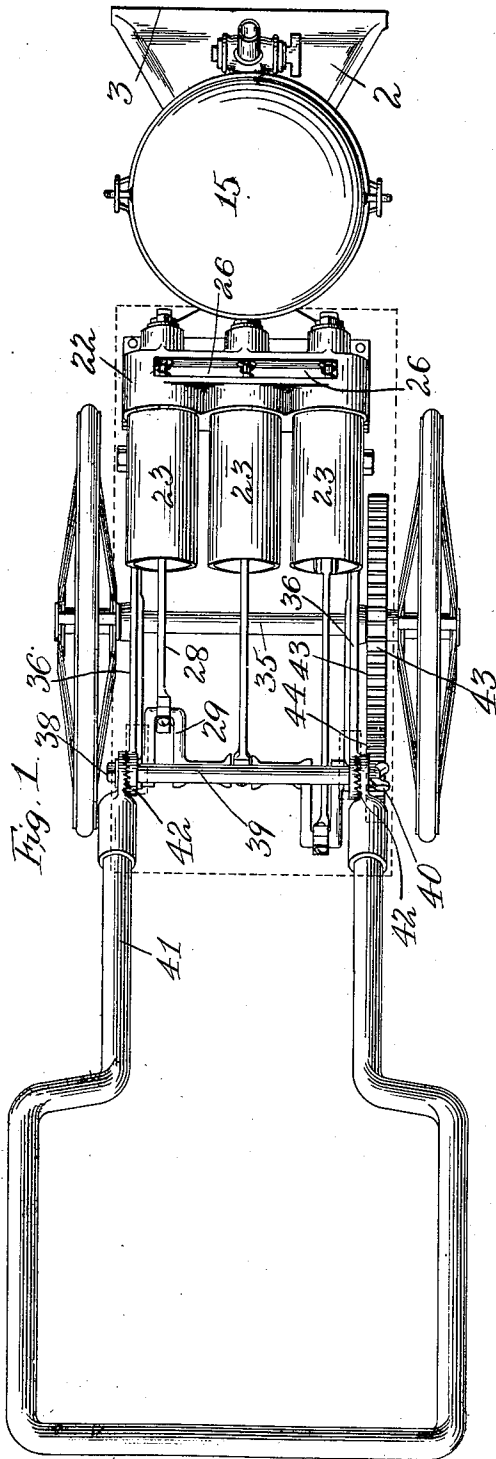


J. W. LEASURE.
VACUUM CLEANING APPARATUS.
APPLICATION FILED NOV. 19, 1909.

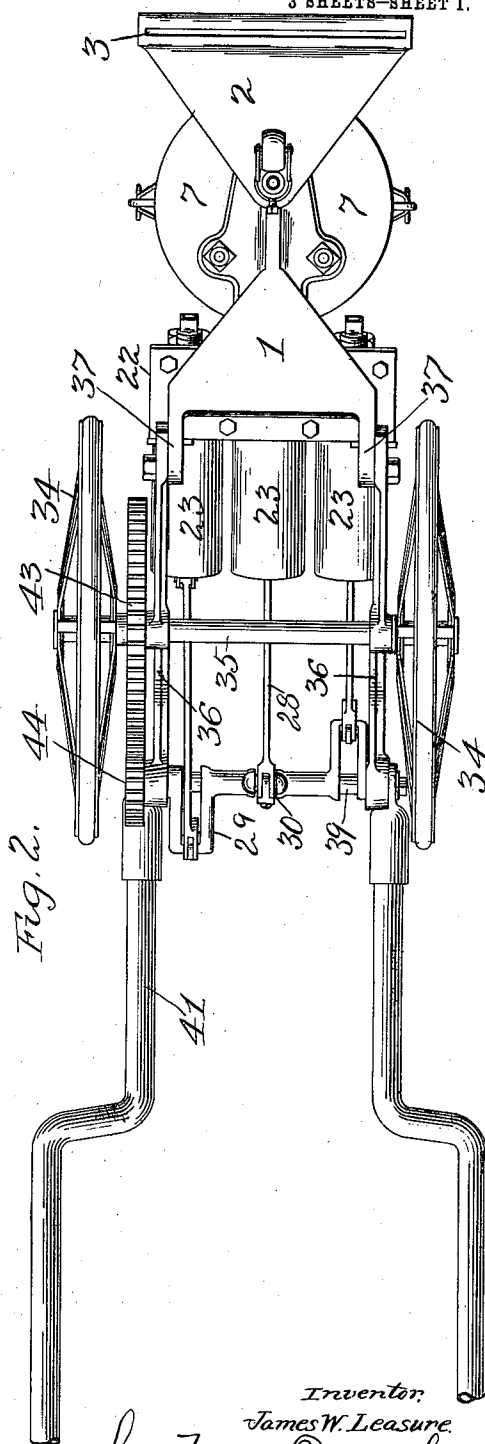
992,364.

