F. J. DEUTSCH.

DUST RECEPTACLE FOR VACUUM CLEANERS.

APPLICATION FILED MAY 17, 1920.

1,428,583.

Patented Sept. 12, 1922.

3 SHEETS—SHEET 1.

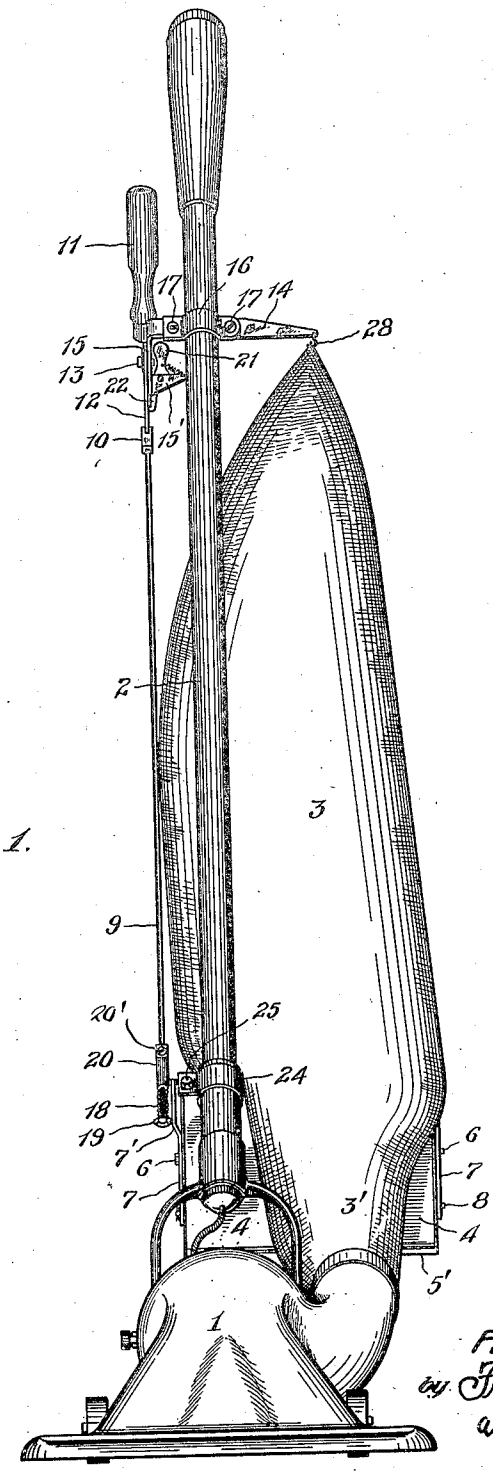


Fig. 1.

