May 24, 1955 H. R. DICKINSON 2,709,101

LATCH FOR KETTLE OUTLET STRAINER

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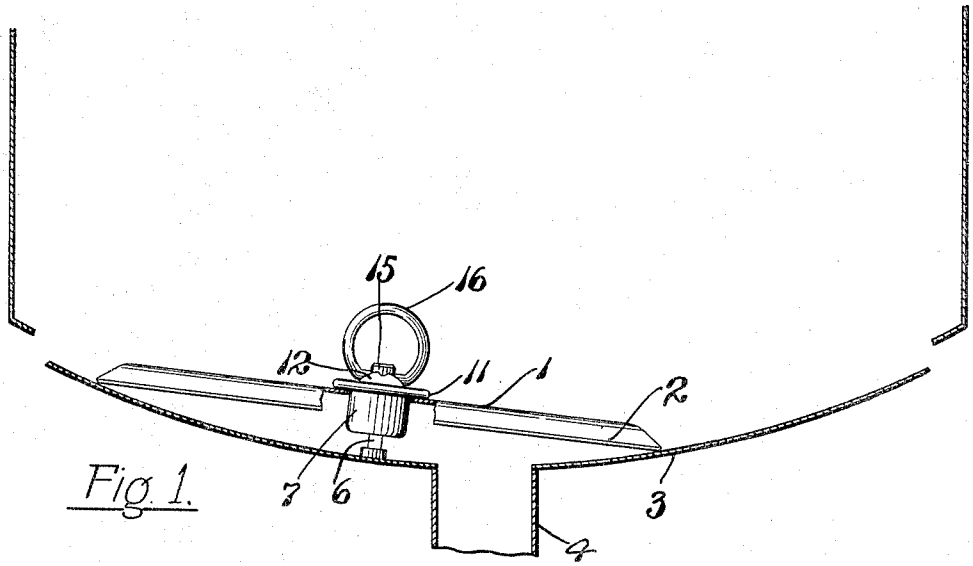


Fig. 1.

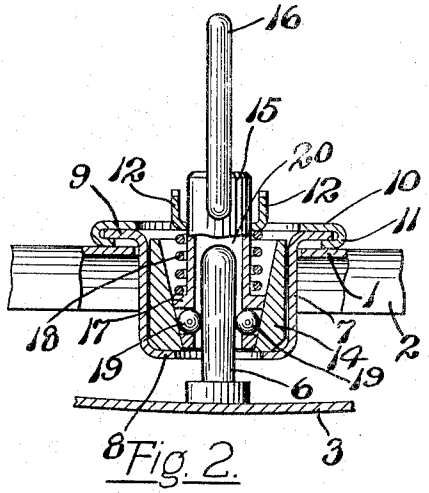


Fig. 2.

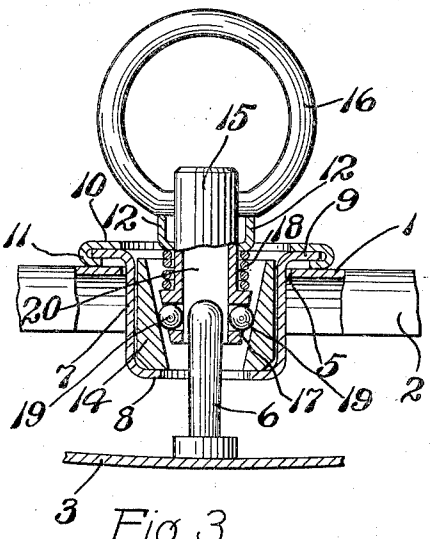


Fig. 3.

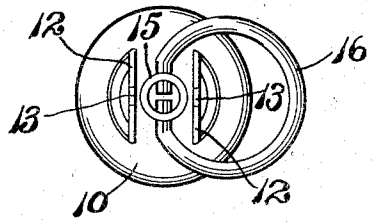


Fig. 4.

HENRY R. DICKINSON

Inventor

By Frank E. Liverance, Jr.

Attorney

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LATCH FOR KETTLE OUTLET STRAINER

Henry Randel Dickinson, Grand Rapids, Mich., assignor to Grand Rapids Hardware Company, Grand Rapids, Mich., a corporation of Michigan

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7 Claims. (Cl. 292—252)

This invention relates to kettle outlet strainers, and particularly to a novel and practical latch means for releasably holding the strainer in place over the bottom of a kettle and over its outlet, the strainer being securely yet releasably connected to the bottom of the kettle, the latch used being readily released and removed independently of both the kettle and the strainer so that it may be washed and cleaned, and, of course, the strainer is thereupon removable from the kettle for cleaning or any other purpose. It is a primary object and purpose of the present invention to provide such novel latching means, which may be released when the strainer is to be removed from the kettle, which it is bodily removable from the strainer, such latching means including novel structure is provided, whereby its parts which normally would be spring held in a position that cleaning would be difficult or impossible may be held separated sufficiently that the latch is easily cleaned.

