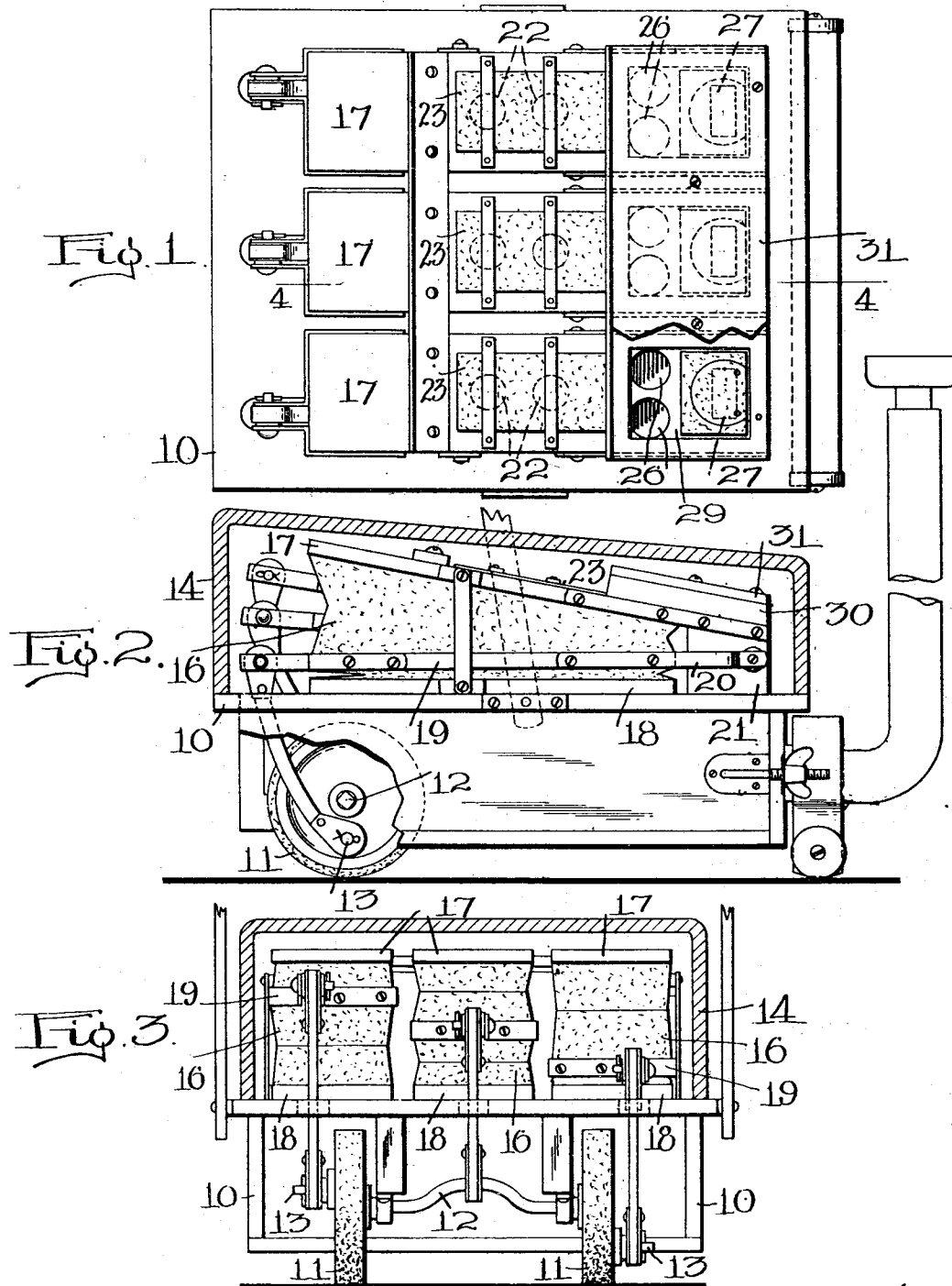


T. O. ØSTERHOLM.
PNEUMATIC PUMP.
APPLICATION FILED AUG. 14, 1911.

1,045,172.

Patented Nov. 26, 1912.

2 SHEETS—SHEET 1.



Witnesses:

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2 SHEETS—SHEET 2.

Fig. 4.

