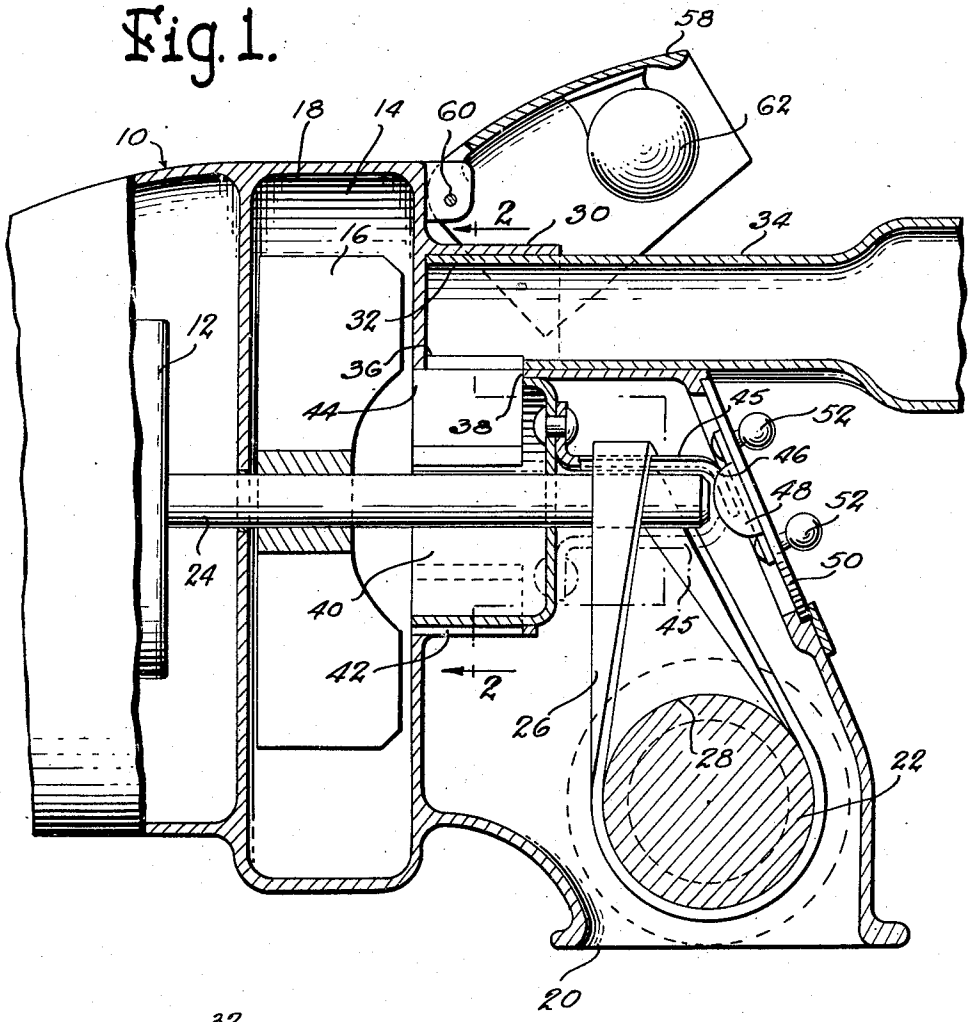
June 22, 1943. G. R. COSS 2,322,223

VACUUM CLEANER

Filed Jan. 12, 1942

Fig. 1.



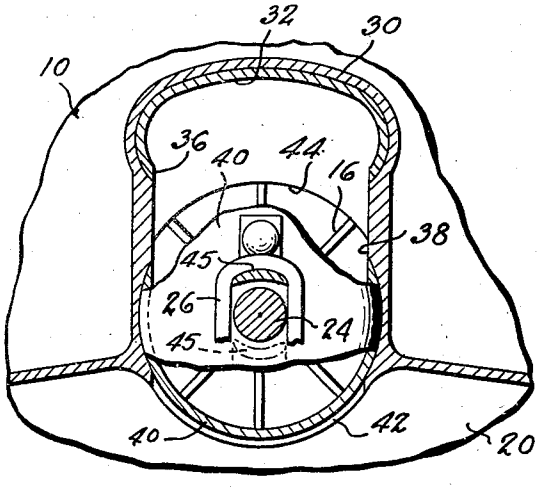


Fig. 2.

