

J. SCHIRRA.
 VACUUM ATTACHMENT FOR CARPET SWEEPERS.
 APPLICATION FILED FEB. 9, 1911.

1,008,865.

Patented Nov. 14, 1911

2 SHEETS—SHEET 1.

Fig. 1.

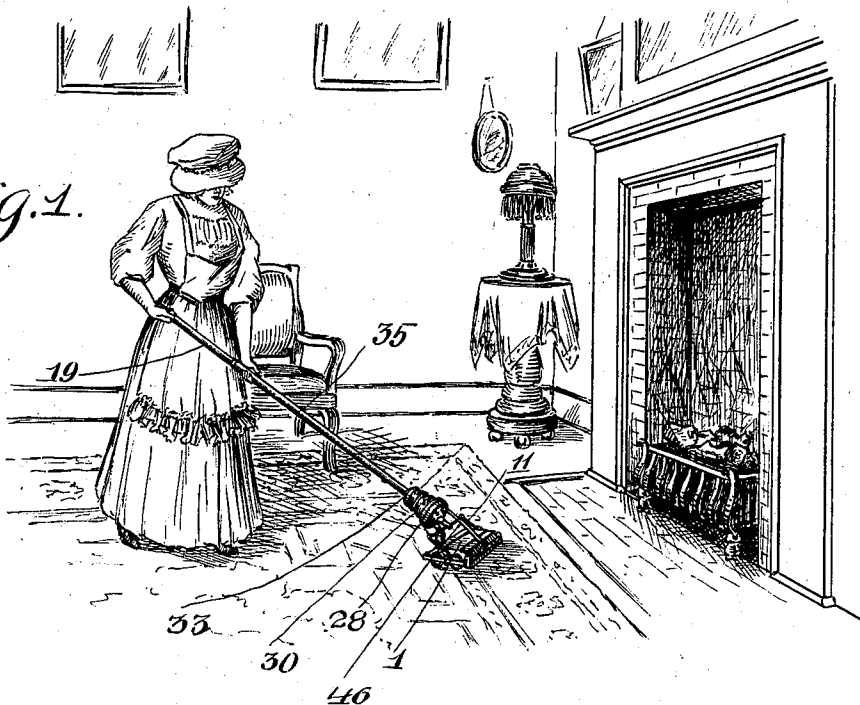


Fig. 2.

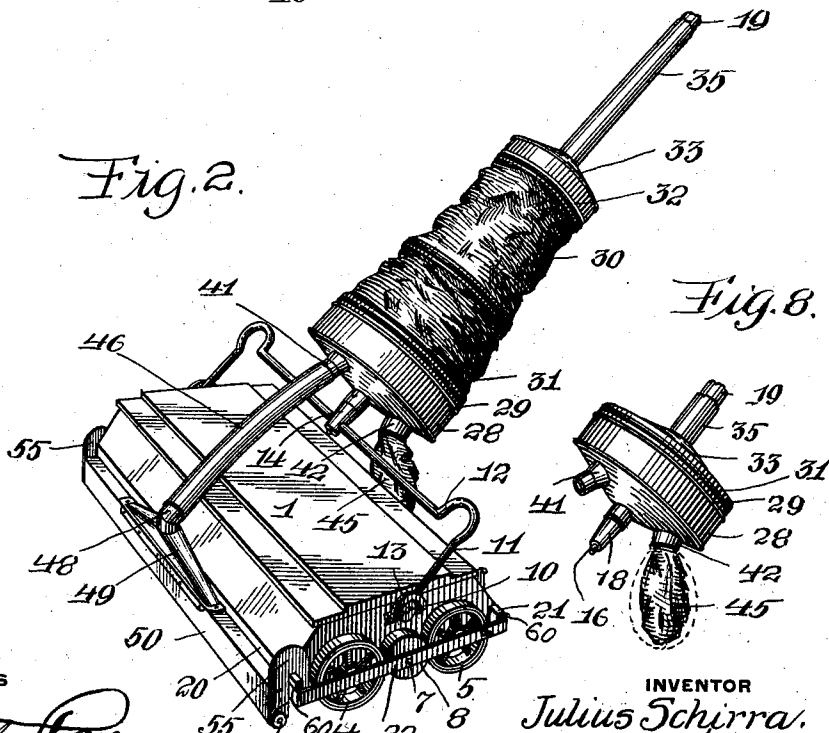


Fig. 8.

