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L. W. PARDEE

1,907,861

SUCTION CLEANER

Filed April 17, 1930

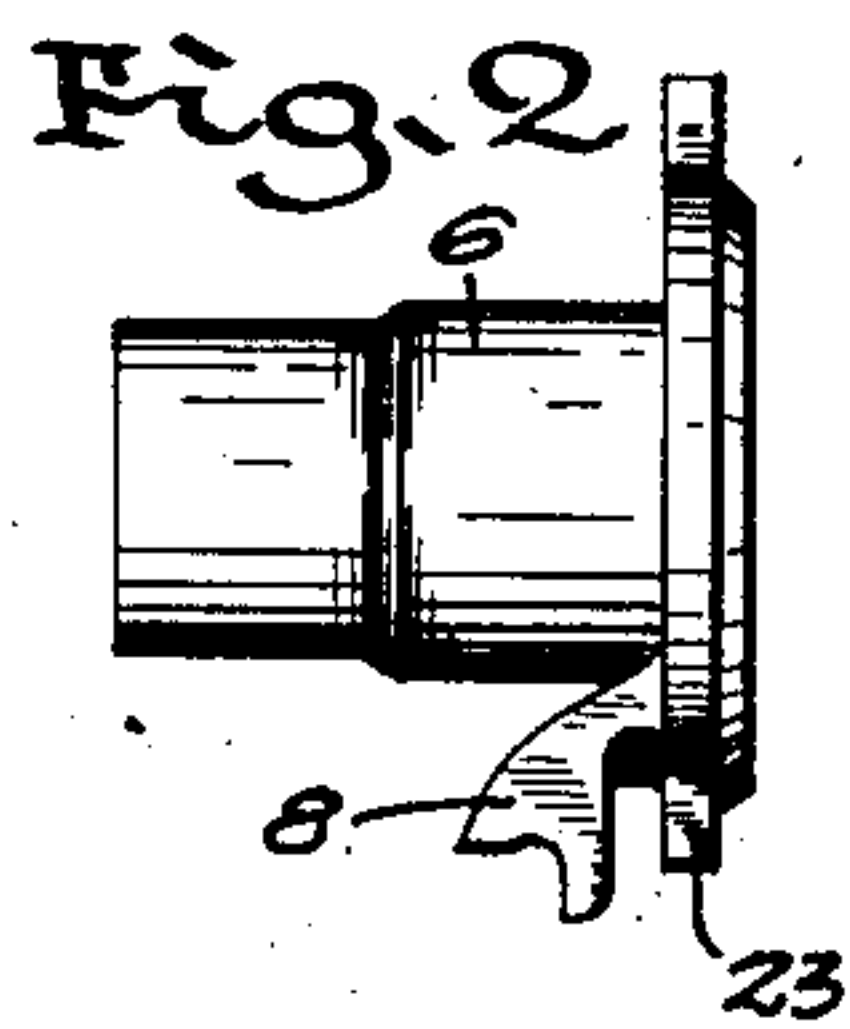
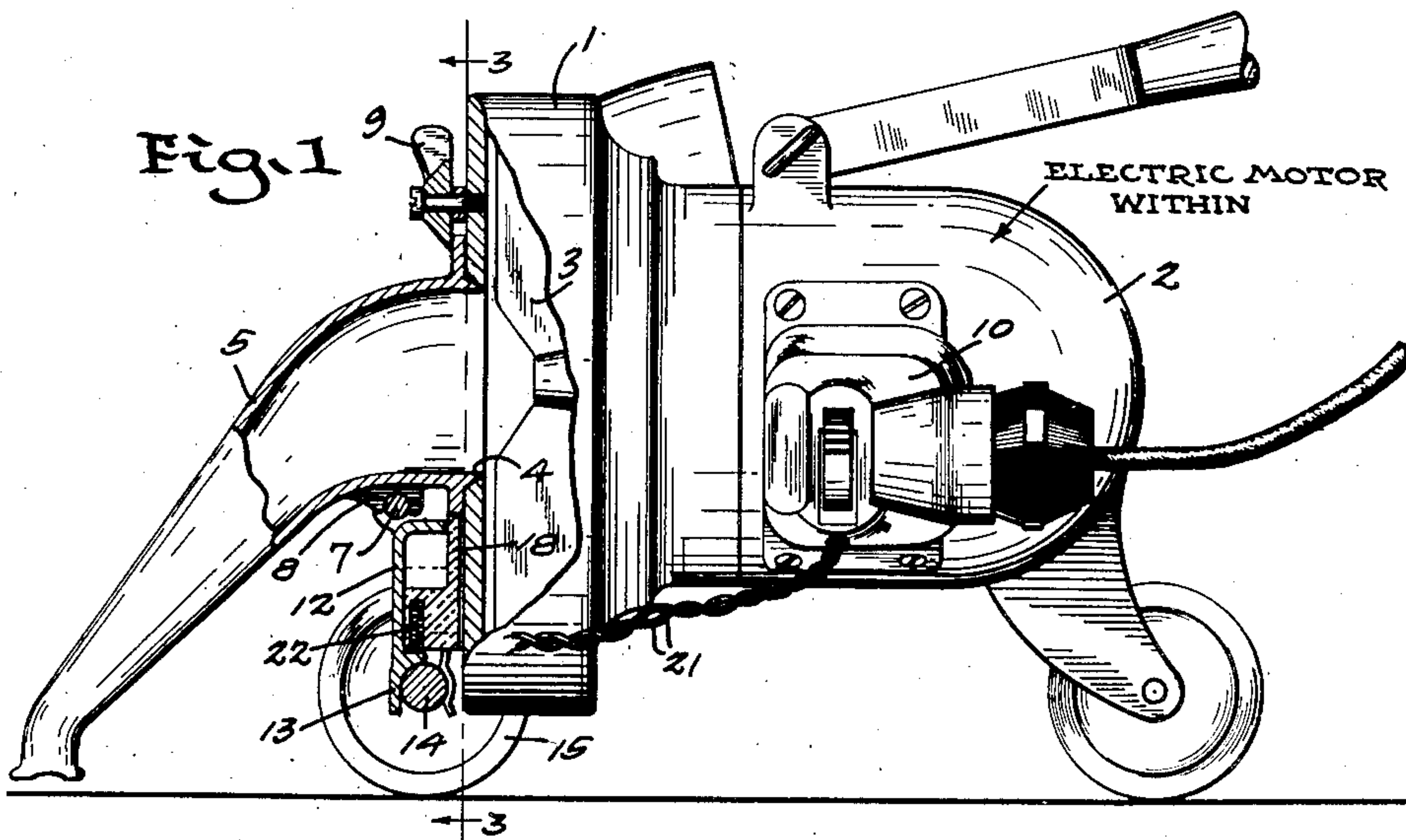


