with said casing, and
a stopper carrying therebeneath vertical fins de-
signed to slide in said guideways, and said fins
also having shoulders formed therein for resting
upon said ledge when said stopper occupies its
open position. 90
5. A drain fixture for sinks comprising a cas-
ing, a funnel within said casing, a stopper asso-
ciated with said funnel, and means associated
with said funnel and said stopper whereby the
latter may be set in either open or closed posi- 95
tion with respect to the former without complete
withdrawal of said stopper from said funnel.
6. A drain fixture for sinks comprising a cas-
ing, a funnel within said casing, a stopper asso-
ciated with said funnel, and means associated 100
with said funnel and said stopper whereby the
latter may be set in either open or closed position
with respect to the former without complete
withdrawal of said stopper from said funnel, said
stopper, in both its open and closed positions, 105
lying below the bottom of the sink.
7. A drain fixture for sinks comprising a cas-
ing, a funnel within said casing, guideways
formed in said funnel, a stopper designed to
close the mouth of said funnel, and means asso- 110
ciated with said stopper designed to engage said
guideways and to enable said stopper to be posi-
tioned in either a closed or open position without
complete removal from said funnel, and means
preventing complete removal of said stopper from 115
said funnel.
8. A drain fixture for sinks comprising a cas-
ing, a funnel within said casing, guideways
formed in said funnel, a stopper designed to close
the mouth of said funnel, and means associated 120
with said stopper designed to engage said guide-
ways and to enable said stopper to be positioned
in either a closed or open position without com-
plete removal from said funnel, and means pre-
venting complete removal of said stopper from 125
said funnel, said means enabling said funnel and
said stopper and associated parts to be removed
as a unit from said casing.
9. A drain fixture for sinks comprising a cas-
ing, a funnel within said casing, guideways 130
formed in said funnel, a stopper designed to close
the mouth of said funnel, and means associated
with said stopper designed to engage said guide-
ways and to enable said stopper to be positioned
in either a closed or open position without com- 135
plete removal from said funnel, and means pre-
venting complete removal of said stopper from
said funnel, said means enabling said funnel and
said stopper and associated parts to be removed
as a unit from said casing, and a strainer dis- 140
posed beneath said funnel within said casing.
10. A drain fixture for sinks comprising a cas-
ing, a funnel within said casing, guideways
formed in said funnel, a stopper designed to close
the mouth of said funnel, fins carried by said 145
stopper designed slidably to engage said guide-
ways and having shoulders formed therein, and
an annular flange carried by said funnel upon
which the shoulders of said fins may rest for
holding said stopper in its open position. 150

11. A drain fixture for sinks comprising a casing, a funnel within said casing, guideways formed in said funnel, a stopper designed to close the mouth of said funnel, fins carried by said stopper designed slidably to engage said guideways and having shoulders formed therein, and an annular flange carried by said funnel upon which the shoulders of said fins may rest for holding said stopper in its open position, and means preventing complete removal of said stopper and associated parts from said funnel.
12. A drain fixture for sinks comprising a casing, a funnel within said casing, guideways formed in said funnel, a stopper designed to close the mouth of said funnel, fins carried by said stopper designed slidably to engage said guideways and having shoulders formed therein, and an annular flange carried by said funnel upon which the shoulders of said fins may rest for holding said stopper in its open position, and means preventing complete removal of said stopper and associated parts from said funnel, said means enabling said funnel to be lifted out of said casing with said stopper and associated parts.
13. A drain fixture for sinks comprising a casing, a funnel within said casing, guideways formed in said funnel, a stopper designed to close the mouth of said funnel, fins carried by said stopper designed slidably to engage said guideways and having shoulders formed therein, and an annular flange carried by said funnel upon which the shoulders of said fins may rest for holding said stopper in its open position, and means preventing complete removal of said stopper and associated parts from said funnel, said means enabling said funnel to be lifted out of said casing with said stopper and associated parts, and a manually removable strainer disposed beneath said funnel within said casing.
14. A drain fixture for sinks comprising a casing, a funnel within said casing, guideways formed in said funnel, a stopper designed to close the mouth of said funnel, fins carried by said stopper designed slidably to engage said guideways and having shoulders formed therein, and an annular flange carried by said funnel upon which the shoulders of said fins may rest for holding said stopper in its open position, and fingers carried by said fins and adapted to engage said funnel so as to prevent complete withdrawal of said stopper and associated parts from said funnel.
15. A drain fixture for sinks comprising a vertically disposed casing designed to be affixed to the bottom of a sink, a closure for said casing comprising a funnel having at its upper extremity an outwardly directed annular flange which rests upon the mouth of said casing, said funnel extending downwardly within said casing, an inwardly directed annular flange carried by the tube of said funnel and having a plurality of notches formed therein, a stopper designed to seat within said funnel so as to close the same against the passage of liquids therethrough, a stem depending from said stopper, and a plurality of radially disposed fins carried by said stem and adapted to have their outer margins slidably received by said notches, said fins having formed therein shoulders designed to rest upon said last-mentioned flange when said stopper is moved to its open position.
16. A drain fixture for sinks comprising a vertically disposed casing designed to be affixed to the bottom of a sink, a closure for said casing comprising a funnel having at its upper extremity an outwardly directed annular flange which rests upon the mouth of said casing, said funnel extending downwardly within said casing, an inwardly directed annular flange carried by the tube of said funnel and having a plurality of notches formed therein, a stopper designed to seat within said funnel so as to close the same against the passage of liquids therethrough, a stem depending from said stopper, a plurality of radially disposed fins carried by said stem and adapted to have their outer margins slidably received by said notches, said fins having formed therein shoulders designed to rest upon said last-mentioned flange when said stopper is moved to its open position, and fingers carried by said fins and designed to prevent complete withdrawal of said stopper and associated parts from said funnel and also enabling said funnel to be lifted with said stopper and associated parts from said casing by the application of manual lifting force applied to said stopper.

EDWARD FOOSE.

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