June 24, 1941. J. L. SUMMERSON 2,247,103

DUST RECEPTACLE FOR SUCTION CLEANERS

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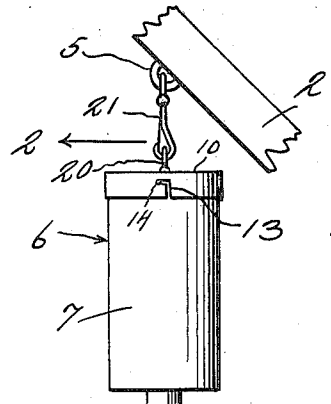


Fig. 1

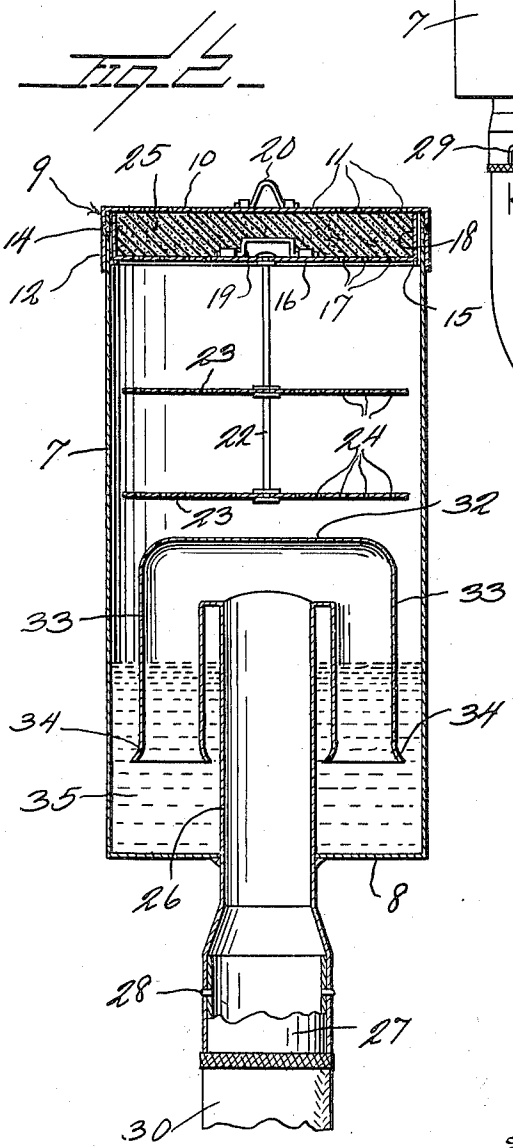
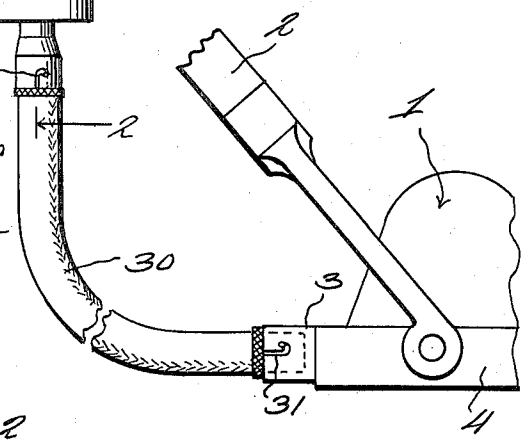


Fig. 2



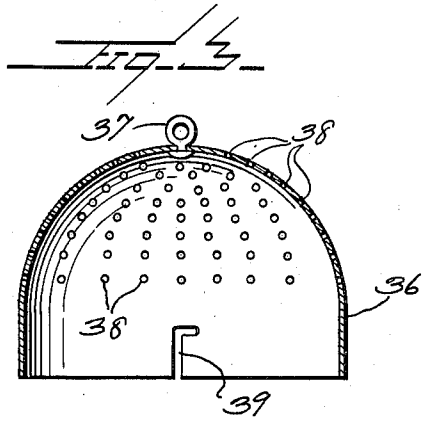


Fig. 3

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DUST RECEPTACLE FOR SUCTION CLEANERS

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2 Claims. (Cl. 183—15)

This invention relates generally to the class of cleaning devices and pertains particularly to an improved dust receiving receptacle for vacuum or suction cleaning machines.

The present invention has for its primary object to provide a dust receiving receptacle for a vacuum cleaning machine wherein means is provided for washing dust from the air, in which the dust picked up by the machine is carried, thereby not only preventing the escape of any of such dust from the dust receiving receptacle but washing and purifying the dust-carrying air before it is returned to the room.

Another object of the invention is to provide an improved dust receiving receptacle in which dust-carrying air is discharged under water and which is provided with a filter unit through which the air must pass before returning to the room, which functions to effectively remove any foreign matter which might be returned to the air from the receptacle.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding, however, that the invention is not to be confined to any strict conformity with the showing of the drawing but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:

Fig. 1 illustrates the device embodying the present invention, in side elevation and showing the same connected with the air discharge pipe or hose of a vacuum cleaner, portions of which machine are shown.

Fig. 2 is a vertical section through the dust receptacle on the line 2—2 of Fig. 1.

Fig. 3 illustrates a sectional view of a modification of the cover for the dust receptacle.

Referring now more particularly to the drawing, the numeral 1 generally designates a portion of a vacuum cleaning machine having a handle 2 and showing the outlet 3 leading from the fan chamber 4.

