July 30, 1940. A. L. ELKINS ET AL 2,209,647

RUG DUSTING MACHINE

Filed Sept. 21, 1938 2 Sheets-Sheet 1

Fig. 1.

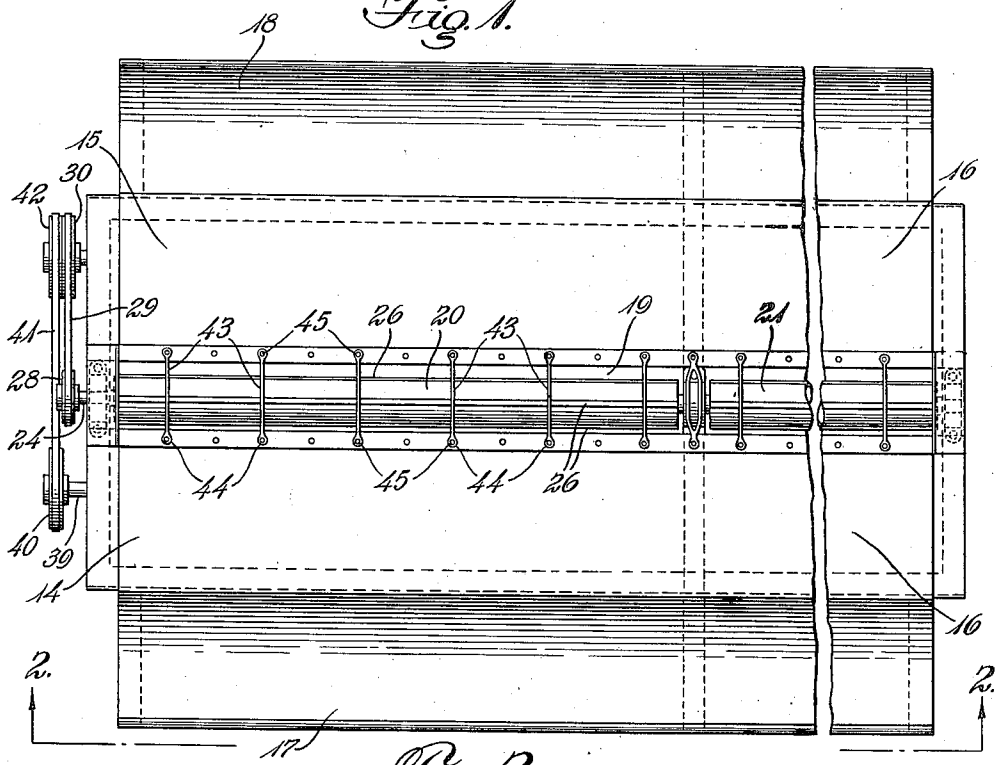
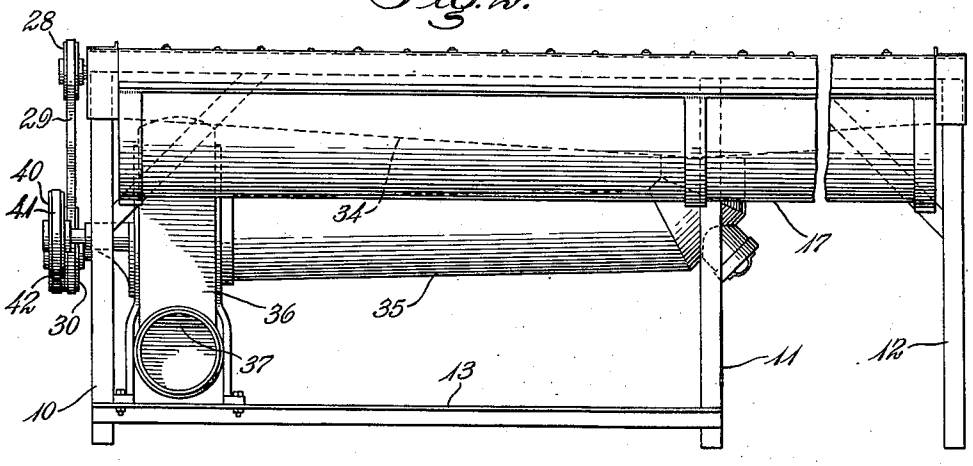


Fig. 2.



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Fig. 3.

