



US 20090158549A1

(19) **United States**(12) **Patent Application Publication**
Lin(10) **Pub. No.: US 2009/0158549 A1**(43) **Pub. Date: Jun. 25, 2009**(54) **REMOVABLE DUST RECEPTACLE FOR
DUST COLLECTOR****Publication Classification**(51) **Int. Cl.**
A47L 9/14 (2006.01)(52) **U.S. Cl.** **15/347**(57) **ABSTRACT**

A dust collector includes a post extended from a base, a housing disposed on the post, a dust collecting receptacle, a cover coupled to the housing and disposed above the dust collecting receptacle for selectively closing the dust collecting receptacle or for selectively opening the dust collecting receptacle, and an actuating device for selectively actuating the cover to close the dust collecting receptacle, and for selectively moving the cover away from the dust collecting receptacle to open the dust collecting receptacle and to allow the dust collecting receptacle to be moved either away from or toward the base and to allow the dust to be easily dumped or removed from the dust collecting receptacle.

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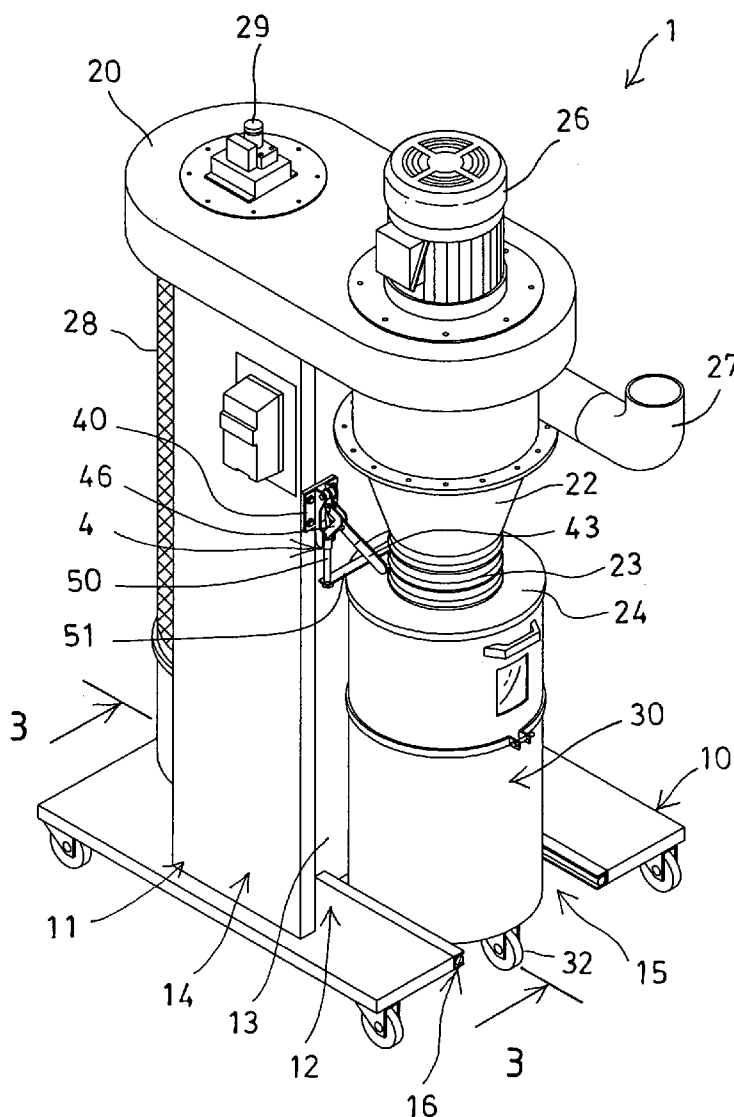
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FIG. 1

