G. E. KENT.

VACUUM CLEANING TOOL.

APPLICATION FILED MAY 15, 1914.

1,208,165.

Patented Dec. 12, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

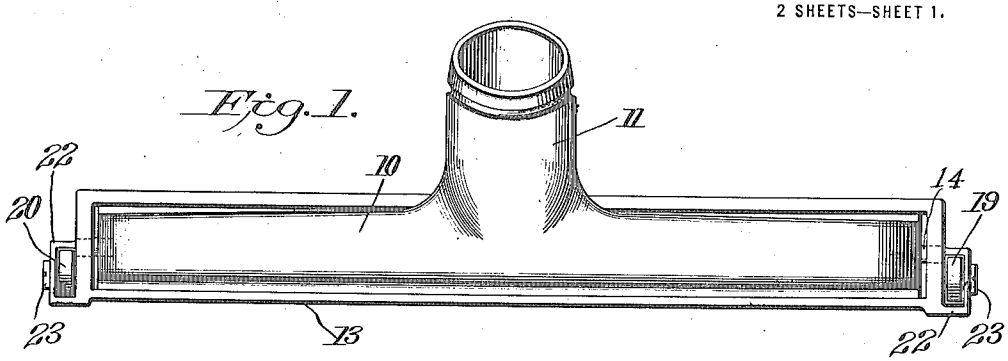


Fig. 2.

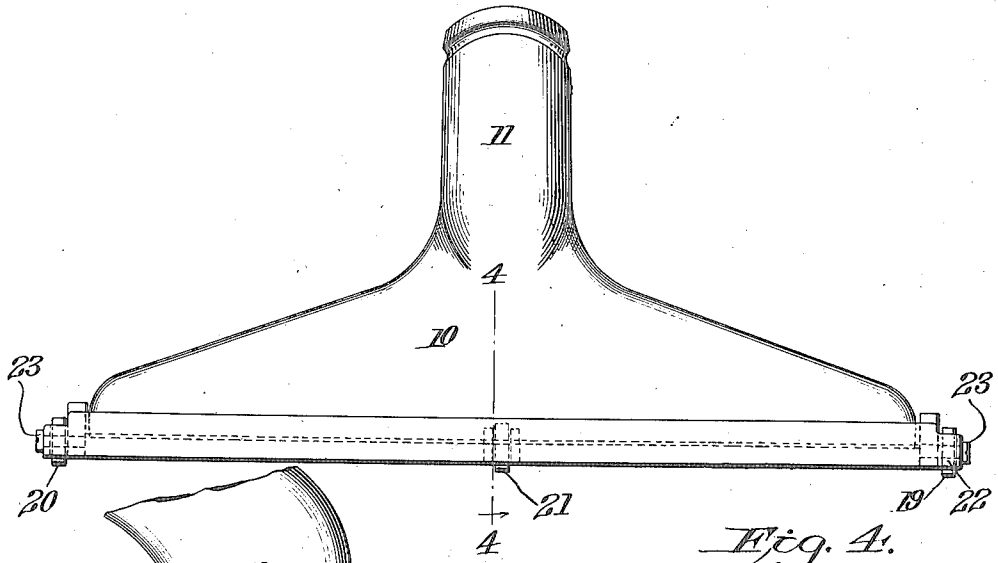


Fig. 3.

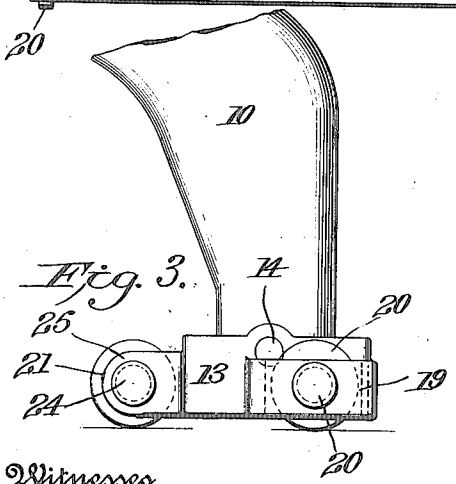
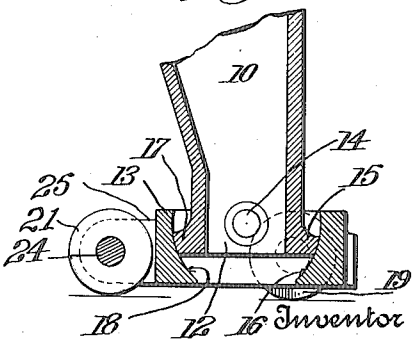


Fig. 4.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 5.