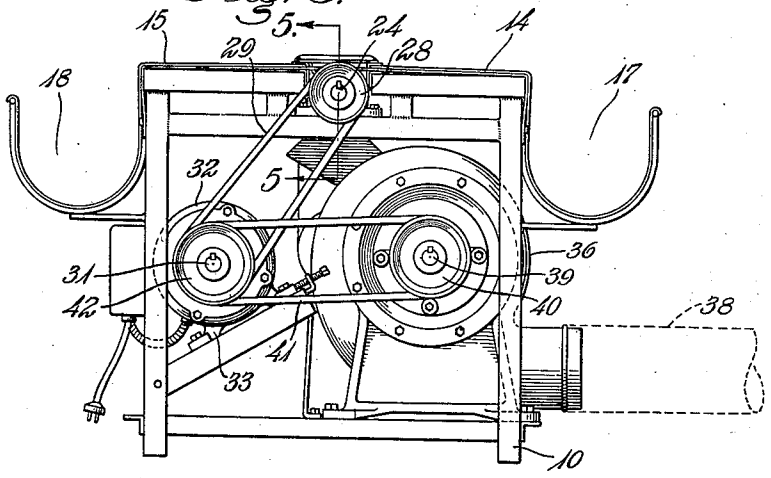


Fig. 4.

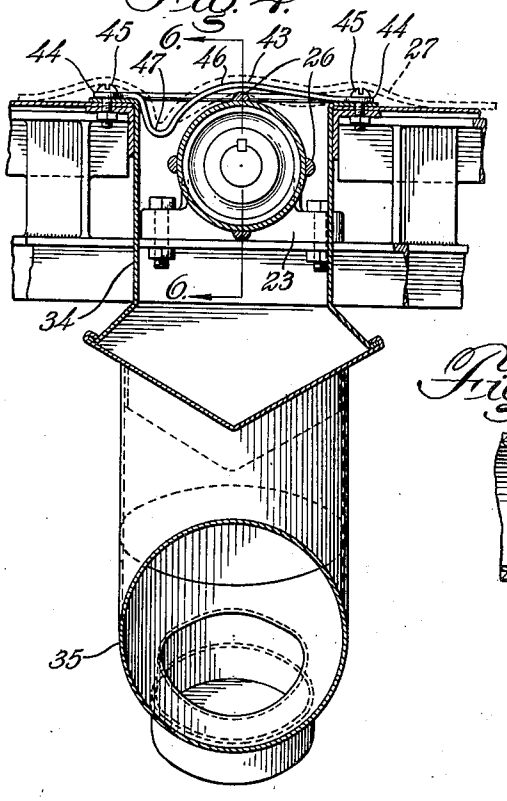


Fig. 5.

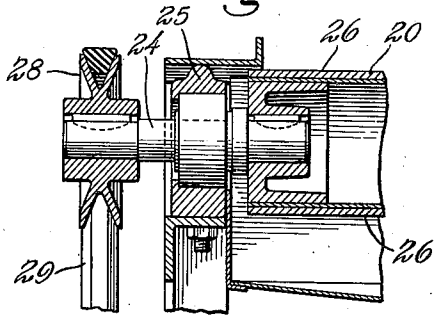
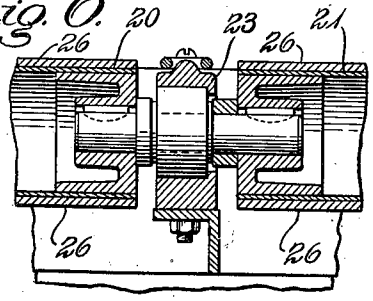


Fig. 6.



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RUG DUSTING MACHINE

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Application September 21, 1938, Serial No. 231,055

2 Claims. (Cl. 15—12)

The invention relates to a vacuum cleaner for rugs or the like and more especially to a rug dusting machine.

The primary object of the invention is the provision of a machine of this character, wherein a rug or carpet can be introduced onto the machine and in the working thereof the said rug, carpet or the like will be acted upon so as to effect the opening of the nap or the pile and in this way freeing dust, dirt or other settlings therefrom, whereby the said rug, carpet or the like will be thoroughly cleaned.

Another object of the invention is the provision of a machine of this character, wherein the construction is novel in that the work to be dusted or cleaned will be subjected to a beating action and at points where the nap or pile has been automatically opened to assure a thorough removal of dust, dirt, sand or other accumulations from the fabric or body of such rug.

