F. DASSY.

APPARATUS FOR THE REMOVAL OF HOUSEHOLD OR OTHER REFUSE.

APPLICATION FILED JULY 21, 1910.

1,005,168.

Patented Oct. 10, 1911.

5 SHEETS—SHEET 1.

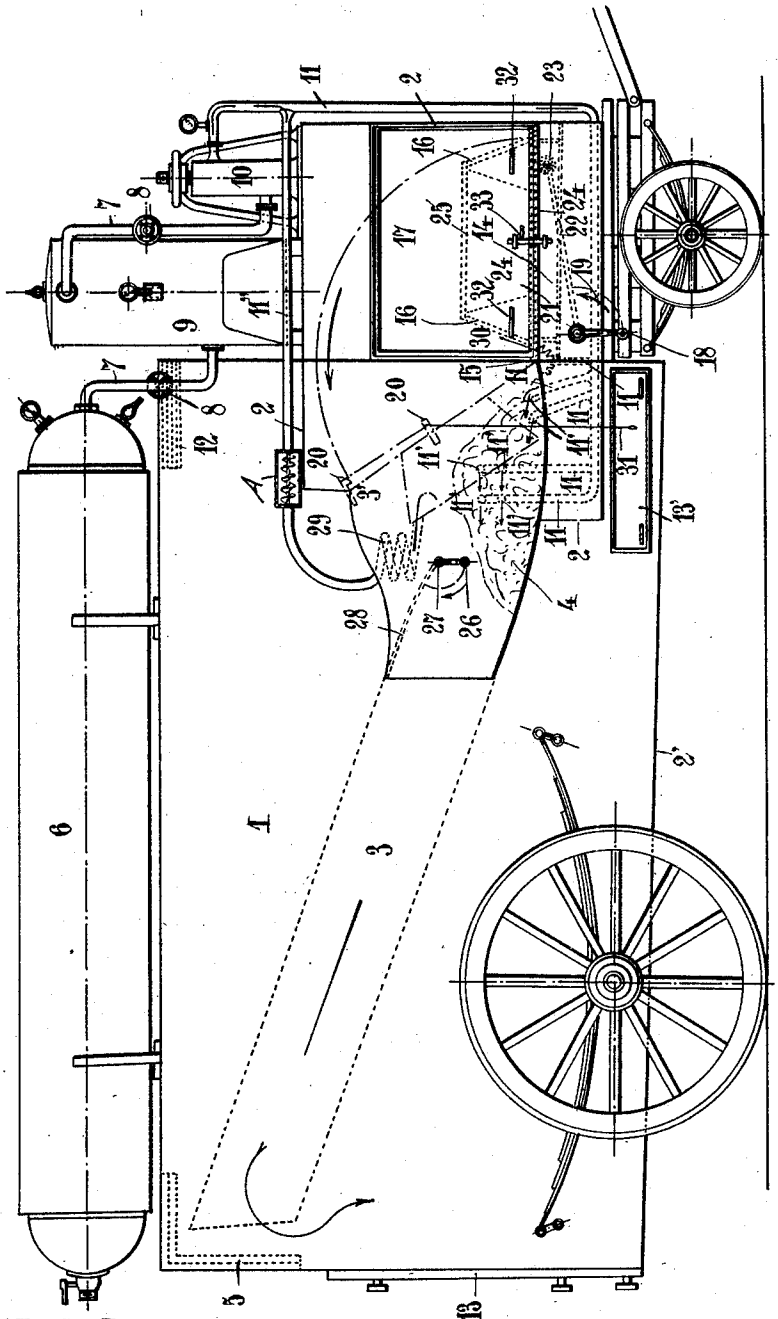

Fig. 1.