Fig. 3

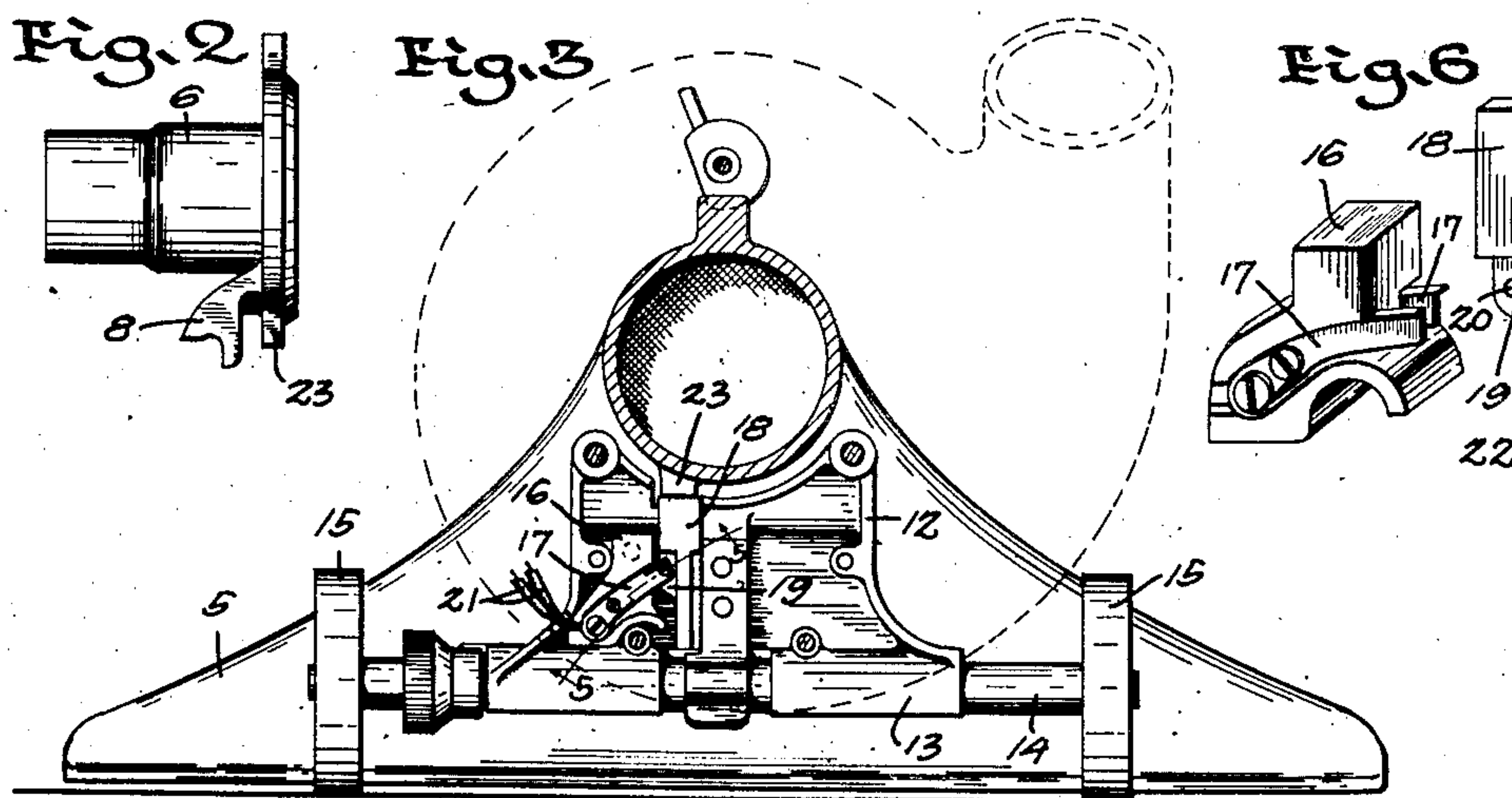


Fig. 6

