This invention relates to improvements in suction cleaning tools, and more particularly to a suction cleaning tool adapted to be attached to the suction hose of a vacuum cleaner or other source of partial vacuum. While particularly designed and having special utility as a tool for cleaning the slats of Venetian blinds, it is also applicable as a general cleaning tool for removing dust from places or objects which are difficult of access and/or which present a multiplicity of surfaces likely to accumulate dust.

Among the objects of my invention may be noted the provision of a suction cleaning tool capable of attachment to any of the standard makes of vacuum cleaners, which is characterized by inexpensive construction, and which is efficient in operation, as well as thoroughly dependable in use. Another object of the invention is the provision of a suction cleaning tool as aforesaid which is particularly effective in removing the dust accumulating on the slats of Venetian blinds, while at the same time functioning as a general utility cleaning tool for removing dust from objects or surfaces difficult of access. A further object of the invention is the provision of a suction cleaning tool in the nature of an attachment for a standard vacuum cleaner, incorporating a novel form of suction head capable of concentrating the suction effect in a relatively small area of the surface or surfaces to be cleaned while at the same time being readily movable along said surface whereby rapid cleaning may be effected. Yet another object of the invention is the provision of a suction cleaning tool as aforesaid, which is constructed and arranged as to permit the suction effect to be varied as desired simply by tilting or slanting the tool with respect to the surface to be cleaned. A further important object of the invention is the provision of a suction cleaning tool capable of being readily moved along a surface to be cleaned but which will not mar or scratch said surface.

The above and other objects and advantages of the invention will be seen from the following detailed description thereof, taken with the accompanying drawings illustrating preferred physical forms which the invention may take, in which—

Fig. 1 is a broken-away edge view of one form of suction cleaning tool according to the invention;

Fig. 2 is an under face view looking into the suction head;

Fig. 3 is a section taken along line 3—3 of Fig. 2;

Fig. 4 is a separated view illustrating a modified construction of suction cleaning tool according to the invention;

Fig. 5 is a longitudinal section taken through the assembled tool of the form illustrated in Fig. 4; and

Fig. 6 is a perspective view illustrating one application of suction tools of the invention.

Referring to the drawings in detail, and more particularly to the form of suction cleaning tool illustrated in Figs. 1–3, such preferably comprises a tubular body member 6 having a circular handle end 10 and a flattened blade-like tool end 12, which latter extends for the major length of the body member as seen in Fig. 6 and is comprised by substantially parallel walls joined along their side edges. The flattened or blade-like end 12 of the tool body terminates in a point 14 and aids in forming a suction head generally designated 16 (Fig. 2), which has length about equal to the width of a conventional Venetian blind slat and proportional width. Said suction head 16 is formed by an underface portion of one wall 12a of the flattened or blade-like end of the tool body and by a flange or bead 18 which extends from the point 14 of the tool body along the side edge margins thereof for an appreciable distance, and thence across said flat wall. Thus, the bead 18 forms with the underface portion of the flat wall portion 12a of the tube which it bounds a suction recess or enclosure which is supplied with vacuum through a multiplicity of vacuum openings 20 provided in the enclosed portion 12a of the tube wall, as shown in Fig. 2. Said vacuum openings are shown to be circular but they may take other forms, such as narrow slots, or one large suction opening may be employed.

According to a further feature of the invention, the bead 18 is preferably covered with a soft material such as felt, wool, short-pile fabric, and the like. The covering 22 is preferably preformed to channel section, and stiffening or reinforcement may be supplied so that the covering may be slipped over the bead, whereupon it frictionally attaches itself to the bead. To aid in securing the covering, the inner wall of the bead may be undercut as indicated at 24 (Fig. 3), thus to provide a relatively wide edge or rim, behind which the channel-shaped covering may secure itself. Such a slip-on covering permits it to be detached from the bead when worn and a new covering substituted therefor. It is also within the purview of the invention to positively secure covering 22 to bead 18 by adhesive, spring
clips, or like positive securing means. When properly applied, the covering 22 partially or semi-seals the suction recess or enclosure of the suction head to atmosphere and it also serves the additional functions of disturbing the dust to be removed from a surface and of permitting the head to be moved rapidly across said surface without marring or scratching the same.

The form of suction cleaning tool illustrated in Figs. 1-3 may consist for the head covering 22 be cast integrally from any suitable plastic material or from a light-weight metal such as aluminum, the suction apertures 20 being formed in the molding operation or in a subsequent drilling operation. The tubular body member 29 may also be formed from a suitable pressed material and the head head 18 molded or otherwise formed in a separate operation and thereupon secured to the flattened end 12 of the body member by cementing or other appropriate means.

Referring to the modified tool construction illustrated in Fig. 5, here the hollow, blade-like tool end 20 and the head bead 39 are formed separately, and the head bed is provided on a hood generally designated 38 which is adapted to be slipped on to the pointed and perforated end of the tubular body member to which it secures itself by friction. In such modified construction, the hood 39 may be formed from light-weight sheet metal, being provided with a backing 32, marginal side flanges 34, 35 and an angled end flange 40 converging to a point 42. Said hood is effectively open at one end to receive the pointed end of the flattened tube section and the side and end flanges 34, 35, 40 of the hood are substantially deeper than the flattened end of the tool body, with the result that when the tool parts are assembled as shown in Fig. 5, said flanges depend from the under face of the tube end. Said flanges preferably terminate in right-angular edge rims or heads 44 functioning as the rim enlargement 45 provided by the undercutting of the earlier described bead 19.

