

March 13, 1934.

W. LEATHERS  
VACUUM CLEANER NOZZLE

1,950,450

Filed Oct. 27, 1930

2 Sheets-Sheet 1

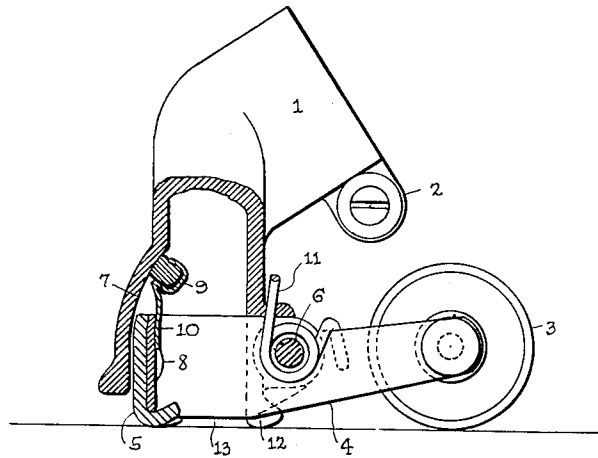


Fig. 1

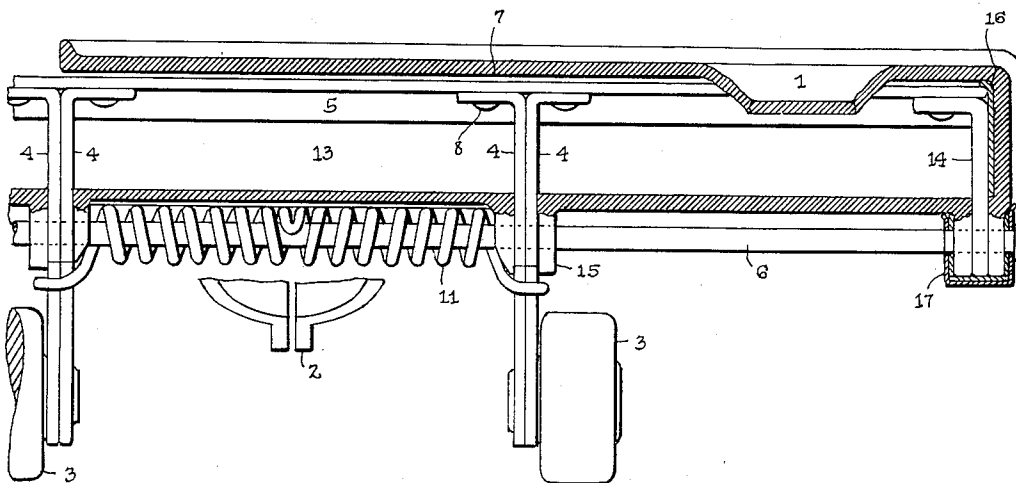


Fig. 2

INVENTOR.