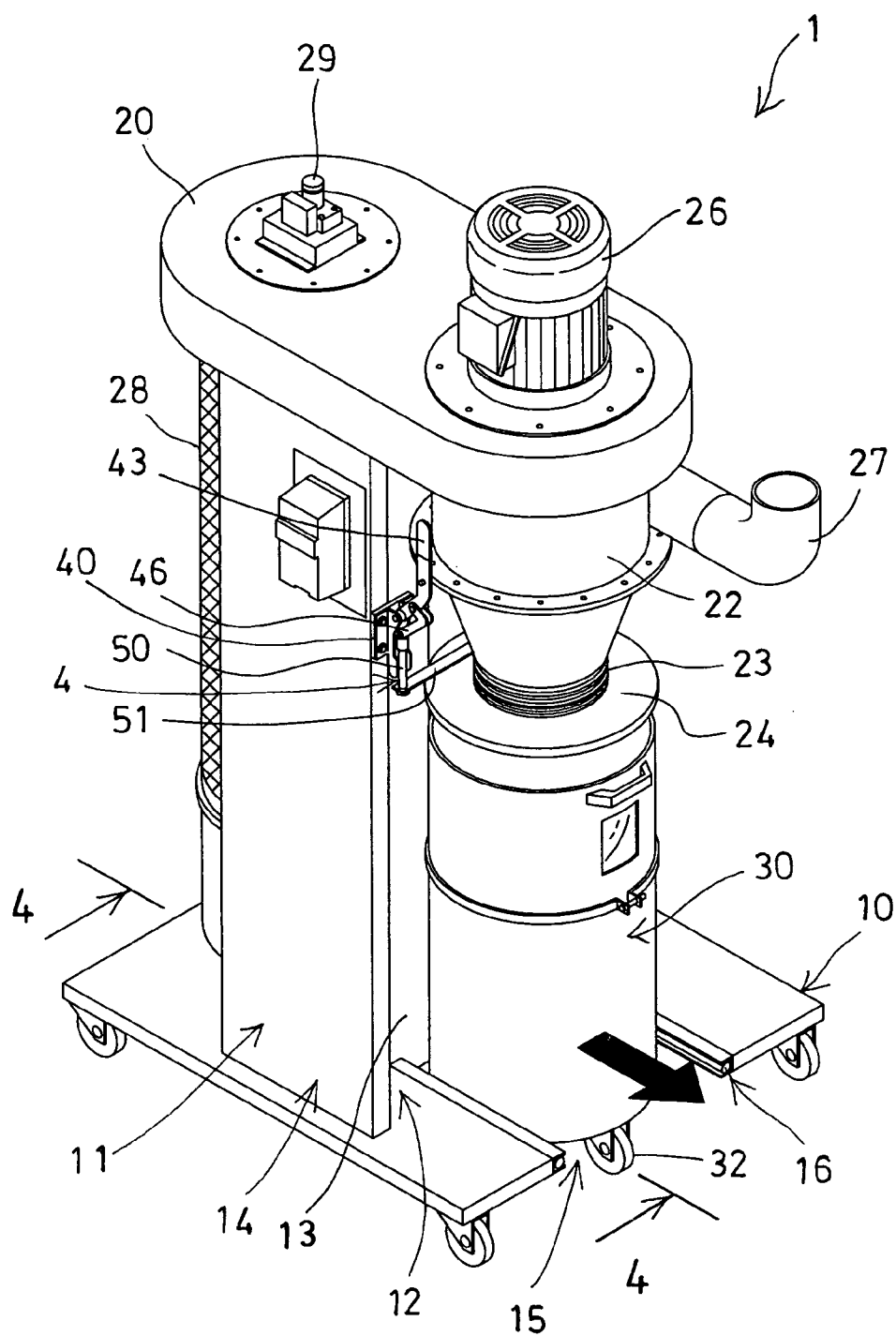


FIG. 2

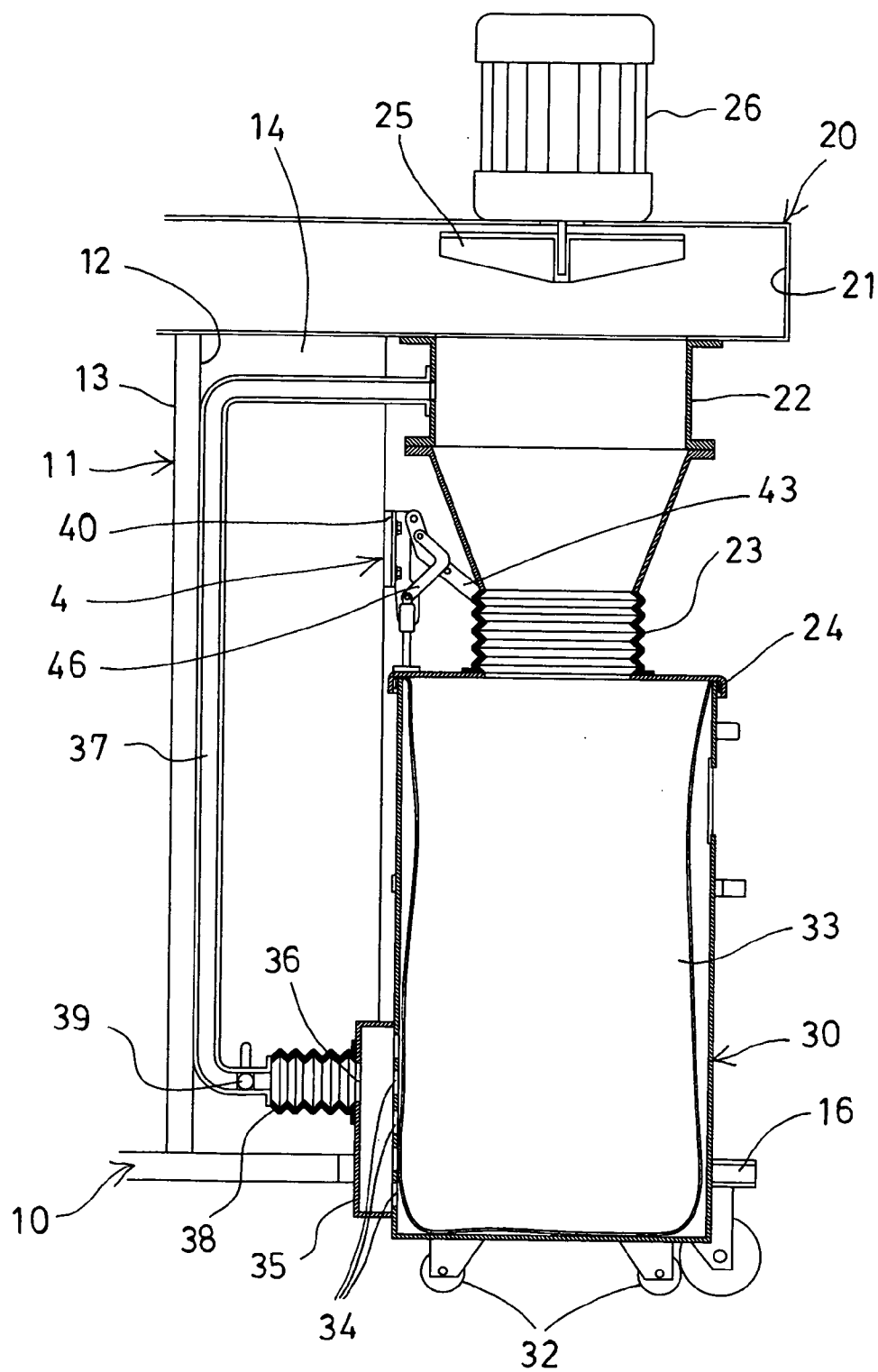


FIG. 3

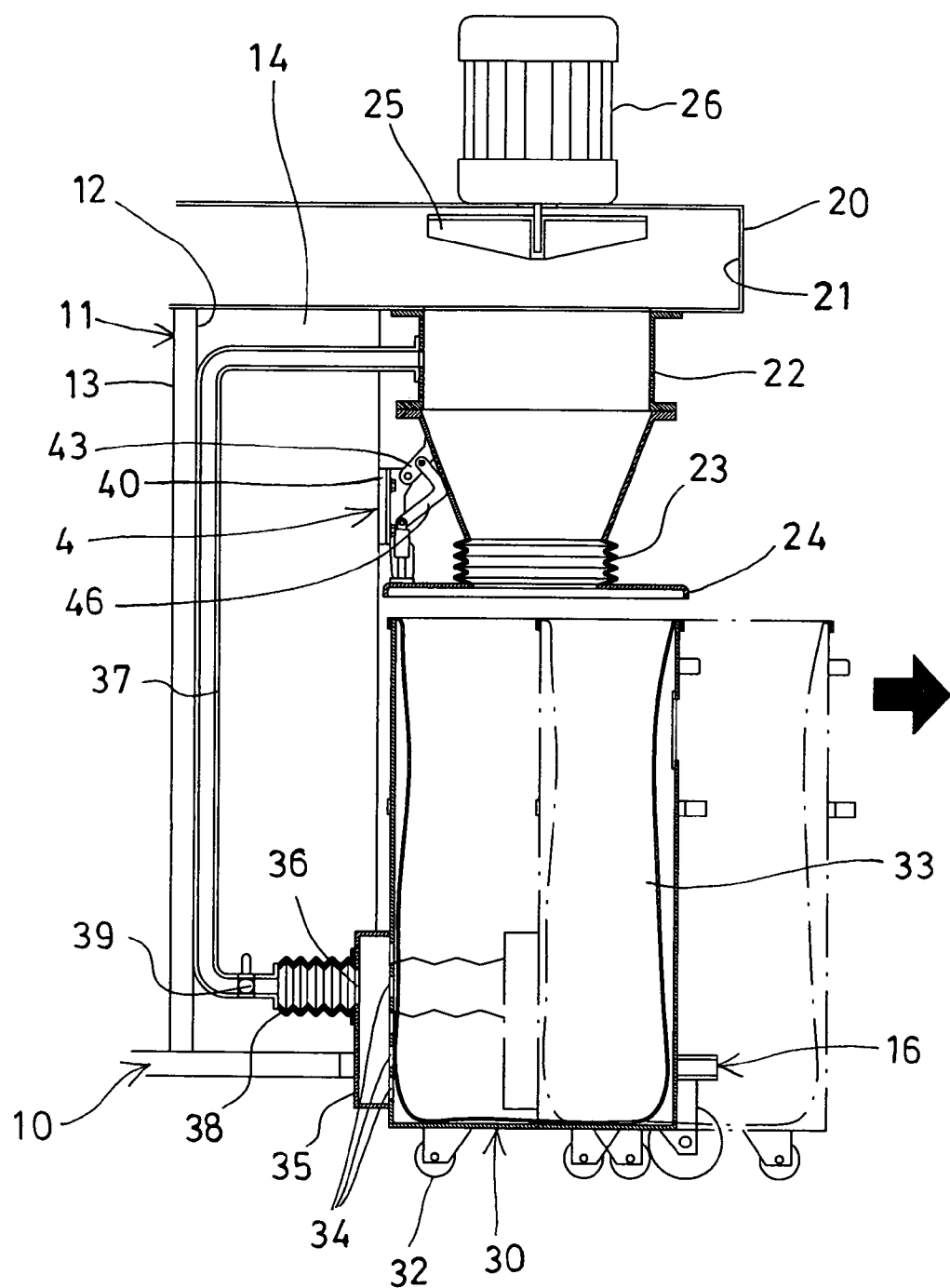


FIG. 4

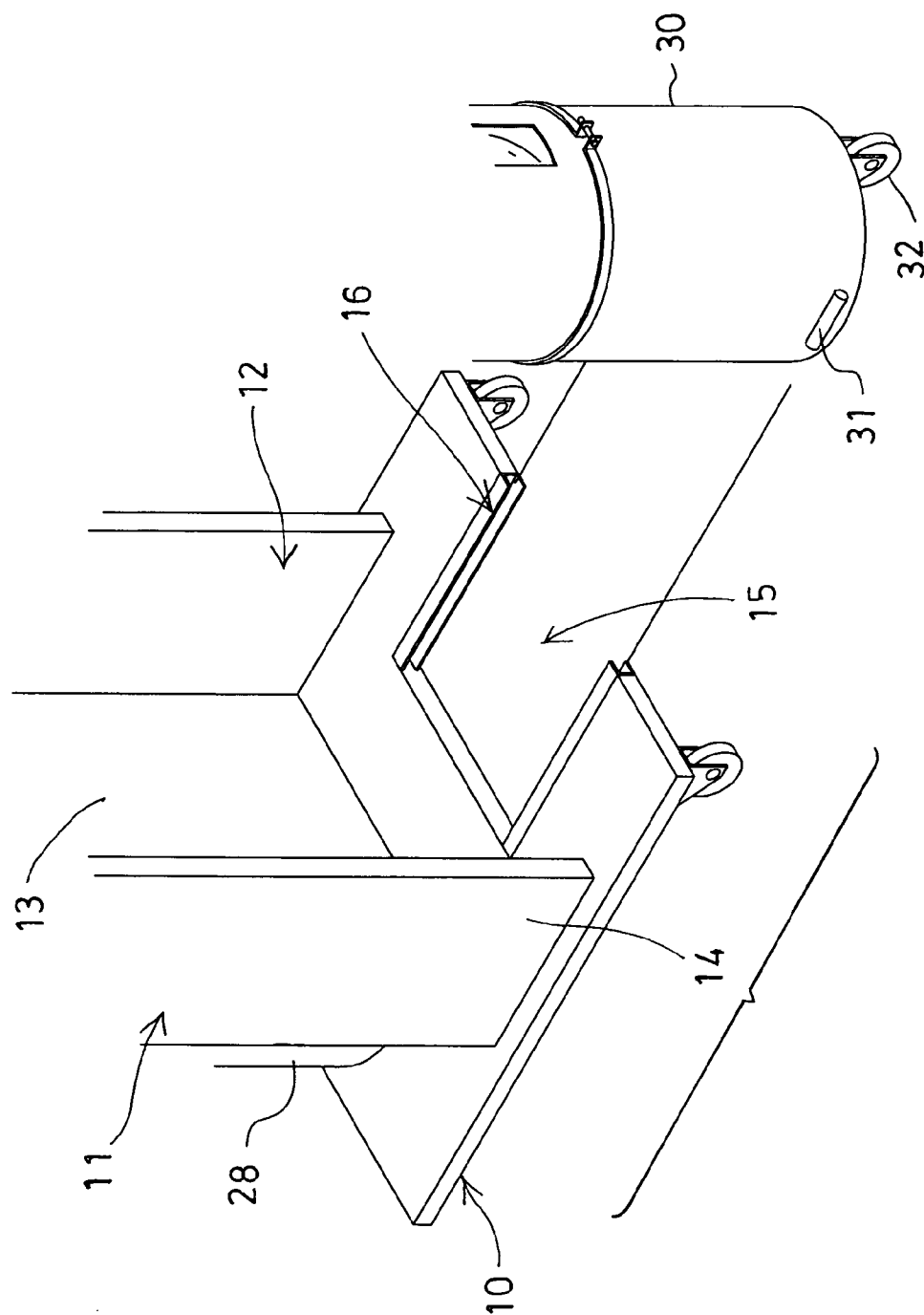


FIG. 5

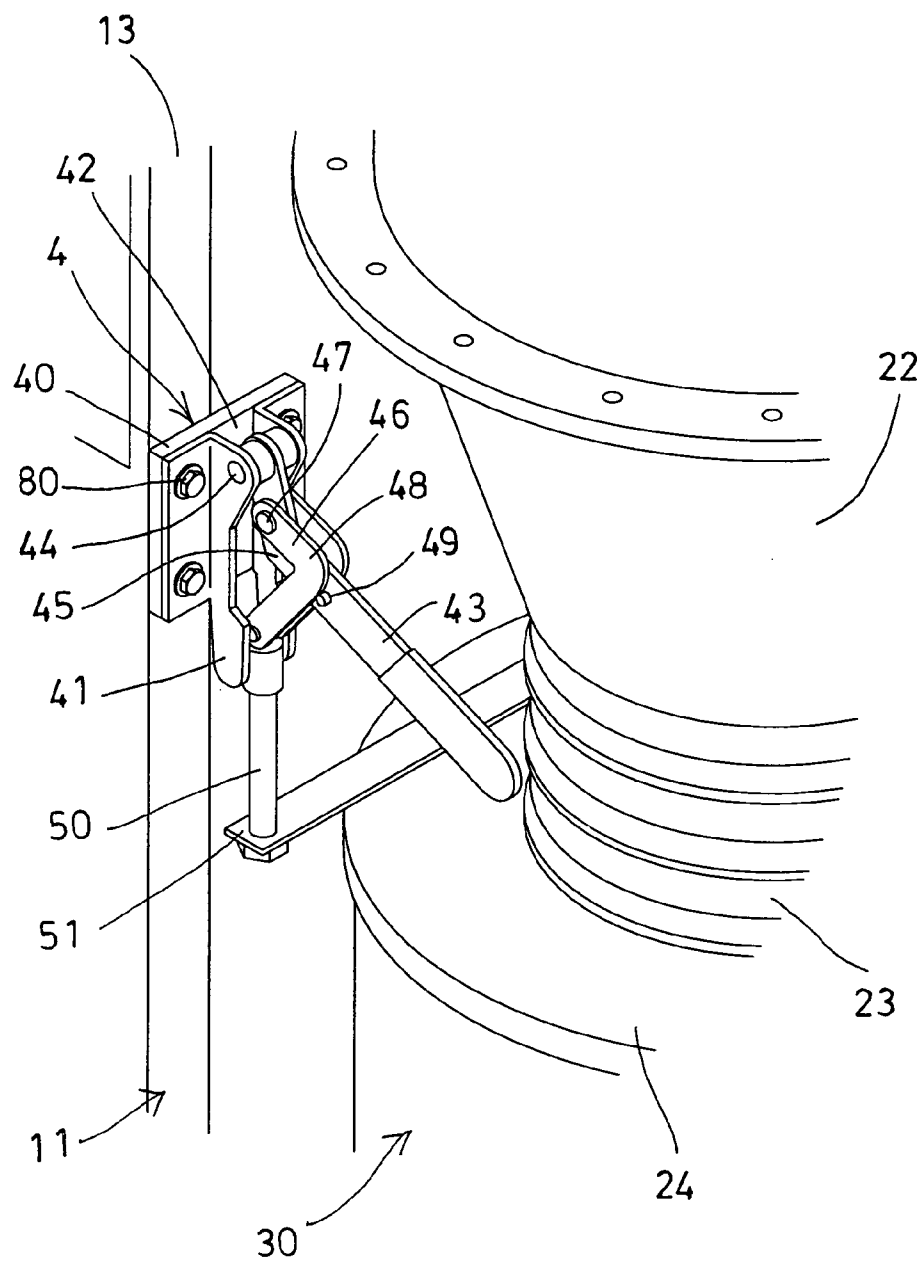


FIG. 6

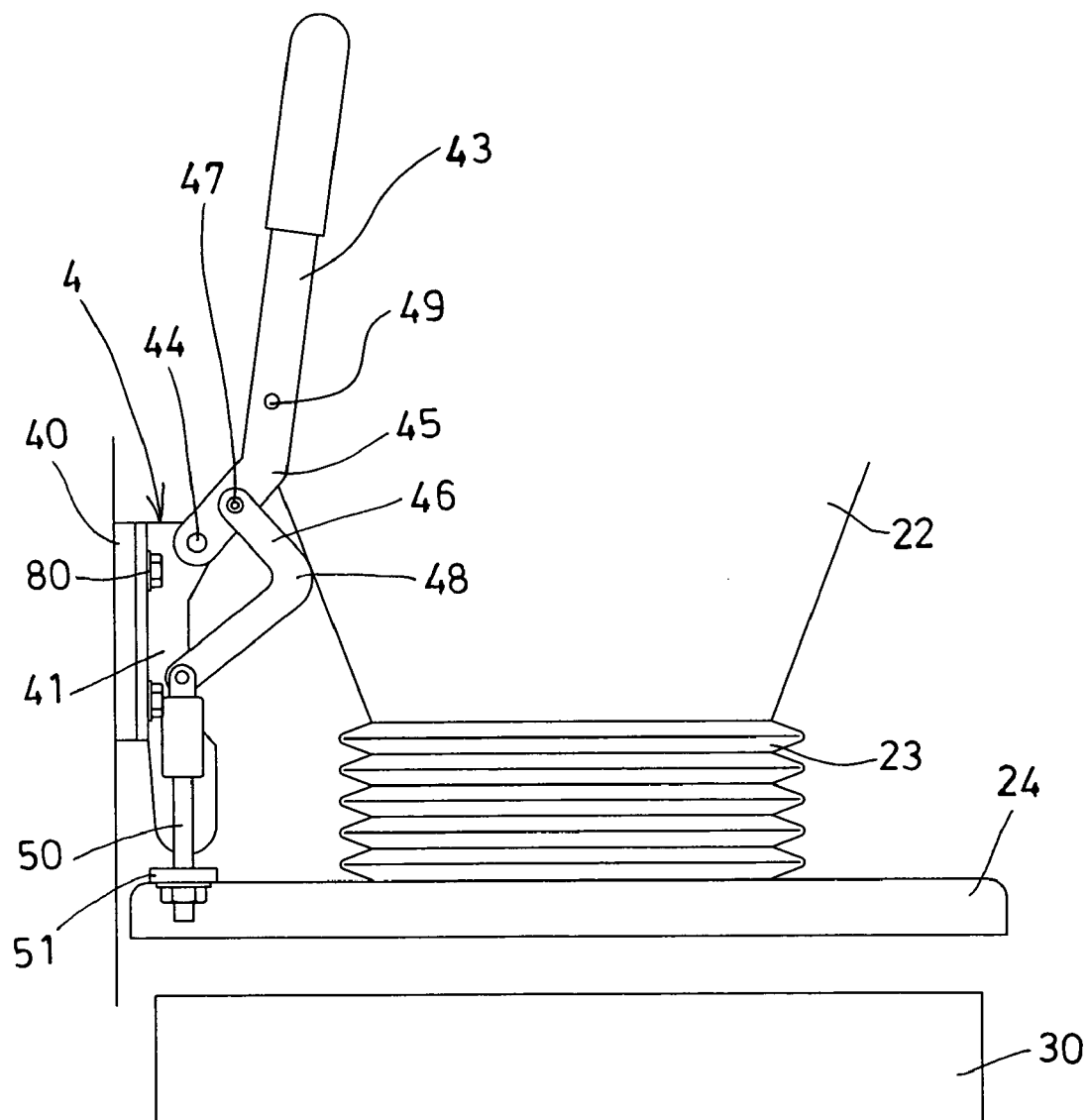


FIG. 7

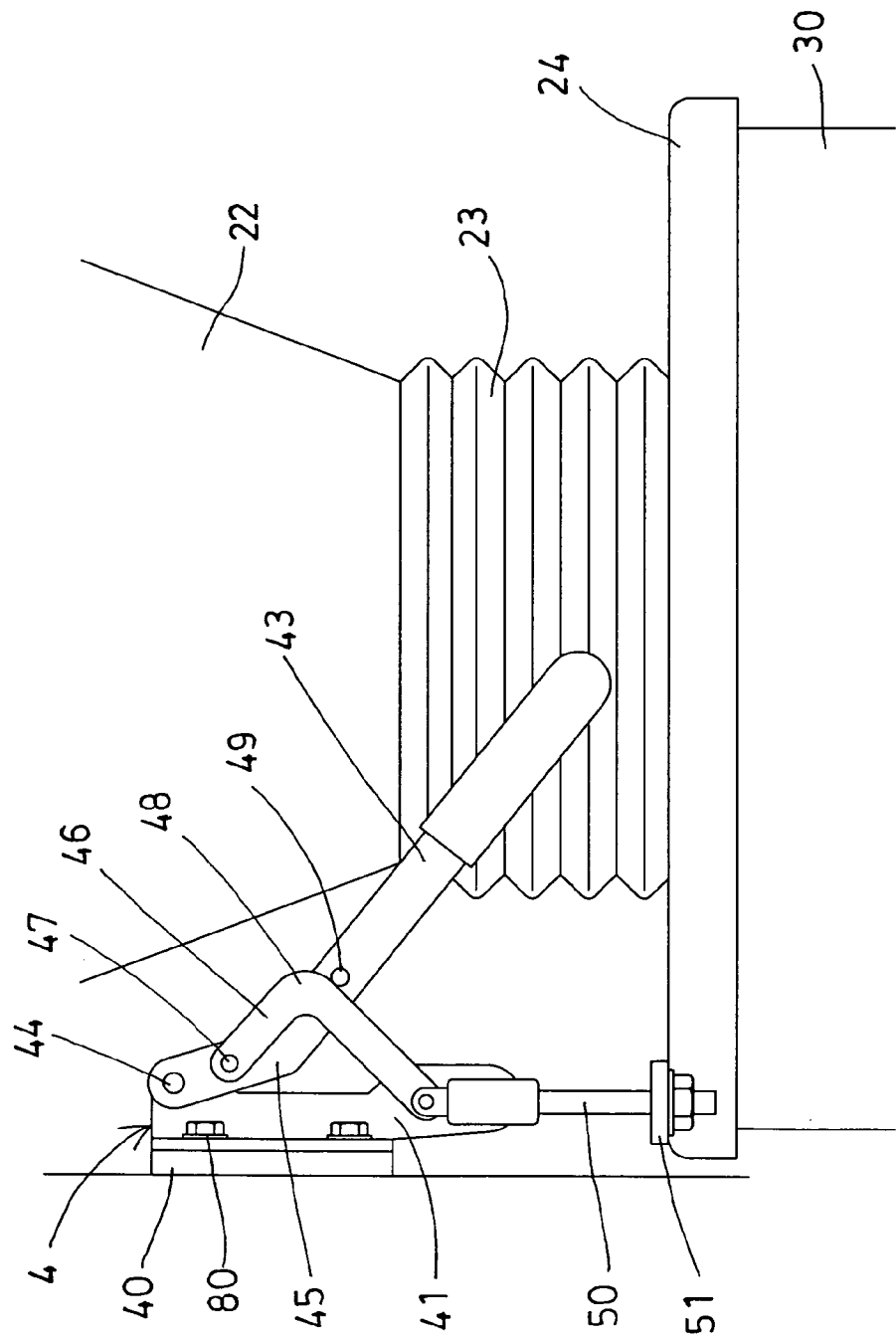


FIG. 8

REMOVABLE DUST RECEPTACLE FOR DUST COLLECTOR

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a vacuum collector or dust collector, and more particularly to a vacuum collector or dust collector having a dust collection barrel or dust collecting receptacle detachably secured to the dust collector for allowing the dust collecting receptacle to be easily removed or disengaged or moved away from the dust collector and for allowing the dust received or collected within the dust collecting receptacle to be easily and quickly cleaned or dumped from the dust collecting receptacle.

[0003] 2. Description of the Prior Art

[0004] Typical vacuum or dust collectors comprise an array of drum filters and a frame disposed in a permanent operative position proximate the array, and a number of longitudinal members operatively disposed on the frame for receiving and filtering and collecting the dirt, and suction nozzles extended from tubes for drawing and collecting the dirt.

[0005] For example, U.S. Pat. No. 7,201,785 to Lin, the present inventor discloses one of the typical vacuum collectors having a dust collection barrel for collecting the dirt or the dust, and having a vacuum device for drawing the dirt or the dust into the dust collection barrel.

