March 29, 1932. W. STEWART 1,851,463

VACUUM CLEANER

Filed July 11, 1928 2 Sheets-Sheet 1.

FIG. 1.

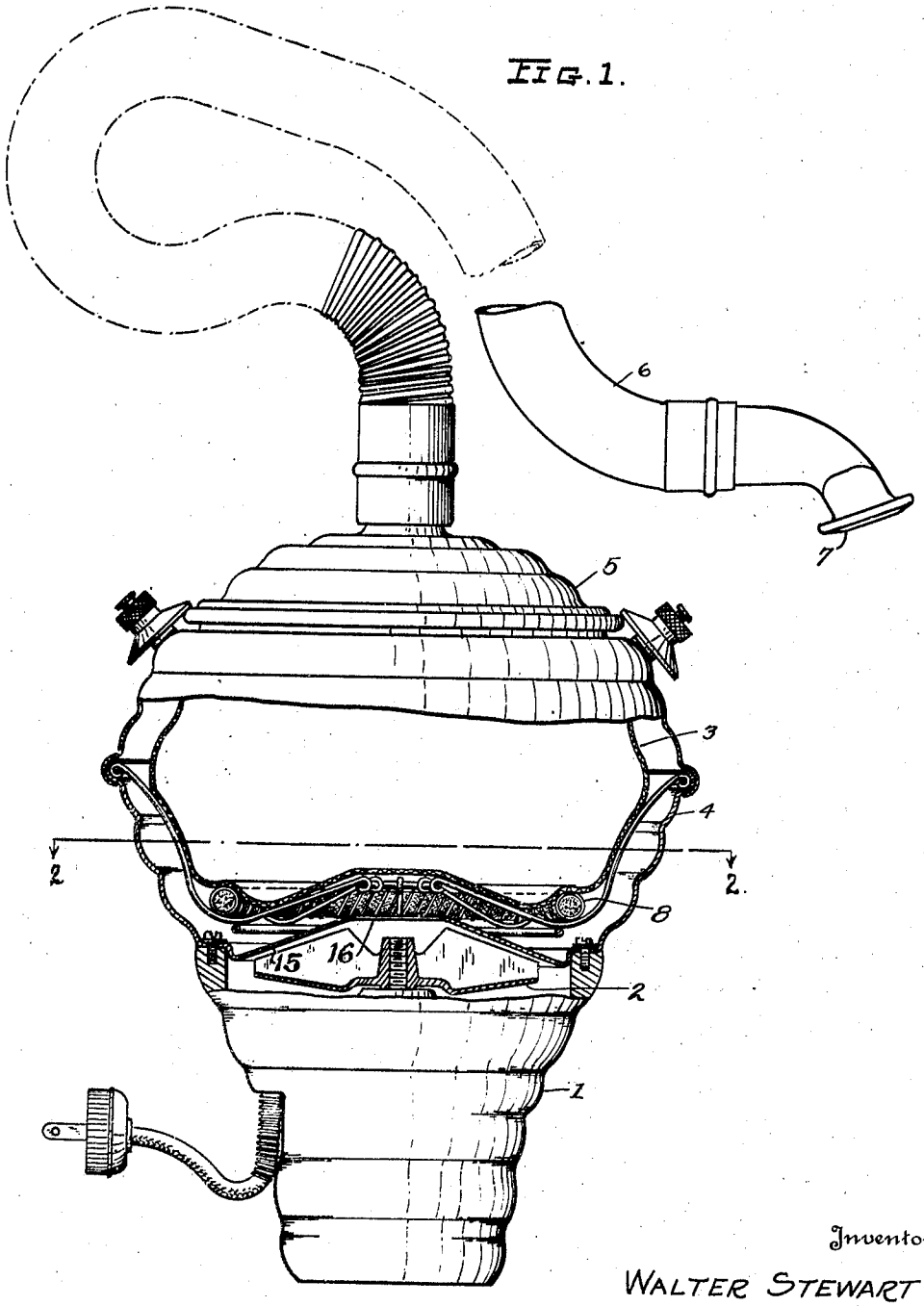

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FIG. 2.