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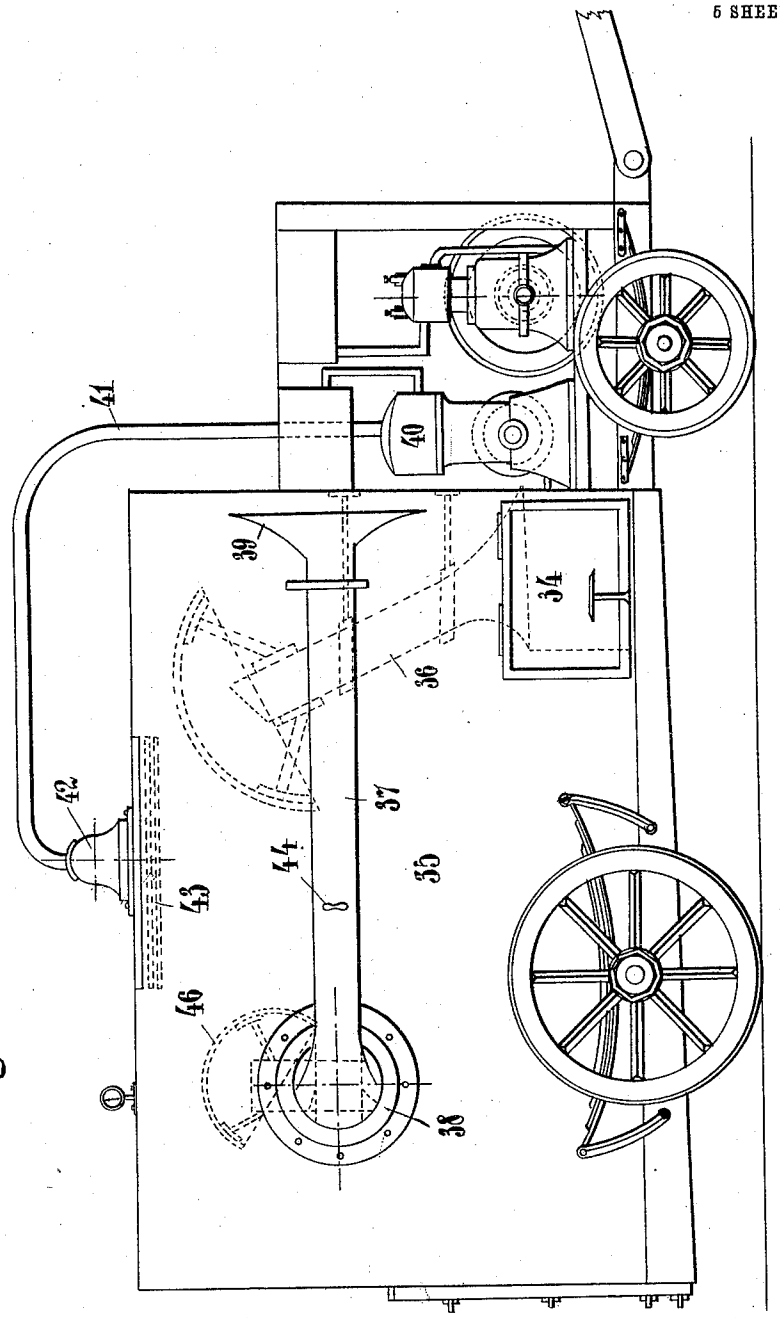

Fig. 2.

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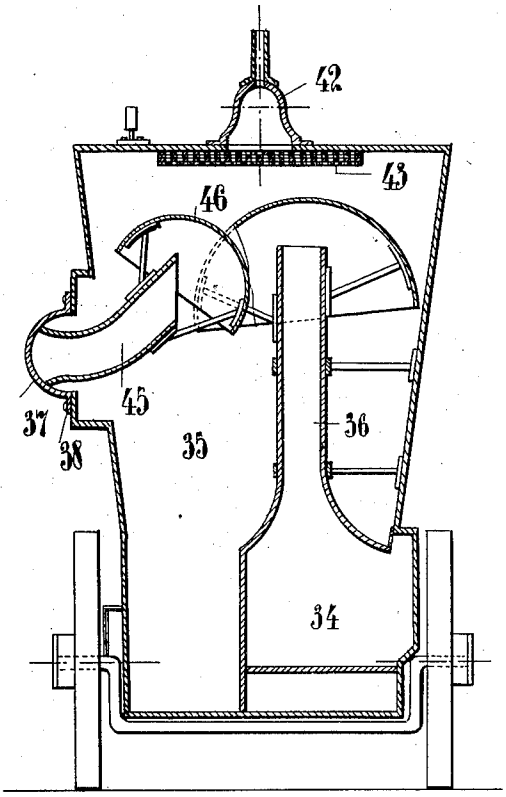
5 SHEETS—SHEET 3.

Fig. 3.