[0006] However, after the dirt or dust drawing or collecting operations, or when it is required to clean or dump the dust collection barrel, it will be difficult to remove or disengage or move the dust collection barrel away from the dust collector.

[0007] In addition, no pressing or locking or positioning devices have been provided for pressing or locking or anchoring the cover to the dust collection barrel such that the cover may have a good chance to be disengaged from the dust collection barrel while conducting the vacuuming operations.

[0008] The present invention has arisen to mitigate and/or obviate the afore-described disadvantages of the conventional vacuum or dust collectors.

SUMMARY OF THE INVENTION

[0009] The primary objective of the present invention is to provide a vacuum or dust collector including a dust collection barrel or dust collecting receptacle detachably secured to the dust collector for allowing the dust collecting receptacle to be easily removed or disengaged or moved away from the dust collector and for allowing the dust received or collected within the dust collecting receptacle to be easily and quickly cleaned or dumped from the dust collecting receptacle.

[0010] The other objective of the present invention is to provide a vacuum or dust collector including a manually operated device for selectively securing or anchoring or positioning the dust collecting receptacle to the dust collector.

[0011] In accordance with one aspect of the invention, there is provided a dust collector comprising a base including a post extended upwardly therefrom, a housing disposed on the post, a dust collecting receptacle, a cover coupled to the housing and disposed above the dust collecting receptacle for selectively closing the dust collecting receptacle or for selectively opening the dust collecting receptacle, and an actuating device for selectively actuating the cover to close the dust collecting receptacle, and for selectively moving and disengaging the cover away from the dust collecting receptacle to

open the dust collecting receptacle and to allow the dust collecting receptacle to be moved either away from or toward the base.

[0012] The actuating device includes a bar attached to the cover and moved in concert with the cover, and device for moving the bar and the cover to close the dust collecting receptacle. The moving device includes a handle pivotally attached to the post and coupled to the bar for selectively moving the bar and the cover to close the dust collecting receptacle.

[0013] The moving device includes at least one arm and a link pivotally coupled between the bar and the handle for allowing the bar and the cover to be moved to close the dust collecting receptacle with the handle.

[0014] The handle includes at least one catch extended therefrom for selectively engaging with the arm and for selectively anchoring and positioning the arm and the handle to the plate and the post. The arm may further include a curved portion for engaging with the catch.

[0015] The actuating device includes a plate secured to the post, and the handle is pivotally attached to the post with the plate. The plate includes two flaps secured to the plate for forming a space between the flaps, and the handle is pivotally attached to the flaps with a pivot axle.