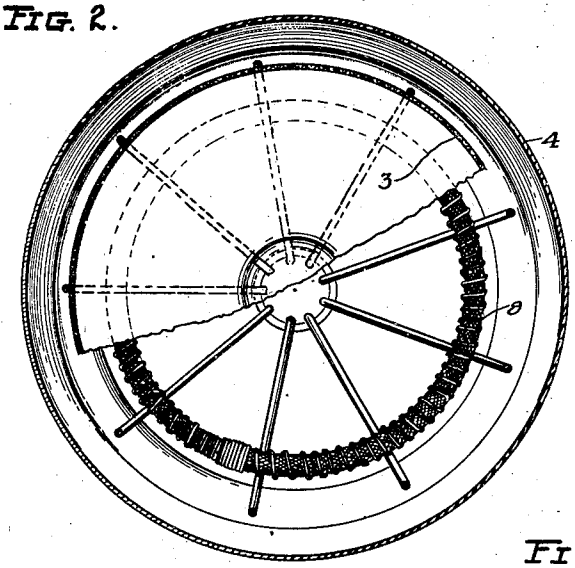
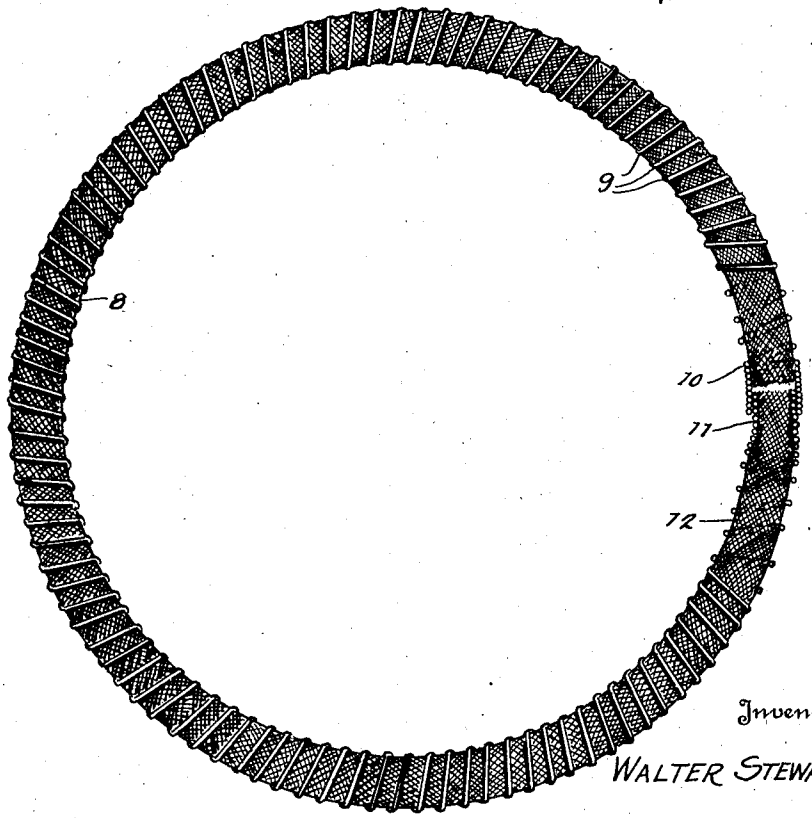


FIG. 3.



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UNITED STATES PATENT OFFICE

WALTER STEWART, OF TOLEDO, OHIO, ASSIGNOR TO THE APEX ELECTRICAL MANUFACTURING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO

VACUUM CLEANER

Application filed July 11, 1928. Serial No. 291,951.

This invention relates to vacuum cleaners and in particular air renovating and conditioning devices used in connection therewith.

In the ordinary operation of the conventional portable vacuum cleaner, dust and dirt are siphoned by the cleaner from the object that is being cleaned. The dust and dirt are then separated from the air by means of a cloth bag or other filter and the air is then returned to the room in which the cleaning is being done.

Even a hasty cleaning of the floor covering of a room will cause a volume of air equal to several times the volume of the room to pass through the vacuum cleaner. As this air is very apt to carry micro-organisms and disease germs which are too small to be trapped in the dust bag of the cleaner, it is highly advantageous from a hygienic standpoint, to disinfect the air before it is exhausted from the cleaner and returned to the room.

I am aware that prior to my invention, disinfecting and air treating devices have been proposed for vacuum cleaners. Those with which I am familiar accomplished this object by placing a screen of air pervious material across the path of the air in the cleaner. The screen had been previously impregnated with a disinfectant or perfume, or a combination of both so that the air in passing through the screen would carry off a certain amount of the vapor of the impregnating substance.

This arrangement is satisfactory for a short time but is objectionable because of the frequent necessity of renewing the disinfectant due to the small capacity of the material of the screen and the rapid rate of dissipation caused by the rush of air through the screen. Another objection inherent to this arrangement is the necessity of frequently cleaning the screen, the pores of which rapidly become clogged with dust and dirt reducing the efficiency of the cleaner to a marked degree.

One of the objects of my invention is to provide an air renovating device for vacuum cleaners that does not impair the efficiency or retard the air flow of the vacuum cleaner.

Another object of my invention is to provide a disinfectant dispensing device for vacuum cleaners that has a very high absorption for liquids and which may be easily and inexpensively manufactured.

A further object of my invention is to provide a device of the type described that may be easily and quickly installed in the cleaner with which it is used.