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VACUUM CLEANER

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Application January 12, 1942, Serial No. 426,381

1 Claim. (Cl. 15—9)

This invention relates to vacuum cleaners.

A principal object of the invention is to provide a floor type cleaner having a surface cleaning nozzle together with a rotary agitator or brush associated therewith, with a novel and convenient means by which cleaning attachments may be connected to the fan of the cleaner for off-the-floor cleaning.

Another object of the invention is to provide a vacuum cleaner of the type having a surface cleaning nozzle with a power driven agitator or brush associated therewith, with a "built-in" converter by means of which attachments may be readily connected with and disconnected from the cleaner and which at the same time functions to disconnect the agitator or brush associated with the floor nozzle from the driving motor of the vacuum cleaner and to shut off the communication between the floor nozzle and the fan of the vacuum cleaner.

Other objects and advantages of the invention will be apparent from a consideration of the following specification taken in conjunction with the accompanying drawing, of which there is one sheet and wherein:

Fig. 1 is a fragmentary vertical sectional view through a floor type cleaner embodying the invention; and

Fig. 2 is a fragmentary cross section taken along the staggered line 2—2 of Fig. 1, looking in the direction of the arrows.

A vacuum cleaner embodying my invention may comprise a casing or housing 10 adapted to be supported for movement over a floor and having an electric motor 12, a suction creating means 14 comprising a fan 16 arranged in the fan chamber 18, a floor nozzle 20 having a rotary brush or agitator 22 operatively associated therewith. The casing is supported for movement over a floor so that the nozzle may be spaced a desired distance from the surface being cleaned, and in operation the motor 12 driving the fan 16 will induce a flow of dirt-laden air upwardly and inwardly through the nozzle 20 and fan chamber 18 to a suitable dirt-collecting receptacle which may be attached to the cleaner in any conventional manner.

The brush or agitator 22 may, as illustrated, be arranged within the mouth of the nozzle 20 and supported for rotary movement on a horizontal axis. The brush 22 may be provided with bristles for engaging the material being cleaned to aid in dislodging dirt therefrom which is carried by the stream of dirt-laden air which flows inwardly through the nozzle as previously described.

The fan 16 may be supported upon and driven by a shaft 24 of the motor 12, and the shaft may be formed to extend into the upper part of the nozzle 20 above the brush 22. A belt 26 passing over the end of the shaft 24 and a pulley 28 formed on the brush 22 is adapted to rotate the brush 22 about its horizontal axis when the motor 12 is operated. In the drawing the belt is illustrated as being disengaged from the shaft 24 by means of a belt-lifting device, the function of which will appear hereinafter.

Above the nozzle 20 the casing may be provided with a socket 30 adapted to receive the end 32 of a coupling member 34 to which a flexible hose may be swiveled. If desired, a latch may be provided for preventing the accidental separation of the coupling member 34 and the socket 30. The end 32 of the coupling member 34 is cut away at 36 on one side thereof to communicate with a port 38 formed in the upper part of the nozzle 20 and providing communication between the interior of the socket 30 and the interior of the nozzle 20. The port 38 is adapted to be closed by a valve 40, but is illustrated in Fig. 1 as being open. The valve 40 may comprise a cup-shaped member having a portion of its cylindrical wall cut away to provide an opening which is adapted to register with either the port 38 or with another port 42 as hereinafter described.

