July 21, 1931. M. E. NULSEN ET AL 1,815,067

SUCTION SWEEPER

Filed May 5, 1926

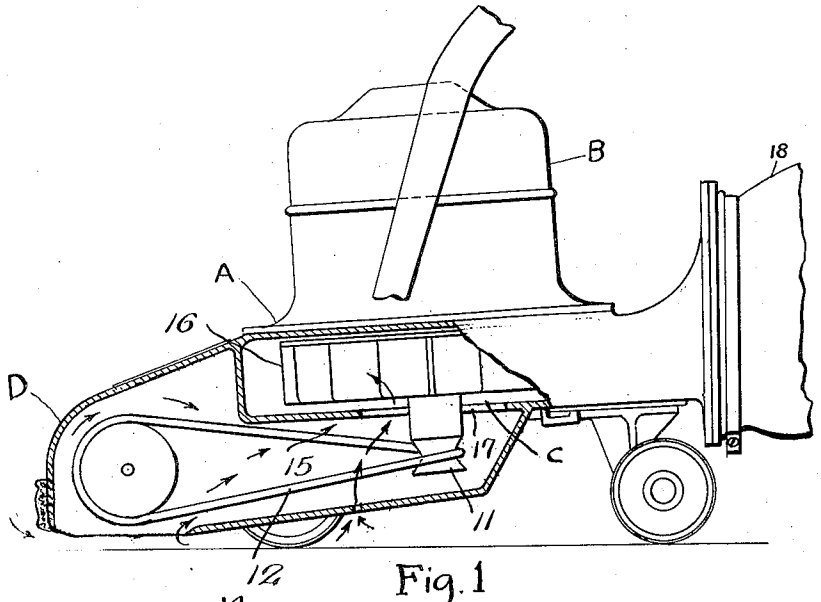


Fig. 1

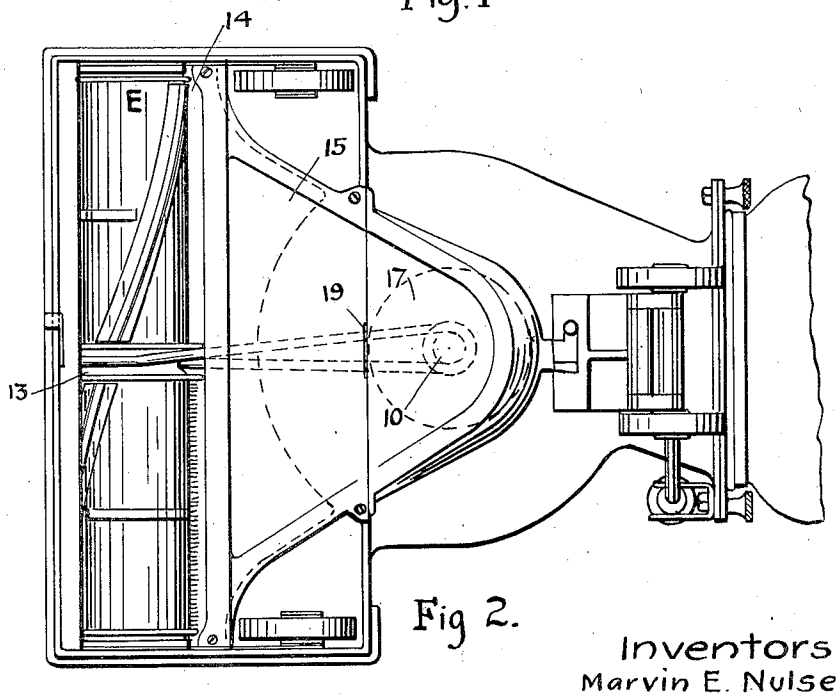


Fig 2.

Inventors
Marvin E. Nulsen
Benjamin J. Buchtel
By Harry S. Demaree
Attorney

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UNITED STATES PATENT OFFICE

MARVIN E. NULSEN AND BENJAMIN J. BUCHTEL, OF CANTON, OHIO, ASSIGNORS TO THE HOOVER COMPANY, A CORPORATION OF OHIO

SUCTION SWEEPER

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The invention relates to suction cleaners and more especially to that type wherein there is provided an agitating member driven from the motor by means of a belt.

The object of the invention is to provide means, in a suction cleaner comprising a driven agitator, to prevent the fouling of the driving pulley by hair or thread or like materials passing through the cleaner.

In the drawings wherein like numerals indicate like parts,

Figure 1 is a side elevation; and Figure 2 is a bottom plan view of a cleaner showing the application of the invention.