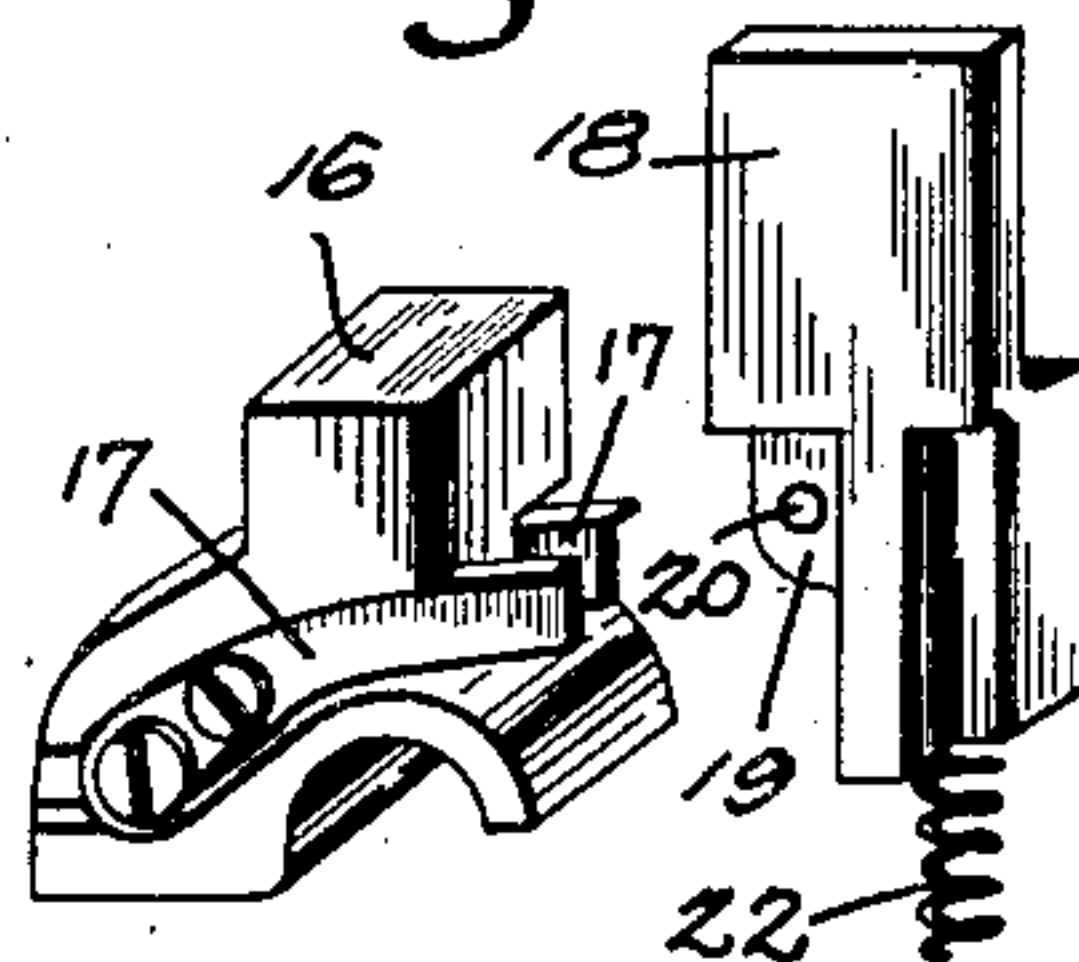


Fig. 4