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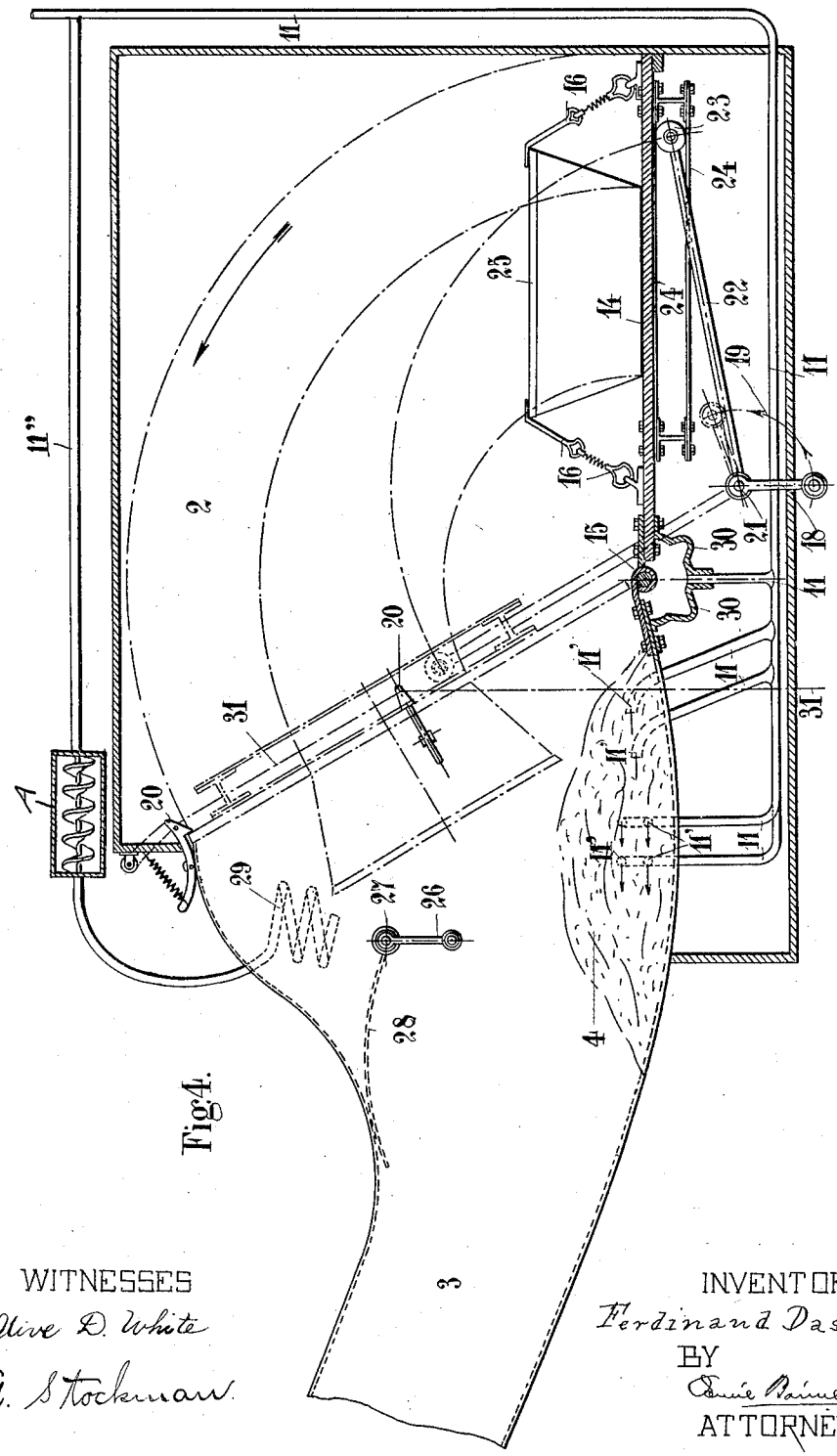

Fig 4.