Patented May 16, 1911.

3 SHEETS—SHEET 1.



Attest.
Bert M. Stahl
Clerk L. Tolson.



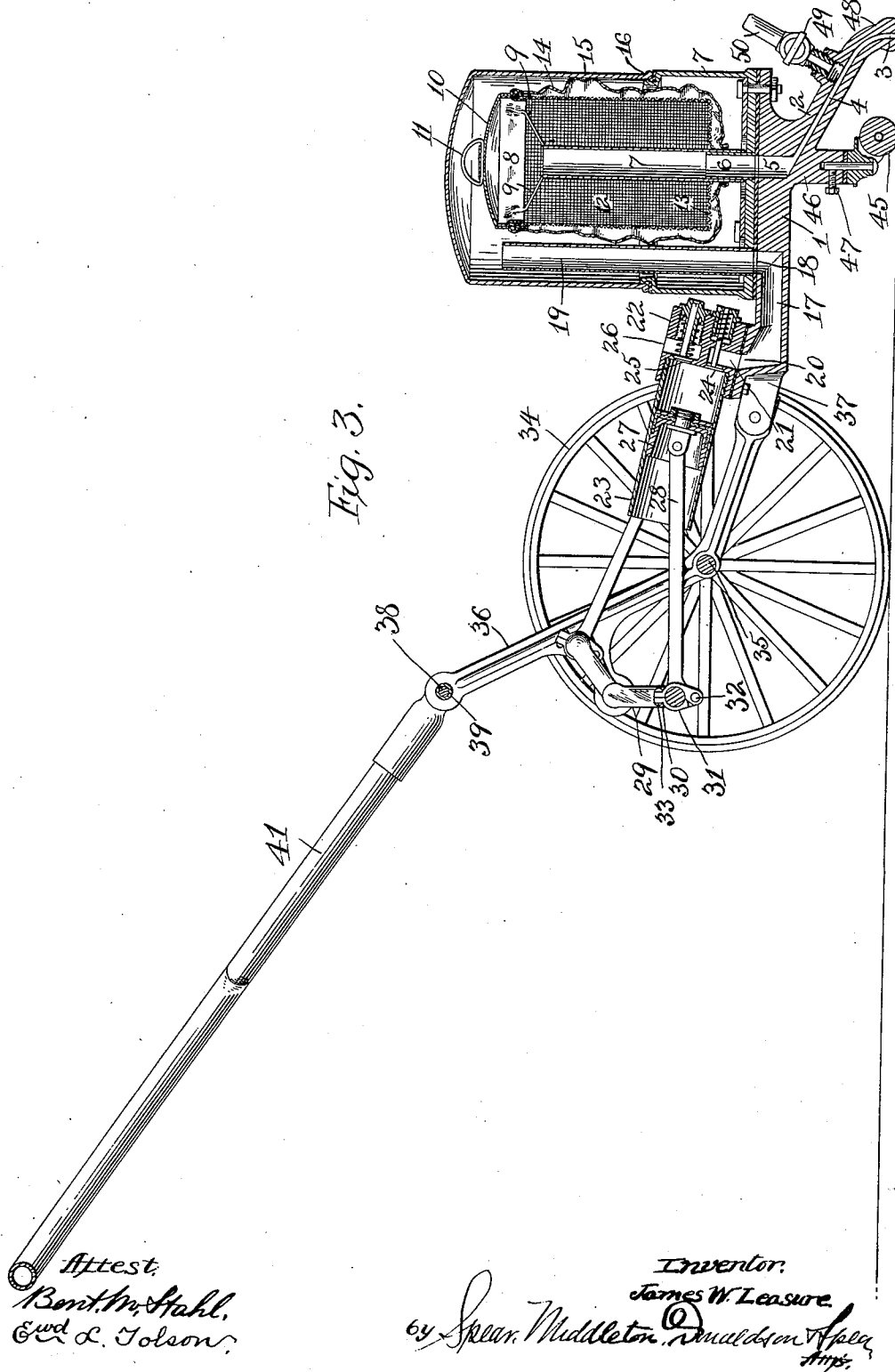
Inventor,
James W. Leasure.
by Spear, Middleton, Donaldson & Spay
attys.

