

F. STEINKOENIG.
SUCTION SWEEPER.
APPLICATION FILED OCT. 10, 1913.

1,114,928.

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FIG. 1.

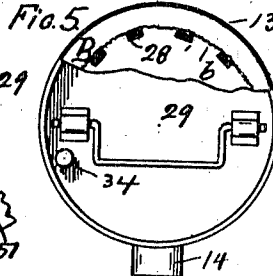
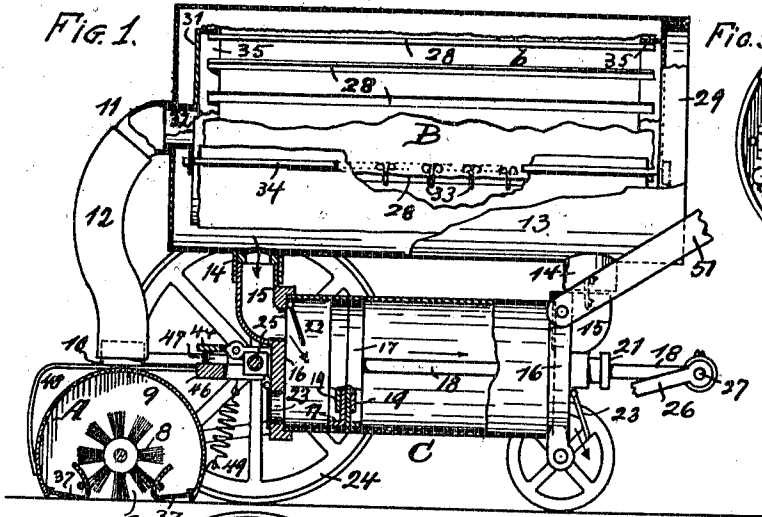


FIG. 6.

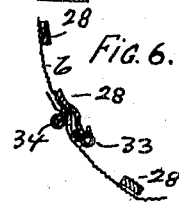


FIG. 2.

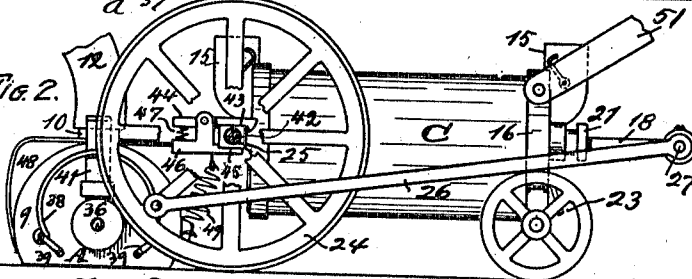


FIG. 7.

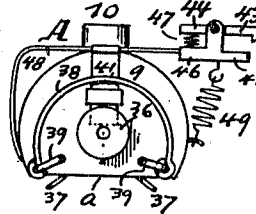


FIG. 3.

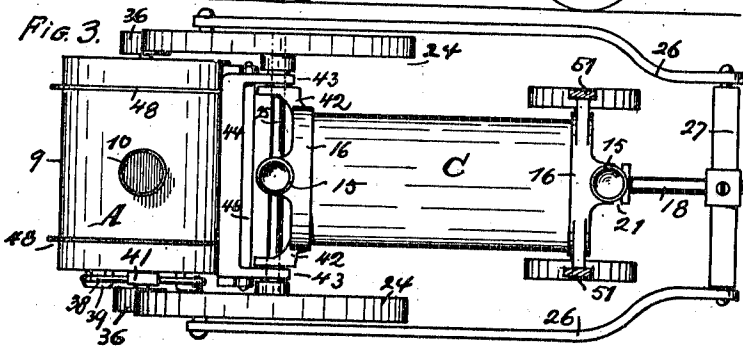
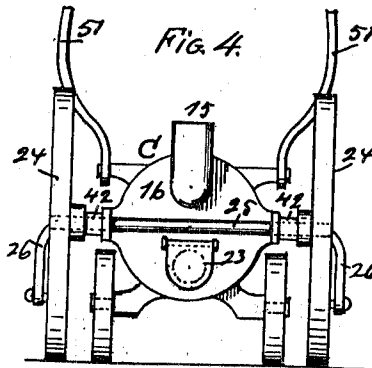


FIG. 4.



