Jan. 30, 1962 F. P. WATSON 3,018,719

RECEPTACLES WITH SWINGING DOOR ON THE TOP

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Fig. 1.

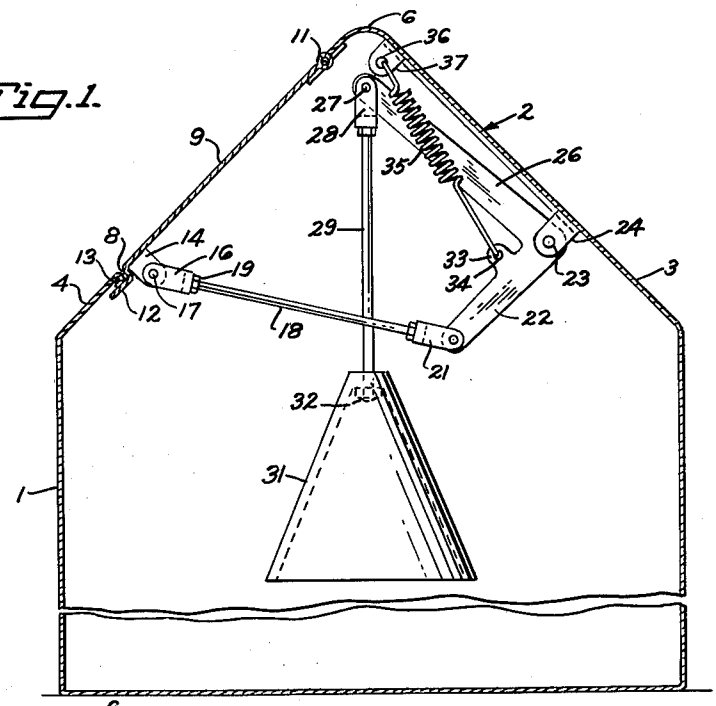


Fig. 2.

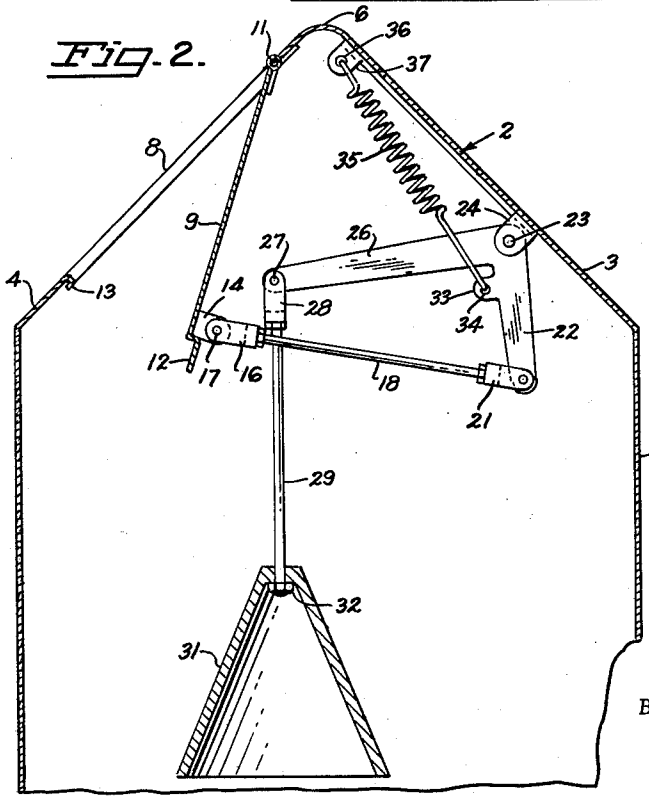
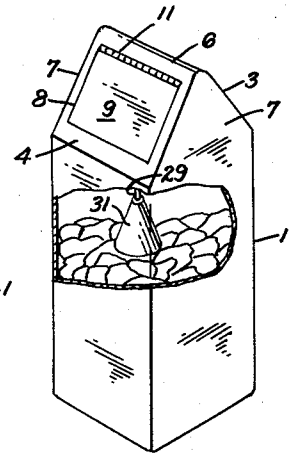


Fig. 3.



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RECEPTACLES WITH SWINGING DOOR ON THE TOP

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This invention relates to receptacles with a swinging door on the top.

In connection with receptacles which have a swinging door on the top through which waste, such as paper towels, are introduced into the receptacle, the difficulty is that the waste piles up around the door and prevents the closing of the door properly.

