June 21, 1932. F. M. SCHNEIDER 1,863,883

SUCTION CLEANER GERM DESTROYING DEVICE

Filed July 13, 1928

Fig. 1.

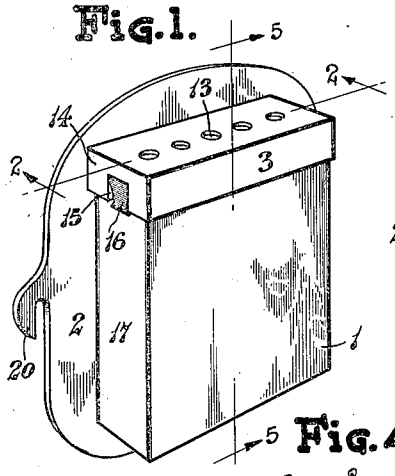


Fig. 2.

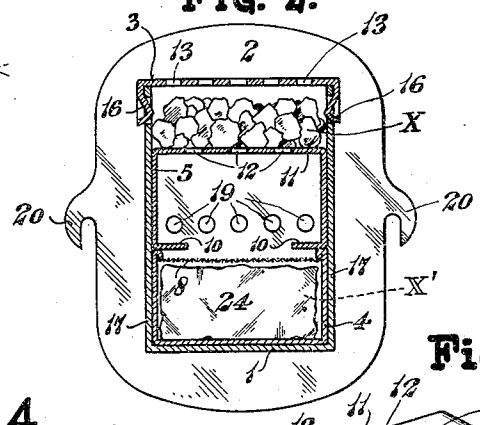


Fig. 3.

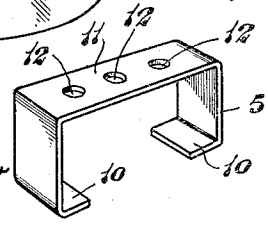


Fig. 4.

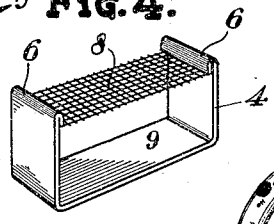


Fig. 5.

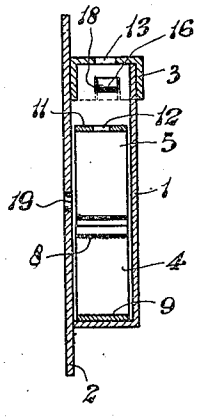


Fig. 6.

Fig. 7.

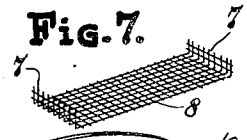
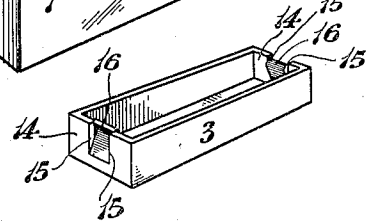


Fig. 8.

Fig. 9.



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1,863,883

UNITED STATES PATENT OFFICE

FRANK M. SCHNEIDER, OF MOUNT HEALTHY, OHIO

SUCTION CLEANER GERM DESTROYING DEVICE

Application filed July 13, 1928. Serial No. 292,424.

My invention relates to a new means of destroying germs in homes, offices, lodge rooms, auditoriums, churches, schools and elsewhere, and my invention relates more particularly to the receptacle which carries the germicide used in destroying said germs.

It is a well-known fact that the dust and dirt collected from carpets and forced into the dust bag of the sweeper are laden with disease producing germs. It is also a well-known fact that no vacuum sweeper has yet been produced which takes up or collects all of the impurities and foreign matter, including the germs contained in the carpet. I have, therefore, produced means by which the collected germs, as well as germs remaining in the carpet, will be destroyed by the use of my invention.

The object of my invention is to provide a simple and efficient germicide receptacle or container adapted to be readily detachably mounted upon an electric or other vacuum sweeper and to cooperate therewith for the purpose of destroying germs collected by the sweeper and forced into the dust bag thereof, as well as destroying other germs in the room and for purifying the air of the room generally.

My invention consists in providing a receptacle containing germicide (injurious to germs and beneficial to people) and in detachably mounting it upon a vacuum sweeper in such a manner that when the vacuum sweeper is in action air will be drawn through the receptacle in which it is thoroughly mixed and saturated with the germicide and is then forced into the dust bag from which it is strained into and permeates the room where it will kill germs carried into the bag from the carpet with the dust and dirt and will thoroughly purify the air of the room.