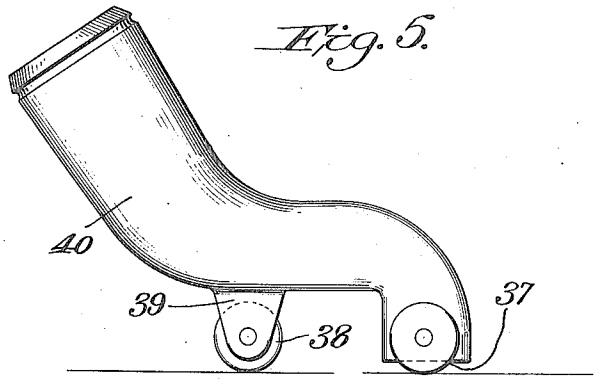


Fig. 6.

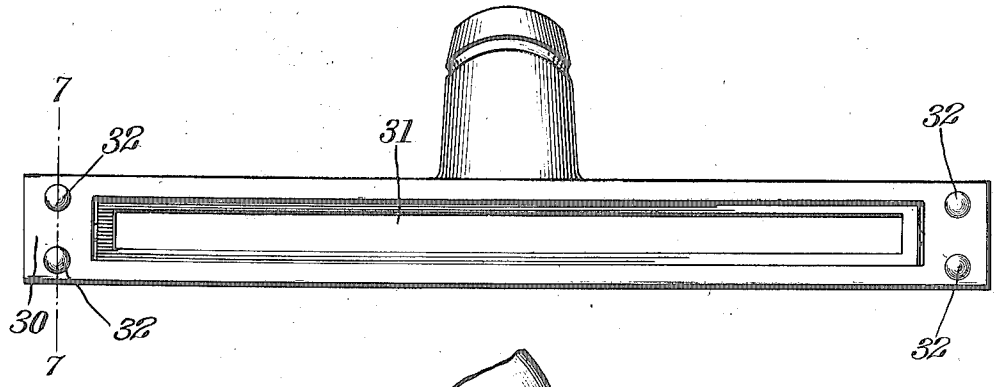
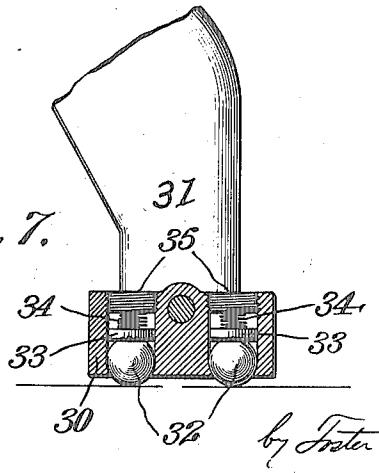


Fig. 7.



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UNITED STATES PATENT OFFICE.

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VACUUM CLEANING-TOOL.

1,208,165. Specification of Letters Patent. Patented Dec. 12, 1916.

Application filed May 15, 1914. Serial No. 838,725.

To all whom it may concern:

Be it known that I, GORDON E. KENT, a citizen of the United States, residing at Rome, Oneida county, State of New York, have invented certain new and useful Improvements in Vacuum Cleaning-Tools, of which the following is a specification.

This invention relates to certain improvements, the objects of which are to provide a vacuum cleaning tool especially adapted for use in what are known as low vacuum systems, wherein the cleaning is effected by a large flow of air in connection with a low vacuum, for cleaning bare cement, marble, wood and other floors.

A further object of the invention is to provide a tool for the purposes above stated which shall be so supported that the body of the tool may be rocked relative to the floor engaging part so that the tool will have a uniform cleaning efficiency as it is moved back and forth over the floor.

Other objects and the features of novelty will appear in the following description, taken with the accompanying drawings, in which:

Figure 1 is a plan view of a tool embodying my invention; Fig. 2 is a front elevation of the same; Fig. 3 is an enlarged side elevation, certain parts being broken away; Fig. 4 is a section on the line 4—4 of Fig. 2; Fig. 5 is a side elevation of another form of the invention; Fig. 6 is a bottom plan of still another form; and Fig. 7 is a section on line 7—7 of Fig. 6.

