

Jan. 14, 1930.

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1,743,954

COMBINED BEATER AND VACUUM CLEANER

Filed Feb. 20, 1929

Fig. 1.

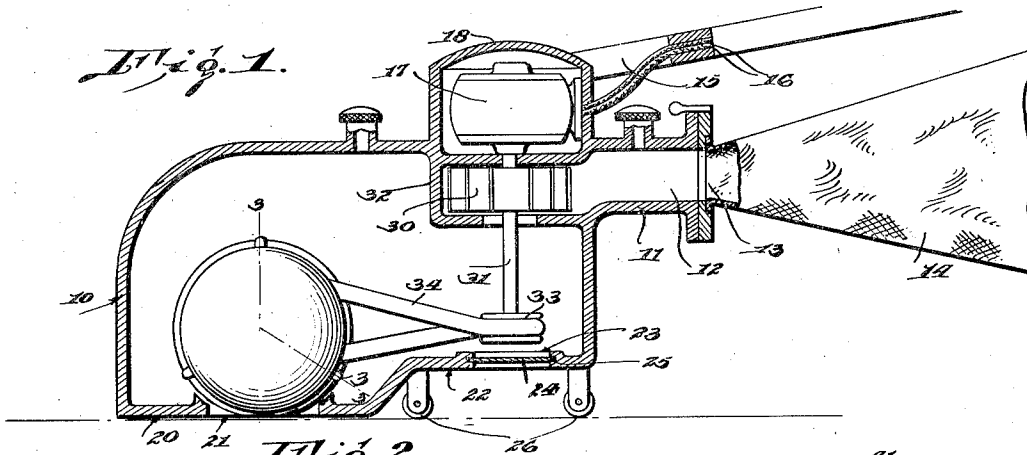


Fig. 2.

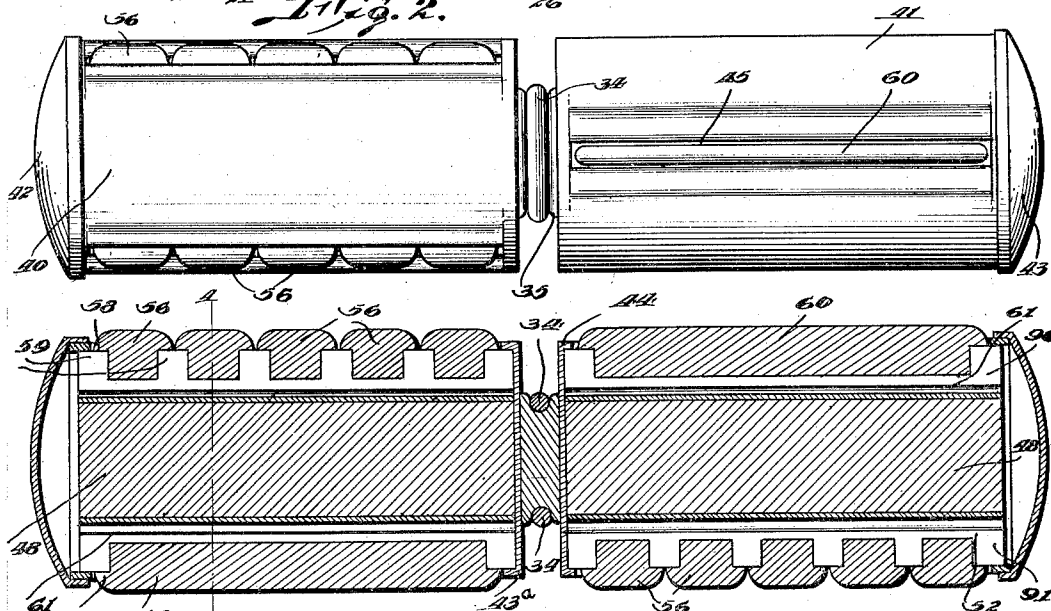


Fig. 3.