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UNITED STATES PATENT OFFICE.

FREDERICK STEINKOENIG, OF CINCINNATI, OHIO.

SUCTION-SWEEPER.

1,114,928.

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To all whom it may concern:

Be it known that I, FREDERICK STEINKOENIG, a citizen of the United States, and a resident of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Suction-Sweepers; and I do declare the following to be a clear, full, and exact description of the invention, attention being called to the drawing which accompanies this application and forms a part hereof.

This invention concerns suction sweepers of the portable type and in which the operating parts are actuated while the device is being moved over the surface to be cleaned.

The invention consists of the means and construction hereinafter described and claimed and as illustrated in the accompanying drawing, in which—

Figure 1, is a vertical longitudinal section of the device. Fig. 2, is a side elevation of the lower part of the same with parts broken out. Fig. 3, is a top view of the lower part. Fig. 4, shows a rear view of the lower part of the device. Fig. 5, shows a view of the front end of the vacuum-chamber with parts broken away. Fig. 6, shows in an enlarged detail view the manner of securing the edges of the cloth for forming the dust-pocket. Fig. 7, shows a side elevation of the suction-head detached and with parts of it adjusted to dumping position.

The apparatus consists substantially of a suction head A, a cylindrical vacuum-chamber B, and an exhaust pump C, all in open communication with each other. The suction head contains in its underside the dust-inlet or suction-mouth *a*, and a rotary brush 8, is mounted above this mouth whereby dust and dirt are loosened, particularly in case of carpets, while said mouth passes over them. The loosened matter is thus readily taken up through the suction mouth and raised by the suction into the vacuum-chamber.

The housing 9, of the suction head above the brush therein, and the end of the vacuum-chamber nearest it, are provided with nipples 10 and 11, respectively, permitting attachment of a piece of rubber tubing to provide a duct 12, whereby the suction head and the vacuum-chamber are placed in communication with each other.

The exhaust pump is double-acting and so connected with the vacuum-chamber that a vacuum, (as here understood), may be produced and maintained as long as the pump is in operation. For such purpose the side 13, of the vacuum-chamber is provided with nipples 14, and complementary nipples 15 are provided on the heads 16, of the pump, whereby this latter and the vacuum-chamber are connected in parallel relation and one above the other. The connection is preferably one permitting detachment whenever necessary for any purpose and packing may be interposed to prevent leakage of air. Locking means to render the connection more secure may be applied.

The piston of the pump is formed by two cupleathers 17—17, mounted on the piston rod 18, as shown, and held in position between two washers 19. A suitable stuffing box 21, is provided in one of the pump-heads where the piston rod passes through. Each pump-head has two openings to permit passage of air and valves of the flap-type are provided in connection with each opening, one designated 22, opening inwardly and the other shown at 23, opening outwardly. Valves 22, are provided at the inner ends of the nipples 15.

The operation of the pump and action of its valves, whereby air is drawn from vacuum-chamber B, with each stroke of the piston, may be readily understood from the drawings. Each stroke of the piston fills the pump cylinder with air drawn from the chamber and expels at the same time the air drawn into the cylinder by the previous stroke. When the piston moves in a direction opposite to that now indicated by the arrow, the action of the valves is reversed. The piston is actuated by one of the two sets of wheels upon which the device is supported. The wheels used are shown at 24, both being rigidly mounted upon their axle 25. Connecting rods 26, attached to the said wheels and to a cross-bar 27, at the outer end of the piston-rod, serve to transmit from the wheels to the piston, the power necessary to actuate this latter. The matter drawn up from the suction-head into the vacuum chamber is separated in this latter by being caused to enter first a tubular pocket the side *b* of which consists of cloth or other

suitable fabric and is of a texture which permits the air, as it is drawn out from the chamber by the pump, to filter through, while matter carried by the air is retained.

