

HOPPER FOR REFUSE-CHUTE OR THE LIKE

BACKGROUND OF THE INVENTION

(a) Field of the Invention

The present invention relates generally to a hopper and more specifically to a hopper used in or mounted to a refuse-chute connecting to a dump-collecting center or mounted onto a stand connected to a dump-collection chamber.

(b) Description of the Related Art.

The problem of waste disposal within units of apartments or buildings has become one of the important concerns in this country. Generally, each household within a tall building or a flat has a refuse-chute opening mounted with a hopper, connected to a dump-collecting center at the ground level of the building. Due to the fact that the household does not sort out or separate or categorize their own household wastes into different groups of material, the wastes generally consist of deteriorable kitchenwaste and residual waste. The bad or unpleasant odour from the refuse-chute will be released to the household and this will lead a negative effect on the quality of living in the family,

Further, there is a conventional type of hopper where it can be opened to collect the waste, but a force has to be applied in order to push in the hopper to allow the dump to be discharged from the hopper to the passage linked to the dump-collecting center. To over come the above

drawback, a heavy metal bar is mounted horizontally at the edge of the chamber collecting dumps. The weight of the metal allows the hopper to return automatically so as to release the dump in the cavity of the hopper. However, the heavy weight of the metal bar causes the hopper to close against the wall with an excessive force.

Several US Patents have been issued on devices for disposing waste from within a building to a collection container, and these patents include US Patent Nos. 4,978,988 and 5,031,829.

US Patent No. 5,228,577 issued to Terry Wilson on 20 July 1993 discloses an apparatus for separating different categories of recyclable and non-recyclable trash at the source of disposal in new and multi-story buildings. The apparatus comprises a main chamber having a sloped floor and two or more aligned bins, two wing-shaped chambers, pivoted doors, a swinging gate, and mechanism to be actuated by opening and/or closing each door and gate of the device. While this conventional device may be suitable for sorting waste, it is not suitable for the purpose of preventing or sealing the smell of decayed kitchen waste from discharging to the household.

Accordingly, it is an object of the present invention to provide a hopper for refuse-chute or the like which mitigate the drawback of rapid closing of the hopper and at the same time to seal off the unpleasant smell discharging into the house.

SUMMARY OF THE INVENTION

Therefore, there is a definite need for a simple, efficient apparatus for mounting onto the opening of a refuse-chute within a home.

Accordingly, it is an object of the present invention to provide a hopper for refuse-chute wherein the hopper facilitates the holding of household waste and seals the bad smell from releasing to the house via the refuse-chute.

It is another object of the present invention to provide a hopper for refuse-chute, which can be easily mounted to the opening in communication to the refuse-chute of a home for easy disposal of household waste.

It is a further object of the present invention to provide a hopper for refuse-chute which can be used to replace the existing hopper connected to the opening of the refuse-chute.

Yet another object of the present invention is to provide a hopper for refuse-chute which allows the hopper to be closed automatically with an appropriate force sufficient to discharge the dump into the refuse-chute but the hopper will not be closed with excessive force.

These objects, as well as other objects, of the present invention will become more readily apparent after reading the following description of the preferred embodiment of the invention taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view showing the hopper for refuse-chute of the present invention.

Fig. 2 is an exploded perspective view of the hopper for refuse-chute of the present invention.

Fig. 3 is a perspective view showing the hopper being opened to dispose waste, in accordance with the present invention.

Fig. 4 is a schematic view showing the hopper for refuse-chute mounted on to a wall with the door panel being closed in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIGS. 1 to 3 of the drawings, reference numeral 100 generally designates the hopper 10 for refuse-chute of the preferred embodiment of the present invention to be installed onto the opening of a refuse-chute within the building.