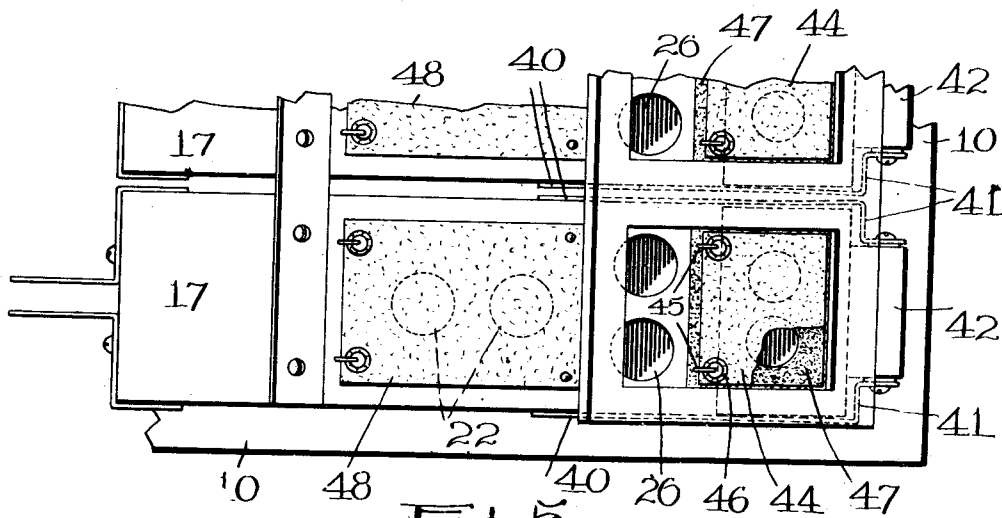
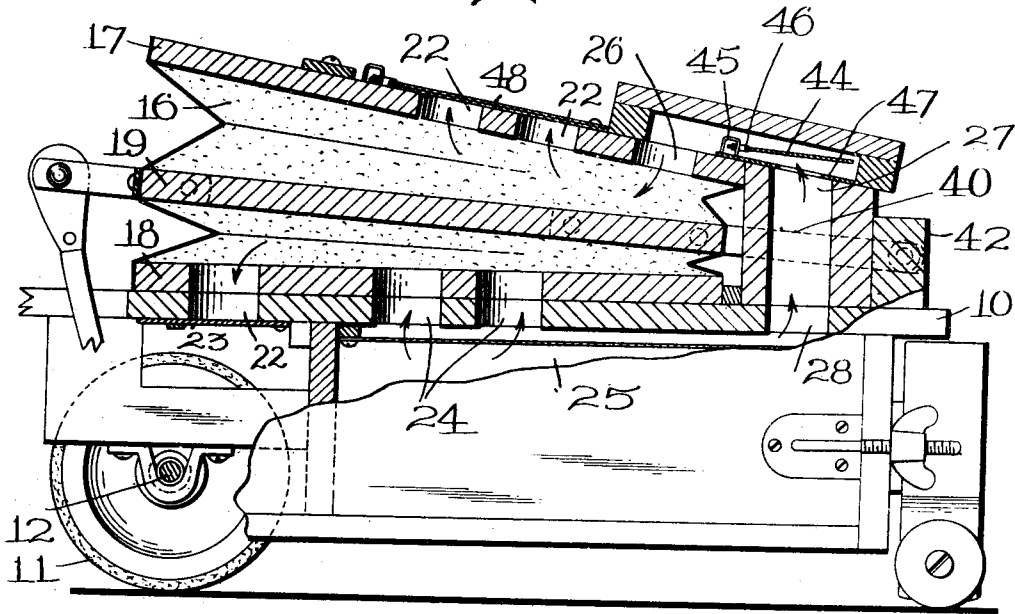


Fig. 5.

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UNITED STATES PATENT OFFICE.

THEODORE O. OSTERHOLM, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-THIRD TO A. IVAR POLLACK AND ONE-THIRD TO SIXTEN A. ROSEN, BOTH OF WORCESTER, MASSACHUSETTS.

PNEUMATIC PUMP.

1,045,172.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Original application filed April 10, 1911, Serial No. 620,144. Divided and this application filed August 14, 1911. Serial No. 643,873.

To all whom it may concern:

Be it known that I, THEODORE O. OSTERHOLM, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Pneumatic Pump, of which the following is a specification.

This patent contains matter divided out of my prior Patent No. 1,022,499, dated April 9, 1912, on an application, Serial No. 620,144 filed April 10, 1911.

This invention relates to a pneumatic pump particularly adapted for use in a carpet sweeper, but capable of general use.

The principal objects of the invention are to provide a device of this character which can be operated easily and conveniently by moving it along a surface, as for example, a carpet; to provide an improved way of connecting the supporting wheels with the pneumatic wind inducing devices, whereby the maximum weight of the device will come on these wheels, so that they will operate efficiently; and to provide certain improvements in the pneumatics themselves for increasing the ratio of the power thereof to the space occupied.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a plan of an air motor constructed in accordance with this invention and applied to a carpet cleaner, as shown in the original case; Fig. 2 is a side elevation thereof; Fig. 3 is a rear elevation; Fig. 4 is a central sectional view on the line 4—4 of Fig. 1 somewhat modified; and Fig. 5 is a plan of one of the pneumatics thereof with the top plate removed.