A further object of the invention is the provision of a machine of this character, wherein the accumulations taken from the rug, carpet or the like will be carried off and the rug, carpet or the like will be dusted for the cleaning thereof with assurance that all accumulations lodged in the body thereof will be extracted or removed with dispatch, the rug, carpet or the like being fed onto the machine in a unique manner and also such rug, carpet or the like will be troughed both at the feed and delivery sides of the machine to avoid soiling or dirtying thereof while being handled as would be the case if it were delivered onto a floor or other foundation.

A still further object of the invention is the provision of a machine of this character, which is simple in its construction, thoroughly reliable and efficient in operation, eliminates the scattering of the dust and dirt taken from rugs, carpets or the like within the atmosphere of a room or other enclosure, and is strong, durable and inexpensive to manufacture and install.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, as illustrated in the accompanying drawings, which disclose the preferred embodiment of the invention, and as pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is a top plan view of the machine constructed in accordance with the invention.

Figure 2 is a front elevational view taken on the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is an end elevation.

Figure 4 is an enlarged fragmentary vertical transverse sectional view through the machine.

Figure 5 is a fragmentary sectional view taken on the line 5—5 of Figure 3 looking in the direction of the arrows.

Figure 6 is a sectional view taken on the line 6—6 of Figure 4 looking in the direction of the arrows.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, the machine constituting the present invention comprises a stand comprising the uprights 10, 11 and 12, respectively, the uprights 10 and 11 being joined to a base frame 14, while built with the stand is a work bed formed from sheet metal sections 14 and 15, respectively, these having the flat areas 16 arranged in the same plane with each other at the top of the stand and horizontally disposed. The section 14 has a feed trough 17 while the section 15 has the delivery or receiving trough 18. These troughs 17 and 18 are downwardly disposed with relation to the horizontal areas 16 of the said sections 14 and 15, respectively.

The areas 16 of the sections 14 and 15 are separated from each other at approximately the longitudinal center of the stand effecting an elongated opening 19 of uniform width throughout the extent thereof.

Confronting the opening 19 is a cylindrical roll comprising the two sections 20 and 21, respectively, which are substantially peripherally flush with the plane of the areas 16 of the work bed sections 14 and 15, these roll sections at their ends adjacent to each other being separated for accommodating an intermediate bearing 23 built within the stand while the outer ends of said sections have the journals 24 fitting bearings 25 built within said stand. Thus the roll including the sections 20 and 21 has a three-point bearing in the machine, the intermediate bearing 23 and the outer bearings 25, two in number, respectively.

Provided longitudinally of the roll following the extent of the sections 20 and 21 thereof and circumferentially spaced about the same with uniformity are striker ribs 26, these being longitudinally extended and radially directed and adapted for striking engagement with a piece of work 27 such as a rug, carpet or the like when the latter is superimposed on the areas 16 and

spans the opening 19 as is clearly shown by dotted lines in Figure 4 of the drawings.

The roll including the sections 20 and 21 has one journal 24 equipped with a belt pulley 28 over which is trained an endless belt 29, the latter being trained over a driving pulley 30 fixed to the drive shaft 31 of an electric motor 32, which is suitably bracketed at 33 in the stand of the machine.

Below the opening 19 is a walled mouth 34 opening into the said opening 19 and such mouth is a part of a suction conduit 35 leading centrally to a suction fan housing or casing 36, the suction fan proper being indicated at 37, while leading from the periphery of this housing or casing 36 is a discharge flue 38. The fan 37 has its axle 39 equipped with a belt wheel 40 over which is trained an endless belt 41, the latter being also trained over a companion belt wheel 42 fixed to the driving shaft 31 of the motor 32 and in this manner the suction fan is operated.

Bridging the opening 19 and the roll which includes the sections 20 and 21 and rotatable in said opening is a series of spaced guards 43, which are uniformly spaced from each other in their straddling relation to said opening 19, and are provided with eye terminals 44 accommodating fasteners 45 securing the same in place. Each guard 43 has a curvilinear intermediate portion 46 arched over a roll section 20 or 21, as the case may be and a downwardly directed bight area 47, respectively, the latter being merged with the curvilinear portion 46 and the function of these portions is to effect a continuity of fold in the piece of work when hand advanced over the guards 43, thus resulting in the opening of the nap or pile of the fabric of the piece of work while traveling either over the arched portions 46 or within the depressed bights 47, depending upon whether the fabric is disposed pile face up or the reverse, and through suction by the operation of the fan 37, dust, dirt or other accumulations in the body of the piece of work will be removed therefrom. The advancement of the piece of work and the subjection thereof to the effect of vacuum or suction will assure the continuity of a fold in the body of such piece of work at the bight portion 47 of each guard 43 and a conformed upward curvature of the fabric on the arched portions 46 of the guards, thus resulting in the automatic opening of the nap or pile as just above described for a thorough cleaning or the removal of dust, dirt or the like therefrom.