Ward Leathers  
By Prindle, Bean & Mann  
Attorneys

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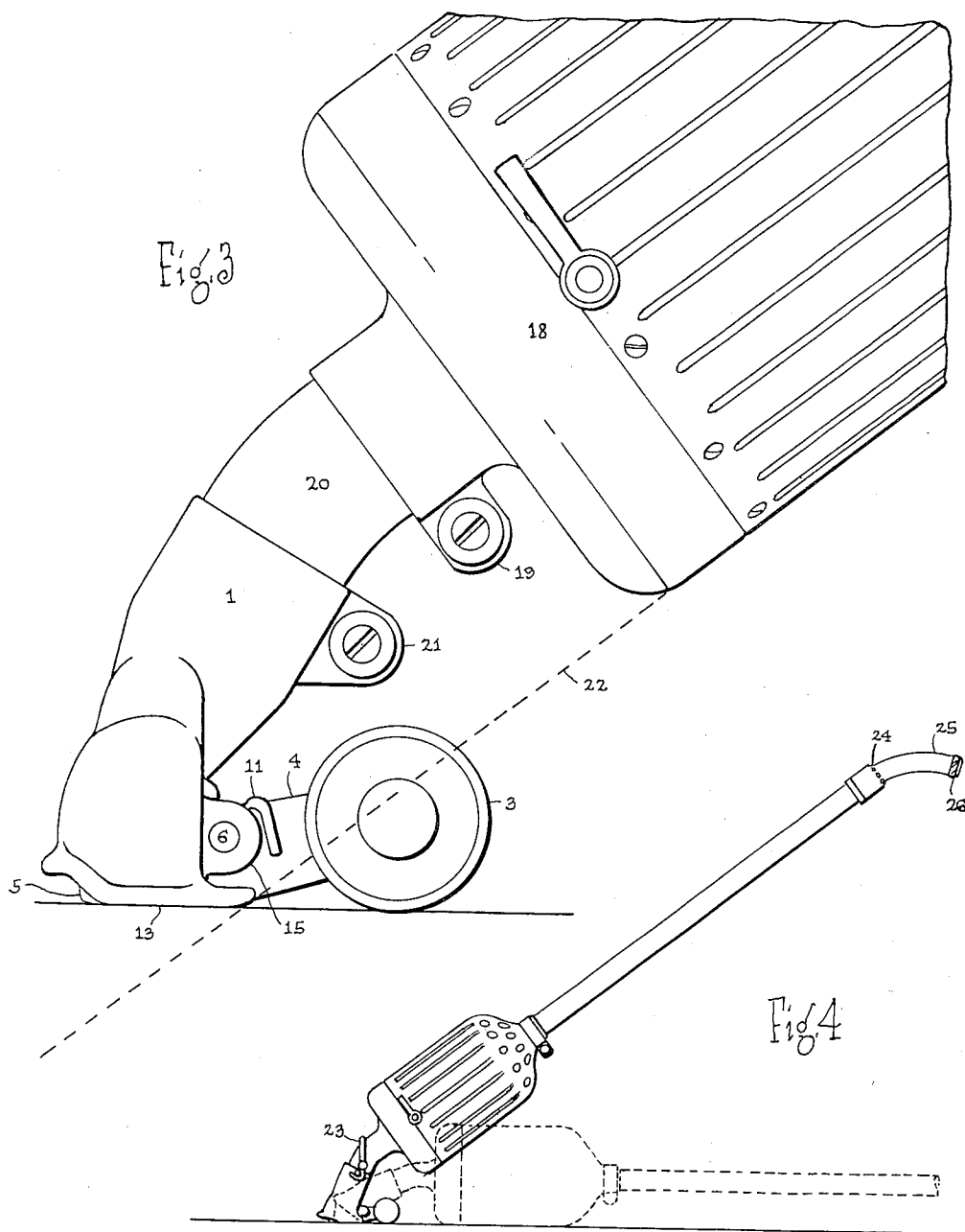
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Attorneys

## UNITED STATES PATENT OFFICE

1,950,450

## VACUUM CLEANER NOZZLE

Ward Leathers, Haworth, N. J., assignor to The  
Quadrex Corporation, a corporation of Con-  
necticut

Application October 27, 1930, Serial No. 491,415

3 Claims. (Cl. 15—156)

The object of my invention is to produce a vacuum-cleaner nozzle giving a slight lift from the floor for free and easy movement over bare floors or hard floor coverings, and for automatically maintaining full vacuum-cleaner efficiency with the cleaner laid prone on the floor for use under low furniture.

My vacuum-cleaner nozzle is adaptable to many types of vacuum-cleaners, but particularly where the motor is carried rigidly with the handle, and yet more particularly where the axis of the motor coincides with the axis of the handle.

The type of cleaner to which I have applied my nozzle in the drawings herewith is more fully set forth in my co-pending U. S. patent applications Nos. 481,407 filed September 12, 1930 and 488,794 filed October 15, 1930.

In order that my invention may be understandable to all those familiar with these arts, I have prepared the following specification to which I have appended drawings of which—

Figure I is a diagrammatic, vertical cross-section of a vacuum-cleaner nozzle.

Figure II is a diagrammatic horizontally partial cross-section of the same.

Figure III is a side-elevation of the nozzle.

Figure IV is a side-elevation of nozzle and cleaner.

In Figure I, a die-cast nozzle 1 is provided with means 2 for clamping it to the inlet end of the vacuum-cleaner. Naturally 1 may be devised for other than die-cast manufacture and 2 may be of any desired form (see Figure IV). A caster or roller 3 attached to the end of arm 4 raises or lowers the nozzle lip 5 about a shaft or pin 6 as a fulcrum. The inner face of the nozzle casting 1, shown at 7, is an arc of circle with center coinciding with that of the shaft 6. The lever arm 4 is shown joined to the lip 5 in rigid manner as by rivets at 8. A suitable welt 10 of felt or other suitable material is joined to 5 at 8 and to 7 at 9. The welt 10 prevents the air from being sucked into the cleaner through the space between 5 and 7. A spring 11 is designed to press the roller 3 downward, and thereby aid in lifting the nozzle from the floor. Slots 12 in the casting 1 provide means of setting the arms 4 into the nozzle 1 from the bottom. The suction port is shown at 13.