WITNESSES

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INVENTOR

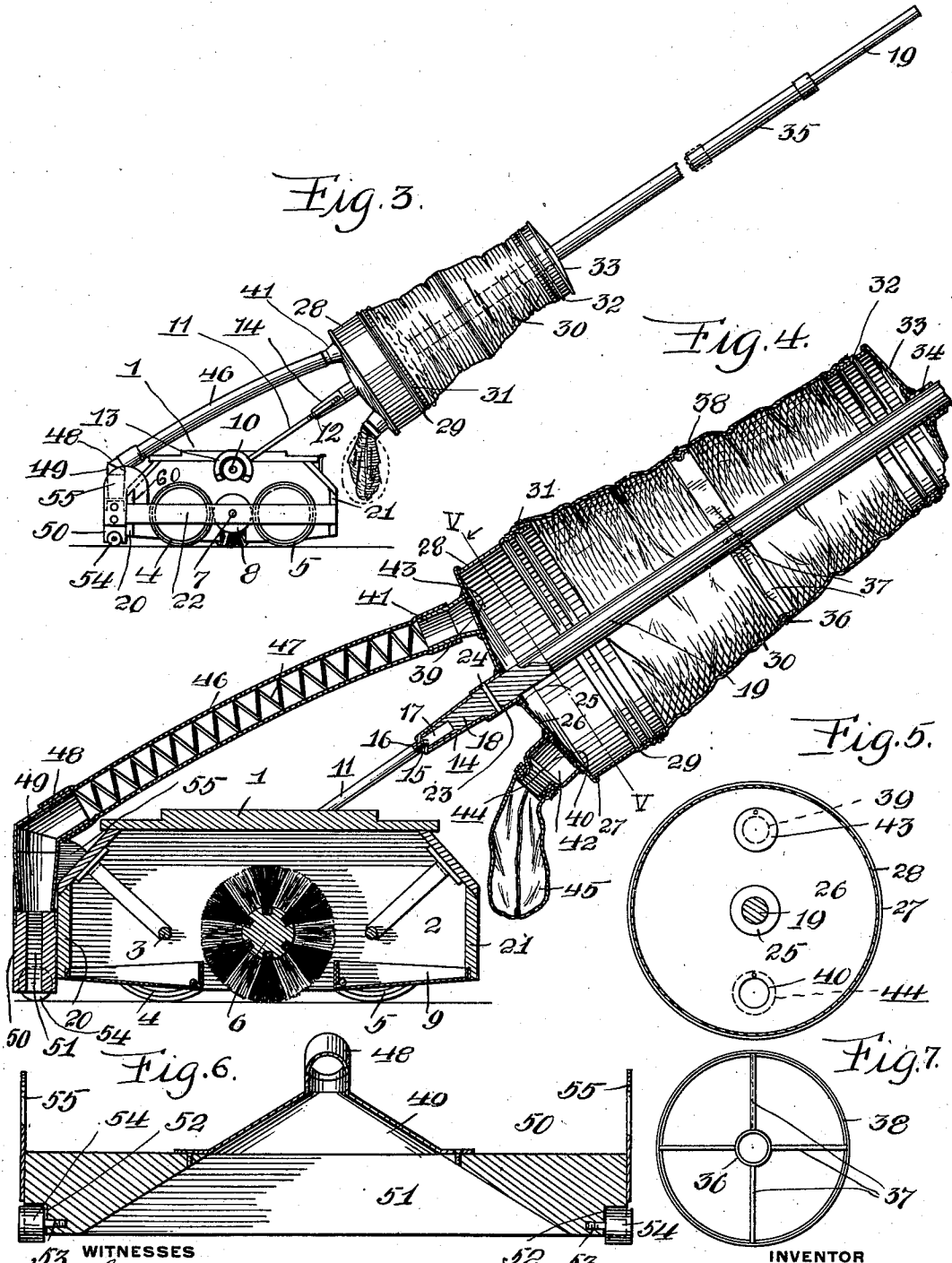
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UNITED STATES PATENT OFFICE.

