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F. OPEL

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VACUUM CLEANER

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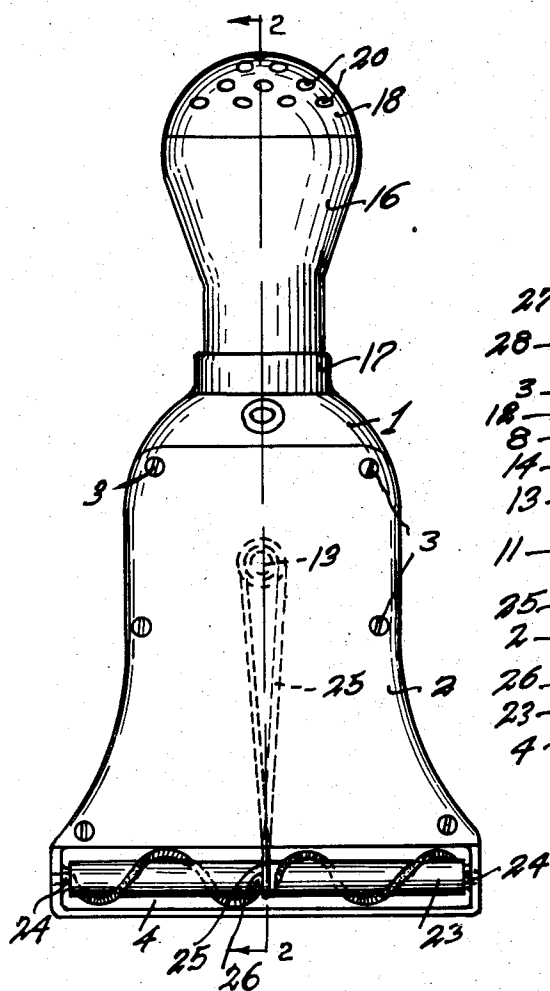


Fig. 1

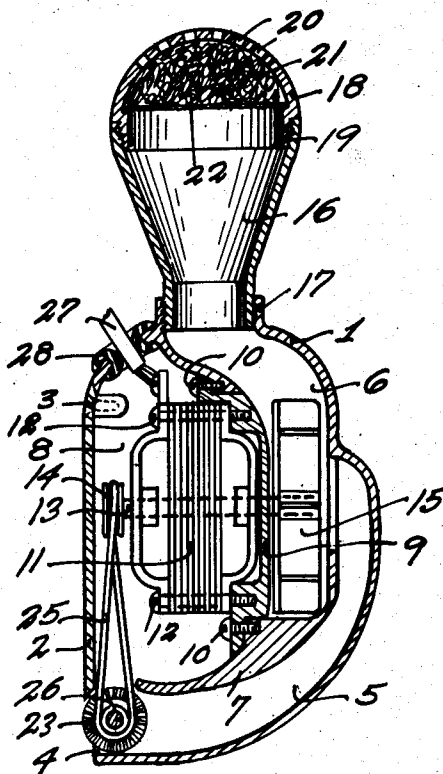


Fig. 2

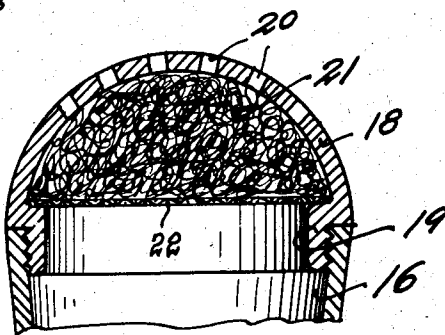


Fig. 3

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VACUUM CLEANER

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1 Claim. (Cl. 15—7)

This invention relates to a vacuum cleaner and it is one object of the invention to provide a cleaner which is small and compact and particularly adapted for removing dust and dirt from clothes, upholstery and the like and may be held in a person's hand and used as easily as a whisk broom.

Another object of the invention is to provide a vacuum cleaner wherein the motor and the suction fan are both mounted within the body portion or casing of the cleaner and the handle constitutes the container for the dust and dirt.

Another object of the invention is to so form the casing that a portion thereof forms a dust and air passage through which the dust and dirt are carried into a chamber in which is mounted the fan, the fan chamber having an outlet communicating with the hollow handle constituting the chamber for the dust and dirt.

Another object of the invention is to provide a casing having a removable front wall through which the motor and fan are inserted and removed, a supporting plate for the motor and fan shaft being provided and constituting an inner wall of the fan chamber when in place.

Another object of the invention is to so form the handle that its outer end portion constitutes a cap which is removably mounted and serves as a holder for filtering material which allows escape of air while retaining the dust and dirt within the handle.

