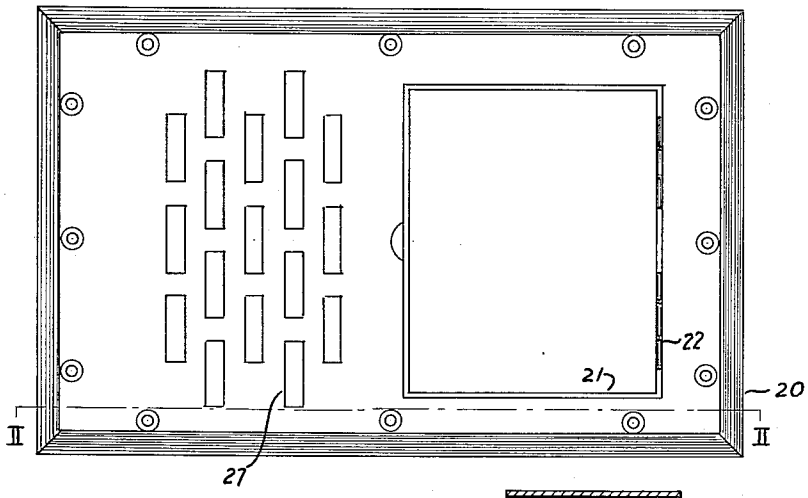
March 3, 1964 S. W. LIPSON 3,122,772

FLOOR MOUNTED DUST MOP CLEANING DEVICE

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Fig. 1



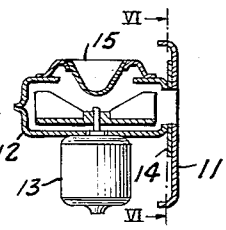


Fig. 5

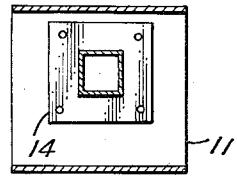


Fig. 6

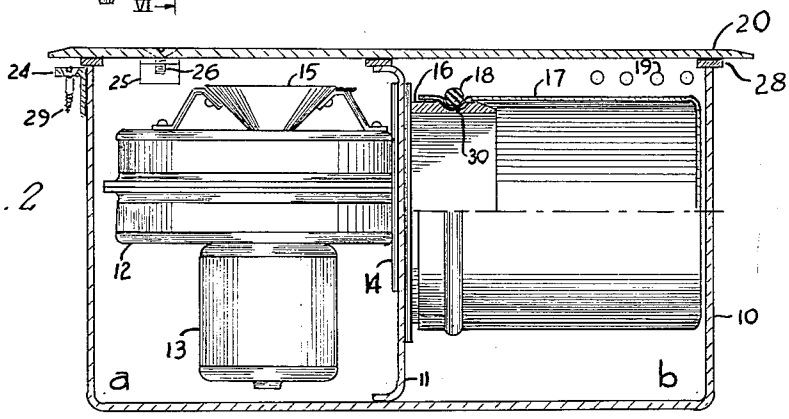


Fig. 2

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Fig. 7

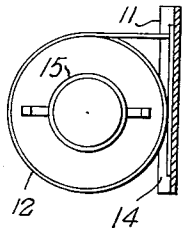


Fig. 3

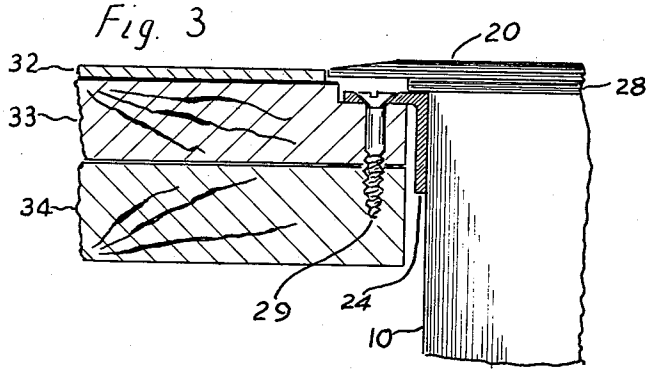


Fig. 4

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3,122,772

FLOOR MOUNTED DUST MOP CLEANING DEVICE

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Filed Oct. 2, 1961, Ser. No. 142,163
6 Claims. (Cl. 15—310)

My invention relates to improvements in dust mop cleaning devices.

The principal object of the present invention is to provide a dust mop cleaning device which can be operated when permanently installed in the floor, at a location convenient to the areas generally cleaned with a dry dust mop.

This important feature makes the unit instantly available for use. The user is not required to unwind and connect a cord to an electric outlet or attach the unit to a conventional vacuum cleaner for suction each time it will be used.

Another object of the invention is to locate the operating mechanism below the floor level so that no storage space is required. The design will permit the device to be walked upon without loss of floor space.

A further object of the invention is to locate the dust receiving slots flush with the floor, thus making it possible for dust, lint, and sweepings to be pushed directly into the suction openings for deposit into the dust collector bag.

