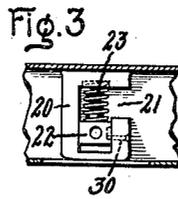
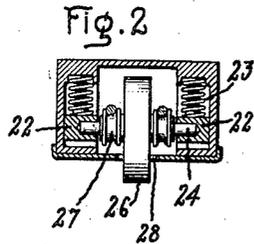
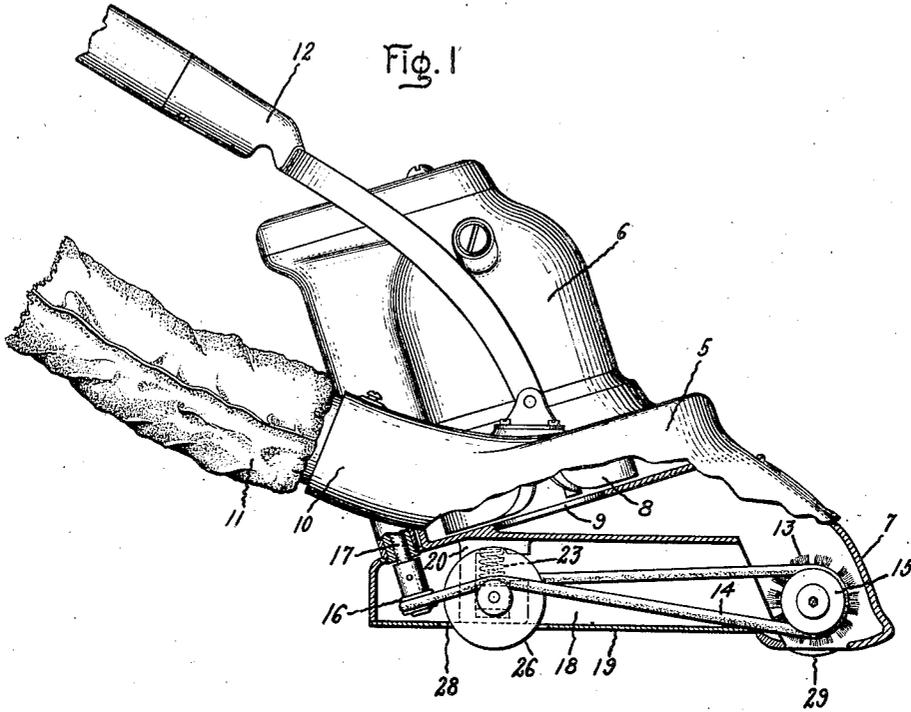


A. E. BOBST.
SUCTION CLEANER.
APPLICATION FILED NOV. 1, 1919.

1,438,890.

Patented Dec. 12, 1922.



Inventor:
Alfred E. Bobst,
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His Attorney.

UNITED STATES PATENT OFFICE.

ALFRED E. BOBST, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

SUCTION CLEANER.

Application filed November 1, 1919. Serial No. 335,092.

To all whom it may concern:

Be it known that I, ALFRED E. BOBST, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Suction Cleaners, of which the following is a specification.

The present invention relates to electric motor driven suction cleaners of the type designed to be pushed over the surface to be cleaned and particularly to such cleaners which are provided with a brush in the suction nozzle driven from the motor shaft.

The object of my invention is to provide an improved construction and arrangement in a suction cleaner having a motor driven brush and for a consideration of what I believe to be novel and my invention, attention is directed to the accompanying description and the claims appended thereto.

In the drawing, Fig. 1 is a side elevation partly in section of a suction cleaner embodying my invention, and Figs. 2 and 3 are sectional views of details.

Referring to the drawing, 5 indicates the fan chamber of a suction cleaner, 6 the motor, and 7 the suction nozzle. In fan chamber 5 is a fan 8 which is driven by motor 6. 9 indicates the inlet to the fan chamber and 10 the discharge conduit to which is attached the usual bag 11. 12 indicates the handle of the cleaner by means of which it is propelled over the surface to be cleaned. In the suction nozzle 7 of the cleaner is a brush 13 which is arranged to be driven from motor 6.

The foregoing may be taken as typical of a vacuum cleaner to which my invention may be applied.

In connection with the operation of a suction cleaner having a motor driven brush in its nozzle, if the cleaner remains standing in one place while the motor is running the brush, which revolves at a comparatively high rate of speed, is likely to damage the carpet or rug being cleaned and it is accordingly desirable that whenever the cleaner is not being propelled over the surface being cleaned that the brush should stop rotating. For example, it happens at times that an operator will thoughtlessly leave the cleaner standing in one place without shutting off the power with the result that the brush is

left revolving to the injury of the surface being cleaned.

Now, according to my invention, I provide an arrangement whereby whenever the cleaner is not being propelled over the surface to be cleaned, or when no power is being applied to the handle of the cleaner, the brush will automatically stop rotating even though the power is left on, and to this end I arrange the connection between the motor and the brush so that it is automatically controlled by the power applied to the handle when propelling the cleaner across the surface to be cleaned.