5 The pocket is removable and may be withdrawn from the vacuum-chamber from time to time to be emptied of its contents. For such purpose the cloth which forms the side of the pocket is stretched around a frame

10 composed of bars 28, which are secured to heads 29 and 31. Head 29, is fitted into the open end of the vacuum-chamber and forms also a cap whereby this open end is closed. Head 31, is provided with a nipple 32, which

15 fits into nipple 11, so that the matter drawn up from the suction-head is caused to move directly into the pocket. The cloth is held in position by hooks 33, provided at one of its longitudinal edges and hooked onto one

20 of bars 28. Thereafter the cloth is stretched around these bars and lapped over its hooked edge, as shown in Fig. 6. The lapped edge is held in place by being forced into a groove provided in the particular bar used, by

25 means of a clamping rod 34, held at both ends to heads 29 and 31, as shown in Fig. 1. The edges of the cloth at the ends of the pocket, lap over flanges 35, to prevent escape of dust. The pocket is readily opened to

30 permit removal of accumulated dust by disengagement of the clamping rod after the pocket has been withdrawn from the vacuum-chamber. Brush 8, is journaled in the opposite ends of the suction-head and

35 outside of these ends friction rollers 36, are mounted upon the journals and held in contact with the rims of wheels 24, whereby rotation of the brush is effected while the apparatus is in motion. The rims of these

40 wheels are preferably rubber-tired to favor frictional driving engagement. Matter raised up by the brush, but too heavy to be lifted by the suction, drops back upon the bottom inside of the suction-head on each

45 side of the suction-mouth. These bottom portions are shaped to form pockets 37 adapted to receive this matter. To permit removal of it they are provided with journals at each of their ends whereby they are

50 mounted in the opposite sides of the suction-head in a manner to permit them to be tilted. A bowed spring 38, connected to arms 39, formed on one of the journals of each pocket is used to adjust them and at

55 the same time serves to hold them in either of their positions. A slide 41, is provided to manipulate said spring for this purpose. To permit the suction-head to be relieved of accumulated matter in this manner re-

60 quires its detachment from the apparatus for which purpose it is removably connected. This connection is by preference to the bearings 42, which support axle 25, the bearings being engaged between hook-

shaped catches 43, which form parts of a 65 latch 44, and projections 45, on a bar 46, to which the latch-bar is pivotally connected. A spring 47, is provided between the two bars to make the engagement of the catches 43, a detachable one, so that upon depression 70 of the latch-bar, disengagement may be effected. It is essential that the suction mouth around its edges, is held evenly to the surface over which it travels, being at the same time free to yieldingly adjust itself 75 to this surface. This is effected by springs connected to each side of the suction-head and connecting also to bar 46, there being spring rods 48 on one side of the suction-head and coil-springs 49 on the other. Be- 80 tween these springs the suction-head is held in the proper position in the desired manner and driving contact is maintained between rollers 36, and the rims of wheels 24. A handle 51, connected in the manner shown 85 serves for moving the apparatus over the floor. Connection of a hose provided with a suction-mouth to be used in positions otherwise than on the floor may also be made at nipple 11, suction-head A, and rubber tube 90 12, having been detached.

Having described my invention, I claim as new:

1. A portable suction-sweeper, comprising a vacuum-chamber, a pump adapted to with- 95 draw the air therefrom, axle-bearings provided on opposite ends of the pump, a suction-head in open communication with the vacuum-chamber and a spring-actuated latch-bar provided with hook-shaped catches 100 and co-acting projections fitted to engage between them the axle-bearings at one end of the pump whereby the suction-head is detachably held in position.

2. A suction-sweeper comprising a vac- 105 uum-chamber, a pump adapted to withdraw the air therefrom and a suction-head in open communication with the vacuum-chamber and provided with a suction-mouth, attaching means comprising a bar whereby the 110 suction-head is connected in position, spring-rods extending from this bar over the suction-head and connected at their downwardly curved ends to one side of the same, and coil-springs connected at one of their 115 ends to said bar and at their other ends to the other side of the suction-head whereby this latter is yieldingly held in position between said spring-rods and said coil-springs and in a manner to maintain the suction- 120 mouth in contact with the surface over which it passes.

3. In a suction-sweeper, a suction-head the bottom of which consists of two pockets which are spaced to form a suction-mouth 125 between them, a rotary brush supported above this mouth, journals at each end of these pockets whereby they are supported

in a manner to permit tilting, an arm provided on one journal of each pocket, a bowed spring connected to each of these arms and a slide connected to this spring
5 for the purpose of manipulating it to adjust the position of the pockets.

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

FREDERICK STEINKOENIG.

Witnesses:

C. SPENGEL,
A. JOHNSON.