Dec. 30, 1930. E. JUELSON 1,786,756

VACUUM CLEANER

Filed Nov. 24, 1928

Fig. 1

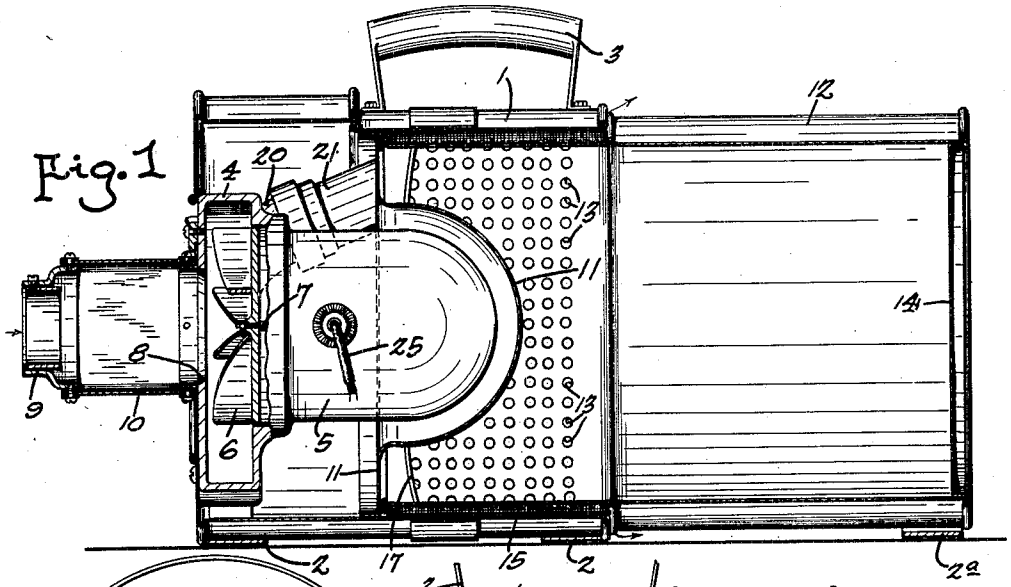


Fig. 3

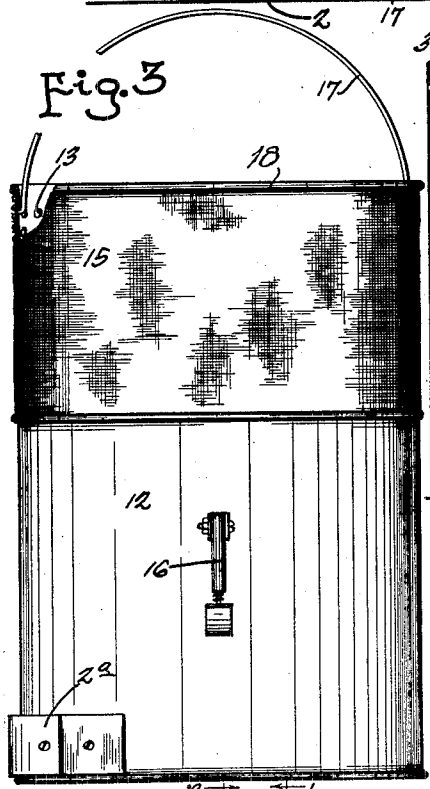


Fig. 2

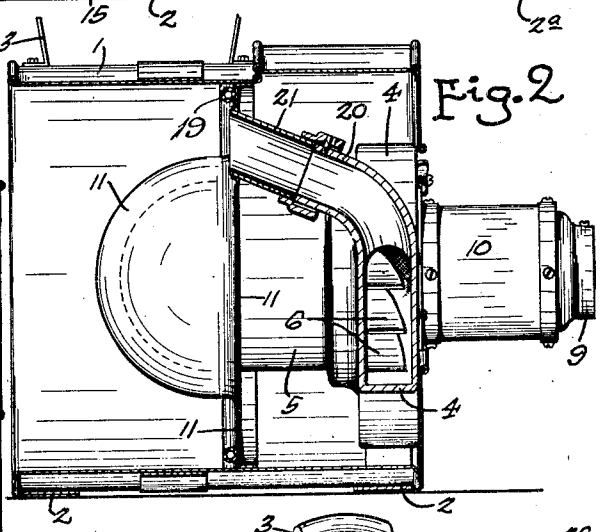


Fig. 4

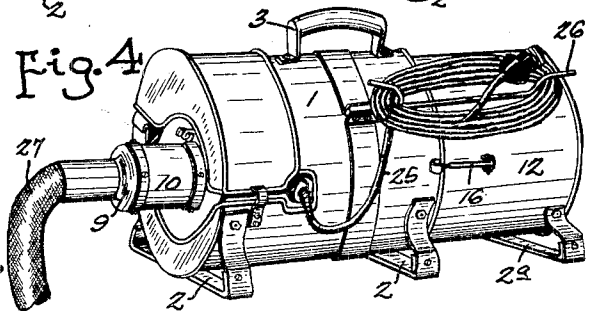
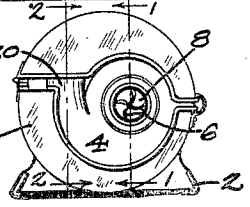