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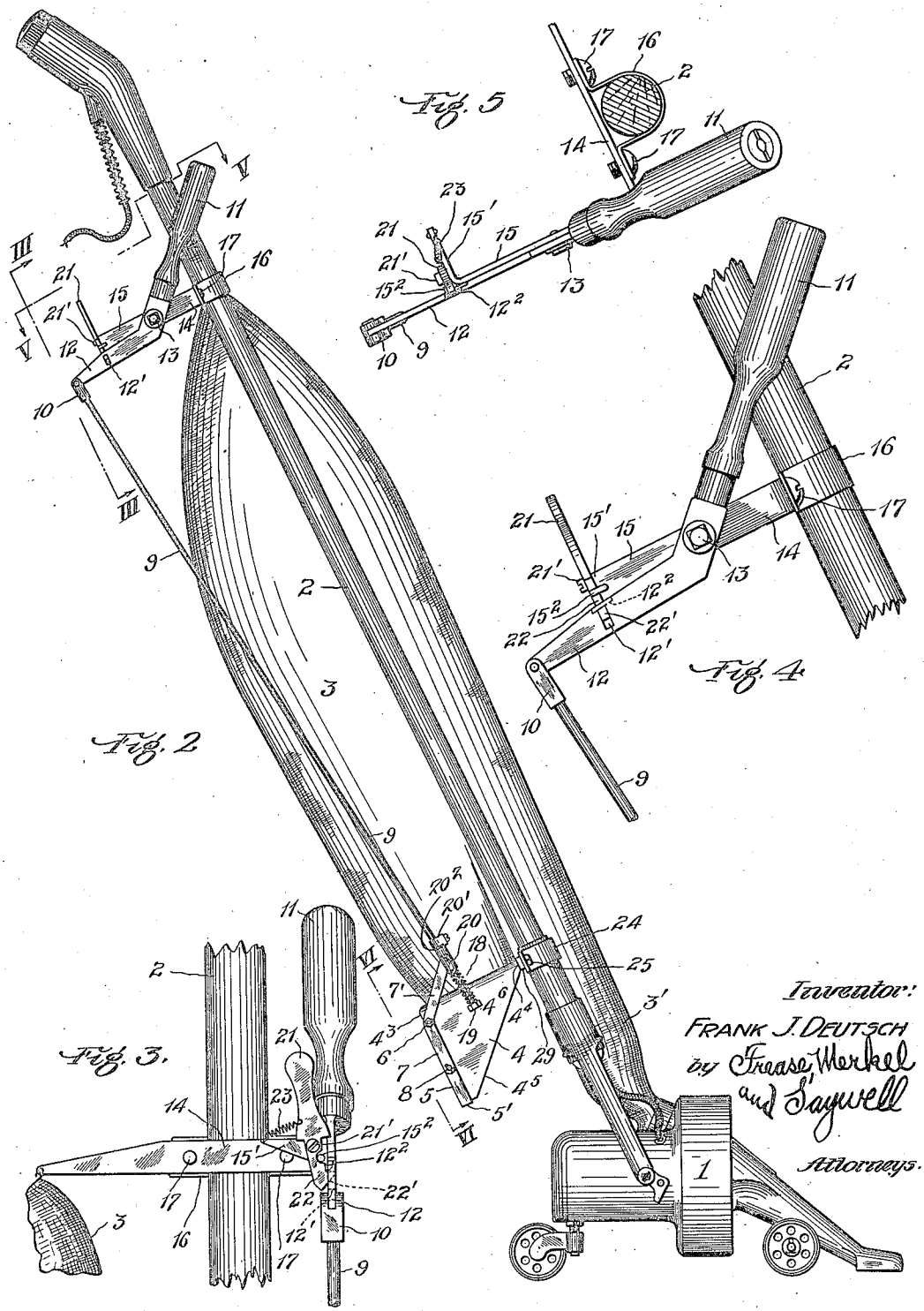
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3 SHEETS—SHEET 3.

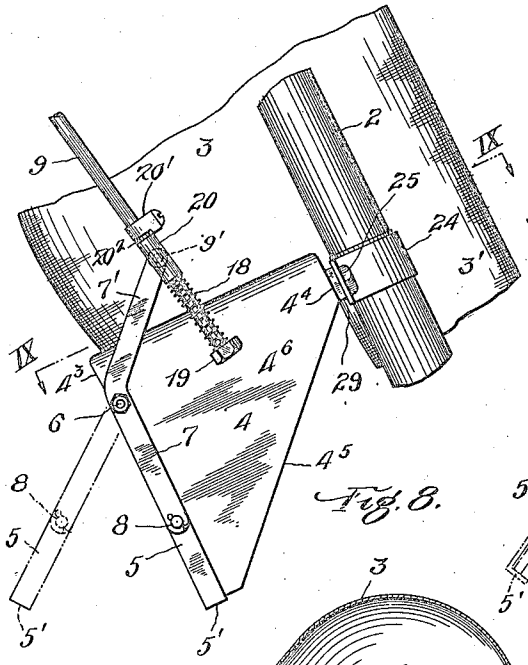


Fig. 8.

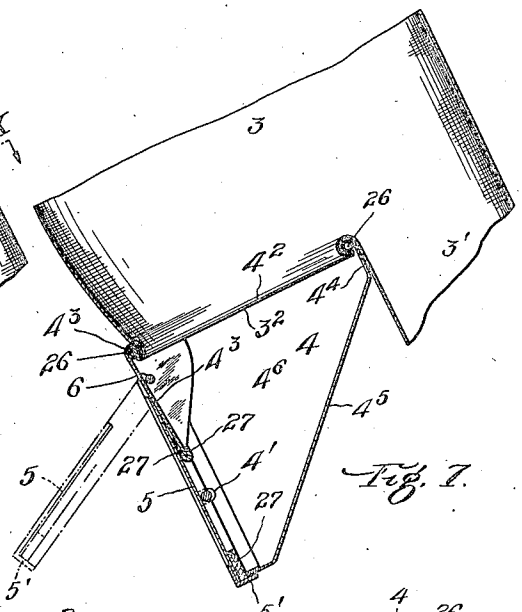


Fig. 7.