The invention is shown in the first three figures in the form of a carpet sweeper as that is the preferred form thereof. However, it is to be understood that most of the features of the invention are capable of application to other pneumatic devices, and the invention is not limited to carpet sweepers.

The carpet sweeper is shown as comprising a frame or casing 10 supported at the rear by a pair of wheels 11 having solid rubber tires thereon. These wheels are fixed on a shaft 12 having cranks 13 thereon. In

the present case two of these cranks are shown as on the wheels themselves. The pneumatics are inclosed in a cover 14.

The pneumatics 16 are shown as mounted on the top of the casing. Any desired number of these pneumatics can be employed, three being shown in the drawings. Each pneumatic is shown as consisting of two fixed leaves 17 and 18 and one intermediate movable leaf 19. This movable leaf is provided with extending arms 20 which are pivoted at a point beyond the small end of the pneumatic to a transverse block or bracket 21. On account of this construction the power of each pneumatic is much greater for the space that its movable leaf occupies than it would be if the central leaf were pivoted at the small end of the pneumatic itself, as has been the case heretofore. Each pneumatic is provided with outlet ports 22 and valves 23 shown as of the flap type, these being located in each of the fixed leaves. The interior of the lower half of each pneumatic is connected directly with a suction chamber 25. The upper half of each pneumatic is connected with this chamber through ports 26 and 27, the latter of which are controlled by flap valves, and passages 28. The ports 26 and 27 for each pneumatic are located in a box 29 formed by a skeleton frame 30 on the block 21 covered by a plate 31 to form a chamber. The lower valves of the pneumatics are connected with the chamber 25 by ports 24. It will be understood however, that any other way of connecting these pneumatics with the chamber 25 and properly controlling the ports, can be employed with this invention. The chamber 25 is provided for holding the dust bag, not shown.

In the form of the invention shown in the second sheet of drawings slight modifications are made, but the same principles are carried out. In this case the arms 40 are similar to the arms 20 in the other views, but they extend farther from the boundaries of the pneumatic proper so as to give more power relative to the amount of space occupied by the pneumatics. They also extend beyond the boards which form the top and bottom of the pneumatics so as to bend inwardly at 41. This is to permit their being screwed to blocks 42 which are not as

wide as the pneumatics. This affords additional convenience in setting the parts up and in repairing.

Another modification shown in these figures consists in the arrangement of the valves. In this case the valves 44 are shown as pivotally mounted at one end by the staples 45, one leg of each of which extends through an eyelet 46 near the edge of the valve. In this case the valves are located over perforated sheets 47 of rubber cloth, or the like. The valves are made of the same material preferably. The valves 48 also are formed of this material and connected up in the same way at one end, the other end being fastened in position by nailing or the like. This gives greater freedom of motion to the valves and makes their operation more positive and certain. It will be seen, therefore, that the device is practically designed to produce the above specified results in an economical and simple manner.

While I have illustrated and described two preferred embodiments of the invention and shown it as applied to a carpet sweeper, I am aware that the invention can be carried out with many modifications and that it can be applied to other pneumatic devices than carpet sweepers. Therefore I do not wish to be limited to all the details of construction herein shown and described, or to the particular use of the invention herein mentioned, but

What I do claim is:—

1. In a device of the character described, the combination with a bellows comprising a fixed leaf and a movable leaf, of a fixed projection narrower than said leaves extending past the end of the bellows, and a pair of arms or opposite sides of said movable leaf projecting beyond said leaves and bent inwardly at their outer ends toward each other and pivoted on said projection on the side opposite the bellows.

2. In a device of the character described, the combination with a bellows comprising a fixed leaf and a movable leaf, of a chamber arranged on the outside of the bellows and communicating with the interior of the bellows through the fixed leaf thereof, a projection extending from said chamber past the end of the bellows and having a port therethrough communicating with said chamber, and an arm on said movable leaf pivoted at a point on said projection.

3. In a pneumatic device, the combination with the wind inducing device, of a chamber adjacent thereto having an open passage connected with the wind inducing device, and a second passage, a flap valve in the chamber for controlling the second passage, a port under said valve adapted to be closed by the valve, and a passage in free communication with said port, said wind inducing device comprising a movable leaf located on one side of said passage and port and pivoted on the other side thereof.

4. In a device of the character described, the combination with a bellows comprising a fixed leaf and a movable leaf, of a chamber arranged on the outside of the bellows and communicating with the interior of the bellows through the fixed leaf thereof, a projection extending from said chamber past the end of the bellows and having a port therethrough communicating with said chamber, and a pair of arms on opposite sides of said movable leaf projecting beyond said projection and bent inwardly at their outer ends toward each other and pivoted on said projection on the side opposite the bellows.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

THEODORE O. OSTERHOLM.

Witnesses:

ALBERT E. FAY,
C. FORREST WESSON.