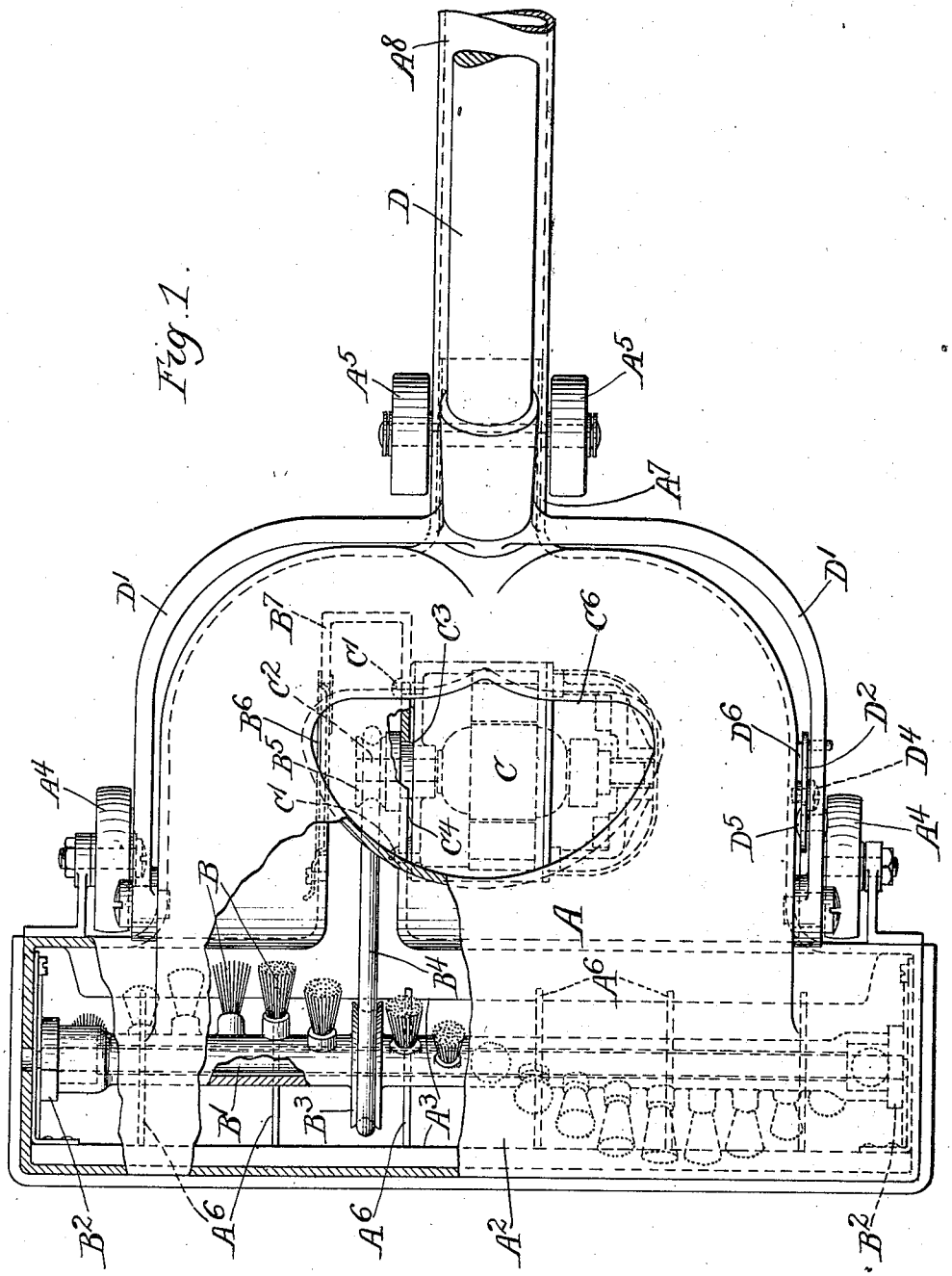
Feb. 19, 1924. 1,483,974

H. E. HOOVER

SUCTION SWEEPER

Filed Sept. 29, 1919 2 Sheets-Sheet 1

Fig. 1.




Witness.
Edward T. Wray.

Inventor.
Howard Earl Hoover.
by Parker & Carter
Attorneys.