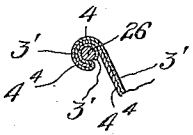


Fig. 7a

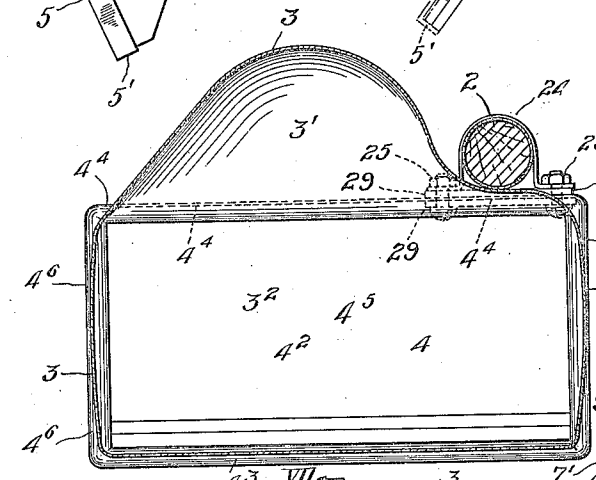


Fig. 9.

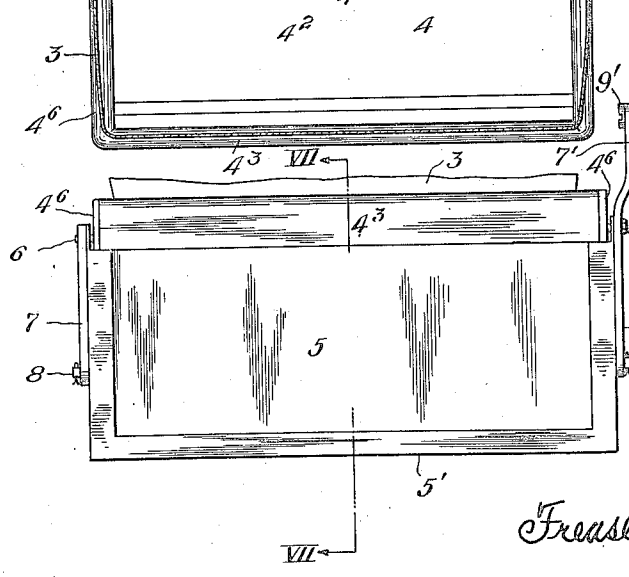


Fig. 6

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UNITED STATES PATENT OFFICE.

FRANK J. DEUTSCH, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO EDMOND FARKAS, OF CLEVELAND, OHIO.

DUST RECEPTACLE FOR VACUUM CLEANERS.

Application filed May 17, 1920. Serial No. 382,107.

To all whom it may concern:

Be it known that I, FRANK J. DEUTSCH, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented new and useful Improvements in Dust Receptacles for Vacuum Cleaners, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to vacuum cleaners, and particularly to a new and improved receptacle for the dust and dirt collected by such cleaners. More particularly, my invention relates to such a receptacle from which the contents may be easily and effectively discharged, without the necessity of detaching the receptacle from the machine.

The annexed drawings and the following description set forth in detail certain means embodying my invention, the disclosed means, however, constituting but one of the various mechanical forms in which the principle of the invention may be applied.

In said annexed drawings:

Figure 1 represents a front elevation of my new and improved apparatus;

Figure 2 represents a side elevation thereof;

Figure 3 represents an enlarged end elevation of mechanism for actuating a door controlling the discharge of the contents from the receptacle, said view being taken in the plane indicated by the line III—III, Figure 2;

Figure 4 represents an enlarged side elevation of said door-actuating mechanism;

Figure 5 represents an enlarged plan view of the parts shown in Figures 3 and 4, taken in the planes indicated by the lines V—V, Figure 2;

Figure 6 represents an enlarged rear elevation of a special metal dust receptacle, said view being taken from the plane indicated by the line VI—VI, Figure 2;

Figure 7 represents a vertical section taken in the plane indicated by the line VII—VII, Figure 6;

Figure 7^a is an enlarged fragmentary section of certain elements shown in Figure 7, particularly showing the method of securing the marginal edge of the fabric bag adjacently the edge of the opening in a metal receptacle with which an opening in the said fabric bag registers;

Figure 8 represents an enlarged side view of the metal dust-collecting receptacle and co-operating parts; and

Figure 9 represents a plan section of the parts shown in Figure 8, said section being taken in the plane indicated by the line IX—IX, Figure 8.