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VACUUM ATTACHMENT FOR CARPET-SWEEPERS.

1,008,865.

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To all whom it may concern:

Be it known that I, JULIUS SCHIRRA, a citizen of the United States of America, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Vacuum Attachments for Carpet-Sweepers, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to vacuum attachments for carpet sweepers, and the primary object of the invention is to furnish the ordinary type of carpet sweeper with a vacuum cleaner that will cooperate with the carpet sweeper in thoroughly cleaning and removing dust, dirt and foreign matter from rugs, carpets and floors.

Another object of the invention is to provide a carpet sweeper with a vacuum cleaning device that can be simultaneously operated with the carpet sweeper to remove fine particles of dirt, dust or other matter that could not be collected by the carpet sweeper.

The invention aims in its broadest aspect to combine a carpet sweeper and vacuum cleaner in such a manner that one apparatus may serve to provide either operation or both operations at will and without change of parts.

The vacuum cleaner is constructed upon the principle of a bellows and the operation of the bellows is accomplished by a relative movement of the handle of the sweeper and the movable end of the bellows. When the movement is by the handle, as during the ordinary back and forth movement of the carpet sweeper, the two cleaning devices are placed in operation easily and quickly manipulated by a housewife, janitor or the operator of the machine.

In employing a vacuum cleaner simultaneously with a carpet sweeper, the coarse and rough dirt is not only removed by the carpet sweeper, but is agitated to an extent by the rotary brushes of the sweeper sufficient to enable its being readily picked up by the vacuum cleaner.

The invention further aims to simplify devices of this character to such an extent as will permit their operation by hand, thus eliminating any requirement for use of suction creating devices other than those ear-

ried entirely by the handle of the sweeper, thereby providing a device which may be manufactured at a relatively low cost, requires no installation, which in no manner affects the operation or portability of the sweeper, and which is at all times ready for operation either in conjunction with or independently of the sweeper as desired.

The invention will be hereinafter specifically described and then claimed, and reference will now be had to the drawing wherein there is illustrated a preferred embodiment of the invention, but it is to be understood that the structural elements thereof can be varied or changed, as to the size, shape and manner of assemblage without departing from the scope of the appended claims.

In the drawings:—Figure 1 is a perspective view of the carpet sweeper attachment showing the manner of using the same, Fig. 2 is a perspective view of a carpet sweeper provided with the attachment, Fig. 3 is a side elevation of the sweeper and the attachment, Fig. 4 is an enlarged longitudinal sectional view of a portion of the same, Fig. 5 is a cross sectional view taken on the line V—V of Fig. 4, Fig. 6 is a longitudinal sectional view of the suction head, Fig. 7 is an elevation of a detached spacing ring adapted to form part of the vacuum cleaner, and Fig. 8 is a perspective view of the bellows in a closed position.

In the drawings there is illustrated a conventional form of carpet sweeper which constitutes not only a cleaning device, but a movable support for the vacuum cleaner attachment. The sweeper comprises a housing 1 having the end walls 2 thereof provided with longitudinal axles 3 arranged in parallelism and protruding from the end walls 2 of the housing. Rotatably mounted upon the ends of the axles 3 are supporting wheels 4 having the rims thereof provided with rubber or frictional tires 5 that serve functionally as a friction drive for a rotary brush 6 revolubly mounted within the housing 1 and having the spindle 7 thereof provided with frictional wheels 8 engaged by the tires 5 of the wheels 4 at both ends of the housing 1. The rotary brush 6 is adapted to contact with the surface over which the sweeper is moved and the dirt or other matter carried into the housing 1 by the

