N. A. THROOP.

VACUUM CLEANER.

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1,413,545.

Patented Apr. 18, 1922.

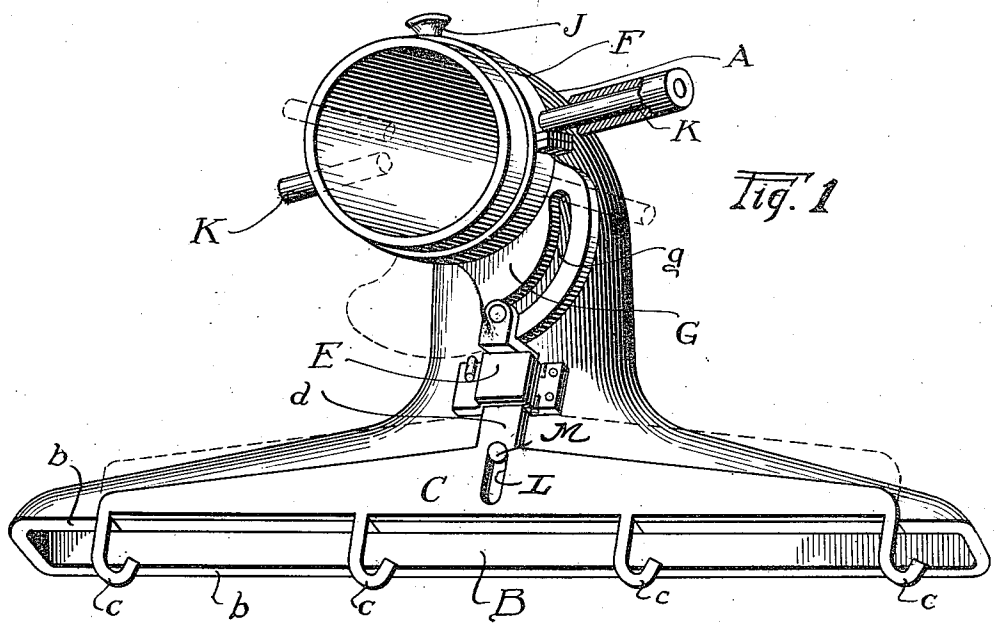


Fig. 1

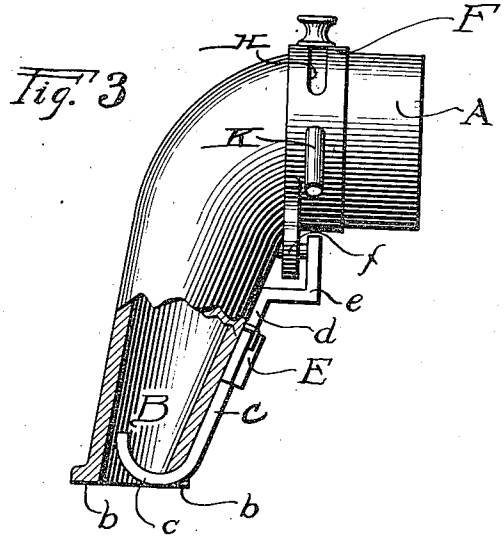


Fig. 3

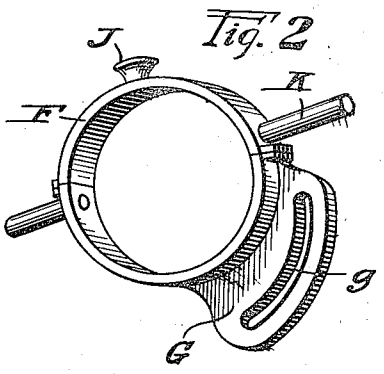


Fig. 2

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UNITED STATES PATENT OFFICE.

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VACUUM CLEANER.

1,413,545. Specification of Letters Patent. Patented Apr. 18, 1922.

Application filed July 11, 1919. Serial No. 310,028.

To all whom it may concern:

Be it known that I, NEWTON A. THROOP, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Vacuum Cleaners, of which the following is a full, clear, and exact description.

Heretofore vacuum cleaners have been so constructed that considerable difficulty was often experienced in sweeping thin rugs or other fabrics and in removing comparatively large objects from rugs and carpets such as cigar and cigarette stubs, matches and so forth. As the mouth of the cleaner was pushed across such rugs the rug at the central part of the mouth would be sucked in and at its ends it would be open and the air would rush in at these points. When it was desired to suck in and remove large objects such as above referred to, it was customary to tip the intake sidewise so as to lift one side of the mouth high enough from the rug, carpet or floor to move the mouth over said object.

The purpose of my invention is to provide a hand propelled vacuum cleaner possessing means at the mouth of the intake to temporarily raise or lower said mouth from the surface being cleaned, and create a space between the two so as to first control the suction which will be less upon said surface the higher the mouth is raised from the same, second, hold down said surface and prevent its being sucked into the throat of the intake and choke the same, as for instance, thin rugs and similar light fabrics, and third, to lift comparatively large débris from said surface. These and other objects are accomplished by the means hereinafter fully described and as particularly pointed out in the claims.

In the drawings:

Figure 1 is a perspective view of my improvements in vacuum cleaner.

Figure 2 is a perspective view of a segregated detail of the safe.

Figure 3 is a side view of the preferred form of my invention, showing the entrance to the intake broken away.

