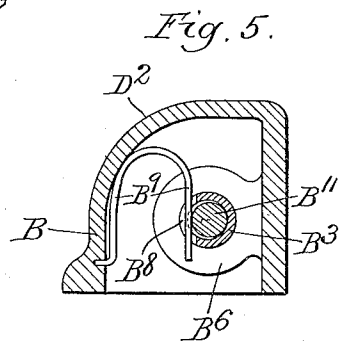
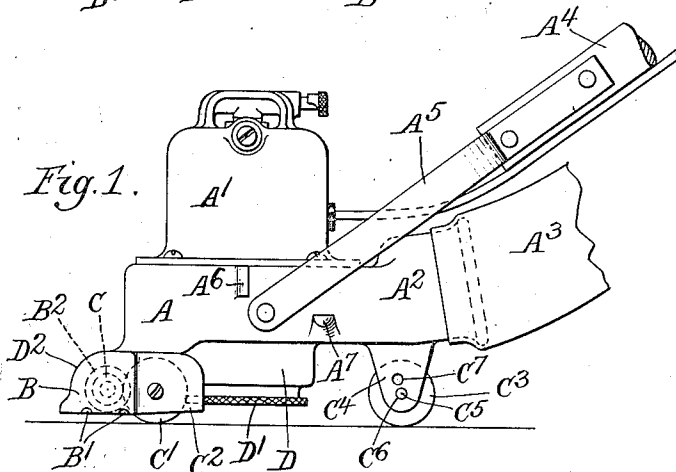
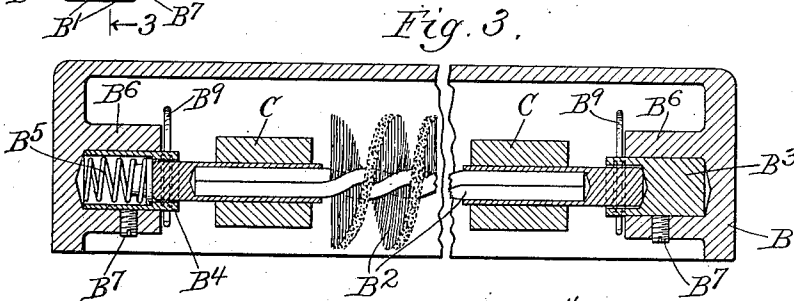
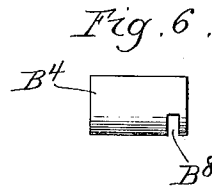
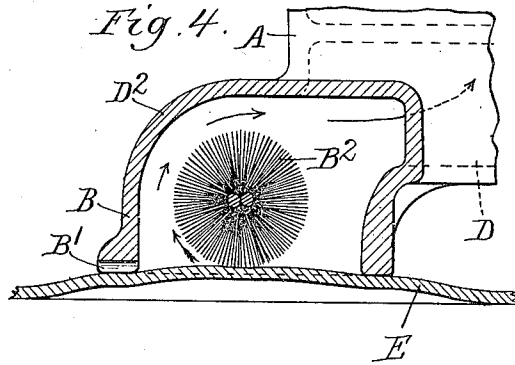
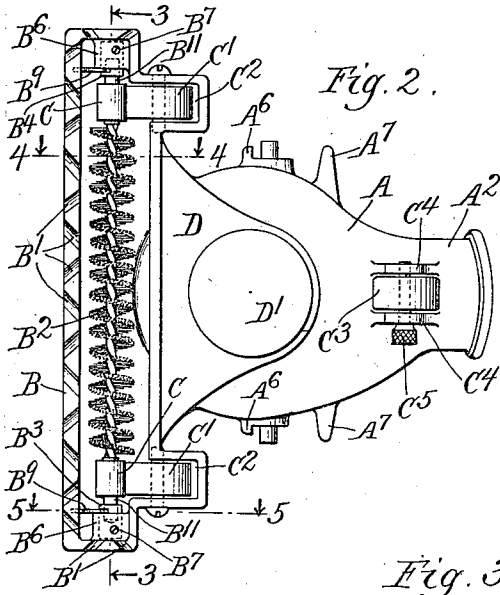


G. CLEMENTS.
VACUUM CLEANER.
APPLICATION FILED AUG. 2, 1915.

1,205,162.