Referring to the drawings 10 indicates the body of the tool having the tubular extension or outlet 11 to which a suction pipe may be attached. Along its lower side the body 10 has the usual inlet slot 12. In the form of the invention illustrated in Figs. 1 to 4, there is provided a shoe 13 which surrounds the lower part of the body 10 and is pivoted to the end walls of the body by means of the pins 14. Along the front side of the body 10 is a lip 15 which closely fits the curved inner surface 16 of the shoe to prevent air leakage at this point and thus compel the air to pass under the shoe in order to reach the inlet 12. Along the rear side of the body 10 is a similar lip 17 which closely fits the inner surface 18 of the shoe. The surfaces 16 and 18 are concentric to the pivot pins 14 and therefore the body 10 may be freely rocked relative to the shoe as the tool is moved back and forth over a floor.

In cleaning cement and other types of bare floors, it is desirable to support the shoe a slight distance off the floor in order to prevent the flow of air being cut off. This arrangement also avoids pushing the larger particles of dirt ahead of the tool and in the case of cement floors prevents excessive wear on the bottom of the shoe. In order to thus support the shoe off the floor, I provide the shoe with rollers of any suitable construction and arrangement. As shown in the drawings, these rollers 19, 20 and 21 are arranged on the ends and the back of the shoe, those on the ends being placed well forward and inclosed in frames 22 which are integral with the shoe. The rollers as shown are comparatively thin disks and those at the ends are mounted on pins 23, while the roller 21 at the back is mounted on the pin 24 which is carried by the lugs 25 on the shoe.

It will be understood that the arrangement of rollers shown is only illustrative of one way to support the shoe and it will be obvious to those skilled in the art that other arrangements may be made and the rollers made longer if preferred. It is preferable to have the rollers 19 and 20 narrow so as to avoid excessive width of the tool but the roller 21 at the back may be made as much longer as desired by spacing the lugs 25 farther apart.

In the operation of the tool shown in Figs. 1 to 4, the air flows under the shoe to the inlet 12 and sweeps the dust and dirt from the floor and carries it along through the outlet 11. The tool, being moved back and forth over the floor, causes every part it passes over to be thoroughly swept and the shoe, being supported off the floor by the rollers, permits the required flow of air. Furthermore, the rollers make it easy to move the tool and prevent its "sticking" to the floor.

In the form of the invention shown in Figs. 6 and 7, the shoe 30 is pivoted to the body 31 of the tool as in the case of the form shown in Figs. 1 to 4, but the rollers are balls 32 arranged in suitable pockets at the corners of the shoe so as to substantially support the shoe. The balls 32 project below the bottom of the shoe and a bearing piece 33 engages the upper side of each of the balls holding the latter in their proper

position. The bearing pieces 33 are held by springs 34 which also bear against the screw plugs 35, these plugs forming closures for the upper ends of the ball pockets.

In the form of the invention shown in Fig. 5, the nozzle body is of elongated form as in the case of the other modifications shown, but the shoe is omitted and the rollers are arranged, one at each end of the body 36 and one at the middle and in the rear of the inlet 37. This arrangement of the rollers is generally similar to that shown in Figs. 1 to 4, but the rollers are carried directly by the body of the tool, the middle roller 38 being on lugs 39 on the underside of the tubular outlet extension 40. As in the other forms the inlet is supported above the surface to be cleaned so as to permit a comparatively free flow of air under the walls of the inlet, but in this form the body of the tool cannot be rocked without raising the inlet and hence I prefer the two forms shown in Figs. 1 to 6.

While I have shown what I now consider to be the preferred forms of my invention it will be evident that various changes may be made in the details of construction within the scope of the claim defining the invention.

Having thus described the invention what I claim and desire to secure by Letters Patent is:

In a vacuum cleaning tool, the combination of a body having an exhaust connection and a relatively long and narrow inlet slot, a shoe, pivots connecting the ends of said body with the ends of said shoe and adapted to permit the body to be rocked relatively to the surface to be cleaned, said shoe having an opening registering with said inlet and also having its lower surface in a plane relatively lower than the lower edges of the walls of said body whereby the shoe is adapted to support the body off the surface being cleaned, said shoe having the inner surfaces of the longer side walls curved about the axis of said pivots to fit the adjacent walls of said body and substantially prevent air from passing between the walls of the shoe and body, and rollers on said shoe projecting below the lower surface thereof and arranged so as to support the shoe off the surface being cleaned and in a state of stability.

In testimony whereof I affix my signature in presence of two witnesses.

GORDON E. KENT.

Witnesses:
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