

Dec. 16, 1930.

K. K. CUNDIFF

1,785,675

VACUUM CLEANER

Filed Oct. 13, 1927

2 Sheets-Sheet 1

Fig. 1.

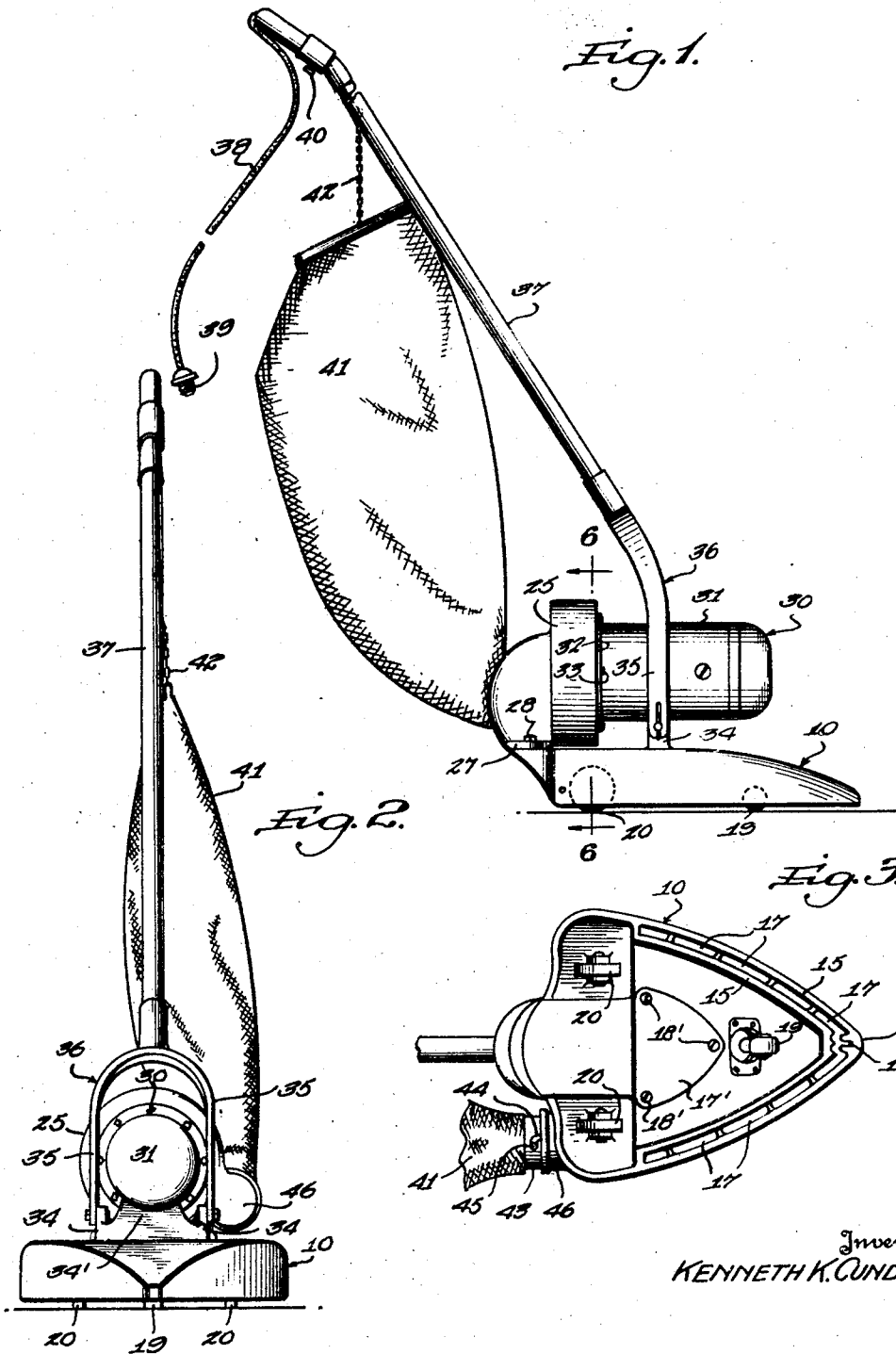
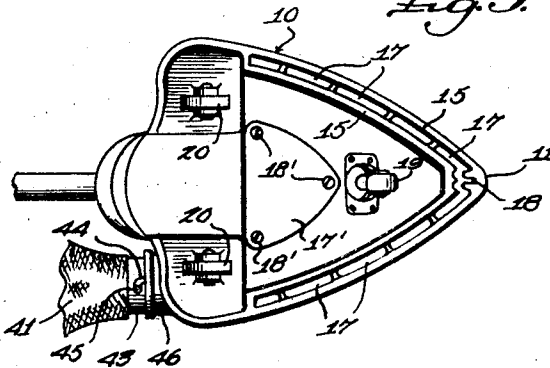


Fig. 2.

