Oct. 4, 1932. R. M. BAKER 1,880,658

VACUUM CLEANING APPARATUS

Filed June 23, 1931

Fig. 1

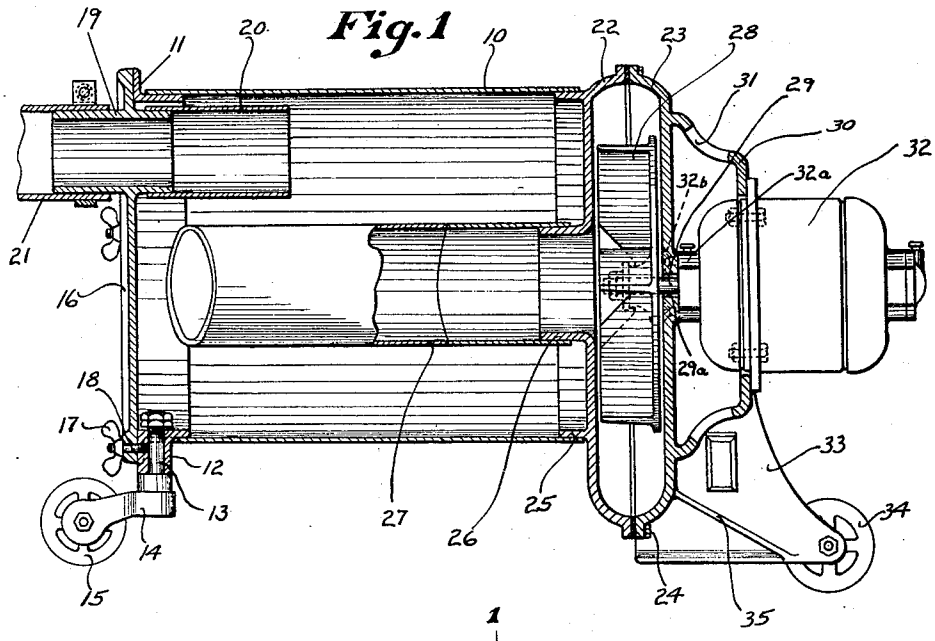
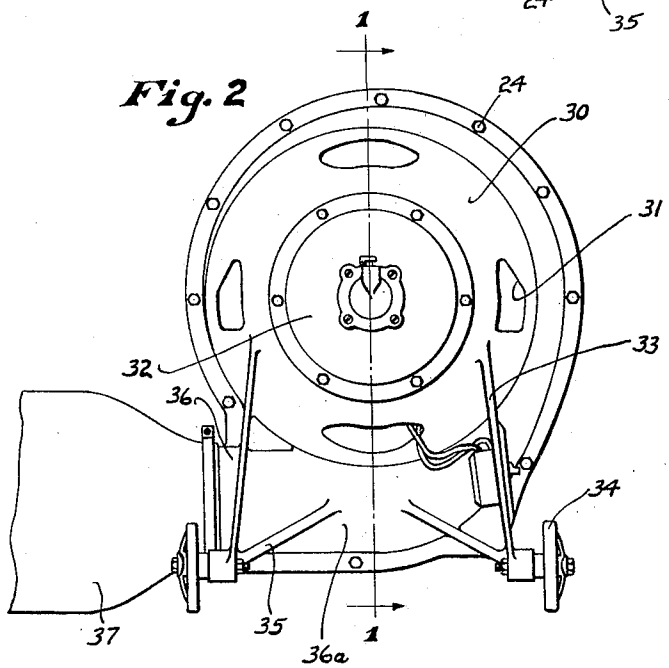



Fig. 2




Inventor

Robert M. Baker

By Owen & Owen

Attorneys

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# UNITED STATES PATENT OFFICE

ROBERT M. BAKER, OF TOLEDO, OHIO

## VACUUM CLEANING APPARATUS

Application filed June 23, 1931. Serial No. 546,328.

This invention relates to dust collecting apparatus, but particularly to a vacuum cleaning apparatus which is particularly adapted for cleaning furnaces, factors, and the like, where a relatively high degree of suction is desirable.

An object is to produce a simple and efficient apparatus of the above character having the new and improved features of construction, arrangement and operation hereinafter described.

The invention is shown in an embodiment by way of illustration on the accompanying drawing, in which:

Fig. 1 is a longitudinal sectional elevation of a vacuum cleaner; and

Fig. 2 is an end elevation of the apparatus shown in Fig. 1.