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1,005,168. **Patented Oct. 10, 1911.**

5 SHEETS—SHEET 6.

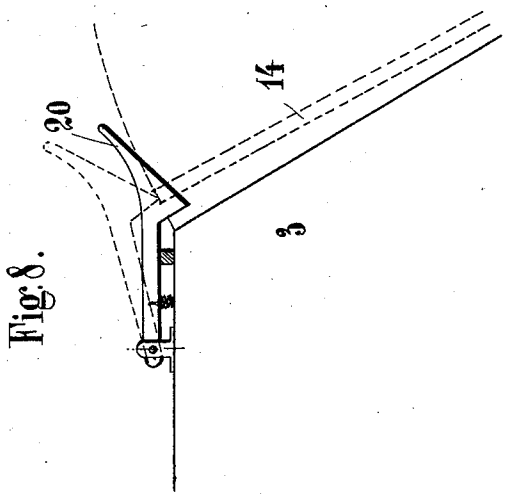

Fig. 8.

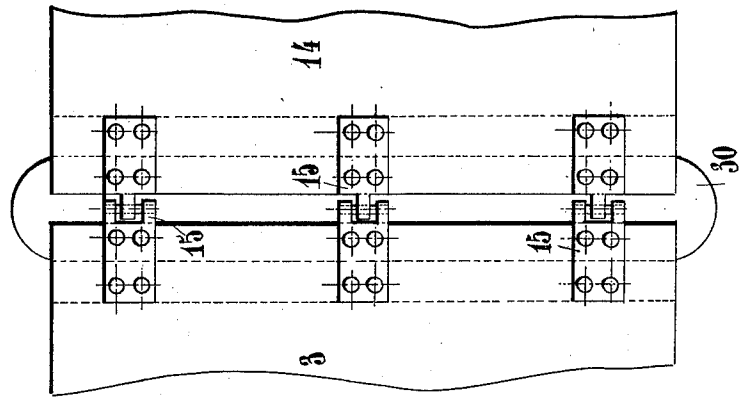

Fig. 7.

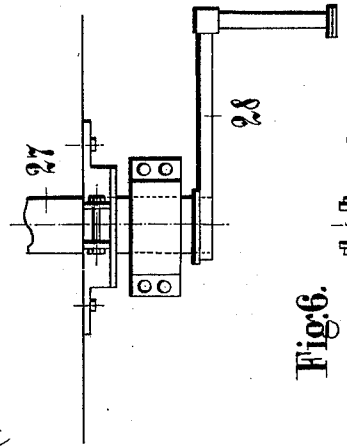

Fig. 5.

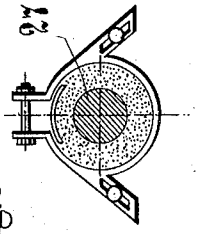

Fig. 6.

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UNITED STATES PATENT OFFICE.

FERDINAND DASSY, OF ROUEN, FRANCE.

APPARATUS FOR THE REMOVAL OF HOUSEHOLD OR OTHER REFUSE.

1,005,168. Specification of Letters Patent. Patented Oct. 10, 1911.

Application filed July 21, 1910. Serial No. 573,065.

To all whom it may concern:

Be it known that I, FERDINAND DASSY, a citizen of the Republic of France, and resident of Rouen, France, have invented new and useful Improvements in or Relating to the Removal of Household or other Refuse, which improvements are fully set forth in the following specification.

This invention relates to apparatus by means of which household or other refuse can be collected in a closed vessel and the boxes or dust bins emptied without coming into contact with the outer air, so that any smells and dust are thus prevented.

This machine also makes possible, by a suitable arrangement the removal of refuse which has been placed in a heap, such as the waste and litter from the markets, sweepings from the streets etc.

The apparatus in which is used either compressed air, for collecting refuse in boxes, or rarefied air or a vacuum, for removing the refuse in heaps, can, therefore, have different constructions, not only according as to whether it is to be used for removal of refuse in boxes, or for removal of refuse placed in heaps, but also according as the power required for removing the refuse contained in the boxes, is produced by an air compressor driven by a motor, or the said power stored in a tank or tanks (compressed air at the pressure required).

Two constructions of the apparatus according to this invention are illustrated by way of example in the accompanying drawing in which:—

Figure 1 is a side elevation showing the machine chiefly intended for collecting refuse contained in boxes or dust bins, Fig. 2 is a side elevation of the apparatus arranged for the removal of refuse placed in heaps and, Fig. 3 is a vertical cross-section of the construction shown in Fig. 2. Fig. 4 is a sectional view, on an enlarged scale, of parts of the machine shown in Fig. 1. Figs. 5 and 6 are detailed views of a stuffing box hereinafter described. Fig. 7 is a fragmentary plan view of the hinged floor hereinafter referred to, and Fig. 8 is a detailed view of a spring catch hereinafter described.