The piece of work is rolled or otherwise tucked into the trough 17, the lead end of the work being carried by hand onto the area 16 of the section 14 next thereto and through hand feeding will be caused to traverse the opening 19 supported by the guards 43. Now, under activity of the suction fan 37, not only is the work pulled inwardly in the region of the opening 19 and maintained in intimate contact with the guards 43, but all loosened dirt, dust or other accumulations in the body of the piece of work will be removed therefrom and carried or conveyed away from the machine without liability of contamination of the atmosphere within an enclosure, room or the like in which the machine is located.

During the suction activity of the machine, the piece of work will be flexed and vibrated as it is subjected to a beating through the striker ribs 26 on the roll coming in quick succession into contact with portions of the work which are obviously sagged between the respective guards 43 and brought into contact with the respective circumferential face portions of the roll by the suction thereunder, the roll, in operation, being rotated under power of the motor 32 and at a peripheral speed faster than the travel of the work which is mainly effected and controlled by hand manipulation and guidance, but, of course, assisted to a considerable degree by the action of the circumferential ribs 46 on the rotating roll sections 20 and 21 whose peripheral travel is in the same direction; and by such method, including vacuum effect, nap opening and beating steps of operation, the piece of work, such as a rug, carpet or the like, will be freed of dust, dirt, sand or other accumulated matter.

What is claimed is:

1. In a fabric cleaning machine of the character described and including a supporting bed over which the fabric to be cleaned is passed and a suction chamber beneath the bed, said bed having an elongated opening extending transversely of the direction of travel of the work thereover and in communication throughout with the suction chamber therebelow; a rotary beater element located within the suction chamber and confronting said opening in the supporting bed, said beater element comprising a body roll extending the length of said opening and positioned so that its uppermost circumferential portion is tangential to a plane substantially the same as that of the adjacent top face portion of the supporting bed; radially directed, spaced apart, striker protuberances on the circumference of said body roll; and laterally spaced, parallel, guard bars spanning said opening of the supporting bed and extending above the rotary beater element crosswise thereof, said guard bars being each bowed upwardly with an intermediate major portion formed curvilinear and concentric with the circumference of the body roll of said beater element and spaced therefrom, whereby the fabric passing over said guard bars has spaced parallel line support thereon and, by the effect of suction therebelow, is urged into contact with said bars and the adjacent portions of the fabric traveling over the spaces between the respective bars are made to sag upon the portions of the roll circumference traveling thereunder so as to receive the impact of the striker protuberances of the roll, and portions of said guard bars between their respective end portions and their curvilinear intermediate major portions being formed with downwardly directed bights disposed at the side of the body roll of the beater element whereby to maintain a continuity of troughed open fold in the fabric and paralleling said body roll during the travel of the fabric over said guard bars.

2. In a fabric cleaning machine of the character described and including a supporting bed over which the fabric to be cleaned is passed and a suction chamber beneath the bed, said bed having an elongated opening extending transversely of the direction of travel of the work thereover and in communication throughout with the suction chamber therebelow; a rotary beater element located within the suction chamber and confronting said opening in the supporting bed, said beater element comprising a body roll extending the length of said opening and positioned so that its uppermost circumferential portion is tangential to a plane substantially the same as that of the adjacent top face portion of the supporting bed; elongated longitudinal, radially directed, striker ribs spaced apart an-

nularly on the circumference of said body roll; and laterally spaced, parallel, guard bars spanning said opening of the supporting bed and extending above the rotary beater element crosswise thereof, said guard bars being each bowed upwardly with an intermediate major portion formed curvilinear and concentric with the circumference of the body roll of said beater element and spaced therefrom for clearance of the striker ribs on the roll circumference, whereby the fabric passing over said guard bars has spaced parallel line support thereon and, by the effect of suction therebelow, is urged into contact with said bars and the adjacent portions of the fabric traveling over the spaces between the respective bars are made to sag upon the portions of the roll circumference traveling thereunder so as to receive the impact of the striker ribs of the roll, and portions of said guard bars between their respective end portions and their curvilinear intermediate major portions being formed with downwardly directed bights disposed at the side of the body roll of the beater element whereby to maintain a continuity of troughed open fold in the fabric and paralleling said body roll during the travel of the fabric over said guard bars.

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