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(54) **GARBAGE BIN WITH LID AND BUFFER**

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**ABSTRACT**

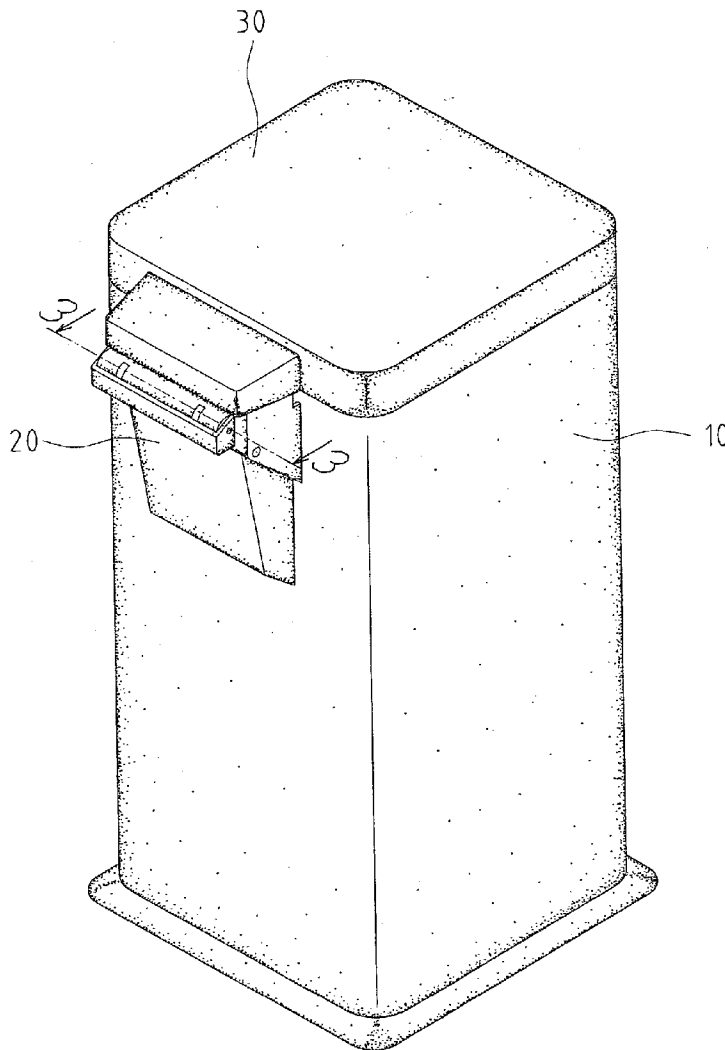
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**Related U.S. Application Data**

(63) **Continuation-in-part of application No. 10/131,927, filed on Apr. 25, 2002.**

A garbage storage device includes a bin, a bracket, a lid, a pedal, a linkage and a buffer. The bracket is formed on or attached to the bin. The lid is pivotally mounted on the bracket. The pedal is pivotally mounted on the bin. The linkage connects the lid with the pedal so that the lid is lifted as the pedal is trodden. The buffer is arranged between the bracket and the lid for buffering the lid.