The invention is shown as a part of a suction cleaner indicated generally at A which may be considered as composed of a motor B, fan and fan chamber C, nozzle D and agitator member E.

The motor shaft designated at 10 carries on its lower end a small driving pulley 11 which by means of belt 12 in conjunction with pulley 13 on agitator member E causes rotation of the agitator member when current is supplied to the motor causing it to revolve.

In operating the cleaner over a floor covering hairs, strings, threads and materials of like nature are encountered which are picked up by the air stream entering the inlet 14 of the nozzle D and pass into the suction passage 15, whence they are carried by the air stream which is created by operation of fan 16, past the pulley 11 and through the inlet 17 of fan chamber C which opens to the suction passage 15 to be eventually deposited in the separator member 18. The course followed by the strings and similar matter just described is that of the majority of such matter in the normal operation of the cleaner, but it often occurs that long strings or long hairs or matter of like nature in some way become caught on the small driving pulley 11 and are wound therearound as the pulley rotates. Such action is a source of trouble since it is possible that these threads or other matter will, in wrapping about the pulley, become crossed over the belt and cause it to be broken or thrown off the pulley. Further, it is often experienced that while the belt is not broken, the wrapping of threads or strings around the small driving pulley so change its effective diameter and the nature of the belt contacting surface as to interfere with the operation of the cleaner through stretching the belt and often by throwing it off the pulley.

In order to prevent these materials from wrapping as described about the small pulley 11 there is provided in the bottom of the suction passage 15 a small air leak comprising a slot or port indicated at 19, which is positioned slightly ahead of the driving pulley 11 and also slightly ahead of the leading edge of the fan intake 17.

With a leak positioned as described, when the motor is operating and driving the fan 16, the suction created in the suction passage will draw air in not only through nozzle 14, but also through leak-port 19.

The stream of air entering through leak-port 19 functions, upon meeting the main air stream passing rearwardly through suction passage 15, to deflect that stream upwardly and so set up a resultant air flow which carries the suspended strings, hairs or like materials into the forward portion of the fan intake 17 and thus prevent them from coming in contact with and wrapping about the driving pulley 11 which is located directly therebelow. This change in the direction of the air stream prevents the suspended material such as mentioned from following its normal course through the suction passage which would take it directly past the driving pulley 11 to substantially the rear extremity of the passage and then into the fan inlet, thereby eliminating danger of collection around the driving pulley.

Having described the invention with that particularity required by statute, we claim:—

1. In a suction sweeper, means for producing suction, driving means on which said suction producing means is mounted, and on the lower end of the driving means a driving pulley, a nozzle having an intake and an agitator revolubly mounted in the nozzle, the agitator having a driven pulley formed thereon, driving means connecting the driving and driven pulleys, a casing for the suc-

tion producing means, the casing having an inlet, a suction conduit connecting the nozzle intake to the suction producing means casing inlet, and an auxiliary air inlet port in the suction conduit positioned slightly in advance of the forward edge of the inlet of the casing of the suction producing means and adjacent the driving pulley to admit a current of air at substantially right angles to the normal flow from the nozzle intake to the suction chamber inlet.

2. In a suction sweeper, a suction producing device, a nozzle adapted to travel over a floor covering, an agitator mounted in said nozzle, a conduit connecting said nozzle with said suction producing device, power transmission means connecting said suction producing device and said agitator the power transmission means being entirely within the conduit, said conduit being provided with a leak-port positioned to admit air flow into said conduit at right angles to the main flow of air in said conduit and over a portion of the power transmission means to deflect said main flow of air therefrom.

3. In a power transmission, a driving member and a driven member, means transmitting power from the driving to the driven member, said means including a belt, the power transmission as a whole positioned in a conduit conveying a dirt-carrying primary air stream, the conduit having a port adjacent and forward of the driving member, the port opening from the conduit to the region of air pressure higher than that in the conduit, a secondary air stream entering through the port transversely of the direction of flow of the primary air stream in front of the driving member and substantially at right angle to the plane of said belt to deflect away from the driving member dirt carried in the primary air stream.

4. A suction cleaner of the motor driven agitator type in which the driving means for the agitator is positioned in the cleaning-air passage characterized by the fact that said air passage is provided with a port in advance of the driving means to admit a stream of air transversely of the direction of air flow in said passage to deflect the main air stream from said driving means.

Signed at North Canton, in the county of Stark and State of Ohio, this 22nd day of April, A. D. 1926.

MARVIN E. NULSEN.
BENJAMIN J. BUCHTEL.