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Filed Sept. 29, 1919 2 Sheets-Sheet 2

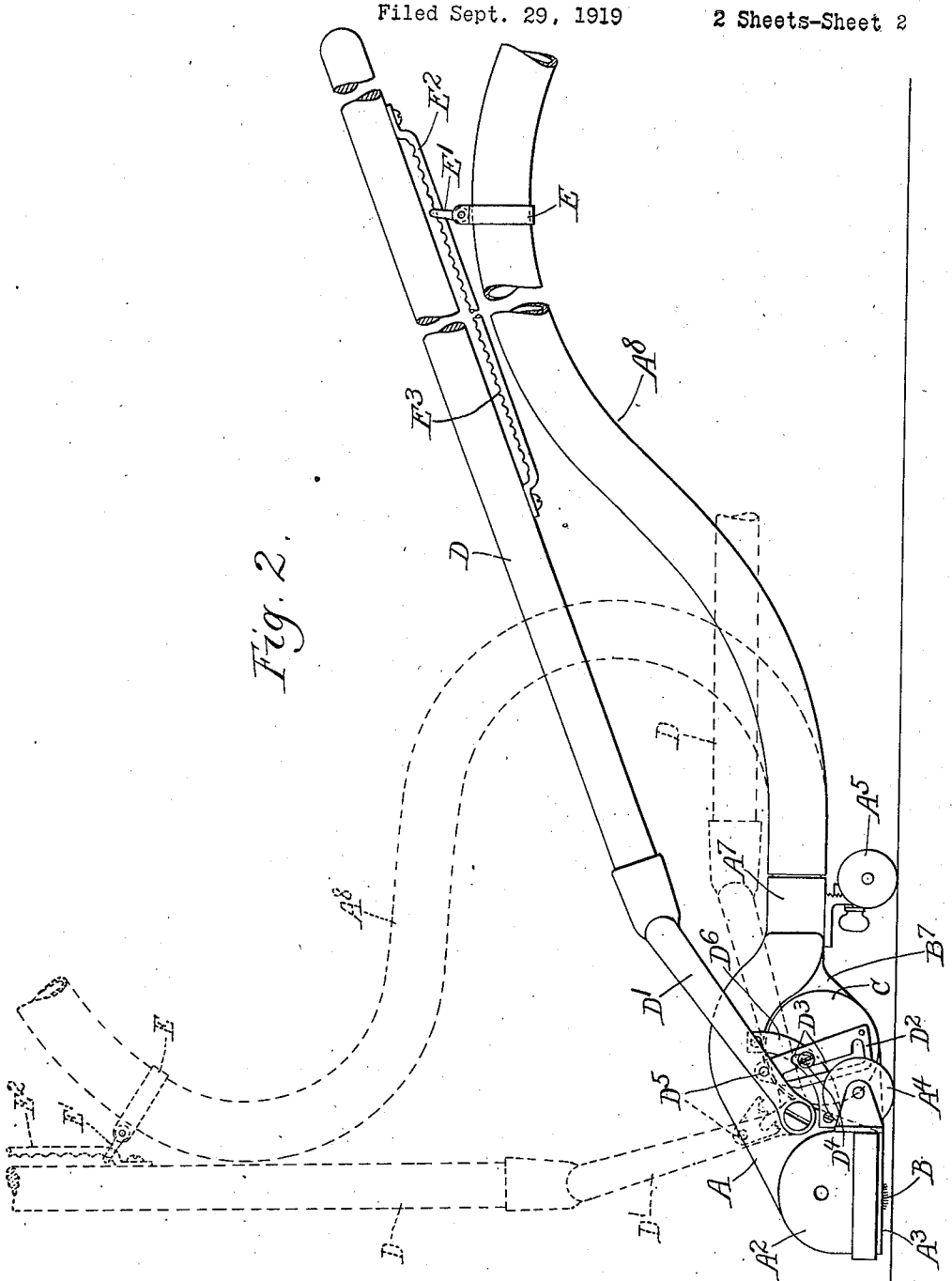



Fig. 2.

Witness.
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by Parker & Carter
Attorneys.

Patented Feb. 19, 1924. 1,483,974

# UNITED STATES PATENT OFFICE.

HOWARD EARL HOOVER, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE HOOVER COMPANY, OF NORTH CANTON, OHIO, A CORPORATION OF OHIO.

## SUCTION SWEEPER.

Application filed September 29, 1919. Serial No. 327,246.

*To all whom it may concern:*

Be it known that I, HOWARD EARL HOOVER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Suction Sweepers, of which the following is a specification.

My invention relates to a combined installed plant and motor driven brush apparatus for suction sweepers. Generally speaking, the object of this invention is to provide means whereby a motor driven carpet agitating device and particularly a beating brush or a brushing and beating apparatus of any kind, can be used in and with a nozzle while the suction apparatus associated therewith is placed at a distance as for example in a stationary plant in the basement of the building. In the preferred form of my invention, I use a brush which is both a beating and a brushing apparatus and I drive it at a high rate of speed by means of a motor mounted on and associated with the brush nozzle. A flexible conduit leads from the nozzle to the pipe or conduit which connects with the installed or stationary suction plant so that the nozzle can be moved freely about the room where the sweeping or cleaning is to be done. This flexible conduit may connect directly with the nozzle body or as shown in a modified form to a handle or handle portion which is hollow and connected with the nozzle. The first is the preferred form of this application.