To complete the suction recess or enclosure upon the hood being slipped over the pointed end of the flattened-tube body member 28, a transverse strip 46 is provided to extend between the ends of the side flanges 34, 35, the under edge of the strip being spaced from the face of the backing 32 approximately the depth or thickness of the tool body, thus providing an entry slot for the tool body. The transverse strip 46 is formed with an edge rim or bead 48 forming a continuation of the similar bead 44 of the hood side-flanges 34, 35, and said edge rims or beads are covered, either prior to or after the assembly operation, with a prefomed covering 43 corresponding to the previously described covering 22, with the result that a suction head is formed by the sepa rated and flattened end of the tubular body member which functions similarly to the first described form of suction head. The transverse strip may be fixed before assembly to both ends of the side flanges 34, 35, or the strip may be affixed, either integrally or by an approved form of attachment, to only one of the side flanges, and bent to final position and attached as by clipping or soldering to the end of the other side flange, upon the hood being slipped over the pointed end of the tubular body member 28.

In use, a suction cleaning tool as described is connected to the suction hose of a vacuum cleaner, or to an extension fitting connected to said suction hose. The head with the suction recess opening downwardly may be placed flat on the surface to be cleaned, the bead covering 22 (or 48) providing a semi-seal to atmosphere and functioning to concentrate suction within the suction recess bounded by the head or flange, with the result that any dust particles on the surface are drawn through the head and into the suction hose, following which they are disposed of in the usual manner. The semi-seal formed by the head and the flange cover through concentrating suction in the head enclosure as aforesaid, permits the head to be readily moved along the surface to be cleaned, the covering also disturbing any dust tending to adhere to the surface so that it may be readily picked up by the suction effect and drawn out through the head. When used in cleaning the slats of Venetian blinds, the point on the suction head is of advantage in that it facilitates getting to and around the tapes usually securing the blind slats together, as well as the more inaccessible parts of the slats. It is also possible to vary the suction effect by tilting the tool slightly, so that it makes contact with the slat or other surface only along one side or margin of the head. This tilting may result in some lessening of the vacuum effect, but it makes the cleaning operation as it permits the suction head to be moved rapidly back and forth across a surface requiring cleaning.

Without further analysis, it will be seen that the suction cleaning tool of this invention achieves the desirable objectives set forth in the foregoing. Due to its simple design and construction, it may be manufactured inexpensively. It provides an effective means for rapidly cleaning the slats of Venetian blinds and is equally adaptable as well as a general cleaning tool for removing an accumulation of dust from relatively inaccessible surfaces. Moreover, the suction cleaning tool as described is thoroughly dependable in use and is capable of effecting a rapid cleaning operation without danger of marring or scratching hard surfaces such as those of the slats of Venetian blinds and the like.

As many changes could be made in carrying out the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

1. A suction cleaning tool adapted to be attached to the suction hose of a vacuum cleaner comprising a tubular body member having a flattened end converging to a point and being formed by substantially parallel walls joined along their side edges, a marginal bead extending from the pointed end along both side edges of one parallel wall of the member and thence across said wall and forming with the outer surface thereof an enclosed space, the tube wall within the enclosure being pierced with a multiplicity of suction openings establishing communication between the tube interior and said space, the head having a covering of soft material thereon adapted to partially seal the enclosed space to atmosphere upon the head being laid flat on a surface to be cleaned, said covering being preformed to channel section and being detachable from said rim so that it may be replaced when worn.

2. A suction cleaning tool as set forth in claim
5. A suction cleaning tool as set forth in claim 4, wherein the covering is preformed to channel section and is detachable with respect to the edge beads.

6. A suction cleaning tool adapted to be attached to the suction hose of a vacuum cleaner comprising a tubular member having a flattened end converging to a point and being formed by substantially parallel walls joined along their side edges, one parallel wall of the tubular member adjacent its pointed end being pierced with a multiplicity of suction openings, and a hood member detachably mounted on the flattened end of the tubular member and conforming to the shape thereof, said hood member having side flanges and an end flange at one end thereof, the other end being effectively open to receive the pointed end of the tubular member, said flanges having an edge bead, a transverse strip bridging the side flanges of the hood member at the open end thereof thereby completing with the side and end flanges a suction enclosure upon assembly of hood on tubular member, the transverse strip having an edge bead, and a covering of soft material on said edge beads, said covering partially sealing the space bounded by the beads to atmosphere upon the head being laid flat on a surface to be cleaned and the tool connected to vacuum.

NICHOLAS ANGELO BUCCASIO.

References Cited in the file of this patent

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>993,772</td>
<td>Goughnour</td>
<td>May 30, 1911</td>
</tr>
<tr>
<td>995,409</td>
<td>Lull</td>
<td>June 13, 1911</td>
</tr>
<tr>
<td>1,243,472</td>
<td>Wilson</td>
<td>Oct. 16, 1917</td>
</tr>
<tr>
<td>1,823,071</td>
<td>Thamm</td>
<td>Sept. 15, 1931</td>
</tr>
</tbody>
</table>

FOREIGN PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Country</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>291,760</td>
<td>Great Britain</td>
<td>Nov. 29, 1928</td>
</tr>
<tr>
<td>308,957</td>
<td>Great Britain</td>
<td>Oct. 17, 1929</td>
</tr>
</tbody>
</table>