In the construction shown in Fig. 1, the apparatus comprises a metal case 1 of suitable capacity, the bottom 2′ of which is inclined forward. In front there are arranged two compartments 2 to which are secured two metal tubes 3. The width of the tubes 3 gradually decreases while remaining sufficient for the passage of waste or litter of any kind, contained in the boxes or dust bins. These tubes or pipes which are preferably inclined at an angle of 25–30°, are provided with a depression at 4 and are continued up to the upper rear portion of the casing opposite a baffle plate or protector 5. Two tanks 6 are arranged on the casing. They contain air compressed to a high pressure. At the moment of use, the air in question passes through the pipes 7 which can be closed or opened by cocks 8, into a heater 9 of any desired construction, and afterward into a regulating reducing device 10, whence it escapes through the conduits or pipes 11 at a pressure of about six atmospheres.

The heater is employed to raise the temperature of the air so as to counteract as far as possible the cooling which takes place upon the escape and expansion thereof. The reducing valve 10 is provided for the purpose of insuring a substantially uniform pressure being delivered to the pipes 11 regardless of the pressure in the tank 6, which necessarily falls gradually as the air is used up.

The air sent into the casing, escapes again through a filter 12 constituted by metal netting alternating with felt layers, the whole being impregnated with deodorizing disinfectants.

Doors 13 and 13′ with edges provided with rabbets or grooves packed with rubber, arranged at the back and at the sides, enable the apparatus to be emptied after the collection.

The whole apparatus is mounted on wheels.

The dust bins or boxes to be emptied, are introduced into one of the compartments 2 and placed on a floor 14 movable about hinges 15, where they are securely held by means of spring catches 16, as clearly shown in Fig. 4. The door 17 of the compartment 2 having been closed an attendant rotates the handle 18 a quarter of a revolution in the directon shown by the arrow 19. The floor 14 then pivots about its hinges and comes to rest against the edge 3′, of the pipe 3, where it is held by spring latches 20. See

Figs. 4 and 8. The handle 18 is mounted on a spindle 21 secured to a lever 22 provided at its end with a roller 23 mounted in the rails 24. The box or dust bin 25 being at that moment in the position shown in chain dotted lines in Fig. 1, its contents are discharged at 4. The attendant rotates to the extent of one revolution the handle 26 mounted on a spindle 27 provided with a certain number of tongues 28 of very flexible steel. These tongues which are thin and very narrow adapt themselves to any irregularities which they meet in their travel and come to rest against the bottom of the box 25 where they act like a glazier's knife to detach all the greasy and sticky material adhering to the bottom of the box. The spindle 27 passes through stuffing boxes as shown in Figs. 5 and 6 so as to avoid leakage of air.

After the material has been discharged into the pipe 3, as described, the engineer, having previously admitted a quantity of compressed air from the tanks 6 into the heater 9, allows the air in question to pass into the regulator 10 whence it passes into the pipes 11 terminating at different points of the pipe 3 in openings 11′. Two further pipes 11″ terminate in coils 29 where the air is given a helical movement owing to its passage through the said coils, and by the action of an agitator A arranged on the conduits 11″. The household refuse is then carried away by the said eddying air into the pipe 3 and discharged into the case 1. A protector device 5 faced with rubber or any other elastic material, protects the wall of the case against any damage by the violent shocks of the refuse contained in the boxes 25. For insuring a tight joint of the pipe 3 when the floor 14 has closed its opening 3′, the edges of the floor and of the pipe are provided with grooves or rabbets. For the same purpose, a semi-cylinder 30 of supple material having an accordion-plaited shape is secured both to the edge of the pipe 3 and to the edge of the floor 14, so as to cover the hinges 15. Pipes 11 having branches which terminate at the semi-cylinder 30, so as to free it from any dust that may accumulate therein, and insure the proper working of the hinges. This is clearly shown in Figs. 4 and 7.

The latches 20 are raised automatically when the floor 14 is ready to move into contact with the pipe 3. When the floor in question has arrived at the end of its travel, they fall down, being actuated by springs. In order to raise the latches so as to enable the floor 14 to return to its original position, the said latches are connected by means of cables passing over guide pulleys, to a chain cable 31. In these conditions, by pulling on the cable 31 sliding on the pulleys, the latches are raised, and the floor 14 then returns to its place as soon as the handle 18 is turned to a quarter of a revolution in the direction opposite to that of the arrow 19. Handles 32 enable the door 17 to be raised, and its closing is insured by a bolt 33.