Fig. 3.



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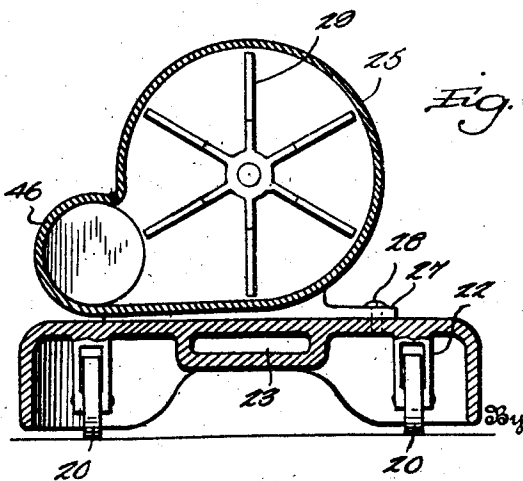
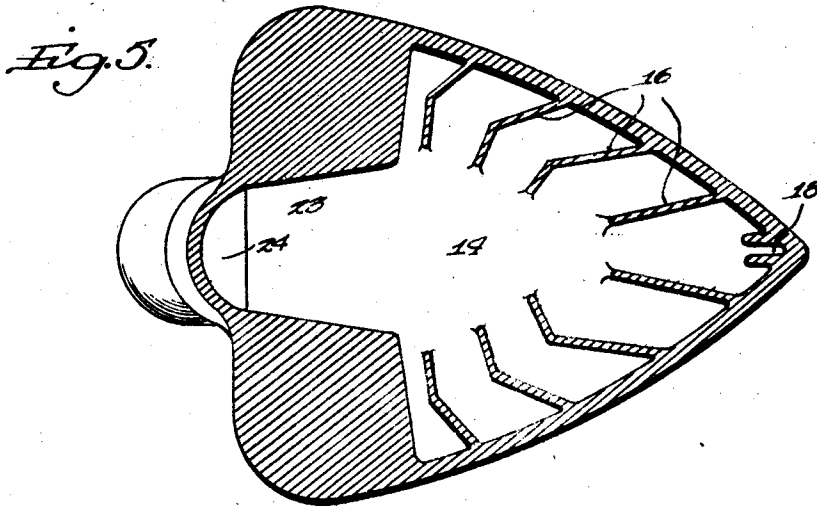
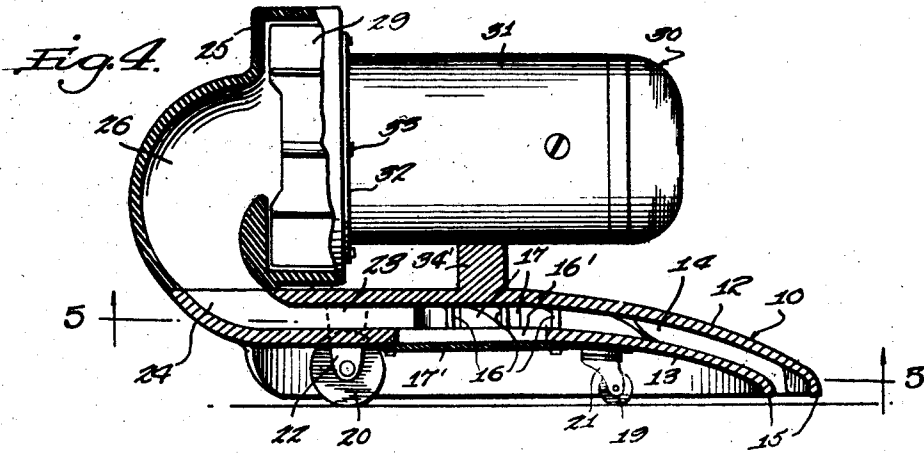
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2 Sheets-Sheet 2



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VACUUM CLEANER

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This invention relates to vacuum cleaners.

An important object of the invention is to provide a novel form of cleaner which is adapted efficiently to clean floors against walls and in corners of rooms.