Referring to the annexed drawings, there is indicated by the ordinal 1 a suitable body, motor and other co-operating parts of any vacuum cleaner of standard design, the same being provided with an operating handle 2 and a fabric bag 3. Said bag 3 is of special design, according to the type of vacuum cleaner to which it is designed to be attached, and co-operates with a metal compartment 4 having an open side 4^2 adapted to register with an opening 3^2 in said fabric bag. The edges of said bag and receptacle defining the respective openings are secured together in a manner hereinafter fully explained. Said metal receptacle 4 is provided with a pivoted door 5, the same being hung upon a rod 6 passing transversely through the receptacle 4 and secured at each end exteriorly of the sides of said receptacle. This door 5 is actuated by a pair of arms 7 secured at their lower ends to the ends of a rod disposed transversely of the receptacle 4, and adjacently the inner face of the door 5, said arms 7 being pivoted exteriorly of the receptacle 4 upon the rod 6. One of these arms 7 is formed with an extension 7′ pivoted at its outer end upon a pin 9′ secured in a ferrule 20 mounted upon a rod 9 and adjacently one end thereof, said rod being secured at its other end and adjacently the upper end of the handle 2 to a yoke 10 between the arms of which is pivoted an extension 12 of a manually operable grip 11. The extension 12 of the grip 11 is pivoted upon a pin 13 secured to a downwardly extending extension 15 of a bracket 14, which is secured to the handle 3 adjacently the upper end thereof by means of a clamp 16 and screws 17. The rod 8, to the ends of which the arms 7 are secured, is adapted to register with elongated recesses 4′ formed in the bottom edges of the side plates of the metallic receptacle 4, said door 5 also being formed with an upturned marginal flange 5′ adapted closely to register with the rear and side walls of the box 4, so as tightly to

close the door opening. Furthermore, felt padding 27, plainly shown in Figure 7, is also provided adjacently the closing edges of the door 5 for securing a tight joint.

The opening and closing of the door 5 are controlled through the actuation of the grip 11. When the grip 11 is released from a detent hereinafter fully described, the door 5 is adapted under the influence of gravity, to be slightly opened, and when the grip 11 is restrained by the detent, the door 5 positively is held closed. This result is obtained by the provision of an abutment 19, provided at the extreme lower end of the rod 9 and a sleeve 20 loosely mounted on the rod 9 somewhat forwardly of the abutment 19, a collar 20′ secured to the rod 9 somewhat forward of the sleeve 20, and a spring 18 disposed intermediate the abutment 19 and the sleeve 20. The pin 9′ is fixed to the sleeve 20. The relative arrangement of these details and the tension of the spring 18 are such that, when the rod 9 is held in its uppermost position, by means of the detent hereinafter described, the spring 18 will force the sleeve 20 upwardly an amount necessary tightly to close the door 5, before the sleeve 20 reaches the fixed collar 20′. This condition is plainly illustrated in Figures 2 and 8, where the slight clearance between the sleeve 20 and the collar 20′ is indicated by the ordinal 20^2. When the rod 9 is released from the detent, the tension of spring 18 upon the abutment 19 will force the rod 9 downwardly until the collar 20′ strikes the sleeve 20, also, the excess weight of the rod 9, over and above the weight of the grip 11, and the pull of gravity upon the door 5, will cause the door slightly to open. The clearance area 20^2 will allow for any irregularities of workmanship, which would tend to prevent the tight closing of the door 5 and also will allow for any wear upon the felt padding 27. In order that the door 5 may be maintained closed, the following detail forming a detent is provided. There is formed in the extension 12 of the grip 11 a slot 12′ adapted to receive a catch 22 formed upon a trip 21, said trip being pivoted upon a pin 21′ secured upon a right-angular extension 15′ of the member 15, said trip being normally held so that the catch 22 may engage the slot 12′ by means of a spring 23 secured to the angular extension 15′ and adjacently the outer end of the trip 21. In order that the catch 22 may automatically engage with the slot 12′ when the operating grip member 11 is swung upon the pin 13 inwardly toward the handle 2 to the position shown in Figure 4, the lower edge of the catch 22 is formed with a beveled surface 22′, and the upper edge of the extension 12 adjacently the slot 12′ is formed with a beveled surface 12^2 by means of which surfaces the catch 22 is forced slightly to the left, Figure 3, to allow the extension 12 to pass, and then is actuated by the spring 23 automatically to engage the slot 12′.

The receptacle 4 and the co-operating parts are also supported upon the handle 2. This support is furnished by means of a clamp 24 secured by the bolts 25, upon both sides of the handle 2, to a marginal angular extension 4^4 of the bottom plate 4^5, of the receptacle 4, as plainly shown in Figures 7 and 9. The bolts 25 pass through said marginal edge 4^4 and clamped between the bolt heads and said edge 4^4 and upon both sides of the latter are short bearing plates or strips 29, plainly shown in Figure 9.

