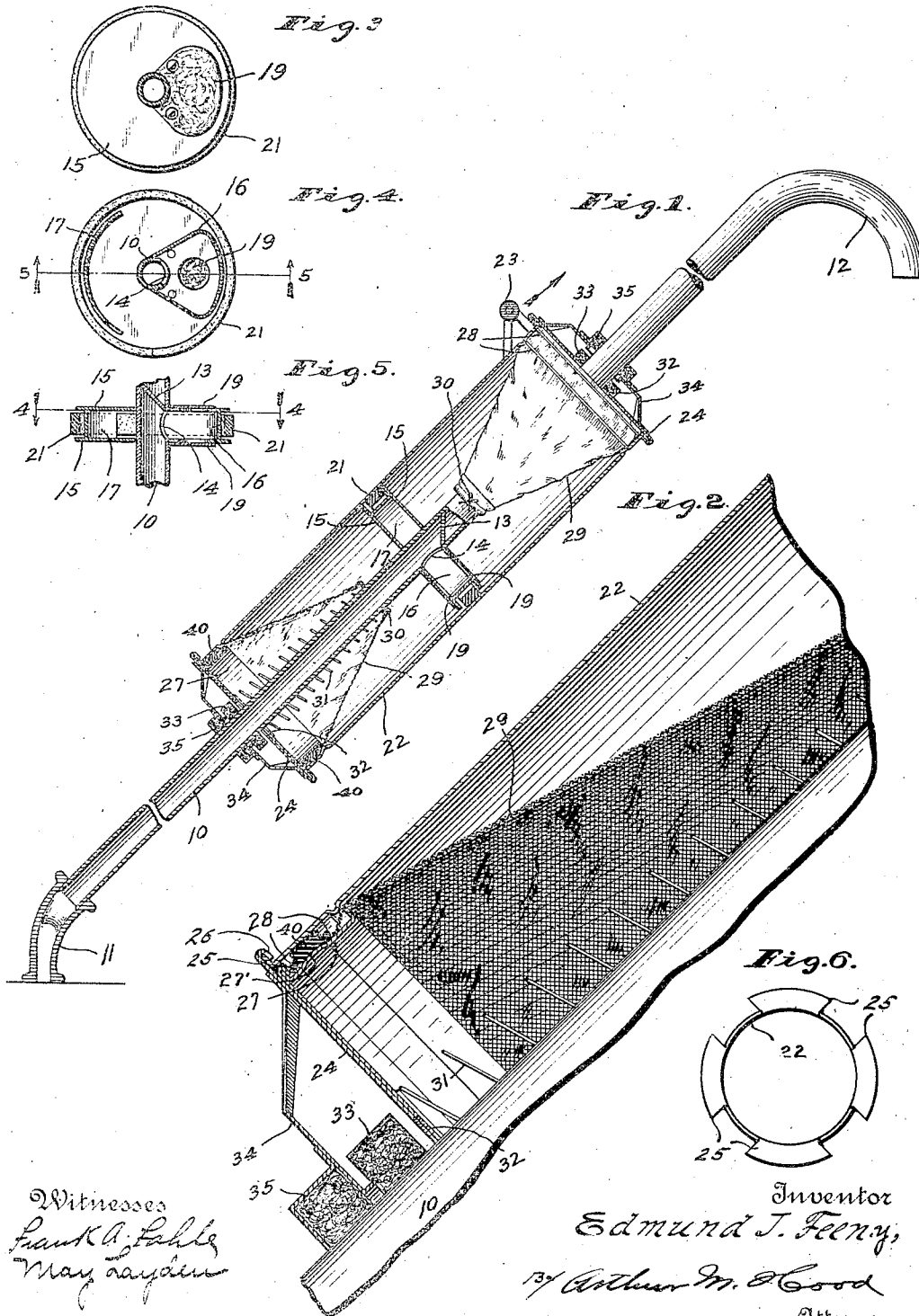


E. J. FEENY.
VACUUM CLEANER.
APPLICATION FILED JUNE 6, 1912.

1,084,933.