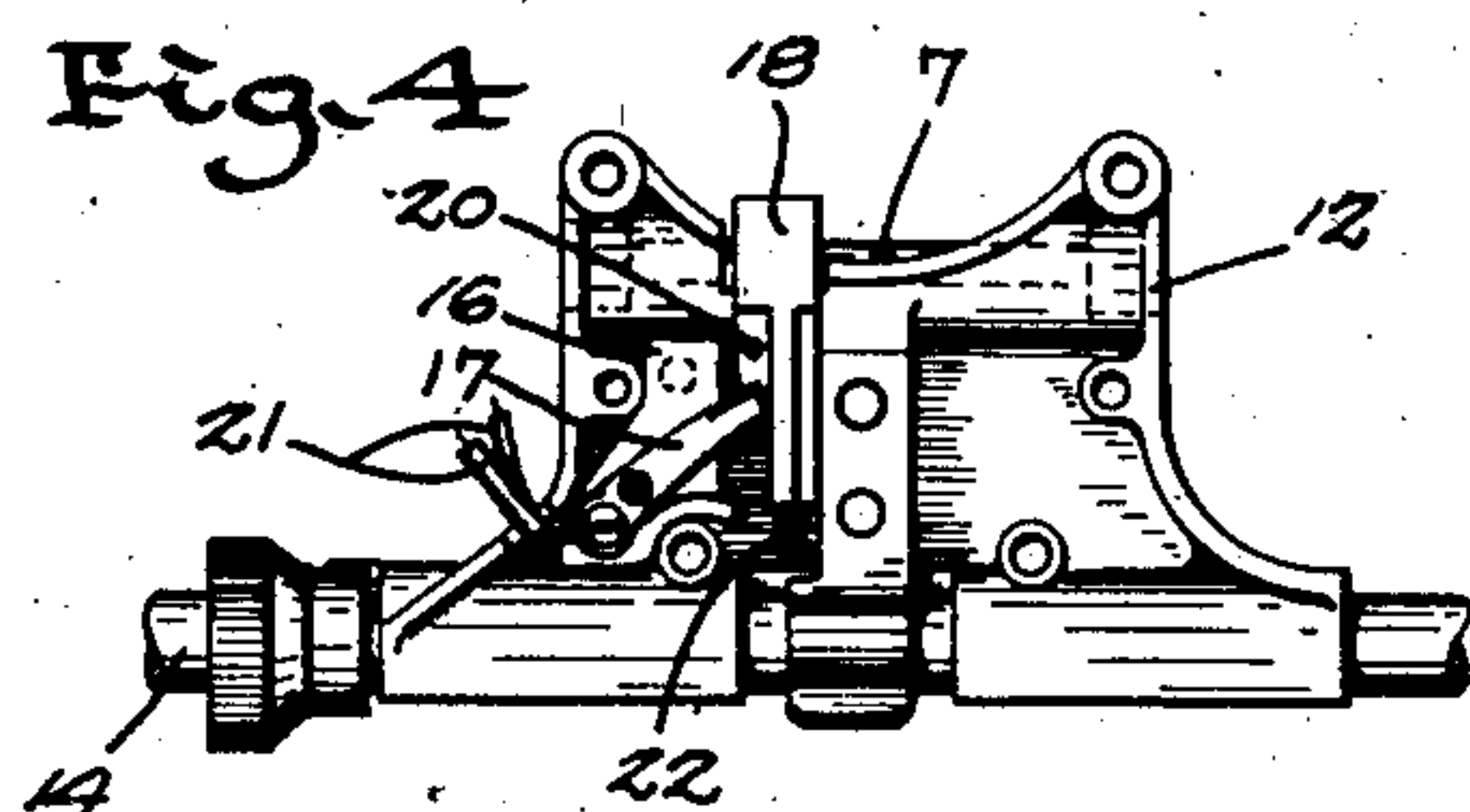
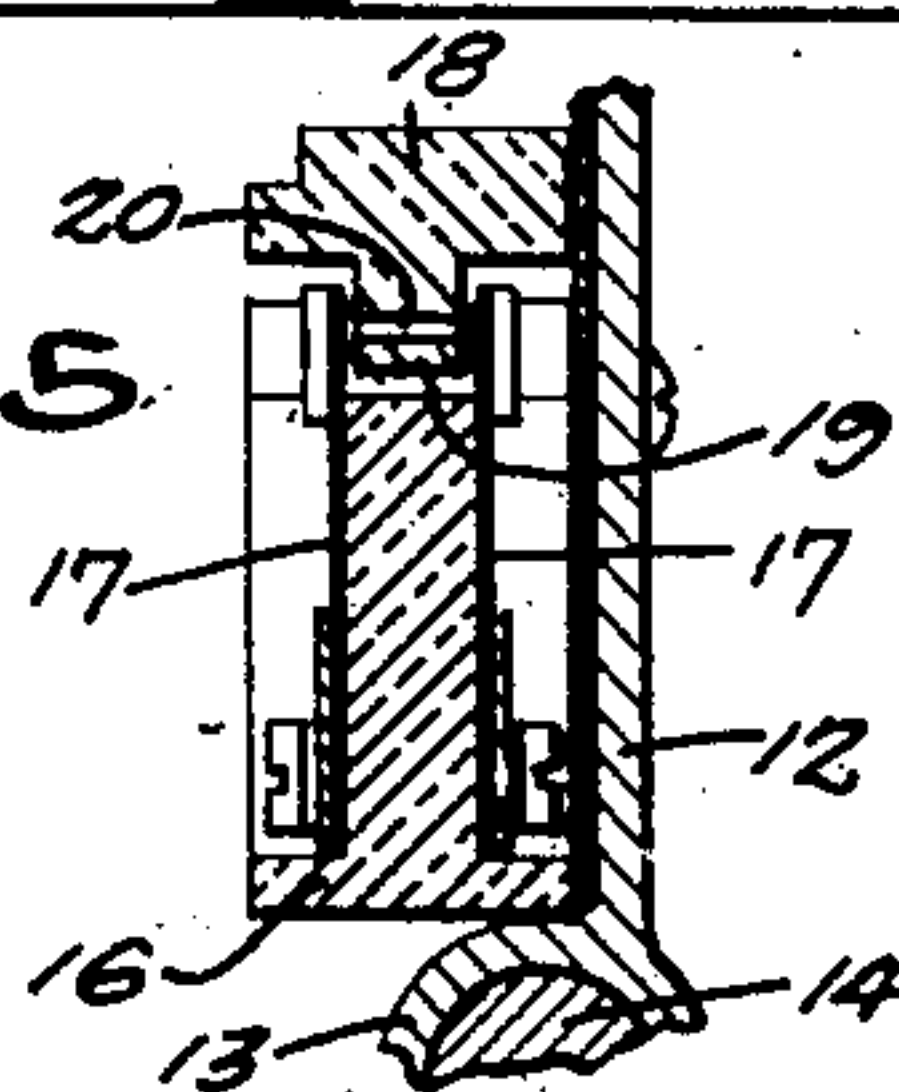