A further object is to provide a vacuum cleaner including a substantially triangular body having suction nozzles arranged on the sides thereof adjacent the apex whereby an efficient cleaning action is provided substantially throughout the lengths of such sides.

A further object is to provide a cleaner of the type referred to wherein the body is provided with a pair of spaced walls forming a suction chamber, the walls being arranged substantially parallel and terminating in lower flanges extending along the sides of the body adjacent the apex to form suction nozzles.

A further object is to provide a cleaner of the type just referred to wherein the outer and lower portions of the suction chamber are provided with ribs dividing the nozzle portions into a plurality of relatively small nozzles to effect a better distribution of the suction action.

A further object is to provide a novel form of mounting for the fan motor.

A further object is to provide a vacuum cleaner of the type referred to wherein the weight of the motor and associated parts is placed in such a manner that the center of gravity of the device is arranged substantially centrally of the cleaner nozzles to hold the device in proper position over the surface to be cleaned.

A further object is to provide a vacuum cleaner wherein the various parts are readily accessible for cleaning purposes.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the drawings I have shown one embodiment of the invention. In this showing,

Figure 1 is a side elevation,

Figure 2 is a front elevation,

Figure 3 is a fragmentary bottom plan view,

Figure 4 is a central vertical longitudinal

sectional view through a portion of the device, parts being shown in elevation,

Figure 5 is a section on line 5—5 of Figure 4, and,

Figure 6 is a similar view on line 6—6 of Figure 1.

Referring to the drawings the numeral 10 designates the body of the device which is substantially triangular or flat iron shaped providing an apex portion 11 which is adapted to be moved into corners of a room, as will become apparent. The body includes a pair of spaced walls 12 and 13 forming a suction chamber 14, the walls 12 and 13 curving downwardly toward their lower ends to provide spaced parallel flanges 15 as clearly shown in Figures 3 and 4. The portions of the walls 12 and 13 adjacent the extremities thereof are connected by preferably integral ribs 16, which extend outwardly from a point substantially centrally of the body, as shown in Figure 5. The ribs terminate a slight distance above the extremities of the flanges 15, as shown in Figures 3 and 4, the ribs defining with the flanges a plurality of relatively small suction nozzles 17. The forward nozzle 17 is provided with an extension 18 projecting toward the apex of the body as shown in Figure 3. The bottom wall 13 is provided with a clean-out opening 16' which is normally covered by a plate 17', as shown in Figures 3 and 4, and the plate may be secured in position by screws or similar fastening elements 18'.

The central portion of the bottom wall 13 is arranged a substantial distance above the surface to be cleaned and forms with the inner flange 15 a recess in which are arranged a forward caster 19 and rear wheels 20. The caster wheel is supported by arms 21 pivotally connected to the wall 13 whereby the caster wheel may assume various positions to permit the device to be guided wherever desired. The wheels 20 are rotatably mounted in arms 22 preferably formed integral with the outer portions of the wall 12, as indicated in Figure 6.

The rear portion of the body is provided between the walls 12 and 13 with a relatively restricted suction passage 23 communicating

at its forward end with the suction chamber 14. The rear end of the passage 23 curves upwardly as at 24.

A cylindrical fan housing 25 is mounted above the rear portion of the body with its axis arranged horizontally as shown. The fan housing is provided with a preferably integral rear elbow forming an air conduit 26 communicating at its upper end with the center of the fan housing. The lower end of the passage 26 communicates with and forms a continuation of the rear end 24 of the passage 23. The fan housing is provided at its lower portion with outwardly extending flanges 27 which are secured to the bottom of the device by screws 28 or similar fastening elements.

A centrifugal fan 29 is mounted axially within the fan housing 25 and is adapted to be driven by a motor 30. This motor includes a casing 31 having an annular flange 32 at one end adapted to be secured against the adjacent face of the fan housing by screws 33 or the like. It will be apparent that the screws 33 and flange 32 constitute the only means necessary for securing the motor in position whereby the latter is adapted to be readily detached. The motor constitutes the heaviest part of the device and is so arranged with respect to the other elements that the center of gravity of the device is arranged substantially centrally of the supporting wheels so that the device is self balancing and retains its proper position with respect to the supporting surface with the lower edges of the flanges 15 substantially parallel thereto.