992,364.

J. W. LEASURE.
VACUUM CLEANING APPARATUS.
APPLICATION FILED NOV. 19, 1909.

Patented May 16, 1911.

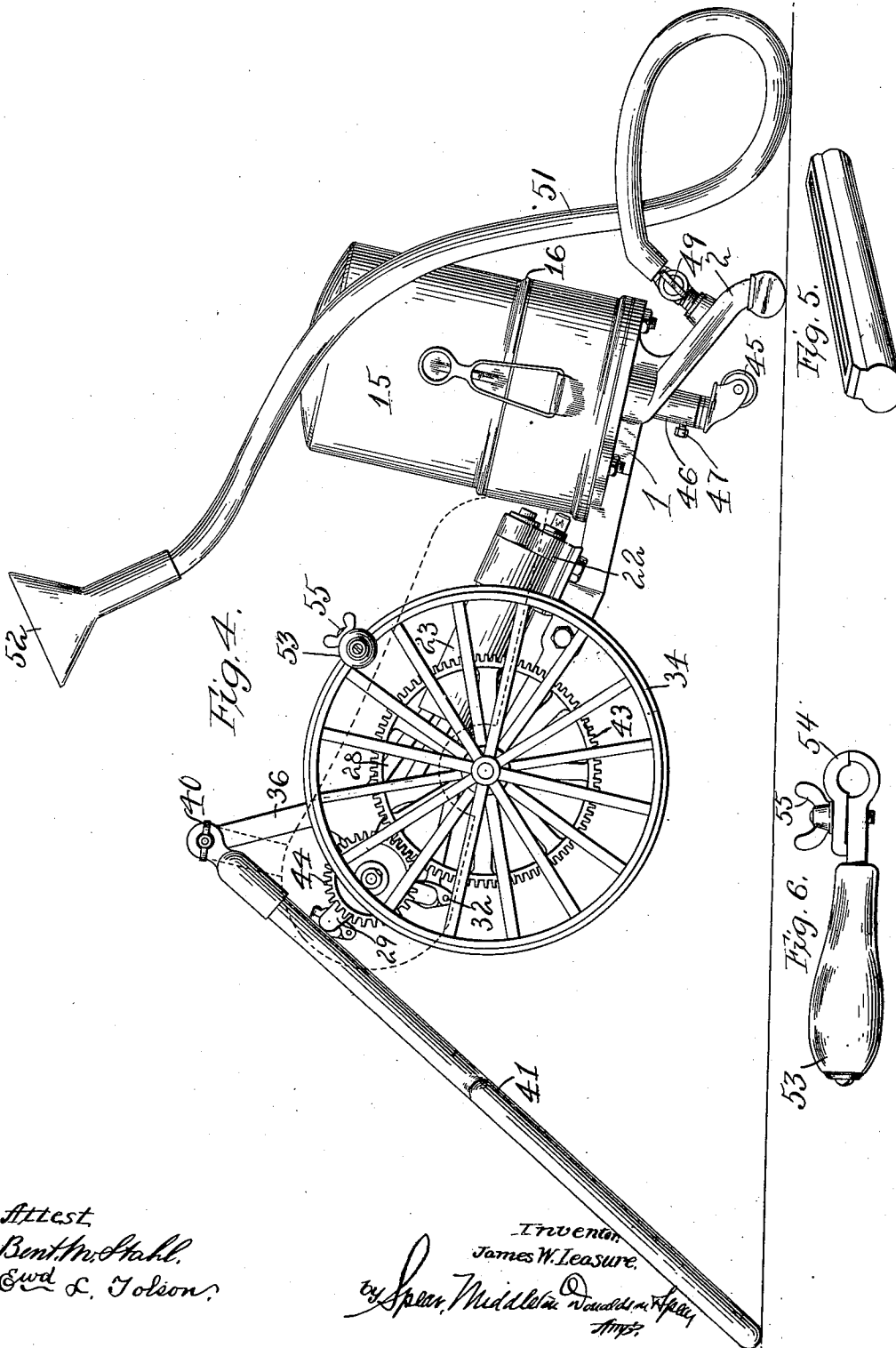
3 SHEETS—SHEET 2.