In the preceding description, the apparatus has been assumed to contain two compartments 2, two pipes 3, two compressed air tanks 6, etc., but it is obvious that it could also be equally well provided only with one compartment 2, one pipe 3, one compressed air tank 6 etc. The arrangement of the different parts could also be varied.

The construction of the apparatus shown in Figs. 2 and 3, is chiefly intended for removing refuse which has been placed in heaps, such as for instance the street sweepings. This apparatus can also remove refuse contained in boxes or dust bins. It comprises a compartment 34 arranged in the interior of the case, and the said compartment is surmounted by a suction hose 36 through which is forced back the refuse expelled by the compressed air as already stated. Otherwise the compartment 34 is equipped with apparatus similar to that illustrated in connection with the compartment 2 in Figs. 1 and 4. A rubber hose 37 or a pipe made of other flexible material, of large diameter, is secured to the case 35 by means of a collar or flange 38. Being provided with a pivot joint at its point of attachment, the flexible conduit can, therefore, be inclined at any desired angle. A widened portion 39 provided at the free end, is intended to be placed over the refuse heap to be removed, and to form a suction mouthpiece or a "sweep up." This widened portion or sweep up is made of rubber, the thickness, and consequently the strength, of which decreases toward the circumference, so that it adapts itself well to the shape of the pavements, or fills up the hollows and the holes in the ground to which the said "sweep up" is applied. The vacuum in the case 35 is produced by means of a pump 40 connected to the said case by a conduit 41 terminating at a bell 42 surmounting a filter 43 arranged at the upper portion of the case. The workman places the pipe on the heap of refuse to be removed and opens the cock 44 arranged on the flexible conduit 37. The refuse is forced by the air to rise in the pipe 37 and thence in the inner conduit 45 at the end of which it is stopped by means of a hood 46, which forces it to fall back into the case. Any dust and ashes are stopped by the filter 43, and the air arriving at the pump is thus almost pure.

I claim—

1. Apparatus for collecting refuse comprising a closed casing, a compressed air tank carried thereby, a conduit lying wholly within said casing, means for depositing the waste material in the mouth of said con-

duit and means for discharging compressed air from said tank into said conduit adjacent such material, whereby the material is driven through the conduit into the casing.

2. Apparatus for collecting refuse comprising a closed casing, a conduit located within said casing and having a mouth adjacent the end thereof, a compartment located adjacent said mouth and adapted to receive the waste material, means for discharging such material from said compartment into said conduit and at the same time closing the mouth of said conduit, and pneumatic means for driving the material so deposited through said conduit into said casing.

3. Apparatus for collecting refuse comprising a closed receptacle having an opening at one end, a compartment arranged adjacent said opening and having a floor adapted to support vessels containing the waste material, said floor being hinged at one edge, and means for swinging said floor about such hinged edge into contact with the edges of said mouth, whereby the material is dumped into the receptacle.

4. Apparatus for collecting refuse comprising a closed receptacle having a mouth, a platform hinged adjacent said mouth, means for securing to said platform a vessel containing waste material, and means for turning said platform about its hinges so as to dump the material from said vessel into said receptacle, said platform when in dumping position, resting against the edges of said mouth and constituting a door therefor.

5. Apparatus for collecting refuse comprising a closed receptacle having a mouth, a hinged door adapted to close said mouth, means for supporting said door, when open, in a substantially horizontal position, means for securing a vessel of waste material to the inside of said door, means for swinging the door to closed position and thereby dumping the material from said vessel into said receptacle, and means for pneumatically scavenging the inside of said vessel so as to remove any adhering material.

6. Apparatus for collecting refuse comprising a closed receptacle having a mouth, a hinged door adapted to close said mouth, means for supporting said door when open in a substantially horizontal position, means for securing a vessel of waste material to the inside of said door, means for swinging the door to closed position and thereby dumping the material from said vessel into said receptacle, and means for removing any material which may adhere to the inside of said vessel, such means comprising a rock shaft and a plurality of resilient strips or beaters secured thereto.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

FERDINAND DASSY.

Witnesses:
MAURICE D'ANJOU,
T. EARLE.