In Figure II similar parts bear similar numbers. On the ends the lip 5 is joined to arms 14, also passed upward through slots in the bottom of the nozzle casting 1. Lugs 15 suitably arranged on the back of the nozzle casting 1 support the members 4 and 14. As illustrated,

the nozzle 1 has no assembly members whatever. A complete assembly is made of the parts 4, 14, 5, 9, 3, and if desired, an end piece of felt 16.

This assembly is set into the slots 12 from the bottom, the spring 11 is held in place when the rod 6 is passed through round holes in 4, 14, 15, and anchored in any suitable manner. It may be desirable to furnish reasonably air-tight covers at the bearings in the lugs 15. In such case, a stamped metal housing 17 lined with felt, as in three pieces shown, two of which may be washer-like, is held in place with no other attachments than the pin 6 which passes through the dust cover at the time of assembly. A similar cover may be placed over the spring 11 and the adjacent bearings, such cover may be supported on its ends, covering the spring and adjacent bearings, in similar manner.

In Figure III, I have illustrated one of the many practical applications of my hinged nozzle, where it is applied to a type of cleaner with motor unit integral with the handle and with the motor-axis coincidental with the axis of the handle thereof. A blower-housing 18 is shown as a die-casting, clamped at 19 to a bent fibre tube 20, to which is clamped in similar manner the die-casting nozzle 1, at 21. The line 22 illustrates the floor position when the cleaner is laid prone and demonstrates one arrangement of relative parts, and the proportion thereof, whereby the nozzle opening 13 is maintained horizontal with the floor, and flat thereon, as desired.

Figure IV illustrates more fully the ease with which my hinged nozzle makes contact with the floor when the cleaner is prone thereon. At 23, I have shown any suitable latching mechanism whereby a hinged nozzle may be quickly and manually removed or attached, for purposes of replacing this nozzle with any other that may be desired. At 24 I have shown ports for the exhaust of free, clean air where a curved handle 25 is used, said curved handle having a removable cap at 26 from which the dirt may be exhausted from the cleaner.

Having set forth my invention in such form that all those familiar with these arts may understand, I wish it understood that the principles involved in my invention are applicable and designable in many and devious forms, and with many vacuum cleaner applications, without departing from the spirit of my invention.

I claim:

1. In a vacuum cleaner the combination of a suction nozzle with an exhaust outlet and an

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| inlet slot having forward and rearward walls and ends, an elongated member at the inner side of said forward wall having a floor-engaging lip and having rearwardly extending arms pivoted to said rearward wall for motion in a vertical plane, the free ends of said arms at the rear of said nozzle having floor engaging wheels; and a ply of flexible substantially non-porous material connecting the elongated member to the inner side of the forward wall of the nozzle to prevent the ingress of air between said member and said forward wall of the nozzle when the vacuum cleaner is in operation.                                                                                                           | 80             |
| 2. In a vacuum cleaner the combination of a suction nozzle with an exhaust outlet and an inlet slot having forward and rearward walls and ends, an elongated member at the inner side of said forward wall having a floor-engaging lip and having rearwardly extending arms pivoted to said rearward wall for motion in a vertical plane, the free ends of said arms at the rear of said nozzle having floor engaging wheels; and a spring operatively related to the nozzle and the elongated member arranged to press the wheel-ends of the arms of said member downwardly and vice versa, tending to raise and permit the floor-engaging lip to slide more easily over the floor or floor-covering without digging in. | 85             |
| 3. In a vacuum cleaner the combination of a suction nozzle with an exhaust outlet and an inlet slot having forward and rearward walls and ends, an elongated member at the inner side of said forward wall having a floor-engaging lip and having rearwardly extending arms pivoted to said rearward wall for motion in a vertical plane, the free ends of said arms at the rear of said nozzle having floor engaging wheels; and a spring operatively related to the nozzle and the elongated member arranged to press the wheel-ends of the arms of said member downwardly and vice versa, tending to raise and permit the floor-engaging lip to slide more easily over the floor or floor-covering without digging in. | 90             |
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