992,364.

J. W. LEASURE.
VACUUM CLEANING APPARATUS.
APPLICATION FILED NOV. 19, 1909.

Patented May 16, 1911.
3 SHEETS-SHEET 3.



Attest,
Bent M. Stahl,
Edw. L. Tolson.

Inventor,
James W. Leasure,
by Spear, Middleton & Wadsworth
Attys.

UNITED STATES PATENT OFFICE.

JAMES W. LEASURE, OF BRADFORD, PENNSYLVANIA, ASSIGNOR TO LEASURE VACUUM CLEANER COMPANY, LIMITED, OF BRADFORD, PENNSYLVANIA.

VACUUM CLEANING APPARATUS.

992,364.

Specification of Letters Patent.

Patented May 16, 1911.

Application filed November 19, 1909. Serial No. 528,939.

To all whom it may concern:

Be it known that I, JAMES W. LEASURE, a citizen of the United States, residing at Bradford, Pennsylvania, have invented certain new and useful Improvements in Vacuum Cleaning Apparatus, of which the following is a specification.

My invention relates to vacuum cleaning apparatus adapted particularly for household use, the invention being of such a form that it may be rolled over the floor or carpet, and by this rolling motion the vacuum will be produced to draw into the separator any dust which may be at the nozzle of the apparatus, or by making certain adjustments, the apparatus may be made stationary, and by applying power thereto by hand, the necessary suction will be created, and by means of a flexible connection which may be readily attached to the apparatus, and which is provided with a nozzle, the machine may be used for cleaning furniture or the walls, or any objects which are not directly accessible to the main portion of the apparatus itself.

The invention is shown in the accompanying drawings, in which:

Figure 1 is a plan view of a machine embodying my invention; Fig. 2 is a bottom plan view of the parts shown in Fig. 1; Fig. 3 is a vertical sectional view through the machine with parts in elevation; Fig. 4 is a side elevation with the machine adjusted for use as a stationary apparatus and with the flexible hose and nozzle in connection therewith for cleaning furniture or other objects; Fig. 5 is a detail view of a sealing device to close the nozzle opening; Fig. 6 is a detail view of a detachable handle to be applied to one of the traction wheels when the apparatus is adjusted to be operated by hand.