My invention further consists in the construction, combination, location and arrangement of parts as herein set forth and claimed.

In the drawing:

Fig. 1 is a perspective view of the invention;

Fig. 2 is a front elevation partly in section on the line 2—2 of Fig. 1;

Fig. 3 is a perspective view of the angular shell;

Fig. 4 is a perspective view of the screen and screen support;

Fig. 5 is a vertical cross section taken on a plane corresponding to line 5—5 of Fig. 1;

Fig. 6 is a perspective view of my invention shown installed upon an electric vacuum sweeper;

Fig. 7 is a perspective view of the screen;

Fig. 8 is a perspective view of the casing and plate, part of the casing being broken away to more clearly show the openings 19 in the plate;

Fig. 9 is a bottom perspective view of the casing lid; and

Fig. 10 is a perspective view of the lower front portion of the sweeper shown in Fig. 6, with the attachment omitted.

In the embodiment of my invention as illustrated and which shows a preferred construction, I provide a germicide receptacle compartment or container formed by casing walls 1, which is preferably of rectangular formation and forms an integral part of plate 2, or may be spotwelded or soldered thereto. One end of casing 1 is open (Fig. 8) through which to receive the parts illustrated in Figs. 3 and 4, and the germicide, as illustrated in Fig. 2. This opening is adapted to be closed by lid 3.

Screen support 4 (Fig. 4) is approximately of a width suitable for entering and closely fitting casing 1 (Fig. 2) and forms a support for angular shell 5 (Fig. 3). Screen support 4 has its upper ends bent over at 6 to engage and hold the upturned edges 7 of screen 8 (Fig. 7), permanently clamped thereon, said screen being thereby spaced apart from and above the flat portion 9 of support 4.

The outer ends of angular shelf 5 are bent or turned inwardly to form feet 10 (Fig. 3) and the top flat portion 11 of said shelf is provided with passages 12. Lid 3 is also provided with a plurality of passages or ingress openings 13, as shown in Figs. 1, 2 and 5, respectively, and the ends 14 of said lid are slit at 15 and the portions between said slits are bent to form spring snaps 16 (Fig. 9).

Each side wall 17 of casing 1 is provided with slot 18 near its upper end for the purpose of receiving holding snaps 16 of lid 3, as clearly shown in Fig. 2.

Plate 2 is provided with a plurality of egress openings or passages 19, located approximately midway of casing 1, and within the limits of walls 17, as clearly shown in Fig. 2. Said plate 2 is also provided with suitable attaching means such, for example, as ears 20 (Fig. 2) whereby the receptacle can be readily detachably mounted over the suction cleaner auxiliary opening or air-inlet 21 upon headed studs 22 (Fig. 10) or other suitable attaching means of an electric sweeper 23 having the usual nozzle or inlet, as illustrated in Fig. 6.

In carrying my invention into effect I have chosen a vacuum sweeper of the electric type, such as 23, upon which to install my device, but I do not wish to be understood as limiting myself to this embodiment as various other apparatus such as electric fans, may be employed with satisfactory results.

The chemicals or volatile reagent used in my germ destroying device may consist of crystals and liquid, or either, and may comprise materials which are well known germicides and which are detrimental to moths and other insects.

If it is desired to use a liquid chemical I prefer to employ an absorbing member 24, such as felt, cotton, a small sponge, or the like, which member may be received by screen support 4 between screen 8 and the flat portion 9 of said support, as clearly illustrated in Fig. 2.

If part, or all, of the chemical germicide is composed of crystals, said crystals may be placed upon the flat portion 11 of angular shelf or bracket 5, as clearly illustrated in Fig. 2. The chemicals used, however, may be of any desired ingredients and may be used in either liquid or crystal form, or both, as desired. If crystals only are used they may be placed, as shown in Fig. 2, and if desired additional crystals may be placed beneath the screen 8. If liquid only is used it may be poured through the openings 13 and 12 and screen 8 upon the absorbent material within the bottom of the receptacle.

When it is desired to use the device as illustrated in Fig. 2, insert the necessary absorbent material between screen 8 and bottom 9 of screen support 4 and insert it in the bottom of the receptacle; then pour in a quantity of the liquid and thoroughly saturate the absorbent material therewith; then place shelf 5 upon top thereof and insert the crystals upon top of said shelf, snapping lid 3 into position thereon, all as shown in Fig. 2. The device is then ready to be applied to the sweeper, as shown in Fig. 6.

