A. J. FISHER.

VACUUM CLEANER NOZZLE.

APPLICATION FILED MAR. 22, 1913. RENEWED JULY 31, 1915.

1,238,903. Patented Sept. 4, 1917.

Fig. 1.

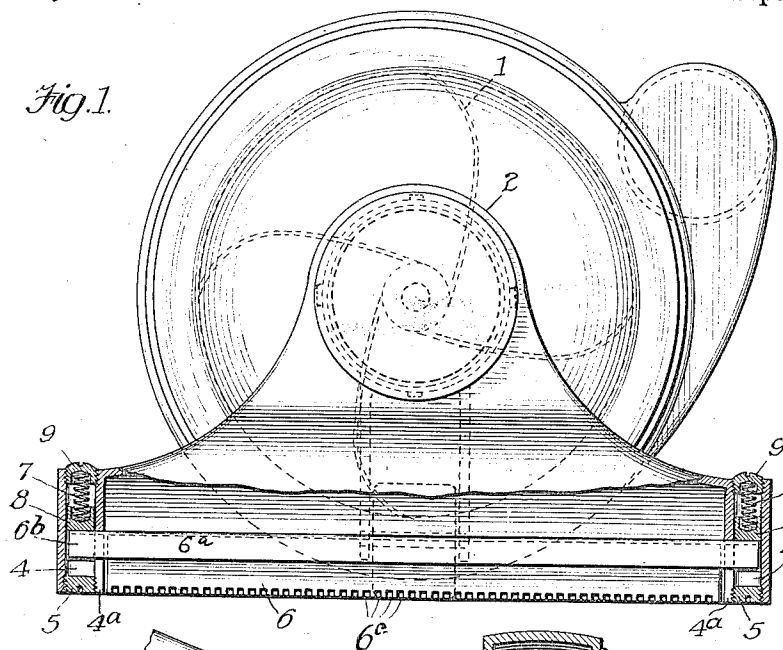


Fig. 4.

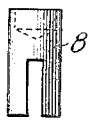


Fig. 2.

Fig. 5.

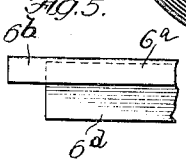
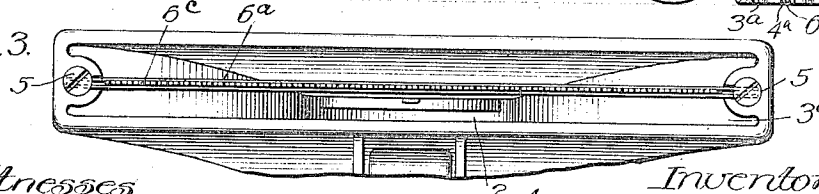


Fig. 3.



Witnesses
Martin H. Olsen.
Robert D. Obberman.

Inventor
Alva J. Fisher
By Rector, Hibben, Davis & Macauley
His Attys

UNITED STATES PATENT OFFICE.

ALVA J. FISHER, OF EVANSTON, ILLINOIS, ASSIGNOR TO HURLEY MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

VACUUM-CLEANER NOZZLE.

1,238,903. Specification of Letters Patent. Patented Sept. 4, 1917.

Application filed March 22, 1913, Serial No. 756,181. Renewed July 31, 1915. Serial No. 43,030.

To all whom it may concern:

Be it known that I, ALVA J. FISHER, a citizen of the United States, residing at Evanston, Cook county, Illinois, have invented certain new and useful Improvements in Vacuum-Cleaner Nozzles, of which the following is a specification.

My invention relates to nozzles for vacuum cleaners and my object is to provide nozzles of this character with means located in the nozzle slot for facilitating the vacuum cleaning action and particularly to make it possible for the machine to pick up threads and the like. Speaking in general terms my invention comprises in connection with a nozzle and a slot, a blade comprising a strip preferably of flexible material extending longitudinally of the slot and pressed outwardly to tend to project beyond from the plane of the slot by a yielding pressure. This strip is preferably of rubber and is outwardly spring-pressed so as to bear against such surface so that when it comes into contact with a thread or the like it will tend to roll up the thread and to loosen it from its attachment so that it can be removed by suction. Also the strip is preferably stiffened, as by a metallic clip or stiffener along its upper edge, leaving free or unstiffened a lower zone of said strip of a depth so properly proportioned to the free or open width of the slot on either side thereof that the thin, resilient lower portion, in bending under frictional engagement with a surface to be cleaned and under spring-pressure, cannot bring its edge into contact with either edge of the nozzle-slot.

In the accompanying drawing Figure 1 is a front elevation of a portion of a vacuum cleaner with the nozzle thereof broken away to expose the parts within; Fig. 2 a side elevation of such machine partly in section; Fig. 3 a bottom plan view of the nozzle; Fig. 4 a detail view of one end of the interior of the nozzle; and Fig. 5 a detail of a modified form of strip.