In these drawings, 1 indicates the main frame casting or plate, this having at the front end an angular or flaring portion 2 provided with an elongated inlet mouth 3, from which a passage 4 extends upwardly and rearwardly at an inclination through the said angular portion 2. This passage 4 connects with a vertical opening 5 which connects with a central opening or pipe 6 within the main separator casing 7, which is bolted or otherwise secured to the main frame casting 1. Over the pipe 6 is fitted a tube 7 of the separator which comprises

an upper ring 8 connected by arms 9 with the central tube 7, the said ring 8 furnishing a seat for a cover or cap plate 10 having a handle 11. The ring 8 has attached thereto a wire screen or like material shown at 12, which is of cylindrical form, and at the bottom has a head portion 13 extending inwardly to the central tube. The upper ring 8 also supports a separator bag of canvas or like material shown at 14, which envelops the perforated or wire screen cylinder 12, and has its lower end closed tightly around the central tube of the separator. The main outer casing of the separator has its upper portion 15 removably seated outside of the flange 16 of the lower portion of the cylinder. The main casting or frame 1 has a passage 17 extending therethrough, said passage having an upwardly directed inlet mouth 18 which connects with a tube 19 extending vertically within the main separator casing, and outside of the separator itself, the said tube 19 opening, at its upper end, at a point close to the upper ring of the separator. The passage 17 also has an outlet mouth at 20 which connects with an inlet port 21 of a valve chest 22. This valve chest is of triplicate form, having an inlet valve and an outlet valve for each of three cylinders shown at 23. The inlet valves are marked 24 and the outlet valves are shown at 25. The inlet valves 24 allow the air to be drawn in to the cylinder 23 from the passage 17, and the outlet valve 25 allows the air to be discharged through the main exhaust 26, this being of elongated form and being common to all of the outlet valves of the three cylinders. Within the cylinders, pistons 27 reciprocate, said pistons being connected each by a pitman 28 with a crank 29 on the main crank shaft, the said connection with the crank shaft being accomplished through a bearing box 30 having a cap 31 pivotally secured to the main part of the box at 32, and held in place by a screw at 33. The arrangement of the arms of the crank shaft is such that one of the pistons is at work at all times on a suction stroke to produce the vacuum throughout the apparatus. The apparatus is carried upon wheels 34 placed in rear of the separator, the valve chest and the cylinders, the said wheels being carried by an axle 35, supported in arms 36, which are attached, at their forward ends, to brackets

37 attached to or forming a part of the main casting 1. The upper ends of the frames 36 are connected by a cross bolt 38 which passes through a sleeve 39 and is held by a wing nut 40. This bolt also secures in place the handle 41, which is of any suitable form. The meeting faces of the handle and the arms 36 through which the securing bolt passes are of substantially circular form, and are provided with serrations 42, so that by loosening the bolt and turning the handle to the desired inclination and then tightening the bolt, the serrated faces of the handle and the frame arms will engage each other, and hold the handle securely in the position to which it is adjusted.

In the operation, the apparatus is propelled over the floor by pressure exerted against the handle, and the crank shaft is turned by the gearing 43, 44, and the revolution of the crank shaft will impart reciprocations to the pistons within the triplicate cylinders 23. These will create the necessary suction which will cause the dust and air to be drawn through the nozzle inlet 3, the passage 4, and through the tubes 6 and 7 into the separator bag 15, where the dust will be separated from the air and retained in the bag, the air passing through the meshes of the bag and through the pipe 19, the passage 17, the ports 20 and 21 and valve 24 into the cylinder 23, whereupon on the return reciprocation of the piston, the valve 24 will close, and the discharge valve 25 will open to allow the air to be discharged from the apparatus. By the arrangement of the three cylinders, a constant suction may be created. The separator bag may be cleaned by removing the cap or cover 10. The upper portion of the main separator casing is removable.

