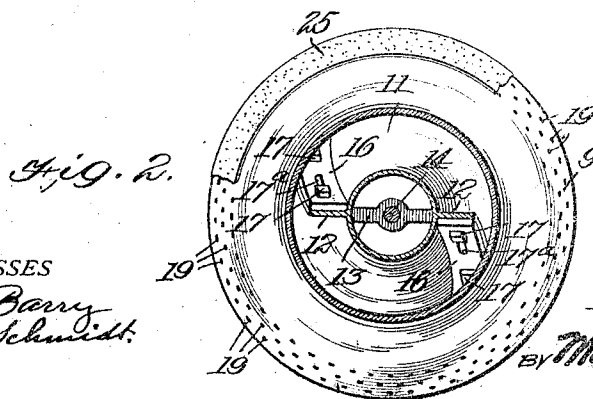
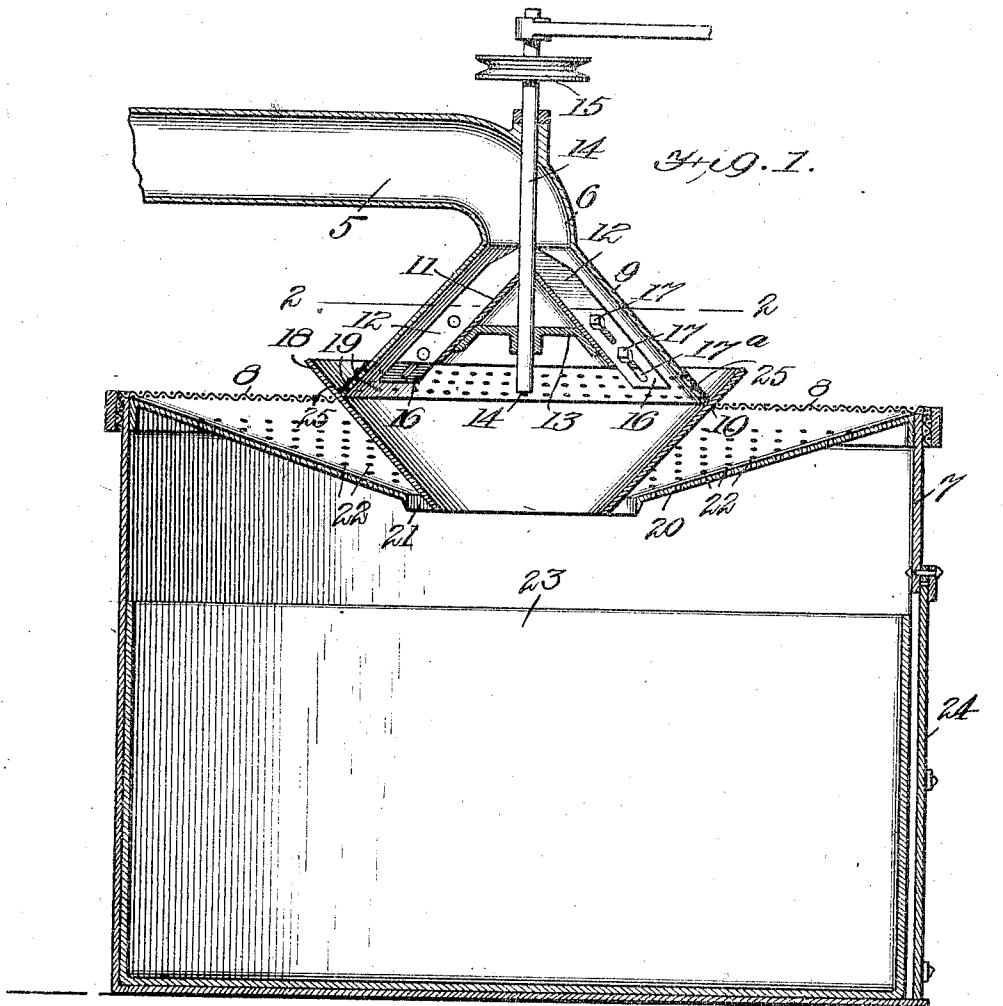


L. ISAACS.
 SUCTION APPARATUS.
 APPLICATION FILED AUG. 26, 1911.

1,031,005.

Patented July 2, 1912.



WITNESSES

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SUCTION APPARATUS.

1,031,005.

Specification of Letters Patent.

Patented July 2, 1912.

Application filed August 26, 1911. Serial No. 646,182.

To all whom it may concern:

Be it known that I, LOUIS ISAACS, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Suction Apparatus, of which the following is a specification.

This invention relates to apparatus for removing dust and dirt by suction, and more particularly to the outlet end of said apparatus.

It is the object of the invention to provide a novel and improved suction fan, and a receptacle into which the fan discharges the dust and dirt sucked up. The fan blades are so arranged that rubbish can readily enter and pass the fan, and the blades are also made adjustable so that the discharging blow may be reduced or modified.