As best shown in FIG.2, the hopper 10 generally comprises a securing frame 18 having a top edge 180 and a bottom edge 184; a covering frame 16, a door panel 12, a swinging chamber 14, and a hopper guard 20. As shown in FIG. 2, the door panel 12 is provided with a pulling handle 121 at the surface thereof and the pulling handle 121 is

interconnected to a retractable rod 122 protruded from the top edge of the panel 12. When the pulling handle 121 is pulled towards the user, the retractable rod 122 will be lowered and allows the door panel 12 to be opened.

In accordance with the present invention, the swinging chamber 14 has substantially an arch-shaped cavity 41 and a planar rear surface 142. The rear surface 142 is attached to the rear surface of the door panel 12 such that the door panel 12 and the swinging chamber 14 are formed as a unit.

In accordance with a preferred embodiment of the present invention, the swinging chamber 14 together with the door panel 12 is pivotally mounted to the support frame 18 such that the swinging chamber 14 is swingable about the lateral edges of the door panel 12, and the door panel 12 is opened from the top such that waste can be placed within the swing chamber 14 ready for disposal.

The covering frame 16 is mounted onto the support frame 18 and the fastening elements 181 at the top 180 and bottom edge 184 are used to hold the entire structure of the hopper 10 onto a support, or the like for instance, the wall or a supporting structure (not shown).

The hopper guard 20 is connected to the support frame 18 at the upper portion of the frame thereof such that when the swinging chamber 14 is within a refuse-chute, the hopper guard 20 covers the opening of the swinging chamber 14.

In another preferred embodiment, a pulling frame 22 is hinged at the lower edge of the support frame 18 and a pair of pulling members 23 connect the lateral edge of the pulling frame 22 at one end and the other ends of the pulling member 23 is bent and insertably connected to the side of the swinging chamber 14 so as to pull down the swinging chamber 14. In accordance with the present invention, the pulling frame 22 is pivotally mounted at the top portion of the lateral edge thereof. In operation, when the door panel 12 is pulled forward, the pulling frame 22 is lifted upward about the pivot point at the top portion of the lateral side of the pulling frame 22 by way of the hook 23 slidably connected to the side of the swinging chamber 14. When the panel 12 is released, the swinging chamber 14 will fall downward as a result of the weight of the pulling frame 22. The weight of the pulling 22 is made of a metal which has a weight to pull down the chamber 14 containing rubbish to be disposed off. When the chamber 14 falls downward to a certain angle, the pulling frame 22 loses the pulling action as the pulling member 23 will have no connection with the swinging chamber 14. In view of the above, the chamber 14 will be closed with a lesser downward force.

Fig. 3 is a perspective view showing the hopper being opened to dispose waste, in accordance with the present invention. Anything to be disposed in placed into the chamber 14, as shown in Fig. 3, and when the door panel 12 is closed against the wall 44, the waste shall be thrown out from the chamber 14.

Fig. 4 is a schematic view showing the hopper for refuse-chute mounted on to a wall with the door panel being closed in accordance with the present invention.

While the above description constitute a preferred embodiment of the present invention, it will be appreciated that the invention is susceptible to modification, variation and change without departing from the scope of the appended claims.

CLAIMS

1. A hopper for refuse-chute comprising:-
 - (a) a door panel connected to a swinging chamber,
 - (b) a securing frame for the supporting of the door panel and the supporting chamber such that the swinging chamber is swingable at a pivot point.
 - (c) a pulling frame having a pair of pulling member suitably mounted at the lateral side of the swinging chamber at one end, the other ends of the pulling members being rotatably mounted to the lateral edge of the pulling frame.
2. The hopper of claim 1, wherein the top portion of the pulling frame is pivotally connected to the lower edge of the swinging chamber.
3. The hopper of claim 1 or 2, wherein the lateral edge of the pulling frame is rotatably connected with each a pulling member having one end slidably connected to a slot provided at the lower surface of the swinging chamber.
4. The hopper of claim 2, wherein the end of the pulling member is bent to form a 90 degree member so as to pull down the swinging chamber.
5. The hopper of claim 1 or 2, wherein a piece of metal block is mounted at the lower edge of the pulling frame.