The drawings do not disclose the air exhausting mechanism of the cleaner as this does not constitute any part of my invention. The tubular throat A of the cleaner connecting the intake thereof and the said exhaust is cylindrical, and, preferably forms an elbow. The lower end of the vertically disposed portion of this elbow inclines forward and is flared laterally and flattened and merges into the fish tail-shaped intake that terminates in a transversely elongated mouth B. There is nothing new about the design of this mouth, as shown in the drawings. The opening constituting this mouth has beaded edges in the sides, *b*, *b*, of which are, preferably, parallel and in a plane at right angles to the vertical plane intersecting the axis of the throat.

In operation when the edges of this mouth are brushed over the surface of a stiff fabric it will thoroughly extract and exhaust the dirt, dust and foreign matter therefrom, as well as pick up objects resting on said surface of a size small enough to enter said mouth. In order however, to prevent thin flexible fabrics from being sucked into the cleaner and injuring it, or long objects from being lifted and choking the throat, I have provided means that by the pressure of the foot can be made to raise the mouth of the cleaner so that more air is drawn into the same and the suction on the surface over which it is passed correspondingly lessened.

These means comprise a series of corresponding hooked-shaped tongues *c*, *c*, that project downwards and then bend upwards from a carrier-plate C. The lower edge of plate C is parallel to the rear edge *b* of the mouth, and the tongues *c* project therefrom equi-distant apart, and said plate is, preferably, not as long as the mouth, and is placed flat against the flat rear surface of the intake D. The dimensions of said plate are about as shown in the drawings, and it has a straight shank *d* projecting upwards from the center of length of its upper edge that extends through a suitable guide E.

The upper end portion of the shank is bent to the rear and upwards to form an L-shaped extremity *e*, and the vertical part of this extremity has a pin *f* projecting forwardly therefrom. The upper horizontal portion of the throat A has an annulus or collar F loosely mounted thereon, and this collar has a lug G projecting downwards therefrom that has a segmental slot *g* therein. Slot *g* is struck from a center eccentric to the center of the collar F, and pin *f* projects through the same, so that when the collar is turned or rotated the slot *g* has a cam action on pin *f* and raises or lowers shank *d* and plate C.

The hook-shaped lower ends of tongues *c*, *c*, enter recesses in the rear beaded edges of mouth B, when plate C is raised to the limit of its upward movement and permit the edges of the mouth to rest upon the surface of the fabric or object being swept, but when said plate and tongues are moved downwards the edges of the mouth are raised from said surface.

Collar F is retained in position against involuntary lateral movement by means of a thumb-screw which extends through a segmental slot H therein and is tapped into the throat, and said collar is given a rotatable movement whenever desired by means of diametrically opposite arms K, K, projecting from the collar.

By pressing the foot on one of these arms, the plate C and tongues will be depressed below the edges of the mouth, and by pressing on the other arm said plate and tongues will be raised. If it is desired to retain the collar in a certain adjusted position this can be done by tightening up said thumb-screw J, substantially as shown.

If desired the carrier plate C, may, below the shank *d* thereof have a vertical slot L, and a pin M, may project from the back of the intake there through to assist in guiding the movement of said plate.

What I claim as new is:

1. In a vacuum cleaner the combination with the intake thereof having an elongated narrow mouth, of a tongue to the rear of said mouth and extending transversely across and adjustable vertically to a point below the mouth, and means for adjusting the tongue.

2. In a vacuum cleaner the combination with the intake thereof having an elongated narrow mouth, of a plurality of tongues extending transversely across said mouth and means for adjusting the same into and down below said mouth.

3. In a vacuum cleaner the combination with the intake thereof having an elongated narrow mouth, of a plurality of tongues the free lower ends of which are hooked-shaped and extend across said mouth, and means adapted to adjust said tongues up into and down from said mouth.

4. In a vacuum cleaner the combination with the intake member thereof having a narrow elongated mouth, of a vertically adjustable plate, a plurality of tongues projecting from the lower edge of the same, whose lower ends are bent at an angle from their shanks and extend across said mouth and means for adjusting said plate and tongues up and down and retain the same in their adjusted position within or below said mouth.

5. In a vacuum cleaner, the combination with the intake thereof having a narrow mouth, of a plurality of tongues extending transversely across said mouth, and cam actuated means for adjusting the same within or below the mouth.

6. In a vacuum cleaner the combination with the intake member thereof having a narrow elongated mouth, of a vertically movable plate having a series of tongues projecting from the lower edge thereof that extend across said mouth and also having an upwardly projecting shank, means for slidably retaining the plate against the rear surface of said member comprising a guide for said shank, and a rotatable lug having a segmental slot eccentric to the axis of the throat of said intake, which a pin projecting from the upper end of said shank engages.

7. In a vacuum cleaner the combination with the intake member thereof having a narrow elongated mouth, of a vertically movable plate having a series of tongues projecting from the lower edge thereof that extend across said mouth and also having an upwardly projecting shank, means for slidably retaining the plate against the rear surface of said member comprising a guide for said shank, a collar rotatably mounted on the throat of said intake and a lug projecting downwards therefrom and having a segmental slot eccentric to the axis of the throat of said intake, which a pin projecting from the upper end of said shank engages.

In witness whereof I have hereunto set my hand and seal this 8th day of July A. D. 1919.

NEWTON A. THROOP.

Witnesses:

EVA STREIT,

VIOLET WARDELL.