Fig. 5



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UNITED STATES PATENT OFFICE

EDWIN JUELSON, OF CHICAGO, ILLINOIS

VACUUM CLEANER

Application filed November 24, 1928. Serial No. 321,618.

This invention relates to electric vacuum cleaners and has for its object the provision of a new and improved device of this character which shall be particularly cheap to manufacture, compact in form, easy to carry about, and convenient to manipulate; the provision of a new type and arrangement of dust receptacle; the provision of a vacuum cleaner having a new and improved relation of parts; while further objects and advantages of the invention will become apparent as the description proceeds.

In the drawings accompanying and forming a part of this application I have illustrated a specimen embodiment of my inventive idea; Fig. 1 is a longitudinal sectional view of my complete improved cleaner corresponding to the line 1—1 of Fig. 5; Fig. 2 is a sectional view corresponding to the line 2—2 of Fig. 5, but showing the dust receptacle removed; Fig. 3 is a side elevation of the dust receptacle removed and placed upright; Fig. 4 is a perspective view of the complete device; and Fig. 5 is a front elevation of said cleaner.

My improved cleaner comprises an external sheet-metal casing 1, approximately cylindrical in shape, formed at one side with suitable feet 2—2 adapted to rest on the floor, and at the opposite side with a suitable handle 3 located preferably substantially above the center of gravity of the machine. Secured in and carried by one end of this casing is a pump-unit comprising a fan-casing 4 and a motor-housing 5 rigid therewith, the fan chamber being provided with a centrifugal fan 6 operatively connected to the motor-shaft 7. Formed in the face of said fan chamber opposite the motor is an inlet opening 8 with which communicates a hose nipple 9 projecting longitudinally outward from one end of the casing, which is herein denominated the front end. In the present embodiment this nipple includes a transparent inspection-window 10.

Rigidly mounted at the rear end of this casing is a dust receptacle comprising a circular end-member 11, a cylindrical wall 12 having perforations 13, and a second circular end member or wall 14, the perforated portion being covered with filtering fabric 15. A part of this receptacle is removable from the casing 1 to enable the removal of the litter, namely the circular end member 14 together with more or less of the side wall portion 12. In the present embodiment the entire side wall 12 is removable, and when removed constitutes a pail for carrying the litter to a convenient place of deposit. I have shown the perforated part and the filtering fabric as introduced loosely into the rearward end of the casing 1 and held there by means of suitable catches 16. Also I have shown this pail as provided with a hinged bail 17 adapted to be folded inside the perforated portion when the same is attached to the casing 1. The top or brim of the pail is formed with an enlargement or rolled rim 18 which is seated against a rubber ring 19 in air-tight relation, and the exhaust air escapes through the gap between the pail and casing due to the loose fit heretofore mentioned as shown by the arrows in Fig. 1.

The fan casing 4 is formed at its periphery with an outlet neck 20 which is connected by a discharge pipe 21 to a non-removable part of the dust receptacle. This pipe leads rearwardly past the motor housing 4 which is thus located between the fan casing and the dust receptacle; and to render the device more compact I have shown said motor as projecting more or less into the dust receptacle. The far end of the receptacle is also formed with feet 2^a adapted to rest on the floor when in operation.

Electric current is conveyed to the motor by means of a flexible cord 25 which when the machine is not in use can be conveniently supported on a suitable rack 26 fastened to the casing 1; and a flexible hose 27 is attached to the nipple 9 and leads to a hand nozzle or collecting tool (not shown).

The design of the machine enables all the visible parts to be made of sheet metal which is economical to work. The pump unit being entirely concealed requires no finishing. The dust receptacle being so far external and also located at the rear of the motor can be made large so as both to exhibit a large dust capacity and a large filtering area. Also it is

much easier to empty than a limp bag. It will be understood, however, that the above and other advantages of my improvements can be enjoyed despite many changes in detail and arrangement. For example, the inlet need not be eccentric as here, the dust receptacle can be divided at another point in its length than that shown, the inspection window can be omitted, the design of the fan and casing altered, and many other changes made within the scope of my invention.