The illustrated embodiment of the invention comprises a portable apparatus which is adapted for cleaning furnace pipes, factories, and the like, and is capable of developing a relatively high degree of vacuum. As shown, the apparatus comprises a horizontally disposed open ended barrel 10, to the outer end of which is secured a rim member 11, a portion of which extends inside of the barrel 10, and is suitably secured thereto. Integral with the rim member 11 and depending therefrom is an enlargement or boss 12 in which is suitably mounted a post 13 of a bracket 14 carrying a roller 15 for supporting the front end of the apparatus. Closing the outer end of the barrel 10 is a disc 16, which is detachably connected to the rim member 11 by a plurality of wing nuts 17 connected to the bolts 18. Formed in the disc 16 adjacent the upper end thereof is an open ended horizontally disposed tube 19, a portion of which projects inside the barrel 10. An extension 20 on the tube 19 projects inside the barrel substantially as shown. The outside extending portion of the tube 19 is adapted to receive a flexible hose 21, on the outer end of which may be connected a nozzle or other suitable tool for use in collecting dust, dirt, and other extraneous matter.

Closing the opposite end of the barrel 10 is a disc member 22 to which member 23 is detachably connected by bolts 24. The disc member 22 is provided with an annular flange 25, which extends inside the barrel 10, and is suitably secured thereto. Extending from the central portion of the casing section 22 is a tubular portion 26, on which is mounted a pipe 27 slightly larger than the extension 20. The outer end of the pipe 27 is disposed beneath the tube extension 20 and in lapping relation thereto.

Mounted within the casing formed of the disc member sections 22 and member 23 is a fan 28, the axis of which may be approximately concentric with the pipe 27. The fan 28 is mounted on a shaft 29 extending through an opening $29^a$ in the member 23 which cooperates with the disc member 22 to provide a fan casing.

Integral with the member 23 and tapering rearwardly therefrom is an annular motor supporting frame 30 provided with air openings 31. The supporting frame 30 is provided at its smaller end with an opening in which is mounted an electric motor 32 disposed in horizontal position and having as a part thereof the shaft 29. It will be observed that the motor shell 32 is disposed directly in rear of the fan 28 in order to deliver the maximum power to the fan. The motor shell 32 has an extension $32^a$ which abuts against a boss projecting from the casing section 23, and screws $32^b$ connect the boss to the extension $32^a$.

Integral with the frame 30 and casing section 23 and extending downwardly and rearwardly therefrom is a pair of supporting legs 33 on which rollers 34 are journaled. Reinforcing webs 35 connect the legs with the casing section 23. Leading from one side of the fan casing at the lower portion thereof is an outlet 36, to which a fabric bag 37 of suitable dimensions may be removably attached in any suitable manner. It will be seen that the lower portions of the casing sections 22 and 23, as indicated at $36^a$, are enlarged and are bowed outwardly to provide an outlet passage therefrom of substantial size.

In operation it will be understood that the fan 28 creates a suction through the hose 21 and pipe 20, and draws in foreign particles into the barrel 10, some of which may pass

through the pipe 27 and into the bag 37 through the outlet 36. Although the heavier particles, such as particles of metal, will remain within the barrel the dust laden air will be drawn out and expelled into the bag 37. The barrel may be readily cleaned by removing the end closing disc 16.

It will be apparent that the above described apparatus provides a simple and portable unit which may be used for a variety of purposes, particularly for cleaning furnace pipes and factory buildings. It is adapted to utilize a high powered motor for developing considerable power. An important feature resides in the mounting of the motor rigidly and in close juxtaposition to the fan, the motor support being a rigid part of the fan casing. A further feature lending compactness and strength to the assembly is in the mounting of the rear legs, which tend to strengthen the motor frame and the fan casing.

It is to be understood that numerous changes in details of construction, arrangement and operation may be effected without departing from the spirit of the invention, especially as defined in the appended claim.

What I claim as new and desire to secure by Letters Patent is:

A device of the class described comprising a horizontally disposed open ended barrel, a rim member secured to the outer end of said barrel, an anti-friction supporting element on said rim member, a disc closing said rim member, means for detachably securing said disc to said rim member, a tube carried by the upper portion of said disc opening into said barrel and adapted to receive a hose in the outer end thereof, a disc member closing the opposite end of said barrel, an open ended pipe projecting outwardly from said last disc member and having its outer end disposed beneath said tube in lapping relation thereto, an outwardly projecting portion on said last disc member, a member cooperating with said outwardly projecting portion providing a fan casing therebetween, a fan in said casing, means detachably connecting said member and outwardly projecting portion, an integral motor supporting frame projecting outwardly from said casing member, a horizontally disposed motor on said frame, means operatively connecting said motor to said fan, said fan casing having a lateral outlet to which the mouth of a bag may be attached, a pair of laterally spaced rearwardly and downwardly inclined legs integral with said motor frame and casing member, and anti-friction members on said legs.

In testimony whereof I have hereunto signed my name to this specification.

ROBERT M. BAKER.