In the present instance brush 13 is driven by a belt 14 which passes over a belt wheel 15 on brush 13 and a belt wheel 16 on the lower end of a shaft 17. Shaft 17 is driven in any suitable manner from the shaft of motor 6. Belt 15 is located in a conduit 18, the lower side of which is closed by a removable plate 19. At the rear of conduit 18 the side walls of the conduit are provided with thickened portions 20 in which are inverted L-shaped slots 21 adapted to receive bearing blocks 22 which are pressed toward the bottoms of the slots by springs 23. Journalled in blocks 22 is a shaft 24 which carries a traction wheel 26 and a pair of idler wheels 27 over which belt 14 passes. Traction wheel 26 projects through an opening 28 in plate 19 and serves to support the rear portion of the cleaner. The forward portion is supported by wheels 29 at the ends of nozzle 7. To limit the movement of blocks 22 in slots 21, I provide suitable stop means here shown as comprising pins 30, the ends of which project into slots in blocks 22.

Springs 23 are of such strength or stiffness that they support the weight of the rear end of the cleaner and hold bearing blocks 22 down in slots 21 to such an extent that idler wheels 27 are moved away from belt 14 so that the belt will be loose and hence will not transmit power from belt wheel 16 to the brush. Hence when the cleaner is standing and no pressure is being applied to it brush 13 will not be rotated even though the motor is running. When power is applied to handle 12 to propel the cleaner over the surface being cleaned, it will weigh down the rear end of the cleaner causing springs 23 to yield with the re-

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sult that idler wheels 27 will be brought into engagement with belt 14 to tighten it so that it will transmit power from belt wheel 16 to brush 13 to drive the brush. It will thus be seen that traction wheel 26 and idler wheels 27 serve as a belt tightener to tighten belt 14 to render it operative to transmit power.

Figs. 1, 2 and 3 show the parts in the positions they occupy when the power is applied to the cleaner to propel it over the surface being cleaned and it will be noted that bearing blocks 22 have been moved upward in slots 21 so as to cause belt 14 to be tightened.

In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the apparatus shown is only illustrative, and that the invention may be carried out by other means.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. In a suction cleaner, a nozzle having a brush therein, an electric motor, a suction fan driven by the motor, a handle by means of which the cleaner is propelled over the surface to be cleaned, means for connecting the motor to the brush, said means being normally inoperative, and means which is automatically actuated to render said connecting means operative when pressure is applied to the handle to push the cleaner over a surface to be cleaned.

2. In a suction cleaner, a nozzle having a brush therein, an electric motor, a suction fan driven by the motor, a handle by means of which the cleaner is propelled over the surface to be cleaned, a driving connection between the motor and brush, said connection being normally inoperative, and means controlled by the power applied to the handle when propelling the cleaner for rendering said connection operative.

3. In a suction cleaner, the combination of a fan chamber, a fan therein, a motor for driving the fan, a suction nozzle connected to the fan chamber, a brush in the suction nozzle, means including a normally loose belt connecting the motor to the brush to drive it, and means controlled by the power applied to the handle when propelling the cleaner for tightening said belt.

4. In a suction cleaner, the combination of a fan chamber, a fan therein, a motor for driving the fan, a suction nozzle, a brush rotatably mounted therein, means including a normally loose belt connecting the motor to the brush to drive it, a yieldingly

supported shaft, and a traction wheel and a belt tightening means carried by said shaft.

5. In a suction cleaner, the combination of a fan chamber, a fan therein, a motor for driving the fan, a suction nozzle, a brush therein, means including a normally loose belt connecting the motor to the brush to drive it, a yieldingly supported shaft, and a traction wheel and a pulley for the belt carried by said shaft whereby when the handle is pushed to propel the cleaner, said shaft will yield to cause the pulley to tighten said belt.

6. In a suction cleaner, the combination of a fan chamber, a fan therein, a motor for driving the fan, a suction nozzle, a brush therein, means including a normally loose belt connecting the motor to the brush to drive it, a shaft, yieldingly supported bearings for the shaft, a traction wheel carried by the shaft, and an idler pulley for said belt also carried by said shaft whereby when power is applied to the handle to propel the cleaner, said shaft will yield to cause the pulley to tighten said belt.

7. In a suction cleaner, the combination of a fan chamber, a motor having a shaft which projects into the fan chamber, a fan in said chamber connected to the motor shaft, a suction nozzle in communication with the fan chamber, a brush rotatably mounted therein, a normally inoperative driving connection between the motor shaft and the brush, and means automatically operated by the pressure required in the propulsion of the cleaner over the surface to be cleaned for rendering said connection operative.

8. In a suction cleaner, the combination of a fan chamber, a fan therein, a motor for driving said fan, a suction nozzle, a brush rotatably mounted therein, a traction wheel for the cleaner which is movable relatively to the body of the cleaner, and means controlled by said movable traction wheel for connecting the motor to the brush.

9. In a suction cleaner, the combination of a fan chamber, a fan therein, a motor for driving the fan, a suction nozzle, a brush rotatably mounted therein, a traction wheel for the cleaner which is movable relatively to the body of the cleaner, means biasing it to one position relatively to the body of the cleaner, and means actuated by movement of the traction wheel toward its other position for connecting the motor to the brush.

In witness whereof, I have hereunto set my hand this 31st day of October, 1919.

ALFRED E. BOBST.