In the preferred form of my device, the nozzle is provided with a relatively wide open mouth and this is preferably supported above the floor so that the carpet or floor covering will rise thereto and the mouth will be big enough to furnish a proper field of operation for the beater and the brush or the beating brush. In the preferred form the connection between the handle or handle device is made as shown in front of the center of gravity of the machine and my object in this is to keep the dirt from spilling out of the casing when the machine is lifted from the floor. Another object of my invention is to produce a sweeping apparatus the head of which shall be as low as possible to permit its insertion under articles of furniture and where the handle or combined handle and conduit will be capable of being swung down in the horizontal position below the highest portion of the head.

My invention is illustrated in the accompanying drawings wherein—

Figure 1 is a plan view with parts broken away;

Figure 2 is a side elevation.

Like parts are indicated by like characters in all the figures.

A is a movable suction head having along its front side an enlarged brush chamber $A^2$ having a downwardly open wide suction mouth $A^3$ arranged to be held above the floor by the rollers $A^4$ adjacent the suction mouth, and the adjustable rollers $A^5$ removed from the suction mouth. The arrangement is such that adjustment of the rollers $A^5$ by rotating the entire suction head about the rollers $A^4$ will change the height of the suction mouth or nozzle above the floor. $A^6$ $A^6$ are brush guard fingers extending across the open mouth to make it impossible for any rug or floor covering to be drawn up too far into the open mouth. The brush chamber $A^2$ communicates toward the rear with an enlarged bifurcated suction chamber, the two arms of which communicate with the brush chamber adjacent its two ends and are at the other end joined and in communication with a hose pipe connection or conduit sleeve $A^7$. The arrangement is such that air may be drawn off through a pipe $A^8$ communicating with the sleeve $A^7$, and because the cross section of the air passage as shown, decreases from the nozzle or suction mouth rearwardly toward the sleeve, the suction and velocity at the suction mouth will be less than that in the pipe.

B is a combined beating and sweeping brush, the two separate functions of which are, by its shape and arrangement combined in one unit though obviously the beating and sweeping devices might be separated. This brush is rotatably mounted upon a shaft $B^1$ which shaft is anchored at either end in the housing. $B^2$ $B^2$ are thread guards surrounding the ends of the bearings to protect the bearings from fouling. $B^3$ is a pulley on the brush, whereby the belt $B^4$ which is driven in turn by a pulley $B^5$ may rotate the brush. $B^6$ is a removable hand hole cover in the side of the belt housing. $B^7$ is a belt housing and motor support

mounted beneath and integral with the suction head and forming throughout a part of its length a belt housing separate from the suction chamber and into which dust laden air is not drawn.

C is a motor enclosed within a casing as indicated. It is mounted upon the belt housing $B^7$ or otherwise and is located below the rearwardly extending portion of the suction head in or beneath the aperture through the head which is formed by the bifurcations.

D is a handle by which the portable suction head may be manipulated. It is mounted at its lower end on a forked handle bail $D^1$ pivoted on the portable head at a point in front of its center of gravity. $D^2$ is a handle bail stop, pivoted at $D^5$ on the side of the handle bail and slotted as at $D^3$ to engage a stop pin $D^4$ on the strap $D^6$ which is fastened at $D^7$ and $D^8$ to the housing whereby the handle bail may be locked in the upright idle position shown in dotted lines, may be allowed to assume the low position shown in dotted lines for cleaning under furniture and the like, or may be held in the full line position free to have a slight angular movement as the hand of the operator swings back and forth.

The hose pipe $A^8$ has a collar E terminating in a pivoted eyelet $E^1$ engaging a bracket $E^2$ on the handle D. This bracket is serrated as at $E^3$ so that the operator may move the eye $E^1$ along and lock it in adjusted position.

A number of the details here shown are not very fully described because they form no necessary part of the invention. I wish my drawings to be taken as in a sense diagrammatic and I do not wish to be limited to the particular form, size, shape and arrangement of the several parts or to the joint use of all of them.

The use and operation of my invention will be sufficiently plain from the description already given. The handle or combined handle and conduit is pivotally mounted on or connected with the casing so that it can be used or manipulated to move the casing back and forth. The motor is beneath the rearwardly extending passageways which lead from the brush chamber to the conduit and the belt, whereby the motor communicates motion to the brush, is contained in a channel or chamber which lies between the two sections of the bifurcated rearwardly extending foul air passageways and it therefore is not in line of travel of the foul air. The belt and its bearings are to that extent protected. Access is easily had to the belt by removing the hand hole cover. The motor lies entirely outside of the casing on the lower side thereof and is thus in an inverted protected pocket so to speak. The belt housing is further protected by the inflow of clean air from the motor side of the wall to which it is attached.

I claim:

In a suction sweeper the combination of a casing having an inlet, a brush chamber, a conduit leading from the brush chamber, and a downwardly depending belt housing secured to the conduit with an electric motor and casing secured to the housing, the motor shaft projecting through the wall thereof said housing having an opening near the motor shaft to permit air to be drawn therethrough and thence through the belt housing into the foul air conduit.

In testimony whereof, I affix my signature in the presence of two witnesses this 22nd day of September, 1919.

HOWARD EARL HOOVER.

Witnesses:
MILDRED H. MACKE,
EDITH L. PORTER.