brush 6 is collected in the tiltable pans 9 arranged within the housing 1. The outer sides of the end walls 2, adjacent to the upper edges of said end walls are provided with trunnions 10 for the ends 11 of a yoke 12, the trunnioned ends of the yoke being shielded and protected by guards 13. The yoke 12 intermediate the ends thereof is provided with a ferrule or socket 14 having the lower end thereof provided with an opening 15, the walls of which are threaded to receive the threaded end 16 of a plug 17 mounted in the lower tapered end 18 of an operating rod or handle 19 extending into the ferrule or socket 14. The front and rear walls 20 and 21 of the housing 1 project beyond the end walls 2 as at 60, and are provided with guards 22 for the wheels 4 and 8, and the construction just described and including the elements 1 to 22 inclusive constitutes the well known type of carpet sweeper.

Reference will now be had to the vacuum cleaner attachment as applied to the carpet sweeper.

Upon the operating handle or rod 19 adjacent to the ferrule 14 is fixed a sleeve 23, said sleeve being retained thereon by a pin 24 or other fastening means. The upper end of the sleeve 23 is flanged, as at 25 and connected to a circular head 26, said head having the edge thereof reamed, as at 27 and connected to a collar 28. The collar 28 has the upper end thereof provided with circumferentially arranged corrugations 29, and mounted upon these corrugations is the large end of a bellows 30, said bellows being preferably made of a durable fabric and the large end thereof retained in engagement with the collar 28 by fastening means, as a wrapping of cord or tape 31. The small end of the bellows is attached in a similar manner to a circumferentially corrugated collar 32 having a small circular head 33. This head is provided with a central opening for the lower flanged end 34 of a tube 35 slidably mounted upon the operating rod 19, said tube being of a less length than said rod.

Arranged intermediate the ends of the bellows 30 is a spider or frame, comprising a sleeve 36 slidably mounted upon the rod 19 and radially disposed arms 37 connecting a corrugated collar 38 to said sleeve. The bellows is connected to the collar 38 by a wrapping of cord or tape.

The large head 26 is provided with two openings 39 and 40, both preferably off center, and mounted upon the outer side of said rod and in communication with said openings are two nipples 41 and 42. The opening 39 is normally closed by a flap valve 43 arranged upon the inner side of the head 26, and the opening 40 is adapted to be closed by a similar valve 44 arranged upon the

outer side of the head 26 within the nipple 42. Detachably connected to the nipple 42 is a bag or flexible receptacle 45. Detachably connected to the nipple 41 is the upper end of a hose or flexible connection 46 in which is arranged a spiral spring 47 adapted to maintain the hose in a cylindrical form and prevent a collapse of the walls thereof. The lower end of the hose 46 is connected to the nipple 48 of a flared hood 49 mounted upon a suction head 50 corresponding in width to the sweeper housing 1. The particular location of the point of connection of the hose 46 and nipple 41, is important and of particular advantage. By locating this point of connection off center, the entire device is supported on the sweeper at a point axially of the suction device so that the latter will preserve substantially the same relative position, regardless as to which side of the sweeper the suction head is mounted; furthermore, it permits of the use of the ordinary sweeper-handle. The suction head has a tapering slot 51 formed therein in communication with the flared hood 49, the large end of said slot being at the lower edge of the head 50. The ends of the head 50, at the lower edge thereof, are cut away, as at 52 and provided with stud shafts 53 for revolvable rollers 54 adapted to travel upon the carpet or surface the same as the wheels 4. The ends of the head 50 have hangers 55 by which the suction head is attached to the ends of the front rail 20 of the carpet sweeper. As shown in Fig. 2, the hangers 55 are in the form of hooks which extend from the projecting portion 60, this construction permitting a ready attachment of the suction head by simply resting the hooks on such projections; and since the flexible connection 46 may be rapidly drawn off of the nipple 41, it will be readily understood that the suction head and flexible connection may be bodily removed from the sweeper and suction apparatus and re-positioned with the hooks engaging the projections 60 of the wall 21, the connection 46 in this position, preferably passing beneath the cross bar of the yoke 12 and slipped over the nipple 41. This change from an advanced position to a rear position is provided without affecting any of the structure of the suction apparatus or of the sweeper, and leaves the parts movable with the same freedom as in the position shown.