In carrying out the present invention, use is made of the usual eye 5 which is attached to the machine handle for the support of one end of the usual dust receiving bag, but in the present case the dust receiving receptacle consists of a container of metal or other impervious material which is indicated generally by the numeral 6. This container is preferably of cylindrical form having a side wall 7 of substantial height, a bottom wall 8 and a removable top or closure 9 over the upper end. In the form of the invention shown in Fig. 2, this closure 9 consists of a disk-like portion 10 having a plurality of air escape apertures 11 therethrough and having a flange or skirt portion 12 provided with a recess or slot 13 for the reception of keeper lugs 14 which are formed integral with or pressed from the wall 7 of the receptacle. The slot 13 is in the form of the well-known bayonet slot which facilitates connecting the cover or closure 9 with the top of the receptacle in such manner that it cannot be accidentally disengaged but may be readily positively uncoupled when necessary.

Within the receptacle just below the open top thereof there is secured the annular flange 15 upon which rests a shallow receptacle having a bottom plate 16 provided with numerous small apertures 17 and a vertical side wall 18. At the central part of this shallow receptacle is a pivoted bail or handle 19 which may normally be laid down upon the bottom 16 but is here shown as being in raised position. The cover 9 is likewise provided with a handle or an eye 20 at its central part by means of which it may be connected with a swivel hook 21 which is attached to the eye 5 carried by the machine handle.

Secured to the center of the bottom of the shallow receptacle is a depending stem 22 which passes through the center of and supports in vertically spaced relation two or more baffle disks 23, each of which is provided with a plurality of apertures 24. These disks are of a diameter which will permit them to be readily introduced into the receptacle past the supporting flange 15 upon which the shallow receptacle bottom 16 rests.

Within the shallow receptacle and filling the same is a body 25 of sponge rubber or other suitable material of a similar form or construction.

Extending through the bottom 8 of the main receptacle and on the longitudinal center of the latter is an inlet pipe 26, the major portion of which is disposed within the receptacle while the portion lying outside thereof is of enlarged diameter at its end to receive a coupling sleeve 27 which carries pins 28 which are engageable in the bayonet-type slots 29, the inner ends of which are here shown as being curved slightly so that such slots assume substantially the form of the letter J in inverted position. This cou-

pling sleeve 27 is secured in one end of a flexible tube 30, the other end of which tube is attached by a similar coupling 31 with the outlet 3 of the machine fan housing.

Within the main receptacle 6, the upper end of the inlet pipe 26 is joined to the transverse tubular head 32, at each of the two ends of which head there are formed the right angularly extending downwardly directed tubes 33, the diameters of which are slightly less than the diameter of the head 32. Each of these tubes 33 is enlarged or flared at its outlet end, as indicated at 34. The conduit or passage through which dust-laden air is introduced into the receptacle 6 is thus in the form substantially of the letter T at the outer end of each of the arms of which the depending tubes 33 are located, and in using the present device, the same is partially filled with water, as indicated at 35, the level of the water being kept well below the upper end of the pipe 26, so that it cannot rise in the tubes 33 and flow back through the pipe 26 into the tube 30. With this arrangement, it will be seen that as dust-carrying air is driven back through the tube 30, it will flow downwardly in the receptacle 6 through the tubes 33 and mix with the water 35, bubbling up through the water and passing through the apertures of the baffle plates 33, the apertures of the bottom 16 of the shallow receptacle and through the spongy body 25 to escape to the atmosphere through the apertures 11 in the cover 9. The dust and dirt will be washed out by the water 35 but if, as a result of the agitation of the water, any particles are carried by the air current upwardly in the receptacle 6, they will be intercepted by the baffles 23 or by the spongy body 25 through which the air must pass before leaving the receptacle.

In Fig. 3, a slight modification of the receptacle cover is shown. In this modified form, the cover is in the shape of a dome or bell indicated generally by the numeral 36 and having at its top an eye 37 by which it may be suspended from the eye 5 through the medium of the hook 21 and provided with numerous small apertures 38 for the escape of air. The lower edge of this form of cover is provided with a pair of bayonet slots 39, one only of which is here shown, for connection with the keeper lugs 14 at the top of the receptacle 6.

What is claimed is:

1. A dust receiver of the character stated, comprising a vertically disposed cylindrical receptacle having an open top, an air strainer unit closing said open top, a pipe extending upwardly through the lower part of the receptacle, the receptacle being designed to contain a fluid and said pipe having its upper end disposed in the receptacle above the level of the fluid therein, means at the lower end of the pipe facilitating the attachment of an air carrying hose thereto, a tubular transverse head upon the upper end of the pipe within the receptacle and communicating with the pipe, tubes coupled with said head and leading downwardly therefrom and having their lower ends disposed below the level of the fluid for the discharge of air thereinto, a stem connected with and hanging downwardly within the receptacle from said unit, and vertically spaced baffle plates carried by said stem and disposed between said head and said strainer unit.

2. A dust receiver of the character stated, comprising a vertically disposed cylindrical receptacle having an open top, an air strainer unit closing said open top, a pipe extending upwardly through the lower part of the receptacle, the receptacle being designed to contain a fluid and said pipe having its upper end disposed in the receptacle above the level of the fluid therein, means at the lower end of the pipe facilitating the attachment of an air carrying hose thereto, a tubular transverse head upon the upper end of the pipe within the receptacle and communicating with the pipe, tubes coupled with said head and leading downwardly therefrom and having their lower ends disposed below the level of the fluid for the discharge of air thereinto, said strainer unit consisting of a shallow receptacle having an apertured bottom, a body of sponge rubber filling the shallow receptacle, and an apertured cover overlying the body of sponge rubber and detachably connected with the first-mentioned receptacle.

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