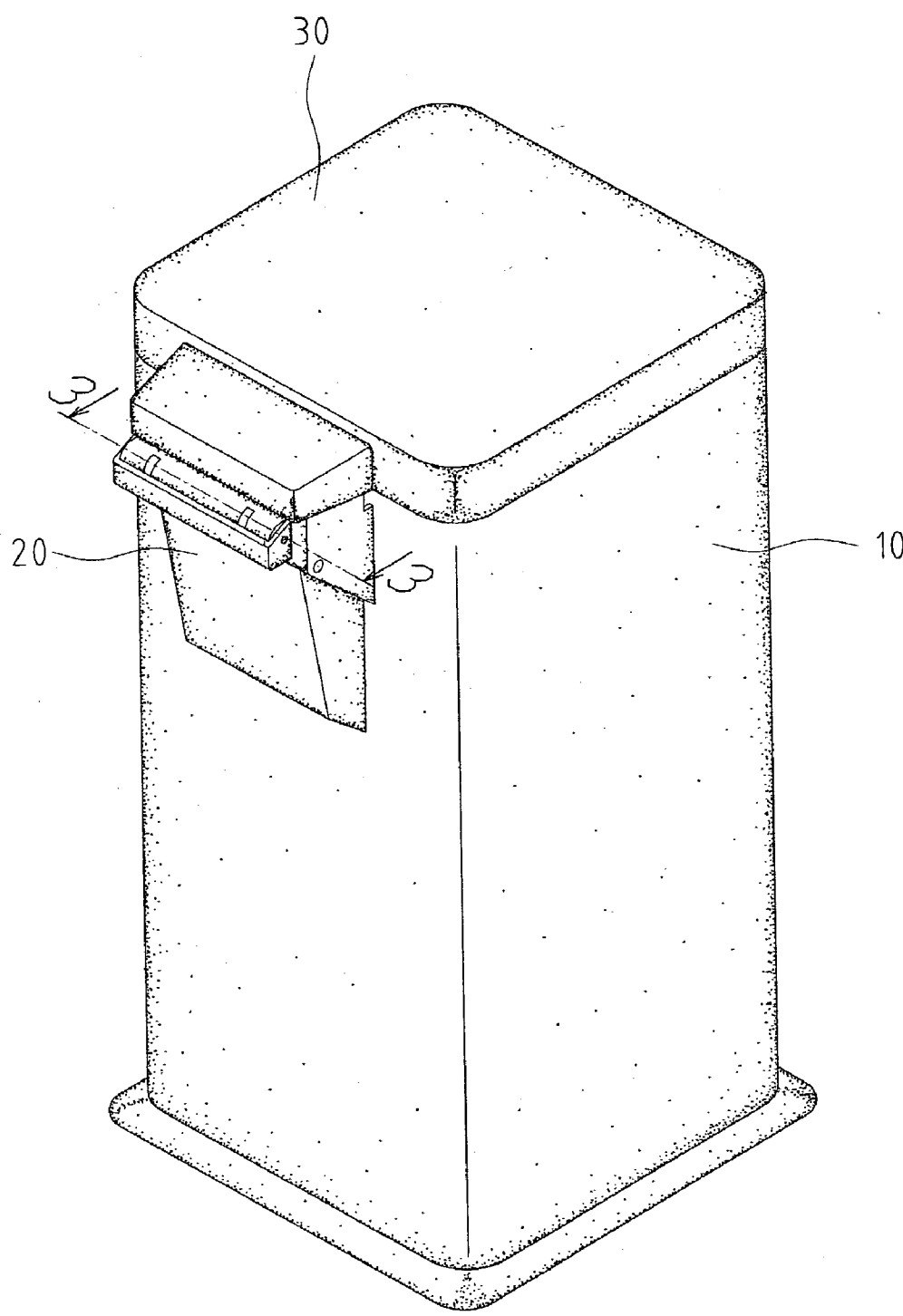


Fig. 1

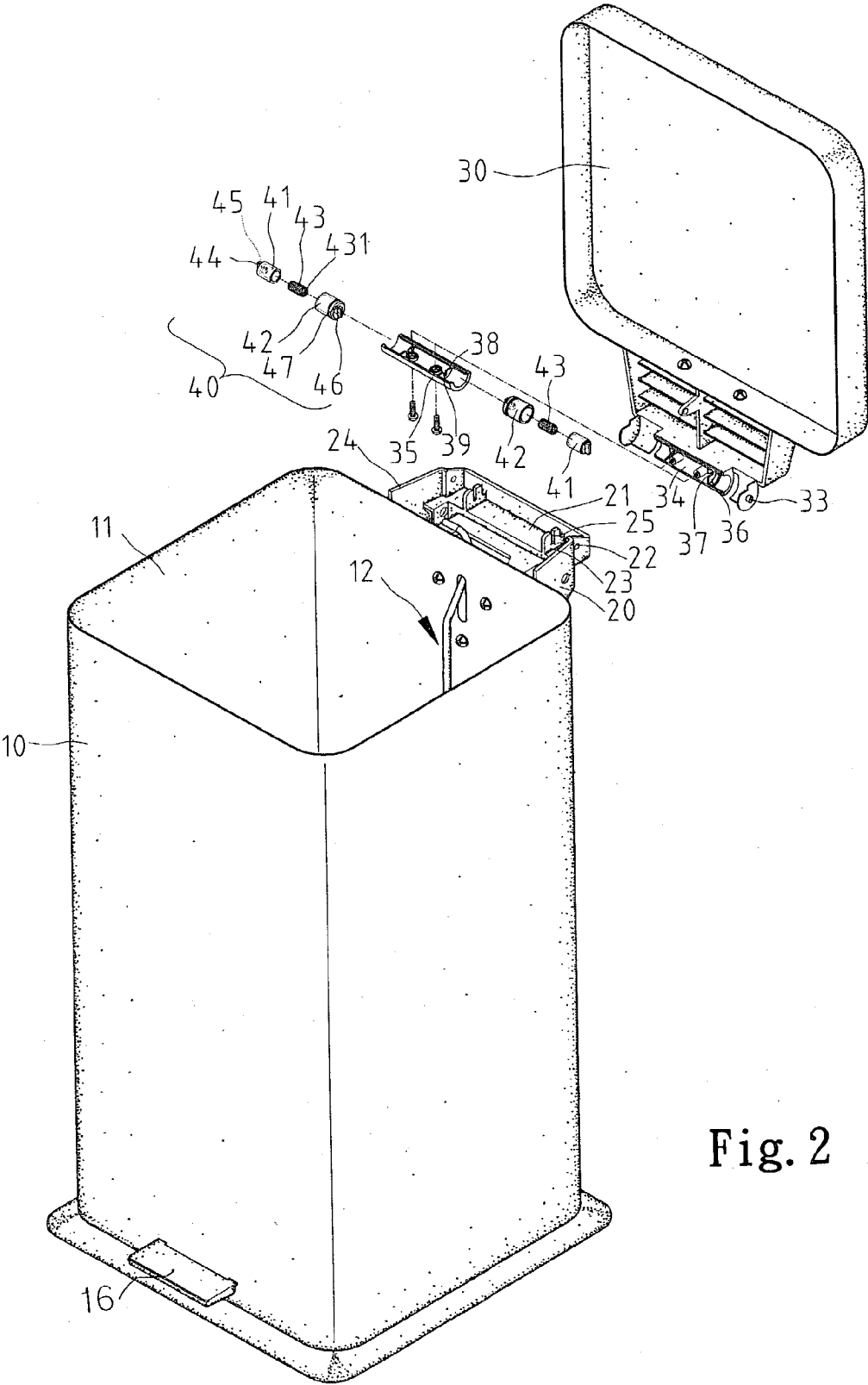


Fig. 2

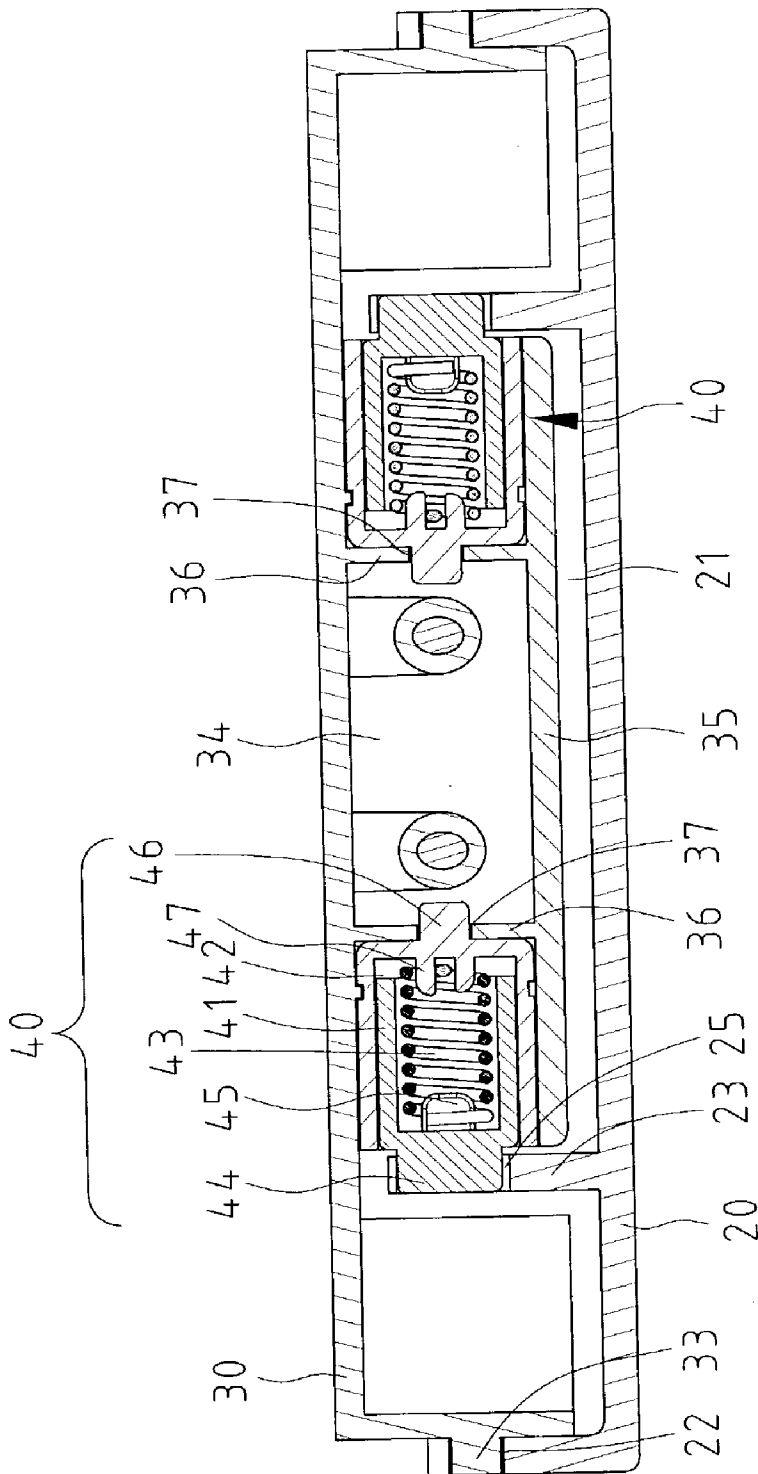


Fig. 3

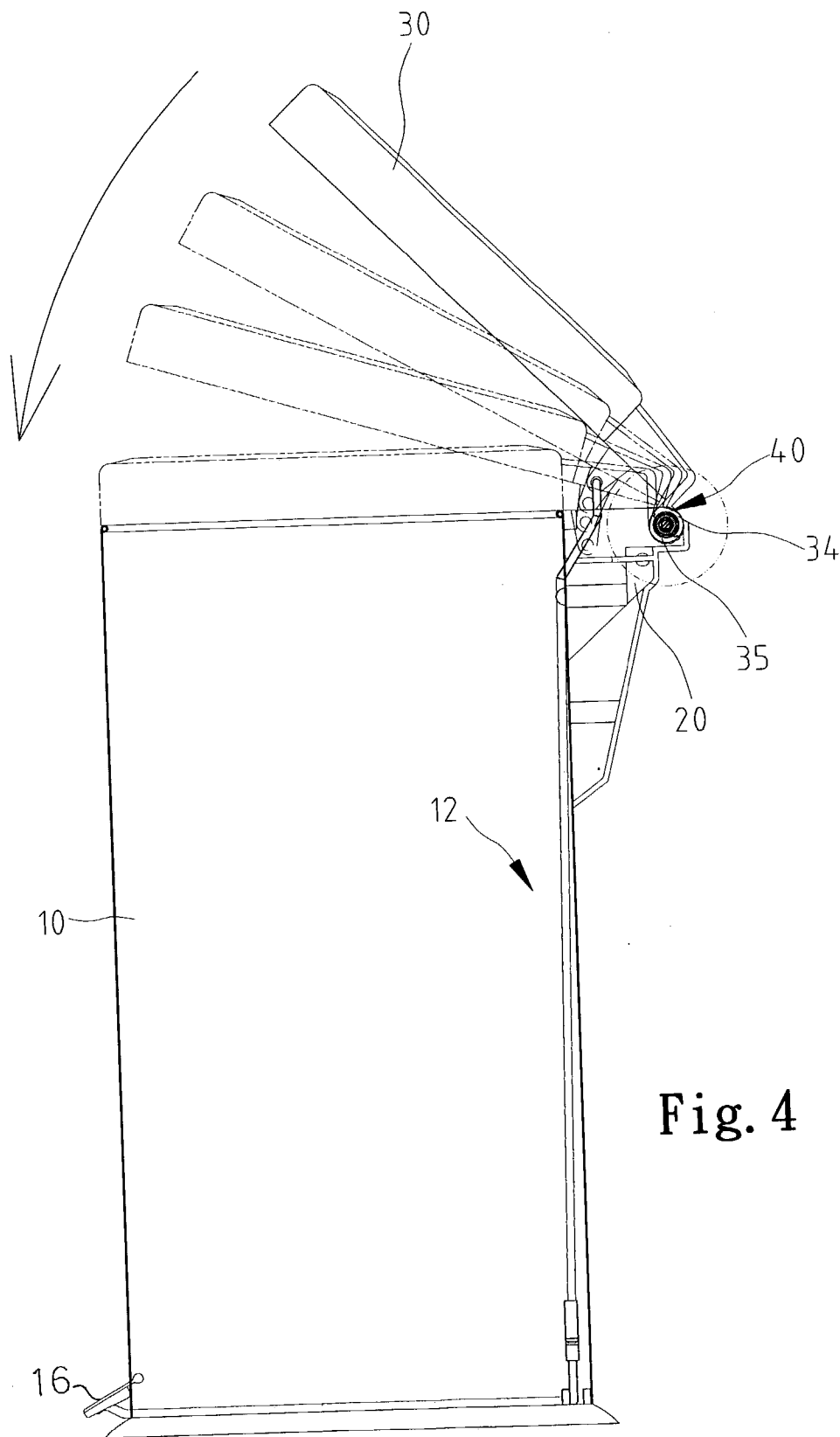


Fig. 4

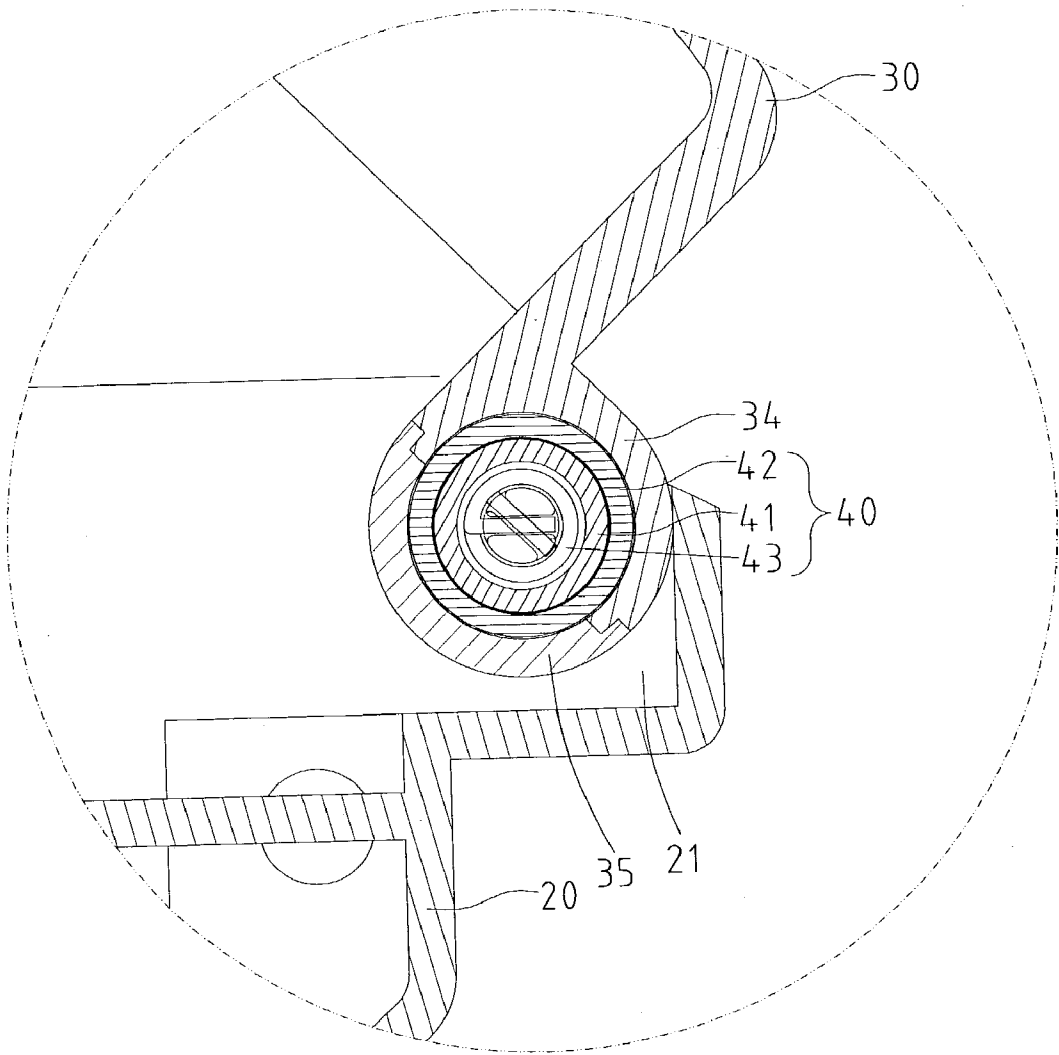


Fig. 5

## GARBAGE BIN WITH LID AND BUFFER

### CROSS-REFERENCE

[0001] The present patent application is a continuation-in-part patent application of pending U.S. patent application Ser. No. 10/131927 that is assigned to the applicant thereof and incorporated therein.

### FIELD OF THE INVENTION

[0002] The present invention relates to a garbage storage device including a bin, a lid and a buffer for the lid.

### BACKGROUND OF THE INVENTION

[0003] People dispose of garbage in garbage bins. Some of the garbage stinks some time after the disposal. Therefore, some of the garbage bins are equipped with lids in order to keep the odor of such garbage therein. In some other cases, people use garbage bins equipped with lids simply to conceal garbage contained therein.