Patented Jan. 20, 1914



Witnesses
Frank A. Fable
May 1912

Inventor
Edmund J. Feeny,
by Arthur M. Good
Attorney

UNITED STATES PATENT OFFICE

EDMUND J. FEENY, OF MUNCIE, INDIANA, ASSIGNOR TO THE FEENY MANUFACTURING COMPANY, OF MUNCIE, INDIANA, A CORPORATION OF INDIANA.

VACUUM-CLEANER.

1,084,933.

Specification of Letters Patent.

Patented Jan. 20, 1914.

Application filed June 6, 1912. Serial No. 701,964.

To all whom it may concern:

Be it known that I, EDMUND J. FEENY, a citizen of the United States, residing at Muncie, in the county of Delaware and State of Indiana, have invented a new and useful Vacuum-Cleaner, of which the following is a specification.

It is the object of this invention to provide a light, portable, hand-operated vacuum cleaner which is simple of construction, is not laborious to operate, and is readily cleanable. To this end I provide a hollow rod which carries a suction mouth-piece at one end and is provided with a handle at the other, and mount on this rod a reciprocable cylinder. The ends of the cylinder are provided with removable caps which carry dust strainers and are provided with exhaust valves, air being admitted to the interior of the cylinder from the mouth-piece through the hollow rod by inlet valves mounted on a piston which is carried by the rod within the cylinder and divides the space within the latter into two pneumatically separate parts.

In the accompanying drawing, which illustrates my invention, Figure 1 is a partly sectional side elevation of a vacuum cleaner involving my invention; Fig. 2 is an enlarged, fragmentary section through the lower end of the cylinder and associated parts; Fig. 3 is an end view of the piston between the two sections within the cylinder; Fig. 4 is a sectional view of said piston, being taken on the line 4-4 of Fig. 5; Fig. 5 is a section on the line 5-5 of Fig. 4; and Fig. 6 is an end view of the cylinder showing the cap fastening arrangement.

The rod or tube 10 is provided at its lower end with a suction mouth-piece 11 of any suitable type and is curved at its upper end to form a handle 12. At a convenient point in its length, the opening through the tube 10 is closed by a barrier 13, on the mouth-piece side of which the tube is provided with a lateral opening 14 which opens into the space inclosed between the two end disks 15 and the wall 16 of a hollow piston fixed on the tube 10. The space within the hollow piston may take any shape within the limits of the area of the disks 15, but is conveniently of the shape shown in Fig. 4, the edges of the disks 15 opposite the wall 16 being spaced apart by an arc-shaped wall 17. Each disk 15 is provided with a hole com-

municating with the aforesaid space, said hole being closed by a valve 19 which allows air to pass only outward from said space. The disks 15 project slightly beyond the walls 16 and 17 to form flanges, loosely fitting between which is a packing 21 which fits closely against the inside of a cylinder 22 reciprocable along the rod or tube 10 by an operating handle 23. A removable cap 24 fits in each end of the cylinder 22, the cylinder and caps being provided with interlocking flange fingers 25 and 26 for holding the caps in place. Each cap is provided with a neck 27 projecting inwardly into the cylinder, and on each neck is clamped, by clamp rings 28, the larger end of a conical fabric strainer or filter 29. The neck 27 has an intermediate enlarged portion 27' between the rings 28, and on this portion 27' is mounted a ring 40, of rubber or other yielding material, which holds the fabric of the strainer tightly against the inner surface of the cylinder 22 when the cap is in place. The smaller ends of these strainers fit closely around the tube 10, conveniently being held tight by draw strings 30, but permitting relative sliding between the tube 10 and the small end of the strainer. The small ends of the strainers 29 are yieldingly held away from the corresponding caps 24 by light springs 31, which thus keep the bag distended during relative reciprocation between the cylinder and tube. Each cap 24 is provided with a cylindrical opening 32 somewhat larger than is the tube 10, and covering this opening to form a valve is a felt washer 33, which fits closely around the tube 10 and loosely between the cap 24 and a bridge 34 carried by the cap. The bridges 34 are provided with packings 35 which fit around the tube 10 to guide the movements of the cylinder.