It will be understood that my invention relates to the vacuum cleaner nozzle only and that such nozzle may be used in connection with any type or character of vaccum cleaner although I have herein shown a machine employing an electric motor driven fan 1 mounted within a casing 2. Moreover in the present instance the nozzle indicated at 3 is show as a part or extension of the casing but this particular construction and arrangement is not essential so far as my invention is concerned.

Referring to the particular embodiment of my invention as herein shown, the nozzle 3 is provided with a longitudinal opening or slot 3^a which is adapted to be passed over and in contact with the surface to be cleaned. At opposite ends of this slot there are provided vertical chambers 4 closed at their lower ends by screw plugs 5 and adapted to receive end extensions of a strip 6 extending longitudinally of the slot and along the middle line thereof as clearly indicated in Fig. 3. I prefer to make this strip of flexible material such as rubber and to bind its top longitudinal edge with a clip 6^a of metal and to extend such clip at its ends beyond the ends of the strip proper, thereby providing extensions 6^b which project into the end chambers 4. The inner walls of these chambers have vertical slots 4^a whereby the strip may be inserted in place and held therein by the plugs 5.

The strip 6 is held outwardly beyond the plane of the nozzle slot by a yielding pressure and in the present instance this is accomplished by means of the springs 7 located in the upper ends of the chambers 4 and bearing at their lower ends against the followers 8 and at their upper ends against the screw plugs 9 which screw into the upper ends of such chambers. These followers in turn bear against the extensions 6^b and thereby tend to project the strip 6 in the manner referred to.

The nozzle being constructed as thus described the strip 6 will bear against the surface to be cleaned with a yielding pressure and as it is moved over such surface it will come in contact with the threads or the like which have heretofore been most difficult of removal, with the result that the threads will be rolled up or partially so whereupon the suction will draw them up through the nozzle in the well-known way. As clearly shown in the drawings, the construction and arrangement of the strip are such that in the operation of the device the slot will be open at all times on both sides of the strip so that the dust, threads, or the like on both sides of the strip are free to be drawn upwardly through the slot.

By preference the strip 6 is formed on its lower edge with teeth 6^c as shown in Fig.

1, although, if desired, such strip as shown at 6^d in Fig. 5 may be left plain.

I claim:

1. A vacuum cleaner nozzle having an inlet slot, a blade having a stiff upper portion and a thin, flexible, resilient, homogeneous lower portion, said blade mounted in the nozzle to extend lengthwise of the slot, and arranged to project its lower portion from said slot, the lower resilient portion of the blade being of a depth so proportioned to the free width of the slot on either side thereof that, in bending under friction engagement with a surface the free edge of the strip cannot meet either edge of the slot.

2. A vacuum cleaner nozzle having an inlet slot, a blade guidedly supported and movable in said nozzle comprising a rubber strip and a metallic stiffener extending along the upper portion of said strip, and spring-means pressing said stiffener outwardly to tend to project the strip-edge from the slot, the unstiffened portion of said strip being resilient and narrow, and the width of said inlet slot being so proportioned thereto that said strip, in bending under frictional engagement with a surface and under spring-pressure, cannot meet either edge of the nozzle-slot.

3. A vacuum cleaner nozzle having an inlet slot and chambers at the ends thereof, a strip extending longitudinally of the slot and having extensions projecting into said chambers and movable therein, said slot being at all times open on both sides of the strip, and springs within said chambers acting upon said extensions and tending to hold the strip projected from the plane of the slot with a yielding pressure.

4. A vacuum cleaner nozzle having an inlet slot and chambers at the ends thereof, a strip of flexible material extending longitudinally of the slot, a metallic binding along the top edge of the strip and having end extensions projecting into said chambers, said slot being at all times open on both sides of the strip, and springs within said chambers acting upon said extensions and tending to hold the strip projected from the plane of the slot with a yielding pressure.

5. A vacuum cleaner nozzle having an inlet slot 3^a and chambers at the ends thereof, plugs 5 closing the lower ends of the chambers, said chambers having vertical slots 4^a, a strip 6 extending longitudinally of slot 3^a and end extensions 6^b passing through the slots 4^a and entering the chambers, followers 8 bearing against such extensions, and springs 7 bearing against the followers and the tops of the chambers.

6. A vacuum cleaner nozzle having an inlet slot 3^a and chambers at the ends thereof, plugs 5 closing the lower ends of the chambers, said chambers having vertical slots 4^a, a strip 6 extending longitudinally of slot 3^a and end extensions 6^b passing through the slots 4^a and entering the chambers, and springs 7 housed in said chambers and acting upon said extensions to press the strip downwardly.

ALVA J. FISHER.

Witnesses:
S. E. HIBBEN,
ROBERT DOBBERMAN.