[0004] Some lids can be removed from garbage bins. However, such a lid causes a user troubles since he or she has to hold the lid during disposal of garbage or find a place to lay the lid on before disposal of garbage.

[0005] A conventional garbage storage device includes a base, a bin installed on the base, a pedal pivotally mounted on the bin and a lid pivotally mounted on the bin. A linkage is arranged between the pedal and the lid. The linkage includes a crankshaft and a rod. The crankshaft is pivotally mounted on the base. The crankshaft includes a first end in contact with the pedal and a second end. The rod includes a first end connected with the second end of the crankshaft and a second end connected with the lid. In specific, the second end of the crankshaft defines an aperture for receiving the first end of the rod. Thus, the pedal can be trodden in order to lift the lid through the linkage. However, closing the bin with the lid often makes a loud noise.

[0006] The present invention is therefore intended to obviate or at least alleviate the problems encountered in prior art.

### SUMMARY OF THE INVENTION

[0007] The primary objective of the present invention is to provide a garbage storage device that can be moved slowly and smoothly from an open position to a closed position.

[0008] According to the present invention, a garbage storage device includes a bin, a bracket, a lid, a pedal, a linkage and a buffer. The bracket is formed on or attached to the bin. The lid is pivotally mounted on the bracket. The pedal is pivotally mounted on the bin. The linkage connects the lid with the pedal so that the lid is lifted as the pedal is trodden. The buffer is arranged between the bracket and the lid for buffering the lid.