Fig. 5



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## UNITED STATES PATENT OFFICE

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## SUCTION CLEANER

Application filed April 17, 1930. Serial No. 444,958.

This invention relates to elastic suction-cleaners of the portable type and has for its object the provision of a safety-device to protect the user against injury to hands or clothing under certain conditions of operation.

Fig. 1 is a side elevation of an illustrative form of cleaner, partly in section, showing the same equipped with a removable floor-nozzle; Fig. 2 is a side elevation of a hose-connection which can be used interchangeably with said nozzle; Fig. 3 is a detail sectional view corresponding to the line 3—3 of Fig. 1; Fig. 4 is a view of the switch-parts similar to that in Fig. 3 but showing the switch open; Fig. 5 is a detail sectional view taken on the line 5—5 of Fig. 3 and Fig. 6 is a perspective view of the separated switch-parts.

Suction-cleaners of this type comprise a fan-casing 1 and motor-housing 2 located adjacent each other, a centrifugal-fan 3 in the fan-casing being carried by the armature-shaft of an electric-motor inside the housing 2 whereby it is rotated, and the face of the fan-casing opposite the motor housing being formed with an inlet-aperture 4. In the particular form of machine to which the present invention relates a floor-nozzle 5 and an extension-hose-connection 6 are provided, together with means whereby they can be attached to the casing selectively. In the present embodiment this means comprises a cross-bar 7 rigidly attached to the face of the casing 1 at one side of the opening 4 and adapted to be engaged by suitable brackets 8 carried by the nozzle and hose connection, the face of the fan-casing opposite this cross-bar being provided with a cam-button 9 to engage the attached member and force it into the opening. When this attached member is removed the fan is directly exposed, and experience shows that even though an electric-switch 10 be provided on the cleaner in some easily accessible position, still in a great many instances the user neglects to open it and stop the fan before removing the nozzle or hose-coupling whereupon it is not uncommon for articles of dress like skirts or aprons to be sucked into the opening, and

bodily injury to the fingers of the operator or of inquisitive children can occur since the speed of the fan is so great that its blades are invisible.