An object of the invention is to provide a tamping weight in such coordination with the swinging door that whenever the door is swung open, the tamping weight presses the waste or paper already in the receptacle down toward the bottom and thereby prevents the accumulation of such waste of paper around the door.

I am aware that some changes may be made in the general arrangement and combinations of the several devices and parts, as well as in the details of the construction thereof without departing from the scope of the present invention as set forth in the following specification, and as defined in the following claims; hence I do not limit my invention to the exact arrangements and combinations of the said device and parts as described in the said specification, nor do I confine myself to the exact details of the construction of said parts as illustrated in the accompanying drawings.

With the foregoing and other objects in view, which will be made manifest in the following detailed description, reference is had to the accompanying drawings for the illustrative embodiment of the invention, wherein:

FIG. 1 is a fragmental sectional view of a waste receptacle with swinging door and the tamper device actuated by said door in initial position.

FIG. 2 is a fragmental sectional view showing the device with the door swung away from the opening, and tamper weight in down or waste compressing position.

FIG. 3 is a perspective view of the receptacle partly broken away to show the relative position of the tamperweight.

The usual receptacle or container includes a receptacle 1 which has a dome 2 as a top structure. This dome 2 has a pair of upwardly converging walls 3 and 4 which are connected by a rounded apex 6 at the top and opposite generally triangular sidewalls 7.

In the usual structure involved in this application, the backwall 3 of the dome is continuous and closed but the front wall 4 has an opening 8 therein. This opening is normally covered by an inwardly swingable door 9.

The door 9 is pivoted by a suitable hinge 11 along the top edge of the opening 8. The lower horizontal edge of the door 9 has an inwardly offset flange 12 which abuts against an internal turned edge 13 forming the lower edge of the opening 8, which flange holds the door 9 against swinging outwardly when the door is pressed against the opening 8.

On the underside of the door 8 and near the middle thereof is lug 14 projecting inwardly. To this lug 14 is pivotally connected a rod end or yoke 16 by a suitable pivot bolt 17. Into this yoke 16 is threaded a link rod 18 which latter is held in place by a suitable adjusting nut 19 whereby the length of the rod 18 is adjusted. The other end of the link rod 18 is similarly held in another yoke 21 which latter is pivoted by a suitable pivot bolt on an arm 22 of a bellcrank lever. The bellcrank lever is fulcrumed on a pivot 23 on a lug 24 extended inwardly from the fixed inclined wall 3 so that the fulcrum of the bell crank arm 22 is above the pivot 17 of the connecting rod on the door 9. The other arm 26 of the bellcrank lever extends at an acute angle of nearly 90 degrees upwardly and generally along the inside face of the wall 3 in its initial position, so that the outer end of the second bellcrank lever arm 26 terminates in vertical registry with the apex 6. Into this upper end of the second bellcrank arm 26 is fulcrumed, on a pivot bolt 27, a yoke 28 into which is threaded a vertical suspending rod 29.

On the lower end of the suspending rod 29 is a generally frusto-conical weight 31 resting on a suitable nut 32 on said end of the rod 29 so that the axis of the suspension rod 29 is in general vertical registry with the apex 6 of the dome of receptacle when the door is closed, and the top fulcrum 27 is above the fulcrum connection of the link rod 18 at the swinging door 9.

From the lower or first crank arm 22 extends inwardly an ear 33 which has a hole 34 therein. One end of a coil spring 35 is hooked into the hole 34 and the other end of the coil spring 35 is hooked into the hole 36 of an ear 37 extended from the rear dome wall 3 inwardly and above the end of the upper crank lever arm 26. The spring 35 normally resiliently pulls the lower arm 22 of the bellcrank lever upwardly which has a tendency to straighten the toggle angle between the rod 18 and the bellcrank lever arm 22 so as to firmly press the flange 12 of the door 9 against the lower inside edge 13 of the opening 8 and thereby hold the door 9 firmly shut. The weight 31 is such that it nearly balances the coil spring 36 so that it does not require excessive force to push the door 9 open. The weight 31 can be pushed upwardly on the rod 29 by accumulated waste without preventing the closing of the door.