[0009] Other objects, advantages, and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the attached drawings.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The present invention will be described through detailed illustration of the preferred embodiment referring to the drawings.

[0011] FIG. 1 is a rear perspective view of a garbage storage device including a bin, a lid and a buffer for the lid according to the preferred embodiment of the present invention.

[0012] FIG. 2 is a front exploded view of the garbage storage device shown in FIG. 1.

[0013] FIG. 3 is a cross-sectional view of taken along a line 3-3 in FIG. 1.

[0014] FIG. 4 is a right side view of the garbage storage device of FIG. 1.

[0015] FIG. 5 is a cross-sectional partial view of the garbage storage device shown in FIG. 4.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0016] Referring to FIGS. 1 and 2, a garbage storage device includes a bin 10, a bracket 20 integrated with the bin 10, a lid 30 pivotally mounted on the bracket 20, two buffers 40 for the lid 30, a pedal 16 pivotally mounted on the bin 10 and a linkage 12 for connecting the lid 30 with the pedal 16. Thus, as the pedal 16 is trodden, the lid 30 is lifted. The linkage 12 will not be described in detail for being conventional. The bin 10 and the bracket 20 may be molded as one piece, or molded as two pieces and then combined by proper means.

[0017] The bracket 20 includes a bottom 21 and a wall 24 formed about the bottom 21. Two ears 23 are formed on the bottom 21. Each ear 23 defines a mortise 25. Two apertures 22 are defined in the wall 24. The apertures 22 are aligned with the mortise 25.

[0018] The lid 30 includes two bosses 33 formed thereon. The bosses 33 are put in the apertures 22, thus pivotally mounting the lid 30 on the bin 10.