The fabric 3 defining the opening leading into the receptacle 4, as well as the metal defining the opening registering with said fabric opening, are secured together in a distinctive manner, which will now be described in detail. The metal which defines this opening consists of the upper edges of the side plates 4^6 of the box 4, the angular extension 4^4 and a narrow metallic plate disposed transversely of the receptacle and adjacently the upper edge of the door 5 and denoted by the ordinal 4^3. A transversely arranged rectangular frame is carried at the upper end of the receptacle, shown in section at 26, Figure 7, and the fabric is turned down over this frame and then the upper edges of the receptacle sections 4^3, 4^4 and 4^6 are turned over and under the fabric to secure a tight joint, as plainly shown in Figures 7 and 7^a. In other words, the frame 26 and the fabric 3 are first assembled and then this assembly incorporated with the metal sections 4^3, 4^4, and 4^6 of the receptacle or box 4.

A contracted neck portion of the fabric bag 3 is indicated by the ordinal 3′, the same being formed so as to be adapted to be attached to the desired type of machine 1 to receive the dust and dirt therefrom, as plainly shown in Figure 1. By means of the hook 28 secured to one end of the member 14, adjacently the top of the operating handle 2, the bag 3 is held supported in an extended condition, as plainly shown in Figure 1.

What I claim is:

1. In a dust-receptacle for vacuum cleaners, the combination of a fabric bag; a dust-discharge opening formed therein; means controlling the discharge from said opening; means holding said controlling means closed; a detent for said last-mentioned means; and a manually-operated trip for said detent.

2. In a dust-receptacle for vacuum cleaners, the combination of a fabric bag; a dust-discharge opening formed therein; means controlling the discharge from said opening including a metallic box having an open side registering with said discharge opening, and a door controlling the discharge from the box; a support for said box; and means for operating said door.

3. In a dust-receptacle for vacuum cleaners, the combination of a fabric bag; a dust-discharge opening formed therein; means controlling the discharge from said opening including a metallic box having an open side registering with said discharge opening, and a door controlling the discharge from the box; a support for said box; and means for operating said door, said means tending to close said door.

4. In a dust-receptacle for vacuum cleaners, the combination of a fabric bag; a dust-discharge opening formed therein; means controlling the discharge from said opening including a metallic box having an open side registering with said discharge opening, and a door controlling the discharge from the box; a support for said box; means tending to hold said door open; a detent for said last-mentioned means; and a manually-operated trip for said detent.

5. In a dust-receptacle for vacuum cleaners, the combination of a fabric bag; a dust-discharge opening formed therein; means controlling the discharge from said opening including a metallic box having an open side registering with said discharge opening, and a door controlling the discharge from said box; a frame bounding the sides of said box opening, the fabric bounding the bag discharge opening being rolled under said frame and held by the metal defining the box opening; a support for said box; and means for operating said door.

6. In a dust-receptacle for vacuum cleaners, the combination with an operating handle for the cleaner; of a fabric bag; means forming a metallic receptacle supported by the handle, built into the wall of the bag so as to form a continuous chamber therewith, and having a door controlling the discharge from said receptacle; and means for operating said door.

7. In a dust-receptacle for vacuum cleaners, the combination with an operating handle for the cleaner; of a fabric bag; means forming a metallic receptacle supported by the handle, built into the wall of the bag so as to form a continuous chamber therewith, and having a door controlling the discharge from said receptacle; a bracket supported upon the handle of the cleaner; and an operating lever pivotally mounted upon said bracket and connected to said door.

8. In a dust-receptacle for vacuum cleaners, the combination with an operating handle for the cleaner; of a fabric bag; means forming a metallic receptacle supported by the handle, built into the wall of the bag so as to form a continuous chamber therewith, and having a door controlling the discharge from said receptacle; a bracket supported upon the handle of the cleaner; an operating lever pivotally mounted upon said bracket and connected to said door; a detent holding said lever to keep the door closed; and a manually-operated trip for said detent.

9. In a dust receptacle for vacuum cleaners, the combination of a fabric bag; a dust-discharge closure therefor adjacent its lower end, and means for operating such closure located near its upper end.

10. In a dust receptacle for vacuum cleaners, the combination of a fabric bag; a dust-discharge closure therefor formed at its lower end portion, and means supported adjacent its upper end portion for operating such closure.

11. In a dust receptacle for vacuum cleaners, the combination of a fabric bag; a dust-discharge closure therefor adjacent its lower end; pivoted means located near its upper end for operating said closure, and means connecting said pivoted means with the closure.

Signed by me, this 5th day of May, 1920.

FRANK J. DEUTSCH.