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ATTACHMENT TO AIR WAY CLEANER TOOLS

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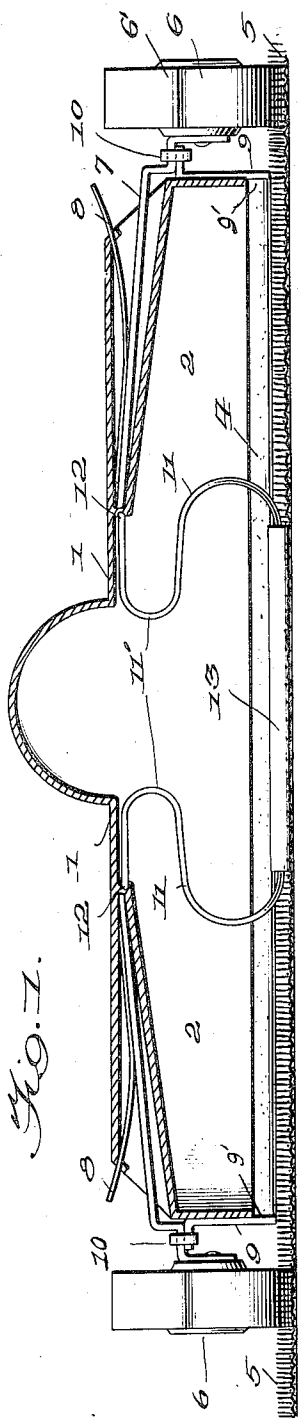


Fig. 2.

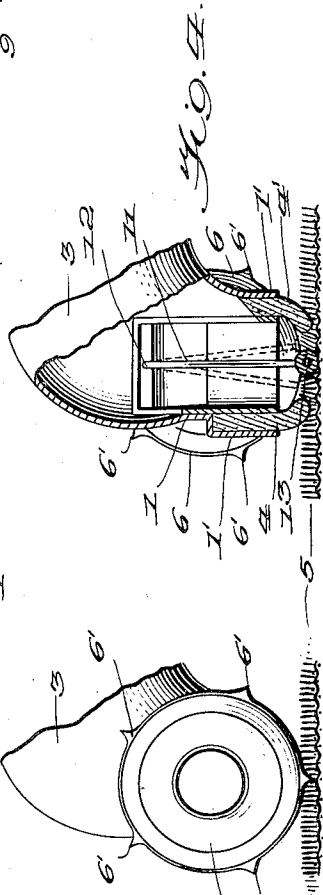
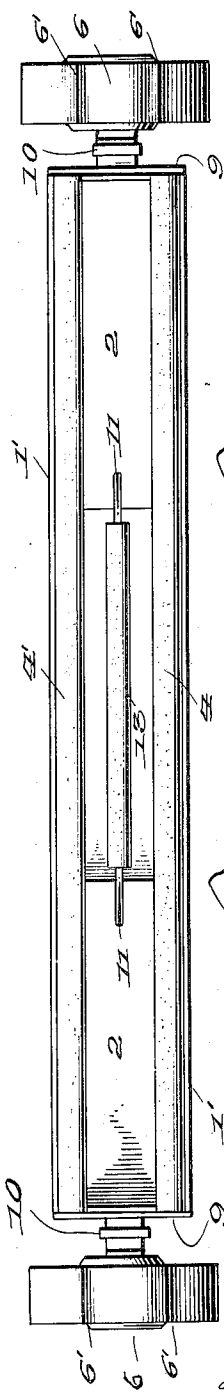


Fig. 4.

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ATTACHMENT TO AIR-WAY-CLEANER TOOLS

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This invention relates to suction cleaner tools, both of the ordinary, as well as of the air-way type.

The objects of the invention are to provide
 5 a lint-removing or thread-picking attachment to such tools, to provide such tools with an automatic opening and closing means for the ends operating intermittently, and to produce vibration in such tools, and to produce other novel results as may appear in this specification and claims.

To these ends, the invention may consist of a construction, arrangement and combination of parts as set forth and illustrated in
 15 the accompanying drawing, in which,

Fig. 1 shows a longitudinal cross section of the cross-head of a suction tool, to which any improvements are attached;

Fig. 2 is an under-side or bottom view of
 20 such cross-head with said attachments;

Fig. 3 is an end view taken at right angles to that of Figs. 1 or 2, particularly portraying the improved form of rubber-capped roller to be embodied in the invention, and

Fig. 4 is a view partially in cross section through the middle of the cross-head with the thread-picking attachment inserted.