The body of the device is provided on its upper face with a saddle support 34' for the forward end of the motor, and formed integral with said support is a pair of up-standing lugs 34 arranged on opposite sides of the motor, these lugs being connected to the lower ends of the arms 35 of a yoke 36 which straddles the motor as shown in Figure 2. A handle 37 is secured to the upper end of the yoke and is provided at its upper end with a flexible cord 38 having an attaching plug 39 at its free end adapted to be connected to an outlet socket for supplying current to the motor 30. A switch 40 is carried by the handle near its extremity and suitable wires (not shown) may be connected between the switch and the motor as will be apparent. A dust collecting bag 41 may be supported from a point adjacent the upper end of the handle 37 by a chain 42 or other flexible element. The lower end of the bag 41 is provided with a ferrule 43 having a bayonet slot 44 therein, as shown in Figure 3. This slot is adapted to receive a pin 45 carried by an outlet conduit 46 arranged to one side of and communicating with the outer portion of the fan housing 25.

The operation of the device is as follows:

The device is moved along the floor or other surface to be cleaned in the usual manner by properly manipulating the handle 37 and the supply of current to the motor may be controlled by the switch 40. The triangular shape of the body of the device permits it readily to be moved into corners of rooms to effect a thorough cleaning action which cannot be accomplished with the usual types of vacuum cleaners. The arrangement of the nozzles close to the sides of the device also permits said sides to be moved along the walls of rooms to efficiently clean the floors adjacent such walls. When the device is so used the plurality of small nozzles on one side of the device will be arranged approximately parallel to the wall instead of having one end of an elongated transverse nozzle adjacent the wall as is done with the usual vacuum cleaners. Thus an efficient cleaning action is provided and the guiding of the device along the wall is easily accomplished. The provision of the ribs 16 divides the outer portions of the suction chamber into a plurality of nozzles thus more efficiently distributing the suction action, and the shapes of the inner ends of the ribs causes a swirling or eddy action to be set up in the central portion of the suction chamber. The curvature of the passage 26 whereby it forms substantially a continuation of the passage 23 sets up little resistance against the passage of air and foreign matter to the fan chamber thus adding to the efficiency of the device and permitting the motor and fan to be mounted in the manner shown. The arrangement of the motor directly above the body of the device serves to make the device more compact and permits the center of gravity of the device to be arranged above a point substantially centrally of the supporting wheels for the purpose previously described. It will be apparent that the motor and fan casing are adapted for ready detachment from the body of the device whenever desirable or necessary. Access to the interior of the suction chamber may be had by removing the plate 17'. The air in the fan chamber will be pumped therefrom through the outlet conduit 46 thus permitting the particles of foreign material to be collected in the bag 41 which may be emptied at intervals in the usual manner. The bayonet slot connection between the bag and the conduit 46 permits the bag readily to be detached.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. A vacuum cleaner comprising a body portion having opposite sides converging toward their forward ends, said body being

provided with a relatively large internal vacuum chamber extending throughout the width thereof, the walls of said chamber terminating in flange portions opening beneath said body and arranged adjacent and parallel to the converging sides thereof, a plurality of ribs arranged between the flange portions of said walls and extending outwardly from the center of the chamber to divide the space between the flange portions into a plurality of suction nozzles, said body portion being provided with a relatively small passage communicating at its forward end with said chamber and extending rearwardly therefrom, and suction creating means communicating with the rear end of said chamber.

2. A vacuum cleaner comprising a body including a pair of spaced substantially parallel walls converging toward their forward ends, the sides of said walls being turned downwardly whereby the spaces therebetween form suction nozzles, vertical ribs extending between said walls, the spaced walls of the said body forming substantially centrally thereof a suction chamber communicating with the spaces between said ribs, a suction conduit communicating at one end with the said chamber, and suction creating means connected to the opposite end of said conduit.

3. A vacuum cleaner comprising a body including upper and lower walls spaced apart to provide a vacuum chamber therebetween, said lower wall being of less area than said upper wall, said upper wall having downwardly turned portions at its outer edges forming side walls for said body converging toward their forward ends, said lower wall having downwardly turned portions arranged substantially parallel with the downwardly turned portions of said upper wall to provide a suction opening between said downwardly turned portions communicating with said chamber, a plurality of ribs arranged between said downwardly turned portions to divide said suction opening into a plurality of suction nozzles, and suction creating means connected to the rear of said chamber.

4. A device constructed in accordance with claim 3 wherein the ribs extend into said chamber and at least some of the ribs have their inner ends bent forwardly to extend substantially laterally of the ribs.

In testimony whereof I affix my signature.
KENNETH K. CUNDIFF.

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