Another object of the invention is to provide a suction unit within the appliance, which will be powered by an electric motor, arranged so that the movement of air will draw dust and lint from a dirty mop and deposit this dust and lint in a disposable dust collecting bag made of air pervious material.

A further object of this invention is to provide the appliance with a hinged cover that can readily be opened exposing the dust collecting bag so that the bag may easily be removed and replaced.

Another object of this invention is to provide a device of simple and practical construction, which will be highly efficient, reliable, and inexpensive to operate and which will be economical to manufacture.

A further object of this invention is to provide a device for the purposes described that can easily be installed in either new construction or existing homes, apartment buildings, office buildings, or other places where its use is desired.

Having described the invention, it is realized that it is susceptible to various changes and modifications, and it is not, therefore, the desire to limit it to the precise form shown and described here.

These and other objects of the invention will become apparent from a study of the detailed description which follows, and the accompanying drawings in which:

FIGURE 1 is a plan view of an installation of a floor mounted dust mop cleaning device embodying my invention;

FIGURE 2 is a sectional side view through lines II—II in FIGURE 1, the upper portion of the dust collector adapter, the dust collector bag, and the dust collector bag retaining ring being shown however in a section taken along a plane along the longitudinal axis of the dust collector bag;

FIGURE 3 is an enlarged partial or fragmentary view in vertical section taken also along line II—II of FIG. 1 and illustrating the method of mounting the appliance into the floor;

FIGURE 4 is a side view mainly in elevation and illustrating the relationship between dust mop, floor, and the appliance mounted in the floor;

FIGURE 5 is a fragmentary view on a reduced scale partially in vertical section and partially in elevation showing a portion of the left hand half of the appliance

as shown in FIG. 2 in section to show the relationship of the inverted cone shaped disk (which serves as a protector for the impeller) to the impeller and motor;

FIGURE 6 is a view also on a reduced scale and in vertical section taken on the line VI—VI of FIG. 5 showing the mounting flange which surrounds the opening in the interior wall between the suction side and the exhaust side of the housing; and

FIGURE 7 is a fragmentary top plan view of the impeller case and impeller case protector, the top of the housing being removed in order to show the impeller case and protector.

As an example of one form in which the invention may be embodied, I have shown in the drawing in FIGURE 2 a housing 10 divided into two sections by the suction unit mount 11, which is firmly attached to the opposite sides and bottom of the housing 10. Side (*a*) is the suction side and side (*b*) the exhaust side. Suction unit 12 contains an impeller, driven by an electric motor 13, and is located in the suction side of housing 10 which is mounted to the suction unit mount 11 by flange 14. The flange 14 surrounds the opening in the interior wall or suction unit mount 11 through which dust laden air is driven by the suction unit 12 into a dust collector bag 17, as subsequently described.

Directly above the air inlet opening in the suction unit 12, an inverted cone shaped disc serving as impeller protector 15 is mounted to protect against solid objects which may fall into the impeller.

On the opposite side of the housing 10, in side (*b*) the dust collector bag adapter 16 is mounted to the suction unit mount 11. The opening in the dust collector bag 17 has been slipped over the dust collector adapter 16 and is held in place with molded rubber dust collector bag retaining ring 18. The exhaust side of the housing (side *b*) is perforated with holes 19 to allow filtered air to escape the unit. In the installation of the unit into the floor, the housing 10 is fastened to the sub-flooring with wood screws 29 mounted through the housing mounting clips 24 as shown in FIGURE 3. The top 20 is retained on the housing by use of top mounting screws 26 into top mounting clips 25, as shown in FIGURE 2. The top 20 is provided with a top cover 21 held in place with top cover hinges 22. A conventional toggle switch (not shown) is located in a wall adjacent to the unit and controls the motor 13 on suction unit 12. A strip of felt or soft compressible material 28 is cemented to the top edges of housing 10 to effect an air-tight closure between the top 20 and the suction side (*a*) of housing 10.

When a dust mop (31) is to be cleaned, the switch is engaged and the suction unit 12 draws a large volume of air through the suction slots 27. FIGURE 4 illustrates the dust mop 31 as it is moved across the top 20 causing the lint and dirt on the mop 31 to be drawn out of the mop 31 and deposited in the dust collector bag 17. When the dust collector bag 17 becomes partially full of lint and dust after many occasions of use, with the electric switch in the off position, the top cover 21 is placed in the open position. The dust collector bag 17 will then be accessible. By sliding the dust collector bag retaining ring 18 in a horizontal direction towards the right (as indicated in FIG. 2) off of the dust collector bag adapter 16 and off of the dust collector bag 17, the dust collector bag 17 may be removed. A clean bag 17 is then placed into the housing 10 by slipping the mouth of the dust collector bag 17 over the dust collector bag adapter 16. The dust collector bag retainer ring 18 is then moved into the retaining position and it will remain in place as it seats into the retaining ring groove 30 in the neck of the adapter.

Various structural modifications relating to size, shape,

and arrangements of parts might be suggested by those versed in the arts. It should be understood that I wish to embody within the scope of the patent warranted hereon all such modifications as reasonably and properly come within the scope of my contribution to the art.