Patented Nov. 21, 1916.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE CLEMENTS, OF CHICAGO, ILLINOIS, ASSIGNOR TO CLEMENTS MFG. CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

VACUUM-CLEANER.

1,205,162.

Specification of Letters Patent.

Patented Nov. 21, 1916.

Application filed August 2, 1915. Serial No. 43,186.

To all whom it may concern:

Be it known that I, GEORGE CLEMENTS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Vacuum-Cleaners, of which the following is a specification.

My invention relates to improvements in vacuum cleaners and has for one object to provide a vacuum cleaner which will pick up dust and lint from the floor.

Another object is to provide means for picking up dirt and lint which will not become clogged and which will be automatically self-cleaning.

Other objects of my invention will appear in the specification.

My invention is illustrated more or less diagrammatically in the accompanying drawings herein.

Like parts are indicated by similar letters throughout all the figures.

A is a vacuum cleaner housing. It carries a motor housing A¹ and is provided with a discharge sleeve A² which discharges into any suitable dust bag A³ which may be suspended from a handle A⁴, the handle, of course, being carried by the housing by means of a bail A⁵ in the usual manner. Stops A⁶, A⁷ are provided to limit the rotary movement of the housing with respect to the handle.

B is a suction nozzle, its forward and side lips being grooved as at B¹. In this nozzle is rotatably mounted a bristle brush B². This bristle brush or agitating device is removably held in position in the bearing sleeves B³, B⁴, by a spring B⁵. The sleeves are held in position in the bosses B⁶ by set screws B⁷. The bearing sleeves B³, B⁴ are slotted as at B⁸ to permit passage of a spring B⁹ which is anchored in the wall of the suction nozzle as indicated and passing at its free end through the slot, engages the shaft B¹¹ upon which the brush is mounted, thus yieldingly holding the shaft in position and providing an automatic take-up for wear in the bearings or elsewhere. Adjacent the two ends of the brush are rubber driving wheels C, C. They are in frictional engagement each with one of the supporting rollers C¹, C¹. These supporting rollers or traction wheels are rotatably mounted in slots C² which communicate with the suction nozzle. The position of these rollers

is such that the rollers extend down below the wall of the slot and hold the slot off the ground as indicated.

C³ is a third roller supporting the rear end of the housing. It rotates between the lugs C⁴ being adjustably held in position on the axle pin C⁵. This pin may be in either the holes C⁶ or the holes C⁷ so that the inclination of the housing and height of the nozzle above the floor surface may be varied. The nozzle B communicates with a chamber D, the bottom of which is closed by a plug D¹, the top of which communicates with the housing. The forward wall of the nozzle is curved as at D² substantially concentric with the brush and the brush is positioned so that there is a comparatively narrow curved channel or passage between the wall of the housing and the brush.

E is the carpet or other material which is being cleaned. It will be noted that it is drawn up by suction against the wall of the nozzle, thus permitting free passage of air underneath and through it, and that owing to the width of the nozzle the carpet bends up between its front and rear walls so as to come in contact with the brush whose bristles are of such length that only thus can the carpet come in contact with them.

