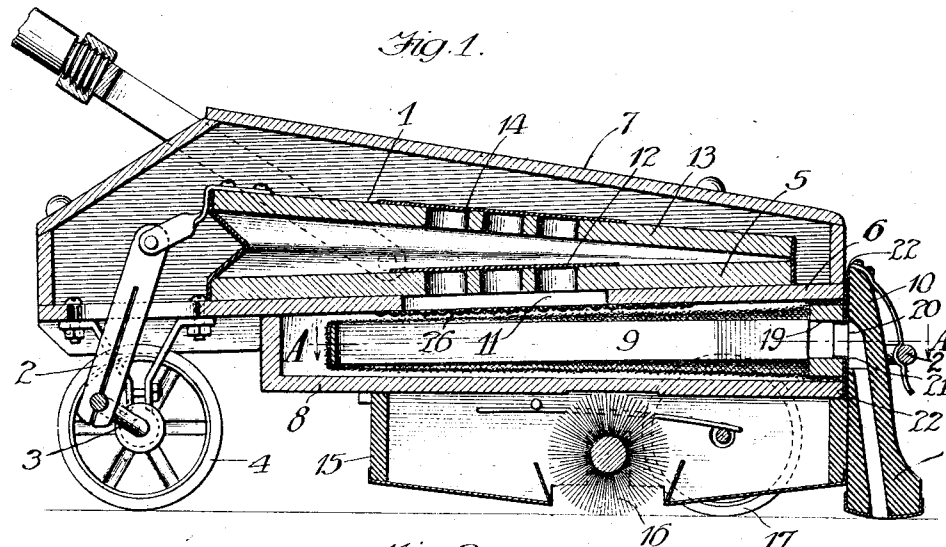
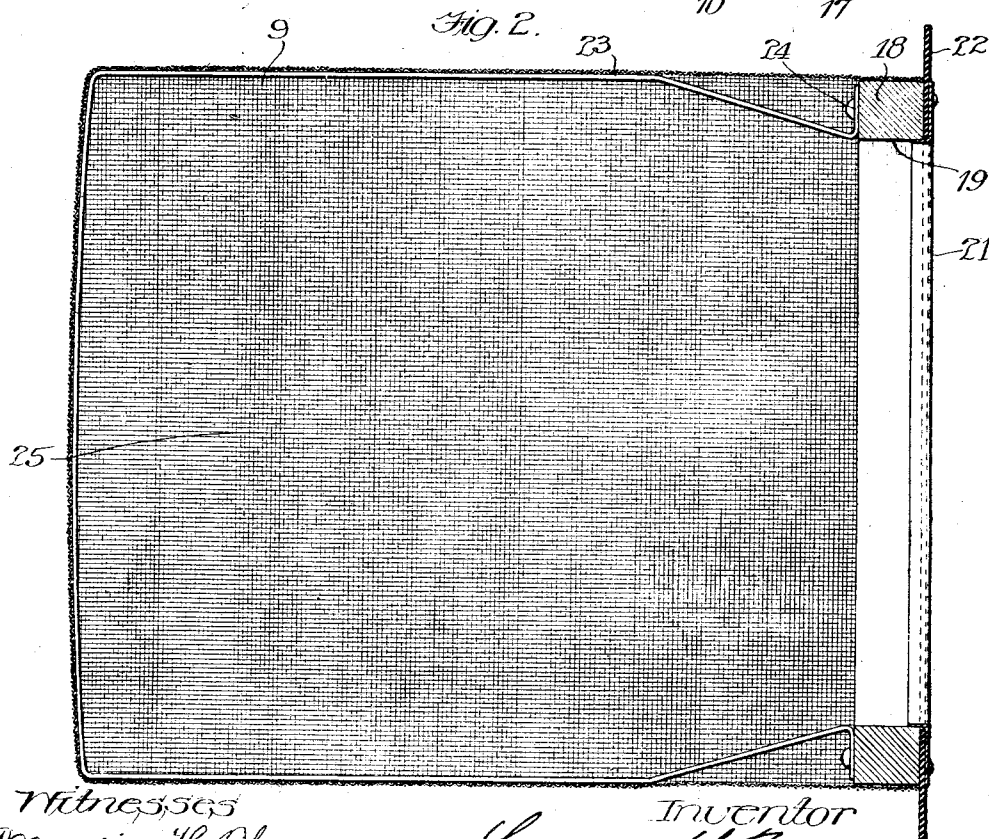


L. L. FERGUSON.
CLEANING DEVICE.
APPLICATION FILED OCT. 6, 1913.

1,104,976.

Patented July 28, 1914.



Witnesses
Martin H. Olsen.
Frieda Dunkel

Inventor
Leonard L. Ferguson
By *[Signature]*
Attys

UNITED STATES PATENT OFFICE.

LEONARD L. FERGUSON, OF CHICAGO, ILLINOIS, ASSIGNOR, TO DUNTLEY PNEUMATIC SWEEPER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

CLEANING DEVICE.

1,104,976.

Specification of Letters Patent. Patented July 28, 1914.

Application filed October 6, 1913. Serial No. 793,631.

To all whom it may concern:

Be it known that I, LEONARD L. FERGUSON, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Cleaning Devices, of which the following is a specification.

One of the objects of this invention is to provide a dust receptacle or filtering bag for pneumatic sweepers with a suitable frame for holding the bag extended free from contact with other parts of the apparatus whereby the maximum possible filtering surface of the bag is held exposed to the action of the suction apparatus.