The electric motor of the vacuum sweeper operates to dislodge the foreign particles, including germs contained in the carpet, and the fan, also operated by the motor produces suction and force which carries the dust, dirt and germs into the bag 25 of the sweeper, the air for this purpose being drawn by the fan through passages 13, crystals X, passages 12 and over the liquid chemicals X', thereby absorbing the volatile portions of the crystal chemicals and the liquid chemicals, thus producing a vapor or saturated moist air which is thoroughly impregnated by the germicide and in this condition it passes, by suction of the fan, into the dust bag 25 where it thoroughly commingles with the contents and kills living organisms and is forced outwardly and strained through the mesh bag which serves as a screen to retain all impurities, but permits a portion of the mixture of air and chemicals to escape and thoroughly permeate and fumigate the room in which the device is being used.

While my invention is particularly adapted for use in connection with vacuum sweepers it may also be used in connection with any apparatus which will create a suction and draw the outside air through the receptacle containing the germicide for distribution wherever required.

An advantage of this invention is that a device of this character may be cheaply and economically manufactured and sold at a nominal cost as an attachment for electrical and other suction sweepers and which, when in operation, kills germs heretofore housed within the dust bag of the sweeper as well as in the room, by the liberation of the chemicalized air strained from the bag.

Another advantage of this invention is that, if desired, chemicals, such as menthol, may be included within the casing 1, thereby filling the room with menthol vapors which are not only pleasing and beneficial to the person operating the sweeper but beneficial to the general health of those within the room.

It will be understood that certain changes and modifications in the invention can be made without departing from the scope or spirit thereof as defined in the claims.

What I claim as new and desire to secure by Letters Patent is:

1. A suction sweeper provided with the usual inlet and an auxiliary air inlet, in combination with a germ destroying device adapted to be placed over said auxiliary air inlet and containing a crystal germicide with inlet and outlet passages adapted to permit the air, drawn into said sweeper through said auxiliary air inlet, to pass through said device and crystal germicide to absorb the volatile portions of said germicide and mix with the dust and germ laden air carried into the sweeper dust bag through the usual inlet during the operation of sweeping.

2. A suction sweeper provided with the

usual inlet and an auxiliary air inlet, in combination with a germ destroying device adapted to be attached over said auxiliary air inlet and containing germicide with inlet and outlet passages therein adapted to permit the air, drawn into said sweeper through said auxiliary air inlet, to pass into said device and into contact with said germicide whereby said air will become saturated with the volatile portions of said germicide and whereby said mixture of germicide and air will permeate the dust-laden air within the sweeper and whereby a portion thereof will be strained through the sweeper bag and permeate the surrounding air during the operation of sweeping.

3. A suction sweeper provided with the usual inlet and an auxiliary air inlet, in combination with a germ destroying device adapted to be detachably mounted over said auxiliary air inlet and comprising a receptacle adapted to contain absorbent material saturated with liquid germicide, a screen mounted above said absorbent material and germicide, air passages leading into and out of said receptacle whereby the air drawn into said sweeper is adapted to pass through said receptacle and mix with said germicide before being drawn and forced into the dust bag thereof during the operation of sweeping.

4. A suction sweeper provided with the usual inlet and an auxiliary air inlet, in combination with a germ destroying device adapted to be attached over said auxiliary air inlet and comprising a receptacle, means within said receptacle adapted to absorb and hold germicide chemicals, detachable attaching means on said receptacle, a series of inlet passages, a series of outlet passages and a series of intermediate passages in said receptacle whereby the suction created by said sweeper will draw the air into and through said receptacle and chemicals and cause the volatile part thereof to commingle with the air and be carried thereby into the sweeper during the operation of sweeping.

5. A suction sweeper provided with the usual inlet and an auxiliary air inlet, in combination with a germ destroying device adapted to be attached over said auxiliary air inlet and comprising a receptacle having a series of inlet passages in its top, a partition within said receptacle having a series of passages therethrough, a screen in spaced apart relation from said partition and the bottom of said receptacle, absorbing means located beneath said screen adapted to absorb and hold a germicide chemical and a series of outlet passages in said receptacle in communication with the main air inlet of said sweeper whereby the air, drawn into said sweeper, will pass through said inlet passages of the receptacle, thereby mixing it with said chemicals within said receptacle and drawing it outwardly therefrom into and through said sweeper during the operation of sweeping.