[0019] A cylinder is used to attach the buffers 40 to the lid 30. The cylinder includes a first semi-cylinder 34 formed on the lid 30 and a second semi-cylinder 35 attached to the first semi-cylinder 34 by means of two fasteners (not numbered). Two ears 36 are formed on the first semi-cylinder 34. Each ear 36 defines a mortise 37. Similarly, two ears 38 are formed on the second semi-cylinder 35. Each ear 38 defines a mortise 39.

[0020] Referring to FIG. 3, each buffer 40 includes a first cylinder 41, a second cylinder 42 and a spring 43. The spring 43 is put in the first cylinder 41.

[0021] The first cylinder 41 is put in the second cylinder 42. Damping oil is provided between the first cylinder 41 and the second cylinder 42.

[0022] The first cylinder 41 includes an open end and a closed end. The first cylinder 41 includes a tenon 44 formed on an external side of the closed end and a clip 45 formed on an internal side of the closed end.

[0023] The second cylinder 42 includes an open end and a closed end. The second cylinder 42 includes a tenon 46 formed on an external side of the closed end and a clip 47 formed on an internal side of the closed end.

[0024] A first end of the spring 43 is inserted through the open end of the first cylinder 41 and clipped by means of the

clip 45. A second end of the spring 43 is inserted through the open end of the second cylinder 42 and clipped by means of the clip 47.

[0025] The tenon 44 of each buffer 40 is put in one mortise 25. The tenon 46 of each buffer 40 is put in one pair of mortises 37 and 39. The buffers 40 are thus attached provided between the bracket 20 and the lid 30.

[0026] Referring to FIGS. 4 and 5, the springs 43 of the buffers 40 provide torques that tend to lift the lid 30. These torques buffer the lid 30 in a process of closing. The damping oil also buffers the lid 30.

[0027] The present invention has been described through detailed illustration of the preferred embodiment. Those skilled in the art can derive variations from the preferred embodiment without departing from the scope of the present invention. Therefore, the preferred embodiment shall not limit the scope of the present invention defined in the claims.

What is claimed is:

1. A garbage storage device including:
  - a bin;
  - a bracket integrated with the bin;
  - a lid pivotally mounted on the bracket;
  - a pedal pivotally mounted on the bin;
  - a linkage for connecting the lid with the pedal so that the lid is lifted as the pedal is trodden; and
  - a buffer arranged between the bracket and the lid for buffering the lid.
2. The garbage storage device according to claim 1 wherein the buffer includes a spring for providing a torque.
3. The garbage storage device according to claim 2 wherein the buffer includes a first cylinder for non-rotational connection with the bracket and non-rotationally receiving the spring and a second cylinder for non-rotational connection with the lid and non-rotationally receiving the spring.
4. The garbage storage device according to claim 3 wherein the first cylinder is put in the second cylinder.
5. The garbage storage device according to claim 4 including damping oil between the first cylinder and the second cylinder.

6. The garbage storage device according to claim 3 wherein the first cylinder includes a closed end non-rotationally attached to the bracket and an open end for receiving the spring.

7. The garbage storage device according to claim 6 wherein the first cylinder includes a clip formed on an internal side of the closed end for clipping an end of the spring.

8. The garbage storage device according to claim 6 wherein the bracket includes an ear formed thereon, and the closed end of the first cylinder is non-rotationally attached to the ear.

9. The garbage storage device according to claim 8 wherein the first cylinder includes a tenon formed on an external side of the closed end, and the ear defines a mortise for receiving the tenon.

10. The garbage storage device according to claim 3 wherein the second cylinder includes a closed end non-rotationally attached to the lid and an open end for receiving the spring.

11. The garbage storage device according to claim 10 wherein the second cylinder includes a clip formed on an internal side of the closed end for clipping an end of the spring.

12. The garbage storage device according to claim 10 wherein the lid includes an ear formed thereon, and the closed end of the second cylinder is non-rotationally attached to the ear.

13. The garbage storage device according to claim 12 wherein the second cylinder includes a tenon formed on an external side of the closed end thereof, and the ear defines a mortise for receiving the tenon.

14. The garbage storage device according to claim 3 including a cylinder integrated with the lid for receiving the buffer.

15. The garbage storage device according to claim 14 wherein the cylinder includes a first semi-cylinder and a second semi-cylinder attached to the first semi-cylinder.

16. The garbage storage device according to claim 1 wherein the bracket is made independent of the bin and attached to the bin.

17. The garbage storage device according to claim 1 wherein the bracket is formed on the bin.

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