Having thus described my invention what I claim is:

1. In a vacuum cleaner, in combination a cylindrical casing, floor engaging feet carried by one side thereof adapted to rest on the floor and thereby support said casing with its axis horizontal, a pump unit carried by one end of said casing, a dust receptacle carried by the other end of said casing, said pump unit comprising a fan casing having an inlet through the first mentioned end of said first casing, a fan in said fan casing, and an electric motor operatively connected to said fan and located between said fan casing and said dust receptacle, said dust receptacle comprising a cylindrical perforated side wall, an imperforate end wall, and filtering fiabric covering the perforations, a discharge conduit leading from said fan chamber to said dust receptacle past said motor, a flexible hose communicating with said inlet, and a carrying handle attached to that side of said first casing which is opposite said feet.

2. In a vacuum cleaner, in combination, a cylindrical casing, a cylindrical dust receptacle projecting from one end thereof and rigid therewith, floor engaging feet carried by one side of said casing and of said receptacle and adapted to support said casing and receptacle with their axes horizontal, a carrying handle intermediate the length of said cleaner and attached to the side of said casing which is opposite said feet, a fan casing located at the end of said first casing which is removed from said receptacle, a fan in said fan casing, a motor operatively connected to said fan and located between said fan casing and receptacle, a discharge conduit leading past said motor and communicating at its ends with said fan casing and receptacle, respectively, an inlet nipple projecting beyond the forward end of said first casing and communicating with the inlet of said fan casing, and a flexible hose connected to said inlet nipple, the cylindrical side wall of said dust receptacle having perforations therein and a filtering fabric covering said perforations.

3. In a vacuum cleaner, in combination, a cylindrical casing, a cylindrical dust receptacle projecting from one end thereof and rigid therewith, floor engaging feet carried by one side of said casing and of said receptacle and adapted to support said casing and receptacle with their axes horizontal, a carrying handle intermediate the length of said cleaner and attached to the side of said casing which is opposite said feet, a fan casing located at the end of said first casing which is removed from said receptacle, a fan in said fan casing, a motor operatively connected to said fan and located between said fan casing and receptacle, a discharge conduit leading past said motor and communicating at its ends with said fan casing and receptacle, respectively, an inlet nipple projecting from the forward face of said fan casing, and a flexible hose connected to said inlet nipple, the cylindrical side wall of said dust receptacle having perforations therein and a filtering fabric covering said perforations, and a part of said dust receptacle being detachable to enable the removal of its contents.

4. In a vacuum cleaner, the combination with a pump unit comprising a fan casing, a motor frame rigid therewith, a motor shaft in said frame, and a fan carried by the motor shaft and located in said casing, said casing having an inlet on the side opposite said motor and an outlet at one side of said motor; of a dust receptacle made of rigid material consisting of two spaced circular end-members and a cylindrical side wall interposed between them, said side wall being perforated and the perforations covered with porous fabric; said dust receptacle and fan casing being secured rigidly together with their axes parallel and said motor located between them, the side wall of said dust receptacle being detachably secured to one of said end members to enable removal of its contents, a hose connection carried by said fan casing, a conduit connecting said fan outlet to said receptacle past said motor, and means for supporting said casing with the fan and receptacle axes horizontal.

5. In a vacuum cleaner, the combination with a pump unit comprising a fan casing, a motor frame rigid therewith, a motor shaft in said frame, and a fan carried by the motor shaft and located in said casing, said casing having an inlet on the side opposite said motor and an outlet at one side of said motor; of a dust receptacle made of rigid material consisting of two spaced circular end-members and a cylindrical side wall interposed between them, said side wall being perforated and the perforations covered with porous fabric; and a casing connected at one end to said fan casing and at the opposite end to one end member of said dust receptacle and surrounding said motor; the side wall of said dust receptacle being detachably secured to one of said end members to enable removal of its contents, and a conduit leading from said outlet to said receptacle.

6. In a vacuum cleaner, the combination with a pump unit comprising a fan casing, a

motor frame rigid therewith, a motor shaft in said frame, and a fan carried by the motor shaft and located in said casing, said casing having an inlet on the side opposite said motor and an outlet at one side of said motor; of a dust receptacle having a cylindrical side wall surrounding and spaced from and partly receiving said motor and detachably secured to said pump unit, said receptacle when detached constituting a carrying receptacle for litter collected by said cleaner.

In testimony whereof I hereunto affix my signature.

EDWIN JUELSON.