[0016] The housing includes a duct extended from the housing and coupled to the cover with a flexible member. The flexible member is preferably a bellows-type flexible member.

[0017] The dust collecting receptacle includes at least one orifice formed therein and coupled to the duct with a pipe, and a dust bag disposed in the dust collecting receptacle. The dust collecting receptacle includes a casing attached to the dust collecting receptacle and having the orifice formed and located within the casing and having an aperture formed in the casing and coupled to the duct with the pipe.

[0018] The pipe is coupled to the casing with a flexible member. The flexible member is also preferably a bellows-type flexible member. The pipe includes a control valve for selectively opening and closing the pipe.

[0019] The base includes an opening formed therein for slidably receiving the dust collecting receptacle. The base includes at least one rail, and the dust collecting receptacle includes at least one anchor for slidably engaging with the rail of the base and for guiding the dust collecting receptacle to slide and to move relative to the base.

[0020] The housing includes a compartment formed in the housing, and a fan device disposed in the compartment of the housing for vacuuming purposes. The housing includes a canister coupled to the housing and communicating with the compartment of the housing for receiving a light weight dust.

[0021] Further objectives and advantages of the present invention will become apparent from a careful reading of the detailed description provided hereinbelow, with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022] FIG. 1 is a perspective view of a vacuum collector in accordance with the present invention;