Referring to the drawings, the cross-head 1 having the open interior 2 communicating
 30 with the suction pipe 3 is provided with lip pieces 4 and 4' having lower edges coplanar and adapted to contact with the surface or carpet 5 to be cleaned.

At each end of the body 1 is a roller 6
 35 mounted in a shank 7 having a spring 8 adapted to allow of a yielding vertical motion of the mounted roller, and the shanks also carry end lids 9, 9 secured to the shanks at 10, 10, whereby vertical movement of the
 40 roller in one direction will remove the lids from the end openings 9', 9' between the ends of the coplanar lips of the pieces 4, 4'. The rollers used in this case are special; they are preferably constructed of resilient rubber and have a series of frets or projections
 45 6'', 6'', 6'', etc. on their peripheries. These frets are designed to cause vibration upward and downward of the lids 9, 9, or of the tool itself, or both, as modified by certain circumstances hereafter referred to.

Besides the roller attachments referred to, the interior of this floor tool may be provided with a thread-picking device constructed preferably from resilient wire 11, recurved as at 11', and having its ends 12,
 55 12 pivoted at the top of the interior of the tool. The lower part of this wire, which is coplanar with the lips of the tool, is provided with a cushion 13, preferably constructed from rubber tubing slipped over
 60 the wire. The thread picking element may be removed by simply pressing inwardly the side arms of the wire 11, thus drawing its ends 12 out of their sockets.

In the operation of the device, the thread-
 65 picking device is alternately pressed against the coplanar parts of the lip pieces 4, 4', as the floor tool is pushed back and forth over the surface to be cleaned. This action is designed to pinch particles of thread or lint
 70 between the cushion 13 and the lips of the tool, so as to dislodge them from the nap of the carpet 5, and drag them along, while the moving air, which is puffed into the floor tool by the intermittent lifting of the lids 9, 9,
 75 will carry them away as they stream into the air current of the pipe 3; for it should be understood that if the body of the tool is pressed down so that the lips are pressed flat against the surface to be cleaned, then the
 80 frets 6'', 6'', 6'' etc. will cause the lids to be lifted intermittently, as the rollers travel with a jumping motion. If, however, the operator presses only lightly downwardly on the tool, the body of the tool will be
 85 found to vibrate slightly with reference to the floor.

Having thus described a preferred construction and mode of operation of the device, this specification is not intended to be restricted to the exact constructions shown, as
 90 many modifications may be employed within the scope of the appended claims.

I claim:

1. In a floor tool having floor engaging
 95 lips and having tool end opening and closing means, means for operating said opening and closing means, a swinging element within the body of the tool, and having a cushioned portion thereof coplanar with the lips of the
 100

tool and adapted to impinge against the interior of either lip in the operation of the tool.

2. In combination with a pneumatic cleaning tool having end openings, end rollers for said tool, roller shanks resiliently mounted in the ends of said tool for supporting the tool on the rollers, lids for said end openings carried by said shanks, and peripheral projections on said rollers adapted to cause vertical movement of the lids during the operation of the tool, for intermittently opening and closing said end openings, and a thread picking element swingingly mounted within and adapted to engage a portion of the mouth of the tool.

3. In a floor tool having floor engaging lips, and having end openings, means for automatically and intermittently opening and closing said end openings during operation of the tool, and a swinging element pivoted within the body of the tool, said element having a thread picking portion substantially coplanar with the lips of the tool and swingable from side to side to contact with one or the other of said lips.

4. A floor tool having floor engaging lips and having end openings, means for automatically opening and closing said end openings on moving said tool over a surface to be cleaned, and means swingingly mounted within the body of the tool and coacting with the lips of the tool for grasping threads or the like.

5. A floor cleaning tool having floor engaging lips and having end openings, means for automatically opening and closing said end openings on moving said tool over a surface to be cleaned, in combination with means coacting with the lips of the tool for grasping free threads or the like on the article to be cleaned, said thread grasping means comprising an element swingingly mounted within the body of the tool so as to contact with one or the other lip of the tool.

6. In a cleaning tool, a thread picking element consisting of a movable bar arranged within the mouth of the tool, adapted to be pressed against a lip thereof so as to grasp threads and the like between said bar and lip, and means for detachably supporting said bar within the body of the tool, said means comprising resilient curved arms extending upwardly from the movable bar, said arms being bent outwardly at their upper portions, said outwardly bent portions being yieldingly engaged within the body of the tool.

In testimony whereof I affix my signature.

DANIEL BENSON REPLOGLE.