An understanding of the invention for the attainment of the object stated, as well as others not at this time enumerated, may be had from the following description, taken in connection with the accompanying drawing, in which,

Fig. 1 is a transverse vertical section through a kettle, showing the strainer and latch in elevation, a part of the strainer being broken away for better disclosure.

Figs. 2 and 3 are enlarged central vertical sections through the latch and adjacent fragmentary portions of the strainer, the latch in Fig. 2 being in operative holding position and in Fig. 3 released, and

Fig. 4 is a plan view of the latch.

Like reference characters refer to like parts in the different figures of the drawing.

The strainer in practice consists of a generally flat plate 1 of sheet metal, usually of circular outline, though such outline is not important or essential, around the edges of which the metal is formed into a downwardly extending continuous annular rim or flange 2. In practice, the plate 1 is made foraminous by the piercing of a large number of small holes therethrough substantially over its entire surface. Such strainer is located within a kettle, having a bottom as indicated at 3, and an outlet sleeve or neck 4 attached to the under side of the bottom. The strainer should be over the outlet at 4 to cover it and prevent the passage of materials from which liquid is strained.

With my invention, a circular opening 5 is made through the plate 1 of the strainer which, as shown, is preferably generally centrally located. The opening should be sufficiently far from the outer edges of the strainer that when the latch, which is to be inserted therethrough, engages with a pin 6 securely connected at the upper side of the bottom 3 of the kettle, the outlet opening 4 is covered by the strainer. Such pin 6 is fixed to the bottom of the kettle a short distance to one side of the outlet 4, as shown in Fig. 1.

The latch which is used consists of a cup-like housing 7 of sheet metal, the bottom 8 of which has an opening centrally therein of greater diameter than the diameter of the pin 6. At its upper end the cup 7 has a continuous outwardly extending flange 9. The latch housing is completed by a cover plate 10 located over the open upper end of the housing and over the flange 9, at its edges being

bent or spun inwardly to curve around the edges of the flange 9 and come underneath making a secure attaching rim 11, as shown in Figs. 2 and 3. At diametrically opposed sides of the central portion of the cover plate 10, ears 12 are struck from the plate upwardly at right angles to the plate. Each ear 12 at its upper edge is formed with a recess or notch 13.

Within the housing body 7 a cylindrical member or block 14 is located which has an axial opening from its upper to its lower ends, the opening being of the smallest diameter at its lower end and progressively increasing in diameter upwardly as shown. Such block at its lower end rests upon the bottom 8 of the housing.

A vertical stem 15 preferably of tubular form is equipped with a ring 16 adjacent its upper end. Such ring may be turned on a horizontal axis so as to extend upwardly as in Figs. 1, 2 and 3, or be turned to horizontal position as in Fig. 4. The stem 15 at its lower end is equipped with an integral head 17 of a generally inverted frusto-conical form, the sides of which have the same angle of inclination as the sides of the opening through the block 14. A coiled compression spring 18 surrounds the stem 15, bearing at its lower end on the head 17 and at its upper end engaging against the under side of the housing cover 10. Lateral openings in which balls 19 are located are made horizontally through the head. The vertical passage 20 from the lower end of the head and thence upwardly into the stem 15 has a diameter greater than the diameter of the pin 6.

The opening 5 in the strainer 1 has a diameter somewhat larger than the exterior diameter of the housing wall 7, but is of a less diameter than the flange 9 or the cover 10. The latch, as a unit, therefore may have the lower body of the housing 7 passed downwardly through the opening 5, the pin 6 will enter the axial opening 20 between the balls 19, and the flange 9 and rims 11 come against the upper side of plate 10.

The spring 18 by its compressive force tends to force the head 17 and balls 19 downwardly so that such balls are wedged against the pin and against the downwardly inclined sides of the axial passage through the block 14. This provides a strong gripping action of the balls 19 upon the pin 6. The strainer is held in a fixed position except for a possibility of its turning about the axis of the pin 6 and while so held will always be over the outlet 4. The latch is released by grasping the ring 16 and pulling upwardly, compressing the spring 18 and thus releasing the balls from the pin 6. The latch, being free of connection to the strainer 1 is readily lifted out of the opening 5. When the latch has been released the ring 16 may be turned through 90°, from the position shown in Fig. 2 to that shown in Fig. 3, coming over the upwardly extending ears 12 and upon release the lower side of the ring seats in the recesses 13 of said ears. In such position water may be flowed freely through all parts of the latch for cleansing, which would not be possible if the latch upon release of the pin and disengagement therefrom returned to the position which it has in Fig. 2.