Having described the invention, I claim as new:

1. A dust mop cleaning device comprising a housing, having side walls, a bottom and a top, and an interior wall dividing the interior of the housing into a suction section and an exhaust section, said interior wall having an opening through which air may be driven from said suction section to said exhaust section;

a suction unit comprising an impeller, an impeller case, an electric motor and a mounting flange all positioned within the suction section of the housing and the mounting flange being secured to and mounted on said interior wall, and all being mounted on and secured to said interior wall by said mounting flange so that said flange surrounds said opening in the interior wall and so that air exhausted from said suction unit is driven through the opening in the interior wall;

a dust collector bag unit positioned within the exhaust section consisting of a dust collector bag adapter surrounding the opening in the interior wall and provided with a groove, a dust collector bag made of air pervious material and having its open end embracing said dust collector bag adapter, and a rubber ring fitting over the dust collector bag and cooperating with the groove in the dust collector bag adapter to hold the dust collector bag in position to receive dust laden air through said opening from said suction unit;

the portion of the housing top above the exhaust section being provided with a hinged door whereby the door can be opened on its hinges exposing the dust collector bag and permitting the same to be removed for cleaning, disposal and replacement;

the portion of the housing top of the dust mop cleaning device above the suction section being formed with slots which permit dust laden air to travel into the suction unit;

the walls of the exhaust section being formed with venting holes through which filtered air escaping through the minute openings in the dust collector bag may escape from the exhaust section of the housing;

a conically shaped disc fastened to the suction unit above the air inlet opening in the suction unit and just below the suction slots to protect the impeller fan within the suction unit from damage in the event a solid object drops into the device; and

means comprising top mounting clips and screws therefor for mounting the unit on the subfloor of a house in a properly shaped opening in the floor so that the entire mechanism contained in the housing is located below the floor surface and so that the upper surface of the top of said unit is substantially at the same level as the adjoining floor surface.

2. A dust mop cleaning device comprising a housing, having side walls, a bottom and a top, and an interior wall dividing the interior of the housing into a suction section and an exhaust section, said interior wall having an opening through which air may be driven from said suction section to said exhaust section;

a suction unit comprising an impeller, an impeller case, a flange to which said case is secured and an electric motor, all positioned within the suction section of the housing and being secured to and mounted on said interior wall so that said flange surrounds said opening in the interior wall and so that air exhausted from said suction unit is driven through the opening in the interior wall;

a dust collector bag unit positioned within the exhaust section consisting of a dust collector bag adapter surrounding the opening in the interior wall, a dust collector bag made of air pervious material and having its open end embracing said dust collector bag adapter, means cooperating with the dust collector bag adapter to hold the dust collector bag in position to receive dust laden air through said opening from said suction unit;

the portion of the housing top above the exhaust section being provided with a hinged door whereby the door can be opened on its hinges exposing the dust collector bag and permitting the same to be removed for cleaning, disposal and replacement;

the portion of the housing top of the dust mop cleaning device above the suction section being formed with slots which permit dust laden air to travel into the suction unit; and

means for mounting the unit on the subfloor of a house in a properly shaped opening in the floor so that the entire mechanism contained in the housing is located below the floor surface and so that the upper surface of the top of said unit is substantially at the same level as the adjoining floor surface.

3. The structure of claim 2 in which venting holes are provided in the exhaust section through which filtered air escaping through the minute openings in the dust collector bag may escape from said exhaust section of the housing.

4. A dust mop cleaning device comprising a housing, having side walls, a bottom and a top, and an interior wall dividing the interior of the housing into a suction section and an exhaust section, said wall having an opening through which air may be driven from said suction section to said exhaust section;

a suction unit comprising an impeller, and an electric motor, all positioned within the suction section of the housing and secured to and mounted surrounding said opening in the interior wall in position so that air exhausted from said suction unit is driven through the opening in the interior wall;

a dust collector bag unit positioned within the exhaust section consisting of a dust collector bag adapter surrounding the opening in the interior wall, a dust collector bag made of air pervious material and having its open end embracing said dust collector bag adapter, means cooperating with the dust collector bag adapter to hold the dust collector bag in position to receive dust laden air through said opening from said suction unit;

the portion of the housing top above the exhaust section being provided with a hinged door whereby the door can be opened on its hinges exposing the dust collector bag and permitting the same to be removed for cleaning, disposal and replacement;

the portion of the housing top of the dust mop cleaning device above the suction section being formed with slots which permit dust laden air to travel into the suction unit; and

means for mounting the unit on the subfloor of a house in a properly shaped opening in the floor so that the entire mechanism contained in the housing is located below the floor surface and so that the upper surface of the top of said unit is substantially at the same level as the adjoining floor surface.

5. The structure of claim 2 in which the top of said housing is sufficiently rigid so that when the appliance is properly mounted in the floor the top will support persons who walk thereon.

6. The structure of claim 2 in which the dust collector bag is secured to the adapter by means of a rubber ring fitting over the dust collector bag and holding it in contact with the adapter.

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