In order to regulate the position of the nozzle in relation to the carpet or surface being operated on, and particularly for adjusting the device for carpets having different lengths of nap, I provide a caster wheel 45 mounted on a depending stud 46 of the main casting 1 in rear of the nozzle 3. The caster is held in place by a set screw 47 engaging the shank of the caster and about which the said caster turns. By loosening the set screw, the caster shank may be raised and lowered to adjust the caster wheel in relation to the nozzle 3.

In Fig. 4 I show the apparatus as adjusted for use in cleaning articles of furniture or the walls of a room or objects or places to which access can not be directly had by the main nozzle 3. For this purpose the handle 41 is adjusted from the position shown in Fig. 3, so that the end of the handle will rest on the floor, and the carrying wheels will be elevated from the floor, the forward part of the apparatus resting on the main nozzle or shoe, which, however, is now cov-

ered by a closing or sealing device of rubber or like material, Fig. 5 which is fitted to and placed over the end of the nozzle, for which purpose I prefer to form the said nozzle with a slight upward taper on its front and rear sides, as shown at 48. For this purpose also I place a valve at 49 communicating with the passage 2, and having a nozzle at 50 to receive the hose connection 51, which terminates in a flattened nozzle 52 having an elongated inlet opening. I also provide a handle 53 having clamping jaws 54 and a wing nut 55, by which the said handle may be clamped to the rim of one of the main carrying wheels, so that, when the apparatus is elevated to the position shown in Fig. 4, by grasping the crank or handle 53, the main axle and gearing will be rotated, thus causing the suction pistons to be operated, and this suction, acting through the passages above described and the hose 51, will create a suction at the nozzle 52 which, by contact with the articles of furniture, will act to clean the same. The cock or valve 49, when the device is used as in Fig. 3, is, of course, turned so as to cut off connection between the passage 4 and the nipple or nozzle 50, at which time, of course, the closure or covering is removed from the main nozzle 3, and the hose 51 from the cock.

The suction apparatus may be inclosed by a casing indicated in dotted lines, Figs. 1 and 4, which is held by hangers on the cross bolt 38.

It will be understood that the hose may be used with or without the nozzle 52.

I claim as my invention:—

1. A vacuum cleaning apparatus comprising a horizontal frame having a downwardly extending portion at its front end terminating in a nozzle, which portion is provided with a passage opening upwardly through said horizontal portion, a separator surrounding said horizontal portion over the opening therein, said frame having an extension in rear of said separator with a passage extending therethrough opening upwardly into the separator, suction means connecting with said passage and carrying wheels for supporting the frame, substantially as described.

2. In a vacuum cleaner apparatus, a nozzle at the front, separator and suction means, a frame, carrying wheels with driving connections therefrom to the suction means for operating the same, a handle pivoted to the frame to be adjusted as a support for holding the apparatus with the nozzle as the front support and the handle as the rear support and a crank on one of the carrying wheels, substantially as described.

3. A vacuum cleaning apparatus comprising a frame, a nozzle forming a forward extension of said frame, a separator surmounting the frame, a suction device supported on

the rear extension of the frame and in rear of the separator, carrying wheels also supported on the rear extension of the frame, and a handle for propelling the machine, 5 said separator extending vertically upward from the frame and said frame having an upwardly extending passage leading from the nozzle vertically into the separator, and having also a downwardly extending passage 10 connecting with the separator to one side of the center, and a rearwardly extending passage connecting the downwardly extending passage with the suction device.

4. In combination, a frame having a downwardly extending portion at its front end 15

terminating in a nozzle and having a horizontal portion, a separator mounted on the horizontal frame portion, said downward-extension having a passage extending from the nozzle and opening up into the separator, 20 and a cock and supplemental nozzle carried by the downward forward extension, substantially as described.

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

JAMES W. LEASURE.

Witnesses:

F. P. SCHOONMAKER,
E. M. KOCH.