The valve 40 is mounted for rotary movement in the nozzle 20 and is provided with an opening through which the end of the shaft 24 extends. The valve 40 is positioned in the nozzle 20 at what may be termed the fan eye which normally provides communication between the interior of the nozzle 20 and the fan chamber 18. However, in the position in which the parts are illustrated in Fig. 1, the interior of the coupling member 34 is connected through port 38 and the fan eye 44 to the fan chamber 18 so that upon operation of the fan a flow of air will be induced through the coupling member 34, port 38, into the fan chamber and thence into a suitable dust receptacle.

The port 42 is formed by an opening in part of the wall of the nozzle 20 and when the valve 40 is positioned 180° from that in which it is shown in Fig. 1, the port 42 and the valve opening 40 will establish communication between the interior of the nozzle 20 and the fan chamber 18. When the valve 40 is rotated 180° from the posi-

tion illustrated in Fig. 1, the valve body will close the port 38 and open the port 42. A finger 45 affixed to the outside of the valve body 40 is adapted to lie parallel to the axis of the shaft and is provided with a turned end 46 which is adapted to extend between the bifurcations of a U-shaped bracket 48 carried by a rotary plate 50 mounted for rotation in an opening in the front wall of the nozzle 20 and provided with means or knobs 52 for rotating the plate 50. When the plate 50 is rotated 180° so as to reverse the positions of the upper and lower knobs 52, the member 48 engaging the sides of the end 46 of the finger 45 will rotate the valve 40 about its axis which coincides with that of the shaft thereby shifting the finger 45 from the position shown in full lines to the position shown in dot and dash lines in the drawing. When the finger 45 so moves the belt 26 will be reengaged with the end of the shaft 24 and since movement of the finger 45 will move the valve 40 180°, the port 38 will be closed and the port 42 opened thereby operatively connecting the brush 22 to the motor of the cleaner for driving the same and reestablishing the communication between the floor nozzle 20 and the fan chamber 18.

When the finger 45 is in the position shown in full lines in the drawing, the motor will be employed only for driving the fan 16 for the purpose of inducing a flow of air into the fan chamber through the port 38 and the coupling 34 to which various types of cleaning tools may be attached. However, when the valve 40 is shifted as previously described to open the port 42, the coupling member 34 may be disconnected and the machine will be ready for what may be termed floor or surface cleaning.

A hinged cover 58 pivotally secured by a pivot 60 to the casing 10 may support a light 62 and is adapted to cover the socket 30 when the coupling member 34 is detached from the machine. The space enclosed by the cover 58 provides a receptacle open at the front for the light 62.

While the invention has been described with some detail, it is to be understood that the description is for the purpose of illustration only and is not definitive of the limits of the inventive idea. The right is reserved to make such changes in the details of construction and arrangement of parts as will fall within the purview of the attached claim.

I claim:

Vacuum cleaner construction comprising a motor, a fan chamber having a fan therein and a fan eye forming an intake opening therefor, a floor nozzle, an agitator operatively associated with said floor nozzle, a valve chamber communicating with said fan eye and having two oppositely disposed ports, one of said ports forming an attachment port to which a coupling member may be detachably secured and the other of said ports affording communication between said floor nozzle and said fan eye, said motor having a shaft upon which said fan is arranged for driving the same and which shaft extends through said intake opening and into said nozzle, a cup-shaped rotary valve member arranged in said valve chamber with its open end presented toward said fan eye and having a portion of the cylindrical wall thereof cut away, said valve member being adapted to rotate approximately 180° from one position thereof to another to control the communication between said fan eye and said nozzle and attachment port, respectively, said valve member being provided with an opening through which said shaft extends into said nozzle, a belt connected to the end of said shaft, which extends into said nozzle, so as to be driven thereby and operatively connected to said agitator for driving the same during the operation of said motor, a belt lifter carried by said valve and adapted to engage said belt and disengage the same from said shaft when the valve is moved to a position to establish communication between said fan eye and said attachment port and to close the communication between said fan eye and said nozzle, and rotary means carried by the front wall of said nozzle and engageable with the end of said belt lifter for shifting the same and said valve member from one position thereof to the other.

GEORGE R. COSS.