A further object of the invention is to provide a construction of flexible bowed frame for the filtering bag adapted when vibrated to loosen accumulated dust but not liable to loosen the fabric covering of the bag from the frame when the frame is struck against some fixed object for the purpose of emptying the collected dust from the filtering bag.

An illustrative embodiment of this invention is shown in the accompanying drawings, in which:

Figure 1 is a transverse vertical section of a pneumatic sweeper showing the present improved construction. Fig. 2 is a view in horizontal section of the filtering bag taken on the line A—A of Fig. 1.

Pneumatic sweepers of this general type are frequently provided with a filtering bag without a frame for extending the bag, and as a result the bag sometimes becomes folded and rests on the bottom of the containing receptacle exposing little surface to the action of the suction apparatus.

The present invention relates to a particular arrangement of frame and filtering fabric forming a bag efficient in operation and in convenient form for handling.

Referring to the drawings, the device is shown provided with suitable bellows 1 operated by pitman and crank connections 2 and 3 with supporting wheels 4. The lower leaf 5 of the bellows rests on a partition 6 separating a casing 7 for the bellows and a casing 8 for the filtering device 9. The filtering device is arranged to be in communication with a suction nozzle 10 for engaging the surfaces operated upon, and the partition 6 is provided with an opening

11 so that air may be drawn through the nozzle 10 and the filtering device and then permitted to pass through a valve 12 in the lower leaf 5 of the bellows. The upper leaf 13 of the bellows is provided with a valve 14 similar to the valve 12. When the leaves 13 and 5 of the bellows are separated, valve 12 opens while valve 14 is drawn to its closed position, and when the leaf 13 is forced downwardly, valve 12 closes while valve 14 opens. The suction nozzle 10 is secured to a sweeping compartment 15, both being removably secured as a unit to the remainder of the apparatus by a pivoted yoke 27 to permit removal of the filtering device for the purpose of emptying it, and for dumping the sweepings compartment. The sweepings receptacle carries a rotatable brush 16 arranged to be driven by a pair of supporting wheels 17. The filtering device 9 is provided with a mouthpiece 18 preferably made out of a single piece of wood having an opening 19 adapted to register with an opening 20 in the suction nozzle 10.

Secured to the outer face of the mouthpiece 18 by a small metallic strip 21 is a rubber washer or marginal portion 22, arranged for forming an airtight closure between the suction nozzle and the casing 8 when the sweepings compartment and nozzle are clamped to the suction apparatus with the filtering device in its proper position. Secured to the inner face of the mouthpiece 18 is a resilient strip of metal 23 bowed or bent in the form shown in Fig. 2, and having its ends first bent toward each other and then outwardly, the outward extensions being secured to mouthpiece 18 by screws 24. A filtering fabric 25 surrounds frame 23 and is glued at its edges to mouthpiece 18 thereby forming a bag open at the end within which fits the mouthpiece. By this arrangement of the filtering device, both its upper and lower surfaces, as shown in Fig. 1, are exposed to the action of the suction apparatus. The frame 23 is bent inwardly, as shown, adjacent to the fastening between the fabric and the mouthpiece 18, to facilitate fastening the fabric to the outer edge of the mouthpiece 18, and also to permit the frame 23 to vibrate relatively of the mouthpiece without loosening the fabric from the latter when the filtering device is struck against some fixed object. The opening 11 in the partition 6 is preferably as usual covered by a metallic

screen 26, thereby aside from the function of frame 23 further preventing the fabric from limiting the action of the bellows by being drawn upwardly against the mouth of the passage between it and the filtering bag compartment.

In the operation of the device, the action of the supporting wheels 4 in operating the bellows results in air being drawn through the nozzle 10 into the filtering device and being permitted to filter through the upper and lower surfaces of said device in its passage to the bellows. To gain access to the filtering bag 9, yoke 27 is swung upward to release the sweepings compartment. Then the filtering bag may be withdrawn from the device and emptied. The sides of frame 23 may be pressed inward and suddenly released or lightly tapped against some fixed object for the purpose of snapping fabric 25 to clear it of accumulated dust.

The type of machine to which the present improvement is applied is generally a low structure which may easily pass under most furniture, the bottom of which is spaced from the floor. The filtering devices must be dimensioned suitably for such structure and as a consequence, are usually hard to clean. The usual more or less flat or loose type of dust-bag is difficult to clean, in that it is necessary to turn it inside out before the dust may be brushed from the meshes of the fabric. Such method of cleaning the

filtering device is annoying to the operator and permits the escape of dust. With the filtering device herein described, such dust as collects in the meshes of the fabric and is not readily emptied from the filtering device may be very effectively removed by sweeping or brushing the outside of the fabric, for the reason that the fabric is held taut by the U-shaped frame 23.

Although but one specific embodiment of this invention has been herein shown and described, it will be understood that some details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claim.

I claim:

An air filtering device for pneumatic carpet sweepers, comprising a mouthpiece having a narrow opening therein, a U-shaped metallic frame secured to said mouthpiece, and a filtering fabric surrounding said frame and secured to said mouthpiece, said frame being suitably dimensioned with respect to the filtering fabric to hold said fabric taut with its opposite faces spaced apart.

Signed at Chicago this 3d day of October 1913.

LEONARD L. FERGUSON.

Witnesses:

ANDREW RUMMLER,
JENNIE BURT.