According to my invention these dangers are avoided by the provision of an automatic switch so located that upon the removal of the attached-member the circuit to the electric-motor is interrupted regardless of the setting of the switch 10. In the form of the invention shown in these drawings the cross-bar 7 is carried by a hollow bracket 12 which is also in the present embodiment formed with a socket 13 for the reception of the axle 14 which carries the wheels 15. Located inside this hollow bracket is a block 16 of insulating material having contact springs 17—17 carried thereby and projecting past one edge thereof. Vertically movable in said bracket adjacent this block is a second block 18 of insulating material, having a lip 19 which fits between the projecting ends of the spring 17 and is there provided with a transverse connecting member such as the rivet 20 adapted when the block 18 is depressed to make engagement with the two springs, as shown in Figs. 3 and 5, and thereby establish electrical connection between the wires 21—21 which lead from the switch 10 to the driving motor. A suitable spring 22 is also provided by which said block is moved into open circuit position as shown in Fig. 4 when the attached member is removed; the attached part is formed to contact with this block 18 and move it into circuit-closing position automatically so as to permit the motor to be operated when the switch 10 is properly adjusted. I have shown the nozzle 5 as provided with a finger 23 for the purpose although the side wall is enough or any other conformation can be used.

It will be understood that many changes in the details of construction of the switch can be made and in the manner of its actuation by the attachment member, wherefore I do not limit myself to the details herein described except as the same are specifically recited in my several claims which I desire



may be construed broadly, each independently of limitations contained in other claims.

Having thus described my invention what I claim is:

1. A portable suction cleaner of the type comprising a casing having a fan chamber and an electric motor, a fan in said chamber having blades on its face, the face of the fan chamber having a substantially naked opening located closely adjacent to said blades, a floor nozzle removably secured to said casing, said nozzle having a part fitting said inlet opening and also having an inlet mouth, means for supporting said casing with said mouth presented to the supporting surface in operative relation, and an electric switch carried by said casing in series with said motor, said switch having a movable part projecting into a position to be engaged and displaced by a part of said nozzle and restoring means for the movable part of said switch whereby the circuit through said motor is opened automatically upon the removal of said nozzle from said casing and is closed upon the application of said nozzle to said casing.
2. In a suction cleaner, a fan chamber having a substantially naked inlet opening in one wall and an electric motor located outside of the opposite wall, a fan in said chamber closely adjacent to the opening thereof and driven by said motor, a removable hollow floor tool adapted to engage the first named wall in communication with said inlet opening, means for securing said tool detachably to said wall in front of said inlet opening, an electric switch connected in series with said motor having a movable part projecting into a position to be engaged and displaced by a part of said tool whenever said tool is attached over said inlet opening, and means to operate said movable part in a reverse direction whereby the circuit through the motor is opened automatically whenever said inlet opening is uncovered, and automatically restored whenever said tool is attached.
3. In a suction cleaner, a fan chamber having a centrifugal fan inside and a naked inlet opening in one wall immediately adjacent to said fan, an electric motor operatively connected to said fan and located upon the side away from said inlet opening, a manually operable switch carried by a part of said suction cleaner and operatively connected in circuit with said motor, a hollow member adapted to fit said inlet opening, means for securing said member in front of said opening, and a second switch connected in circuit with said motor additionally to said first mentioned switch and comprising a movable member adapted to open the motor circuit upon the displacement of said hollow member away from said

inlet opening and to close the circuit through said motor, excepting for the first mentioned switch, upon the application of said hollow member to said inlet opening.

In testimony whereof I hereunto affix my signature.

LLOYD W. PARDEE.

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