The use and operation of my invention are as follows: With the motor in operation drawing air through the suction nozzle in the usual manner the cleaner is caused to run along the floor. The suction draws the carpet up against the front and rear walls or lips of the nozzle, thus drawing it off the floor, because the nozzle being fixedly supported by the wheels is always out of contact with the floor. This provides a clearance beneath the fabric being cleaned. Since the suction is sufficiently great to lift the fabric off the floor, it is obvious that it will be curved up into the mouth of the nozzle and the fabric as the cleaner passes over it will be by its curvature brought into contact with the ends of the bristles on the brush. This brush is rotated by the friction drive in response to the rotation of the forward supporting wheels and because they are in contact directly the brush revolves in the opposite direction from the wheels and so brushes forward along the carpet. The brush driving roller being smaller than the supporting wheels, the rotary speed of the brush will be comparatively high and this forward rotary

speed together with the forward movement of the cleaner itself will cause the brush bristles to be drawn across the surface of the carpet at a comparatively high rate of speed. Thus the brush will loosen and pick up all objects which would otherwise stick to the carpet such as lint, hair, threads and the like. At the point where these particles are caught by the brush there is always a tendency for them to adhere to the bristles, but since the rotation of the brush is rapid and since a strong air current will pass up between the brush and the wall of the nozzle in the same direction as the brush, these particles will be disengaged from the brush partially by centrifugal force and partially by the force of the air blast and they will be carried off into the machine through it and thence to a receptacle. Experience shows that this brush is substantially self-cleaning and that it is only under the most unusual circumstances that any particles are wound around it. Any long particles of hair, dirt or the like are picked up at the end and fed around the brush, being stripped off by the air current, for it is obvious that if a particle came on there, the air current on the back side of the brush would tend to carry it back and assist in the stripping action. Since the brush terminates short of the ends of the nozzle there is a more or less open space at each end of the brush and this permits the passage of air inwardly along the brush and across the carpet, thus at the same time assisting in cleaning the brush and in sweeping the upper surface of the carpet.

It will be noted that the shape of my nozzle is peculiar. It is wide at the center so as to permit free passage of material into the machine. Adjacent the end it is still wider to permit a plate for the supporting roller and at the extreme end it is narrowed down and contains bearing sleeves to furnish the support for the brush which extends throughout the length of the nozzle and assists in the picking up of the material, being rotated by engagement with the supporting rollers.

It will be observed that my arrangement results in a cleaner nozzle having spaced front and rear walls which terminate as shown in spaced parallel horizontal lips and these lips define or form an elongated inlet mouth slot or nozzle, the spaced parallel transverse walls extending from the first or

front and rear walls define a housing which housing is supported by floor engaging traction wheels journaled therein. This housing contains an agitating device or brush which is located in the inlet mouth or nozzle, projects down below it to contact the floor and is operatively connected to the traction wheel by means of the roller connection as shown. In order to provide room for and support and guide the traction wheels, the rear wall is shorter than the front one and is provided with the transverse vertical walls which extend rearwardly to form pockets or chambers wherein the traction wheels are contained. The web or webs which connect the top and rear edges of the walls and inclose the housing carry the traction with the floor contact disk in completing and inclosing the housing so as to complete the whole.

I claim:

1. In a vacuum cleaner, a nozzle having a plurality of rearwardly extending pockets in open communication with the interior thereof, nozzle supporting rollers rotatably mounted within said pockets projecting downwardly below the bottom of the nozzle and extending forwardly into the main portion thereof, a brush mounted for rotation in the nozzle adjacent its front wall and friction driving means on the brush in direct contact with the surface of the supporting rollers.

2. A vacuum cleaner having a suction nozzle provided with a relatively wide suction slot, the body of the nozzle being rearwardly recessed adjacent the ends to substantially increase the width of the slot at such points, the ends of the slot between such widened points and the extreme end being narrower than the central portion of the slot, bearing sleeves contained within such narrow slot portions, supporting rollers contained within such widened recess portions, a brush supported by the bearing sleeves, and driving wheels mounted on the brush in frictional engagement with the supporting rollers the axis of the brush being located in front of the central axis of the nozzle.

In testimony whereof, I affix my signature in the presence of two witnesses this 30th day of July 1915.

GEORGE CLEMENTS.

Witnesses:

GENEVA HIRTH,
ELLA THIEME.