Stated in general terms, my invention consists of a cylindrical wick incased in a spiral spring retainer, which provides a means of connecting the ends of the wick.

In this manner, I provide an air-renovating device that can be readily and easily manufactured, that occupies the minimum space in the cleaner, and that does not retard the passage of air therethrough, allowing the cleaner to operate at maximum efficiency at all times, and allowing the device to be used for an extended period of time without losing its effectiveness and without affecting the efficient operation of the cleaner.

These and other objects and advantages of my invention, will become more fully apparent as the description thereof proceeds, and will then be more specifically defined in the appended claims.

In the accompanying drawings forming a material part of this disclosure:

Figure 1 is a side elevational view, partly in section, showing my improved air renovator in operative position in a vacuum cleaner.

Figure 2 is a sectional view taken from line 2—2, Figure 1.

Figure 3 is an enlarged plan elevational view, of my improved air renovating ring.

Referring to Figure 1, wherein one method of using my improved air conditioning device is illustrated the reference numeral 1, indicates the motor casing of a vacuum cleaner. A suction fan 2 is connected in driving relation to the motor, (not shown), for air-suction creating purposes. Before the dust and dirt-laden air reaches the suction-fan it passes through a filter-bag 3, that is located in the bag-housing 4. The bag 3 is held in place by a removable cover 5, that is in turn connected to the suction-hose 6 which terminates in the cleaning-nozzle 7. An air-

renovating or conditioning ring 8 is positioned between filter-bag 3 and the suction-fan 2. This ring is cylindrical in cross-section and is made from any suitable material that is capable of absorbing a large volume of liquid. Cotton wicking 12 has been found useful for this purpose. Other materials could be used for the ring, cotton being chosen because it is inexpensive and readily obtainable.

The wick 12, is encircled by a coil of wire 9, the contiguous turns of which are spaced about a quarter of an inch from each other. At the end portions of the coil the coil turns are in contact with each other forming spirally wound tubes of slightly different diameter so that one end of the coil can be threaded into the other end thereof, forming a simple inexpensive connecting means for the ends of the coil and the wick which it encloses and at the same time holding the wick in annular shape.

Before the ring 8 is installed in the cleaner it is soaked in a disinfecting liquid and a perfume. A combination of oil of roses, oil of pine and oil of cedarwood has been found suitable for this purpose as it imparts a pleasing odor to the air and at the same time exerts a germicidal and disinfecting effect on the air circulated by the vacuum cleaner. It will be readily understood that ring 8 may be impregnated with any suitable liquid, depending upon the object to be accomplished. When it is desired to merely scent the air, oil of roses or any other perfume may be used. When it is desired to purify the air, any one of a number of vaporizable liquid disinfectants may be used. As so impregnated the wick is substantially impervious to air.

The bottom of the bag-housing is formed by a metal plate 15 formed as a surface of revolution and located closely adjacent to the suction-fan 2, its center being formed with an opening 16 for the passage of air. This serves to constrict the air stream after it leaves the bag, and it is between the bag and this constricting-means that my evaporator is located.

It is to be understood that while I have shown the preferred form of my invention as an example, such changes may be made therein as fall within the scope of the appended claims, without departure from the spirit of the invention and the principle involved.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:

1. In a vacuum clean, in combination, a suction device adapted to inhale dust and dirt-laden air, means to separate the dust and dirt from the air, whereby only cleaned air is discharged therefrom, and an annular porous element impregnated with a vaporizable substance located in the passage of the cleaned air and having the opening therethrough of a size to permit passage of such air substantially without restriction.

2. A disinfectant dispensing ring for vacuum cleaners and the like comprising an annular wick of highly absorbent material, and a wire coil adapted to encircle and to provide a connection for the ends of said wick.

3. A vapor dispensing device for vacuum cleaners and the like comprising, an annular wick of high liquid absorbing properties, a protective and shaping coil encircling said wick and contiguous turns of said coil being spaced from each other exposing the major portion of the wick the end turns on said coil being in contact with each other and of different diameter so that the coil ends may be joined to each other in threaded engagement.

4. A vapor dispensing device comprising a wick of porous material and a helical wire coil encircling said wick and supporting the same, the ends of the coil being secured together whereby the device is given an annular shape, and the adjacent turns of the coil being spaced apart to afford access of air to said wick.

5. In a vacuum cleaner, in combination, a collecting nozzle, an air filtering bag, a centrifugal fan adapted to produce an inflow of air into said nozzle and an outflow of the same through said bag, a centrally apertured partition located between said bag and fan, and an annular absorbent element located between said bag and partition and adapted to be impregnated with a vaporizable substance to be delivered to the air-stream, the aperture through said element being at least as large as that through the partition.

In testimony whereof I hereunto affix my signature.

WALTER STEWART.