In operation as the door 9 is pushed open for the insertion of waste, such as paper towel, into the receptacle, the link 18 pushes the lower bellcrank arm 22 downwardly against the action of the tension spring 35 from the position shown in FIG. 1 into the position shown in FIG. 2, and thus swings the upper lever arm 26 inwardly and downwardly of the dome so as to lower the tamping weight 31 onto the waste or paper already in the receptacle and thereby tamp or compress the waste paper toward the bottom of the receptacle and away from the door 9. When the door 9 is released, the action of the tension spring 36 pulls the lower bellcrank arm 22 upwardly and thereby presses the link 18 toward the opening 8 so as to shut the door 9, as heretofore described, and simultaneously raise the upper lever arm 26 and thereby return the weight 31 to its initial position.

This mechanism is simple but it is important in connection with such waste receptacles and it prevents to a very great extent the piling of the waste under and around the door and prevents interference with the opening of the door and thereby facilitates the introduction and collection of waste in such receptacles.

I claim:

1. In combination with the top of a waste receptacle having an intake opening on a side thereof, and a door therefor, a waste tamping and door closing device comprising suspension means fulcrumed on a side of said receptacle, a weight suspended from said fulcrumed suspension means in said receptacle, resiliently yieldable means anchored in said receptacle and connected to said suspension means to normally hold said suspension means and weight in an initial position, connecting means between said suspension means and said door to urge said door into closed position by the action of said resiliently yieldable means and to swing said suspension means and said weight inwardly of the receptacle and toward the bottom of said receptacle whenever said door is swung

open, said suspension means including a bellcrank lever pivoted between its ends, and said weight being suspended from the upper end of said bellcrank lever from a point above the fulcrum of said bellcrank lever, and said connecting means being pivoted on the lower end of said bellcrank lever below said fulcrum.

2. In combination with the top of a waste receptacle having an intake opening on a side thereof, and a door therefor, a waste tamping and door closing device comprising suspension means fulcrumed on a side of said receptacle, a weight suspended from said fulcrumed suspension means in said receptacle, resiliently yieldable means anchored in said receptacle and connected to said suspension means to normally hold said suspension means and weight in an initial position, connecting means between said suspension means and said door to urge said door into closed position by the action of said resiliently yieldable means and to swing said suspension means and said weight inwardly of the receptacle and toward the bottom of said receptacle whenever said door is swung open, said suspension means including a bellcrank lever pivoted between its ends, and said weight being suspended from the upper end of said bellcrank lever, and said connecting means being pivoted on the lower end of said bellcrank lever below said fulcrum, said resiliently yieldable means being connected to said bellcrank lever so as to pull the bellcrank lever upwardly about its fulcrum.

3. In combination with the top of a waste receptacle having an intake opening on a side thereof, and a door therefor, a waste tamping and door closing device comprising suspension means fulcrumed on a side of said receptacle, a weight suspended from said fulcrumed suspension means in said receptacle, resiliently yieldable means anchored in said receptacle and connected to said suspension means to normally hold said suspension means and weight in an initial position, connecting means between said suspension means and said door to urge said door into closed position by the action of said resiliently yieldable means and to swing said suspension means and said weight inwardly of the receptacle and toward the bottom of said receptacle whenever said door is swung open, said suspension means including a bellcrank lever pivoted between its ends, and said weight being suspended from the upper end of said bellcrank lever from a point above the fulcrum of said bellcrank lever, and said connecting means being pivoted on the lower end of said bellcrank lever below said fulcrum, said resiliently yieldable means being connected to said bellcrank lever so as to pull the bellcrank lever upwardly about its fulcrum, said connecting means and said bellcrank being pivoted together at such angle as to form a toggle for holding the door in closed position.

4. In combination with a swinging door of a waste receptacle, said door being hinged at one edge thereof and having an abutment to prevent the door from swinging outwardly of the opening of the receptacle, a bellcrank lever fulcrumed on a wall of said receptacle opposite said door, one arm of said bellcrank lever extending toward the top of said door, a suspension element suspended from said bellcrank lever, a weight upon said suspension element adapted to tamp waste toward the bottom of said receptacle, a link connected from the lower end of said bellcrank lever to said door so as to press said door to closed position when said lower arm of said bellcrank is being pulled upwardly about the fulcrum of the bellcrank lever, resiliently yieldable means anchored on said receptacle and connected to said bellcrank lever to urge said bellcrank lever into position to suspend said weight in an initial position and simultaneously to hold said door closed; the angle of the bellcrank lever being such that when the door is open, then the bellcrank is swung against the action of said resiliently yieldable means out of said initial position and lowers said weight to tamp waste material toward the bottom of said receptacle.

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