[0023] FIG. 2 is another perspective view similar to FIG. 1 illustrating the operation of the vacuum collector;

[0024] FIGS. 3, 4 are partial cross sectional views of the vacuum collector taken along lines 3-3, 4-4 of FIGS. 1 and 2 respectively;

[0025] FIG. 5 is a partial exploded view illustrating the operation of the vacuum collector;

[0026] FIG. 6 is an enlarged partial perspective view also for illustrating the operation of the vacuum collector;

[0027] FIGS. 7 and 8 are enlarged partial side plan schematic views illustrating the operation of the vacuum collector.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0028] Referring to the drawings, and initially to FIGS. 1-5, a dust or vacuum collector 1 in accordance with the present invention comprises a base 10 including an upright support or post 11 extended upwardly therefrom, and including a chamber 12 formed in the post 11 and defined by a partition 13 and two side panels 14, and including an opening 15 formed in the base 10 for slidably receiving a dust collection barrel or dust collecting receptacle 30, and including a track or rail 16 formed or provided for on each side of the opening 15 of the base 10. The dust collecting receptacle 30 includes one or more (such as two) side rods or anchors 31 attached thereto or extended laterally and outwardly therefrom (FIG. 5) for slidably engaging with the tracks or rails 16 of the base 10 and for guiding the dust collecting receptacle 30 to slide or to move relative to the base 10.