As the cylinder 22 is reciprocated on the tube 10 by the handle 23, air is drawn through the mouth-piece 11 and the tube 10 through that valve 19 which opens into the space on that side of the disk 15 which at that time is becoming larger, the air on the other side of said disk at the same time being forced through the corresponding strainer 29 and out through the opening 32, from which at that time the cooperating washer 33 is separated. The packing 21 fits closely against the inside of the cylinder 22 and against that disk 15 which is toward the

receding cylinder end, and serves to prevent communication between the spaces on the two sides of the piston. The strainer 29 removes the dust from the air. The device 5 thus operates as a double acting pump as the cylinder 22 is moved back and forth along the tube 10, or as the tube 10 is moved back and forth through the cylinder, the latter movement at the same time moving 10 the mouth-piece 11 along the surface to be cleaned. The air strainer 29 removes the dust from the air, and it may in turn readily be cleaned by turning the cap 24 to disengage the fingers 25 and 26 and then sliding 15 the caps out of the cylinder ends to give access to the strainers. By removing the clamp rings 28, the strainers may be removed from the caps.

I claim as my invention:

20 1. A vacuum cleaning apparatus comprising a hollow rod, a piston fixed on said rod, a cylinder reciprocable on said rod and fitting around said piston, the interiors of the cylinder and the hollow rod having 25 valved communication between them, an exhaust valve for each active end of the cylinder, and a strainer carried by each active end of the cylinder and through which the air must pass before it escapes into the at- 30 mosphere.

2. A vacuum cleaning apparatus comprising a hollow rod, a piston fixed on said rod, a cylinder reciprocable on said rod and fitting around said piston, the interiors of the 35 cylinder and the hollow rod having valved communication between them, a removable cap in an end of the cylinder, said cap being provided with an outlet opening adjacent the hollow rod, a washer fitting around the 40 hollow rod and covering said opening and having a limited movement relatively to the cap, and a strainer carried by said cap and through which air must pass when ex- 45 hausting.

3. A vacuum cleaning apparatus comprising a hollow rod, a piston fixed on said rod, a cylinder reciprocable on said rod and fitting around said piston, the interiors of the cylinder and the hollow rod having valved

communication between them, a removable 50 cap in an end of the cylinder, said cap being provided with an outlet opening adjacent the hollow rod, a washer fitting around the hollow rod and covering said opening 55 and having a limited movement relatively to the cap, and a strainer carried by said cap and through which air must pass when exhausting, said strainer being substantially conical in form with its large end attached to the removable cap and its small end fit- 60 ting around the hollow rod.

4. A vacuum cleaning apparatus comprising a hollow rod, a piston fixed on said rod, a cylinder reciprocable on said rod and fitting around said piston, the interiors of the 65 cylinder and the hollow rod having valved communication between them, a removable cap in an end of the cylinder, said cap being provided with an outlet opening adjacent the hollow rod, a washer fitting around 70 the hollow rod and covering said opening and having a limited movement relatively to the cap, a strainer carried by said cap and through which air must pass when ex- 75 hausting, said strainer being substantially conical in form with its large end attached to the removable cap and its small end fitting around the hollow rod, and a spring for holding the small end of said strainer away from said cap. 80

5. A vacuum cleaning apparatus comprising a hollow rod, a dust collector cylinder reciprocable thereon, means producing suction through said rod by the reciprocation 85 of said cylinder, and a strainer carried within said cylinder and about said rod, said cylinder provided with an outlet and the exhaust from said suction-producing means passing through said strainer and said 90 outlet.

In witness whereof, I have hereunto set my hand and seal at Muncie, Indiana, this 31st day of May, A. D. one thousand nine hundred and twelve.

EDMUND J. FEENY. [L. S.]

Witnesses:

T. D. ROBSON,
H. H. WOLF.