This invention relates to vacuum cleaners of the type disclosed in my pending application Serial Number 66,882 and Patent 2,114,630, of which the present application constitutes a continuation in part, and the above disclosures are incorporated herein as a part hereof by reference.

The present invention has to do with a converting mechanism for converting the cleaner from "on-floor" to "off-floor" use and vice versa, and aims to improve upon such a mechanism as is disclosed, for example, in United States Patent No. 1,458,559. "To this end, it provides an arrangement in which the suction producing means is closed off from the normal inlet mouth by a gate valve in the throat of the suction chamber, and the latter is positively held in inoperative position by the closing engagement, with the auxiliary inlet, of a cover member that is carried by an arm attached to the operating shaft of the gate valve.

Specifically, the improvement resides in attaching the cover to the control arm so as to definitely accomplish the following objects:
1. To constitute the cover an attached part of the cleaner and avoid its becoming lost, and
2. To provide a positive and sure latching connection between the control arm and a fixed portion of the cleaner so that the vibration of the cleaner when in use, will not dislodge such connection and cause the valve to undesirably shut off the suction from the main inlet mouth.

A further object is to provide an arrangement in which the cover is attached by a mounting allowing the cover to be retracted from engagement with the inlet, and normally resiliently urging the cover into such engagement.

Another object is to provide an arrangement in which the suction from both of the dual fans of the cleaner disclosed in application Serial Number 66,882, is exerted against the auxiliary inlet, even though the auxiliary inlet is located on one of the bifurcations of the suction chamber. This is accomplished by leaving a small space between the valve and the web of the bifurcation.

Further objects will appear in the perusal of the following detailed description of the invention in connection with the accompanying drawings in which:

Fig. 1 is an inverted plan view of the body portion of a cleaner embodying the invention, part of the bottom being broken away to better illustrate the construction.

Fig. 2 is a perspective view of the entire cleaner illustrating the use of "attachments" in the converted form.

Fig. 3 is a transverse sectional view taken on the line 3-3 of Fig. 1.

Fig. 4 is a side elevation of the body portion.

Fig. 5 is a similar view, partly in section.

Fig. 6 is a perspective view of the cleaner illustrating the use of another attachment, and

Fig. 7 is a detail view of the attachment shown in Fig. 6.

A cleaner of the type under consideration comprises generally a suction chamber A, a fan casing B connected thereto, a handle C attached to the fan casing B, a dust collector D suspended from the handle, and a motor E for driving the fan impellers F and the rotary agitator G.

The suction chamber comprises an agitator 15 chamber 10, a throat 11, a bifurcated section forming two spaced air ducts 12 and a pair of elbows 13 to which the fan casing B is swivelled. The chamber 10 has a main inlet mouth 10a. The suction chamber is mounted on adjustable rear wheels 14 and front wheels 15, the latter being covered by hoods 16 formed integrally with and projecting rearwardly from the chamber 10. The top walls of the hoods 16 slant downwardly to the rear in the plane of forward region of the depression 17 in the central region of the suction chamber, in which depression the motor E is seated. Where the depression 17 curves upwardly, the hoods 16 curve downwardly, and between these diverging regions is positioned the shaft 18 on which is mounted the gate valve 19. The shaft projects through and is journaled in side walls 20 of the suction throat 11, and the region of the shaft lying between the walls 20 is positioned below the top wall of the throat, while the portions 35 of the shaft projecting outside the walls 20 lie above the wheel hoods 16.

The gate 19 is shaped to completely partition the throat 11 when in closed position shown in full lines in Fig. 5. In doing so, however, it stands at a slight angle to the perpendicular, so that its lower edge may engage the bottom wall 21 of the throat without binding thereagainst, and while the valve is spaced from the web 22 of the bifurcation. Thus air may flow from the auxiliary inlet 33 into both chambers of the fan casing B, one stream of air flowing directly and the other stream passing between the web 22 and valve 19.

To the projecting end of the shaft 18 is secured an arm 24. In the outer end of this arm is a bushing 25 in which is slidably mounted a plunger 26 carrying a cover 27. The latter has a depressed central regionreceivable in the end of the auxiliary inlet 28. A spring 28 urges the
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cover 21 into such engagement and allows it to be retracted to a position where the arm 24 may be oscillated to close the valve 16. The cover thus serves the dual function of closing the auxiliary inlet and holding the valve in open position for the main inlet mouth 18.

The inlet 22 is of sufficient length to be received in the end of an attachment hose 30 (Fig. 2). It is provided with a threaded stud 31, carrying a nut 32. When using the “insector” attachment I (United States Patent 1,061,186) the stud 31 is received in a slot 33 (Fig. 7) in the air duct 34 of the “insector”, and the nut 32 is tightened against the duct 34. In this case, the hose 30 is attached to the outlet 35 of the fan casing, and held in the right hand, in position to direct an insecticide laden stream of air against an article to be treated, the “insector” is operated by a cord 36 attached to the control lever 37 of the “insector”, the other end of the cord having a ring 38 which is hooked over a finger of the operator’s left hand. Thus the operator may use the left hand to steer the cleaner to the desired position adjacent the article to be treated, and the right hand is used for directing the nozzle 39.

I claim as my invention:

1. In a vacuum cleaner, a suction chamber having an inlet mouth, a throat, and a pair of outlet ducts arranged in the order named, a gate valve extending across said throat ahead of the junction between said throat and said ducts and adapted to isolate said ducts from said inlet mouth, and an auxiliary suction inlet communicating with one of said ducts, and subject to suction from both of said ducts, air being allowed to pass from the other duct between said valve and said junction.

2. In a suction cleaner including a floor tool having a carpet engaging inlet mouth and auxiliary inlet, both adapted to receive suction from a fan carried by said floor tool, the combination, a valve mounted in said tool and adjustable to selectively direct suction to said inlet mouth or said auxiliary inlet, said auxiliary inlet including a tubular extension, an arm secured to said valve whereby said valve is adjusted, means carried by said arm and adapted to cover said auxiliary inlet when said valve is adjusted to direct suction to said inlet mouth, said means having a depressed central region adapted to be received in said auxiliary inlet, resilient means acting directly between said means and said arm urging said means into engagement with said auxiliary inlet, and said depressed central region serving to maintain said arm in fixed position when said valve is adjusted to admit suction to said inlet mouth.

3. In a suction cleaner having a floor tool including a carpet nozzle and an auxiliary suction inlet and having a suction fan carried by said floor tool, the combination, a valve carried by said tool, arm means connected to said valve to adjust same, whereby suction may be applied to either said inlet or said nozzle, a cover carried by said arm means and adapted to close said auxiliary inlet when suction is applied to said nozzle, said cover being yieldably carried by said arm means to thereby yieldably engage said inlet and simultaneously inhibit movement of said valve, said yieldable means comprising a shoulder of said arm member having a knob thereon and extending through a counterbored aperture in an arm carried by the projecting portion of the shaft, a sleeve carried by the counterbore and a spring carried by the rod interposed in said sleeve between the shoulder of the counterbore and a shoulder on said rod.

DEWEY M. DOW.