[0029] The vacuum collector 1 further includes a housing 20 disposed on top of the post 11 and having a compartment 21 formed in the housing 20 (FIGS. 3, 4), a duct 22 attached to or extended downwardly from the housing 20, a bellows-type flexible or foldable or extendible member 23 optionally or selectively attached to the bottom of the duct 22, and a cover 24 attached to the bottom of the extendible member 23 or coupled to the housing 20 and arranged or disposed above the dust collecting receptacle 30 for selectively closing the dust collecting receptacle 30 (FIGS. 1, 3, 6, 8), or for selectively opening the dust collecting receptacle 30 (FIGS. 2, 4, 7) and for allowing the dust collecting receptacle 30 to be guided to slide or to move relative to the base 10 (FIGS. 2, 4, 5). A fan device 25 is disposed or engaged in the compartment 21 of the housing 20 and preferably arranged or disposed above the duct 22 for air drawing or vacuuming purposes.

[0030] For example, an electric vacuum motor or pump 26 is disposed or attached to the upper portion of the housing 20 and coupled to the fan device 25 for rotating or driving the fan device 25 to vacuum or to draw the dust or dirt or fume into the compartment 21 of the housing 20. For example, the housing 20 includes a hose 27 (FIGS. 1, 2) for coupling to trunks or duct arms or nozzles (not shown) or the like, and for directing toward the dust or dirt or fume to be collected, in order to vacuum or to draw the dust or the dirt or the fume through the hose 27 and then into the compartment 21 of the housing 20. The larger dirt or particles may be dropped into and collected within the dust collecting receptacle 30. As shown in FIGS. 1 and 2, a filter canister 28 may further be provided and attached or coupled to the housing 20 and communicating with the compartment 21 of the housing 20 for receiving and collecting the light weight dust or dirt.

[0031] Another motor or motor driving device 29 may further be provided and attached or disposed on the housing 20, and preferably arranged or disposed above the filter canister 28, and coupled to a stirring or sweeping or dust removing device (not shown) which is disposed in the filter canister 28 and a filter member that is also disposed in the filter canister 28, for sweeping the dust or the dirt from the filter member and for allowing the dust or the dirt to be easily removed from

the filter member and/or to be easily collected within the filter member, in which the dust removing device is not related to the present invention and will not be described in further details, and the dust removing device has been filed and claimed in the other co-pending US patent applications which may be taken as references for the present invention.

[0032] A manually operated pressing or actuating means or device 4 is further provided and coupled to the cover 24 for selectively moving or actuating the cover 24 to close the dust collecting receptacle 30 (FIGS. 1, 3, 6, 8), or for selectively moving or disengaging the cover 24 away from the dust collecting receptacle 30 to open the dust collecting receptacle 30 (FIGS. 2, 4, 7). For example, the actuating means or device 4 includes a bracket or plate 40 attached or disposed or secured to the post 11 with one or more fasteners 80, one or more (such as two) flaps 41 extended from the plate 40 or secured to the plate 40 with the fasteners 80 and preferably arranged parallel to each other for forming a space 42 between the flaps 41. An actuating arm or handle 43 has one end pivotally attached or secured to the post 11 or the plate 40 or the flaps 41 with a pivot axle 44 for allowing the handle 43 to be rotated relative to the plate 40 or the flaps 41.

[0033] It is preferable, but not necessarily that the handle 43 includes a bent portion 45 for allowing the handle 43 to be easily operated or rotated relative to the plate 40 or the flaps 41 by the users. One or more (such as two) arms 46 include an upper portion rotatably or pivotally attached or secured to the middle portion of the handle 43 and spaced from the pivot axle 44 for allowing the arms 46 to be moved up and down relative to the plate 40 or the post 11 with the handle 43 by the users. A link 50 is pivotally attached or secured to the lower portion of the arms 46, and a pressing bar 51 is attached or secured to the cover 24 and moved in concert with the cover 24 and pivotally attached or secured to the lower portion of the link 50 for allowing the cover 24 and the bar 51 and the link 50 to be moved up and down relative to the plate 40 or the post 11 with the handle 43 by the users. The handle 43 and the arms 46 and the link 50 may be formed and acted as a moving means for moving the cover 24 to close the dust collecting receptacle 30.

[0034] It is further preferable that the arms 46 each include a bent or curved middle portion 48, and the handle 43 includes one or more (such as two) projections or catches 49 extended laterally and outwardly therefrom (FIGS. 6-8) for selectively engaging with the bent or curved middle portions 48 of the arms 46 and for selectively anchoring or positioning the arms 46 and the handle 43 to the plate 40 and the post 11 (FIGS. 6 and 8) and for securing or positioning or retaining the cover 24 in engagement with the dust collecting receptacle 30 or in closing the dust collecting receptacle 30. The catches 49 may be forced to move over the bent or curved middle portions 48 of the arms 46 with the handle 43 and to selectively open the dust collecting receptacle 30 when it is required to clean or dump the dust collecting receptacle 30 or when it is required to disengage the dust from the dust collecting receptacle 30. The dust collecting receptacle 30 may include two or more wheels 32 for moving the dust collecting receptacle 30 away from or toward the base 10.