Operation:—Assuming that the bellows is collapsed, it is only necessary for the operator to hold the tube 35 in one hand and push the operating rod 19 forwardly, thereby moving the sweeper over the surface to be cleansed. With the tube 35 held stationary and the operating rod 19 shifted in said tube, the bellows will be opened, thereby opening the flap valve 43 and causing a suction within the hose 46 and the head 50 that

immediately removes the dirt and dust from that portion of the carpet exposed at the lower end of the slot 51 during the movement of the sweeper. By then holding the tube 35 stationary and pulling rearwardly upon the rod 19, the valve 43 is closed and the valve 44 opened and the contents of the bellows is discharged into the receptacle 45.

Besides collecting the rough dirt within the sweeper, the fine dirt is collected within the receptacle 45, which can be removed and emptied when filled.

Through the medium of the vacuum cleaner attachment, dirt and dust can be removed from corners and places inaccessible to the sweeper.

Obviously various kinds of suction heads can be used in connection with the bellows.

This particular arrangement of parts provides specific changes in use. For instance, should the operator grasp only the handle, the sweeper only will be operated, no suction being created, the non-operated cleaner apparatus providing nothing that would render the movements of the sweeper different from those usually had by the ordinary sweeper; if the tube 35 be grasped and held stationary while the handle is moved, the cleaner is brought into operation, the sweeper having its ordinary movements and combining the two operations; this position of the tube retaining the upper end of the bellows and the tube 35 in stationary position, the forward movement of the sweeper providing a suction, while the return movement of the sweeper has the suction head non-effective; by holding the handle stationary and moving the tube 35, the sweeper is held stationary and the suction device is operated alone, making the device readily applicable for cleaning corners and other places normally inaccessible to the sweeper.

From the foregoing it will be observed that the carpet sweeper constitutes a movable carrier for the vacuum cleaner, the carrier having a rotary brush that cooperates with the vacuum cleaner in thoroughly cleansing a surface.

What I claim is:—

1. The combination with a carpet sweeper having a handle, of a vacuum cleaning attachment including a suction device and a suction head detachably connected together, said head and sweeper having complementary means for removably supporting the suction

head either in advance or in rear of the sweeper body at will.

2. The combination with a carpet sweeper having a handle, of a vacuum cleaning attachment including a suction device, a suction head, and a flexible connection between the head and device, said head and sweeper having complementary means for removably supporting the suction head either in advance or in rear of the sweeper body at will, said flexible connection permitting a change in position of the head without affecting the position and operation of the suction device.

3. The combination with a carpet sweeper having a handle, of a vacuum cleaning attachment including a suction device carried by the handle, a suction head carried by the sweeper body, and a flexible connection between the head and device, said head and sweeper having complementary means for removably supporting the suction head either in advance or in rear of the sweeper body at will.

4. The combination with a carpet sweeper having a handle, of a suction device having its lower end fixedly secured to the handle and its opposite end free to move longitudinally of the handle, said device operating only upon relative movement of the handle and movable end of the device, to permit separate or combined operation of the sweeper and cleaner, and a suction head supported by the sweeper body and connected to said suction device.

5. The combination with a carpet sweeper having a handle, of a suction device having its lower end fixedly secured to the handle and its opposite end free to move longitudinally of the handle, said device operating only upon relative movement of the handle and movable end of the device, to permit separate or combined operation of the sweeper and cleaner, a suction head detachably supported by the sweeper body and detachably connected to said suction device, and said head and sweeper body having complementary means for removably securing the suction head either in advance or in rear of the sweeper body at will.

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

JULIUS SCHIRRA.

Witnesses:

MAX H. SROLOVITZ,
H. C. EVERT.