6. A suction sweeper having the usual inlet and an auxiliary air inlet, in combination with a germ destroying device adapted to be detachably mounted over said auxiliary air inlet and comprising a receptacle, one end of which is open, a removable lid adapted to close the open end of said receptacle and having a plurality of air inlet passages therethrough, detachable means for supporting a screen in spaced apart relation from the bottom of said receptacle, a removable bracket adapted to be supported by said last-mentioned means and passages through said bracket, absorbing means located beneath said screen adapted to absorb and hold a germicide chemical and a series of air inlet passages in one side of said receptacle whereby said sweeper is adapted to draw air into said receptacle where it is mixed with said chemicals and carried into the dust bag during the operation of sweeping.

7. A suction sweeper having the usual inlet and an auxiliary air inlet, in combination with a germ destroying device adapted to be attached in communication with said auxiliary air inlet and comprising a receptacle containing a volatile germicide, said receptacle having inlet and outlet passages adapted to communicate with the suction passage leading from the sweeper nozzle to the dust bag whereby air is drawn through said receptacle into contact with said germicide by the suction of the sweeper into and through said dust bag, for the purposes specified.

8. A suction sweeper provided with the usual inlet and an auxiliary air inlet, in combination with a germ destroying device adapted to be detachably mounted over said auxiliary air inlet and comprising a receptacle containing a volatile germicide, said receptacle having inlet and outlet passages permitting air to be drawn through said receptacle and into contact with said volatile germicide into the sweeper dust bag by the suction of the sweeper whereby as the air is drawn through said receptacle portions of the germicide will become admixed with the air and carried into the dust bag with the dust-laden air drawn therein through the sweeper nozzle and whereby part of said germicide will be filtered through the bag into the room and permeate and purify the air therein.

9. In combination, a suction cleaner comprising a fan, a motor for operating said fan, and a suction nozzle communicating with the suction side of said fan, and a perforated container mounted on the suction side of said fan and adapted to supply an auxiliary stream of air into the stream drawn through said nozzle.

10. In a suction cleaner having a fan, a fan housing, a suction and discharge conduit communicating with said fan, said housing having an opening communicating with said suction conduit, and a container for air purifying material carried in said opening.

11. In apparatus of the class described, the combination with suction cleaner, its suction nozzle, and the dust-collector thereof, of means located between the suction nozzle and said dust-collector and communicating with the interior of the cleaner, said means being open to atmospheric air and subject to the suction-creating means of the cleaner, and means associated with said means for charging the atmospheric air with a disinfectant medium as said atmospheric air is drawn through said means under the action of the suction-creating means.

12. A vacuum cleaner of the class described, including a nozzle, a suction compartment, and a discharge duct in communication and forming a continuous passage for air through the cleaner, and a dust-collector connected to said discharge duct for separating the dust from the air and holding the same but permitting the air to escape from the collector, said cleaner also including an auxiliary air feed in communication with said air passage and provided with means for impregnating the air stream of said passage with a disinfectant of such density as to be discharged with the air from the dust-collector into the surrounding atmosphere after treatment of the dust laden air stream in its transit through said air passage.

13. A suction cleaner provided with the usual inlet and an auxiliary air inlet, in combination with walls forming a compartment communicating with said auxiliary air inlet and containing a volatile reagent, said walls including a passage adapted to permit air drawn into said cleaner to pass through said compartment and absorb volatile portions of said volatile reagent and mix with dust and germ laden air carried into the cleaner dust bag through the usual inlet during operation of the cleaner.

14. A suction cleaner provided with the usual inlet and an auxiliary air inlet, in combination with walls forming a compartment detachably communicating with said auxiliary air inlet and containing a volatile reagent, said walls including a passage adapted to permit air drawn into said cleaner to pass through said compartment and absorb volatile portions of said volatile reagent and mix with dust and germ laden air carried into the cleaner dust bag through the usual inlet during operation of the cleaner.

15. In a suction cleaner having a fan, a fan housing, a discharge conduit communicating with said fan housing, there being an auxiliary opening communicating with said housing on the suction side of the fan, and a container for volatile air purifying material mounted on the cleaner provided with ingress and egress openings and communicating through said auxiliary opening with said fan housing, whereby atmospheric air is drawn through said container and discharged through the discharge conduit by the action of said fan.

16. In a suction cleaner having a fan, a fan housing, a discharge conduit communicating with said fan housing, there being an auxiliary opening communicating with said housing on the suction side of the fan, and walls on the cleaner forming a compartment containing a volatile reagent provided with ingress and egress openings and communicating through said auxiliary opening with said fan housing, whereby atmospheric air is drawn through said compartment and discharged through the discharge conduit by the action of said fan.

FRANK M. SCHNEIDER.