[0035] In operation, as shown in FIGS. 1, 3, 6, 8, when the dust collecting receptacle 30 has been moved into the opening 15 of the base 10, the cover 24 may be moved and forced downwardly to engage with and to cover or seal the dust collecting receptacle 30 the handle 43, and thus to stably position or to retain the dust collecting receptacle 30 to the

base 10 and to prevent the dust collecting receptacle 30 from being disengaged or moved away from the base 10. On the contrary, when it is required to clean or dump the dust collecting receptacle 30 or when it is required to disengage the dust from the dust collecting receptacle 30, the handle 43 may move the cover 24 and the bar 51 and the link 50 up relative to the plate 40 or the post 11 to disengage the cover 24 from the dust collecting receptacle 30 and to open the dust collecting receptacle 30 (FIGS. 2, 4, 7).

[0036] As shown in FIGS. 3 and 4, the dust collecting receptacle 30 may further include a dust bag 33 selectively engageable into the dust collecting receptacle 30, and includes one or more orifices 34 formed in the outer peripheral portion of the dust collecting receptacle 30 and preferably disposed or located in the lower portion of the dust collecting receptacle 30, and includes a casing 35 attached or secured to the dust collecting receptacle 30 and having the orifices 34 formed and located within the casing 35 and having an aperture 36 formed and provided in the casing 35, and includes a manifold or pipe 37 coupled to the duct 22 and coupled to the aperture 36 of the casing 35 with another a bellows-type flexible or foldable or extendible member 38 for allowing the dust collecting receptacle 30 to be disengaged or moved away from the base 10 as shown in dotted lines in FIG. 4. A control valve 39 may be provided and attached or coupled to the pipe 37 for selectively opening or closing the pipe 37.

[0037] In operation, as shown in FIG. 3, when a dust bag 33 is selectively engaged into the dust collecting receptacle 30 and when the control valve 39 or the pipe 37 is opened, the fan device 25 may partially draw the air through the pipe 37 in order to vacuum or to draw the dust bag 33 toward or against the inner peripheral portion of the dust collecting receptacle 30 and thus for allowing the dust bag 33 to suitably collect the dust or the dirt. When no dust bag 33 is engaged into the dust collecting receptacle 30, the control valve 39 or the pipe 37 should be closed for preventing the dust or the dirt in the dust collecting receptacle 30 from being drawing into the pipe 37.

[0038] Accordingly, the vacuum collector in accordance with the present invention includes a dust collection barrel or dust collecting receptacle detachably secured to the dust collector for allowing the dust collecting receptacle to be easily removed or disengaged or moved away from the dust collector and for allowing the dust collected within the dust collecting receptacle to be easily and quickly cleaned or dumped from the dust collecting receptacle, and includes a manually operated device for selectively securing or anchoring or positioning the dust collecting receptacle to the dust collector.

[0039] Although this invention has been described with a certain degree of particularity, it is to be understood that the present disclosure has been made by way of example only and that numerous changes in the detailed construction and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

I claim:

1. A dust collector comprising:
 - a base including a post extended upwardly therefrom,
 - a housing disposed on said post,
 - a dust collecting receptacle,
 - a cover coupled to said housing and disposed above said dust collecting receptacle for selectively closing said dust collecting receptacle or for selectively opening said dust collecting receptacle, and

an actuating means for selectively actuating said cover to close said dust collecting receptacle, and for selectively moving and disengaging said cover away from said dust collecting receptacle to open said dust collecting receptacle and to allow said dust collecting receptacle to be moved either away from or toward said base.

2. The dust collector as claimed in claim 1, wherein said actuating means includes a bar attached to said cover and moved in concert with said cover, and means for moving said bar and said cover to close said dust collecting receptacle.

3. The dust collector as claimed in claim 2, wherein said moving means includes a handle pivotally attached to said post and coupled to said bar for selectively moving said bar and said cover to close said dust collecting receptacle.

4. The dust collector as claimed in claim 3, wherein said moving means includes at least one arm and a link pivotally coupled between said bar and said handle for allowing said bar and said cover to be moved to close said dust collecting receptacle with said handle.

5. The dust collector as claimed in claim 4, wherein said handle includes at least one catch extended therefrom for selectively engaging with said at least one arm and for selectively anchoring and positioning said at least one arm and said handle to said plate and said post.

6. The dust collector as claimed in claim 5, wherein said at least one arm includes a curved portion for engaging with said at least one catch.

7. The dust collector as claimed in claim 3, wherein said actuating means includes a plate secured to said post, and said handle is pivotally attached to said post with said plate.

8. The dust collector as claimed in claim 7, wherein said plate includes two flaps secured to said plate for forming a space between said flaps, and said handle is pivotally attached to said flaps with a pivot axle.

9. The dust collector as claimed in claim 1, wherein said housing includes a duct extended from said housing and coupled to said cover with a flexible member.

10. The dust collector as claimed in claim 9, wherein said flexible member is a bellows-type flexible member.

11. The dust collector as claimed in claim 1, wherein said housing includes a duct extended from said housing, said dust collecting receptacle includes at least one orifice formed therein and coupled to said duct with a pipe, and a dust bag disposed in said dust collecting receptacle.

12. The dust collector as claimed in claim 11, wherein said dust collecting receptacle includes a casing attached to said dust collecting receptacle and having said at least one orifice formed and located within said casing and having an aperture formed in said casing and coupled to said duct with said pipe.

13. The dust collector as claimed in claim 12, wherein said pipe is coupled to said casing with a flexible member.

14. The dust collector as claimed in claim 13, wherein said flexible member is a bellows-type flexible member.

15. The dust collector as claimed in claim 11, wherein said pipe includes a control valve for selectively opening and closing said pipe.

16. The dust collector as claimed in claim 1, wherein said base includes an opening formed therein for slidably receiving said dust collecting receptacle.

17. The dust collector as claimed in claim 16, wherein said base includes at least one rail, and said dust collecting receptacle includes at least one anchor for slidably engaging with

said at least one rail of said base and for guiding said dust collecting receptacle to slide and to move relative to said base.

18. The dust collector as claimed in claim **1**, wherein said housing includes a compartment formed in said housing, and a fan device disposed in said compartment of said housing for vacuuming purposes.

19. The dust collector as claimed in claim **18**, wherein said housing includes a canister coupled to said housing and communicating with said compartment of said housing for receiving a light weight dust.

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