The construction described is very effective and is of especial utility for the purposes for which it has been designed. It is economical to make. Kettles in service equipped with strainers are very easily conditioned for locking or holding the strainers in place by merely piercing the necessary hole at 5 in the strainer for the insertion therethrough of the latch, and affixing the pin 6 adjacent and to one side of the outlet 4 to the bottom 3 of the kettle.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

I claim:

1. A latch structure adapted to be inserted through an

opening in a strainer member comprising, a generally cup-like housing having a vertical wall, a bottom with an opening therein, and an outwardly extending annular flange at the upper ends of said wall, a cover having a central opening therethrough over the open upper end of the housing and permanently connected with said flange, said cover at opposite sides of the center thereof having upwardly extending ears, latch mechanism mounted within the housing including a member relatively fixed with respect to said housing and a second member slidably movable vertically through the opening in said cover, said second member including a spring between it and said cover to normally force said movable latch member into operative latching position, and means connected at the outer end of said second member for manually moving it outwardly for release of the latching means, said means having an inner portion transverse of the second member adapted to rest upon the upper edges of said ears to retain the movable latch member in outer position said transverse member being adapted to lie between said upstanding ears when turned through an arc sufficient to disengage said transverse portion from the ears.

2. A latch structure for the purpose described comprising, a generally cup-like housing having a vertical cylindrical wall and a bottom having an opening therethrough, and having an outwardly extending annular flange around the housing at the upper edges of said wall, a horizontal cover plate of metal having a central opening therethrough over the upper open end of said housing extending over said flange, around the edges thereof and to the under side thereof for permanently securing the cover plate to said flange, latching means including a body having an axial opening therethrough located within said housing in fixed relation thereto, and a second movable latching member within said opening having a stem slidably extending through the central opening of said cover, and spring actuated gripping means connected to and movable with said stem moved downwardly by spring pressure and having means adapted to grip a keeper pin extending through the opening in the bottom of the housing and into said movable latch member, manually operable means connected to the outer end of the stem for withdrawing it, and cooperating means on said cover plate between which said manually operable means is normally located and over which it may be moved to engage therewith when the stem has been pulled outwardly, to retain said movable latching member in an outer position.

3. In a structure as described, a latching means including a generally cup-like housing having a vertical wall, a horizontal bottom with an opening therethrough and an outwardly extending upper flange at the open upper end of the housing, a cover over the open upper end of the housing permanently connected with said flange a fixed latching member within the housing, a vertically movable latching member to cooperate therewith mounted in the housing having a stem extending freely through said cover, manually operable means for moving said movable latching member outwardly, spring means for moving the movable latching member inwardly, and cooperating means carried by the cover adapted to be engaged by said manually operable means to releasably retain the movable latching member in outer position.

4. A structure as defined in claim 3, said cooperating means on the cover plate comprising, vertical members integral with and extending upwardly from said cover at opposite sides of said stem, said manually operable means having a portion passing transversely through the stem adapted in one position to rest upon said vertically extending members when the movable latching means is moved outwardly a predetermined distance and turned about the vertical axis of said latching member through an arc of substantially ninety degrees.

5. In a structure as described, including a receptacle having a bottom with a drain opening therethrough over which opening a flat closure plate having an opening within its edges is adapted to be located and bear at its edges against the upper side of the bottom of said receptacle, at varying distances around its edges from said drainage opening, the improvement in latches including, a housing, insertable through the plate opening for releasably securing said plate against the bottom of said receptacle, said housing being adapted to extend through the opening of said plate and having at its upper end outwardly extending flange portions, extends over the upper side of the plate around the opening therethrough having means thereon in substantially liquid sealing bearing engagement against said plate, and latch means including one part fixed within the opening and another part adapted to cooperate therewith having a stem extending above the upper end of said housing, said latching means being adapted to engage with a holding pin fixed to the bottom of the receptacle to one side of the drainage opening therethrough, said holding pin being adapted to extend through the lower side of said housing and therewithin, manual means connected with said stem for moving it to a position to disengage it from the cooperating means therefor within said housing to disengage from said pin when pulled outwardly, said manual means including a horizontal portion extending through said stem, and spaced means at the upper side of said housing extending thereabove between which said stem and said horizontal portion of the manually operable means therefor is adapted to be located in operative latching position, and against the outer portions of which said horizontal portion of the manually operable means is adapted to be held when the stem is pulled outwardly and turned through an arc of substantially ninety degrees.

6. In a structure of the class described, a receptacle having a bottom with an outlet opening therein, a plate of metal located against the upper side of the bottom of said receptacle covering said opening in the bottom and portions of the bottom adjacent the opening, said plate having an opening therethrough to one side of the bottom opening, a keeper on the upper side of said bottom substantially in vertical alignment with the opening through said plate, manually operable latch mechanism extending downwardly freely through said opening in said plate and having means engaging against the upper side of said plate around said opening to substantially seal against liquid passage through said opening in the plate, and manually operable means for actuating said latching means to engage it with the keeper or disengage it therefrom, said manually operable means being accessible above said plate.

7. In a structure as described, a receptacle having a bottom, concave at its upper side, said bottom having an outlet opening therethrough, a plate of flat metal having an annular downturned flange at its periphery bearing against the upper side of the bottom of said receptacle and covering said outlet opening, a keeper connected to and at the upper side of said receptacle bottom located to one side of said outlet opening in the bottom, latching means detachably mounted on said plate to engage with said keeper and disengage therefrom, and manually operable means located above said plate for releasing said latching means from the keeper and from said plate on upward pull thereon.

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