The invention is illustrated in the accompanying drawing, wherein:

Fig. 1 is a view in elevation of the improved vacuum cleaner, the cleaner being shown substantially full size.

Fig. 2 is a sectional view taken longitudinally through the vacuum cleaner along the line 2—2 of Fig. 1.

Fig. 3 is a sectional view on an enlarged scale taken longitudinally through the outer end portion of the handle and its cap.

This vacuum cleaner is particularly intended for cleaning clothes, upholstery, draperies and the like, and is very small and compact in construction so that it may be held in a person's hand and used in substantially the same manner in which a clothes brush or whisk broom is used. Figs. 1 and 2 show the cleaner in substantially full size and referring to these figures, it will be seen that the cleaner has a casing or housing 1 which is formed of metal, Bakelite or other desired material. The casing is open at its front and this open front portion of the casing is normally closed by a front wall or closure plate 2 which is

removably secured by a suitable number of screws 3. The closure plate terminates in spaced relation to the lower end of the casing to provide an inlet opening 4 through which air laden with dust and dirt may enter and pass through the passage 5 and into the fan chamber 6 in the upper rear portion of the casing. A partition 7 divides the passage 5 from the motor chamber 8 at the front of the casing and the upper portion of this partition divides the motor chamber from the fan chamber and is formed with an opening in which is set a plate 9 which is removably secured by screws 10 and serves as a mounting for the electric motor 11 which is removably secured by screws 12. The shaft 13 of the motor is journaled through the mounting plate and at its outer or front end carries a pulley 14 while its rear or inner end carries the fan 15 which operates in the fan chamber and creates a suction through the passage 5 so that dust and dirt will be drawn into the fan chamber and then expelled from this chamber into the hollow handle 16 which serves as a container for dust and dirt. This handle is screwed into the neck 17 of the casing so that it may be easily removed when cleaning is necessary and the outer end portion or cap 18 is formed with a threaded neck 19 in order that it may be detachably applied. This cap has a large number of perforations 20 for the escape of air and in order to retain the dust and dirt within the chamber of the handle there has been provided a filtering pad 21 formed of any suitable material and held in place by a sheet of screening 22. It will thus be seen that air may escape but dust and dirt will be confined within the handle and by unscrewing the handle from the neck 17 of the casing the accumulated dust and dirt may be dumped out of the handle and the handle then replaced. When it is necessary, the screening may be removed and the filtering material then removed and cleaned and replaced or a new wad of filtering material applied. A rotary brush 23 is rotatably mounted in the entrance opening 4 by pintles at its ends which are rotatably engaged in bearings 24 at ends of the opening and, in order to transmit rotary motion to this brush from the motor 11, there has been provided a belt 25 trained about the pulley 14 carried by the front end of the motor shaft 13 and having its lower portion engaged in the circumferential groove 26 formed midway the length of the brush.

The power wires 27 by means of which current is supplied to the motor, extend through the eyelet 28 of insulation material and may be of any length desired and have their outer ends secured to

a terminal plug of conventional form for engagement in a wall or floor socket. The vacuum cleaner is small and compact and of light weight and capable of being easily held in a person's hand when in use. In view of the fact that the rotary brush projects from the opening the cleaner may be placed against a suit or other garment or article to be cleaned and as it is moved about with a reciprocating movement, the brush will loosen threads and the like which, together with dust and dirt, will be sucked through the passage into the fan chamber and expelled from this chamber into the hollow handle where the same will be retained by the filtering pad while the air escapes through the perforations.

Having thus described the invention, what is claimed is:

A vacuum cleaner comprising a casing open at its bottom, a partition in said casing dividing the same into a lower motor chamber and an upper fan chamber and an air passage extending upwardly and rearwardly over said chambers and at its rear end communicating with the fan chamber

through the top thereof, said fan chamber having an outlet at its rear end, a removable closure for the open bottom of said casing spaced from the front end of the casing, said partition being formed with an opening between the motor chamber and the fan chamber and a portion of the partition constituting a wall between the motor chamber and the lower portion of the air passage and having its lower edge spaced upwardly from the front end of the closure for the bottom of the casing, a motor in said motor chamber having a shaft of a length to provide protruding upper and lower end portions, a pulley carried by the lower end of the motor shaft, a fan carried by the upper end of the shaft, a plate about the shaft between the motor and the fan filling the opening in said partition and detachably secured to the partition, the motor being secured to said plate, a brush rotatably mounted at the open lower inlet end of said passage, and a belt for transmitting rotary motion from said pulley to said brush.

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