With these and other objects in view as will appear when the nature of the invention is better understood, the same consists in a novel construction and arrangement of parts to be hereinafter described and claimed.

In the accompanying drawing, Figure 1 is a vertical section of the invention, and Fig. 2 is a cross-section on the line 2—2 of Fig. 1.

Referring specifically to the drawing, 5 denotes a suction tube, to one end of which is connected a suitable nozzle, which latter is carried across the parts to be cleaned, and which sucks up the dust and dirt as in any ordinary pneumatic cleaning apparatus. The nozzle forms no part of the present invention, and as it is common in the art, it has not been illustrated.

The discharge end of the tube has a downward bend 6, and is located above a casing 7 which may be of any size or shape, and which has a top 8 of suitable fabric to allow the escape of air but to retain the dust. To the downward bend 6 is connected a fan casing 9 which is conical, the smallest end being the inlet, and the largest end the outlet. The outlet of the fan casing is located in close proximity to an inlet opening 10 in the top 8 of the casing 7 into which latter the dust, dirt, etc., is discharged by the fan.

Within the casing 9 is located a fan comprising a hub 11 and blades 12 carried thereby. The hub is hollow and conical, and is carried by a spider 13 which is made fast to a shaft 14 which passes centrally through the casing and the hub. The shaft passes through the bend 6 and on the outside thereof is supported by suitable bearings, and is

fitted with a pulley 15 which is belted to a suitable source of power for driving the fan. The hub 11 is concentric with the casing 9, and the outer edges of the blades are slanting so as to describe a path which is concentric to the casing and the hub. The blades carry extensions 16 which are secured to the blades by screws or other suitable fastening means 17 which pass through slots 17^a in the blades, so that the extensions may be adjusted for a purpose to be presently made clear. The slots run in the direction of the length of the extensions and they may therefore be adjusted to project more or less from the outlet end of the casing 9.

In the opening 10 is mounted a hopper 18 which extends into the casing 7 and into the mouth of which hopper the outlet end of the casing 9 extends a short distance. The wall of the casing 9, close to its outlet end, has an annular series of perforations 19, the purpose of which will be presently described.

In the casing 7, close to the top thereof, is a shelf 20 having a central opening 21 to accommodate the lower or discharge end of the hopper 18. This shelf is perforated as indicated at 22, and it slopes toward its central opening 21. Within the casing 7 is mounted a receptacle 23 into which the dirt, dust, etc., is discharged, and when full the receptacle may be removed through a door 24 and emptied.

In operation, the dust, dirt, etc., passes through the fan and is discharged into the hopper 18 from which it drops into the receptacle 23. The perforations 19 permit the escape of air but not the dust from the fan casing. There is a space between the edge of the shelf 20 and the hopper so that any dust collecting on the shelf may work down to the opening 21 and drop through the same into the receptacle 23. The shelf is perforated to permit air to pass there-through. The top 8 will be some suitably meshed fabric to permit the free escape of air from the casing 7, but to retain the dust. The perforations 19 are covered with a sheet 25 of dustproof fabric.

By the conical shape of the fan and its casing the centrifugal force throws the air against the casing wall whereby it is deflected downward, and the conical hub prevents any air from getting into the fan from below. Consequently, all the air must enter at the inlet end of the casing, thus increasing the suction as there is no confusion

of currents. By adjusting the fan blade extensions to project from the imperforate portion of the fan casing more or less, the discharging blow can be modified if necessary. The blow is reduced as the blade extensions 16 tend to throw the air and dirt outward and some of the air escapes through the perforations 19. The purpose of reducing the blow is that after the dirt reaches the hopper 18 a strong blast is no longer necessary, it being desirable that the dirt drop into the hopper as much as possible by gravity. The extensions 16 are only adjusted to slide beyond the imperforate portion of the casing and not below the perforated portion. The perforations, as already stated, allow some of the radially thrown air to escape, but the dirt is deflected downward and drops into the hopper. By making the extensions adjustable it is possible to modify the herein described action, which is desirable as it may require a different action for some streets according to the nature of the surface thereof, and the different kinds of material found in different parts of the city, and also for a somewhat different action when snow is to be handled. The farther the extensions project the more radial currents are produced, and consequently, the effect is increased or

reduced according to the extent the extensions project into the perforated portion of the casing.

I claim:

1. The combination with a conical casing having an axial discharge opening, of a fan in said casing comprising a conical hub and blades carried by the hub, said casing having a perforated wall at its discharge end into which the blades project.

2. The combination with a conical casing, of a fan therein comprising a conical hub and blades adjustably secured to the hub, said casing having a perforated wall at its discharge end, and the blades being adjustable to extend into said perforated portion of the casing.

3. The combination with a conical casing, of a fan therein comprising a conical hub and blades carried by the hub, said casing having a perforated wall at its discharge end, and extensions carried by the blades and projecting into the perforated portion of the casing.

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

LOUIS ISAACS.

Witnesses:

S. M. SAPINSKY,
CARL J. CROUCH.