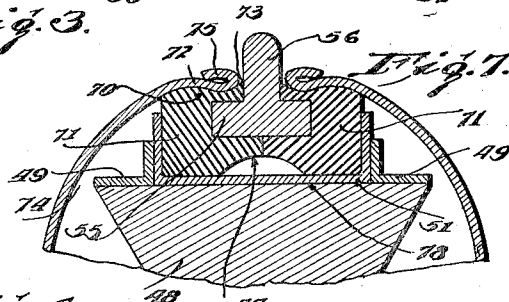
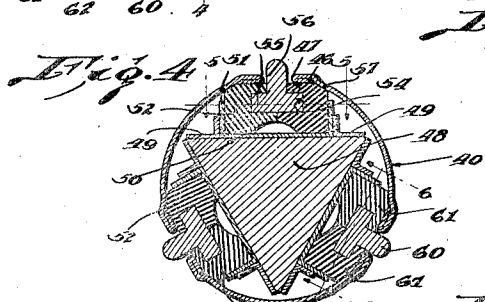
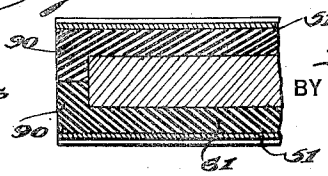
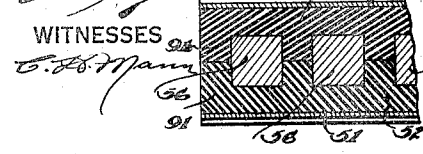


Fig. 5.

Fig. 6.



WITNESSES

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COMBINED BEATER AND VACUUM CLEANER

Application filed February 20, 1929. Serial No. 341,449.

This invention relates to a combined beater and vacuum cleaner for fabricated material.

5 An object of the invention is the provision of a beater in the form of a cylinder having blades movable through an opening in a casing of the device for periodically beating the carpet while the suction device withdraws the dirt agitated by the beater.

10 A further object of the invention is the provision of a beater in the form of a cylinder which is adapted to be revolved adjacent an opening in a housing, a cylinder enclosing a pressure block for maintaining
15 a plurality of elastic holders in operative relation with blades and in engagement with the inner walls of the cylinder whereby the blades, elastic holders and block may be readily removed from the cylinder.

20 This invention will be best understood from a consideration of the following detailed description, in view of the accompanying drawings forming a part of the specification; nevertheless it is to be understood that the invention is not confined to the disclosure, being susceptible of such changes and modifications which shall define no material departure from the salient features of the invention as expressed in the
25 appended claims.

In the drawings:

30 Figure 1 is a longitudinal vertical section of the combined sweeper and beater constructed in accordance with the principles of my invention,

35 Figure 2 is a longitudinal side view of a beater,

Figure 3 is a longitudinal vertical section taken along the line 3—3 of Figure 1,

40 Figure 4 is a transverse vertical section taken along the line 4—4 of Figure 3,

Figure 5 is a horizontal section taken along the line 5—5 of Figure 4,

45 Figure 6 is a similar section taken along the line 6—6 of Figure 4, and

Figure 7 is a fragmentary transverse vertical section of a modified form of device.

Referring more particularly to the drawings, 10 designates a casing or housing having a reduced portion at 11 to provide a

discharge passage 12 which opens at 13 into a bag 14 for collecting the dust and dirt from the material which is being cleaned. A handle 15 is connected in any approved manner in a housing 10 and carries electric wires 16 and which are connected with a motor 17 in an auxiliary housing 18 to which the wires 16 are adapted to be connected in any approved manner with the house current.

55 The bottom of the housing, as shown at 20, is flat and is adapted to lie in close association with the carpet which is to be cleaned. The bottom is provided with an opening 21 which connects the interior of the housing with the atmosphere. A portion of the base, as shown at 22, is offset from the plane of the portion 20 and is provided with an opening 23 for the purpose of inspecting the interior of the housing 10 and for facilitating repairs to the mechanism within the housing. The opening 23 is adapted to be closed by a door 24 slidably mounted in grooves 25 formed in the bottom portion 22. Casters 26 support the elevated base portion 22 in the floor to provide means for readily conveying the sweeper over the carpet.

60 The motor 17 drives a fan 30 which is secured to a shaft 31 projecting below a fan housing 32 which is in communication with the passage 12. A pulley 33 is secured to the lower end of the shaft 31 and has trained thereon a belt 34 which is also trained upon a pulley 35.

65 The beater is shown more particularly in Figs. 2 to 7, inclusive, and includes a pair of cylinders generally designated by the numerals 40 and 41 which are normally closed at their outer ends by means of caps 42 and 43, respectively. Closures 43^a and 44 are connected to the inner ends of the cylinders in any approved manner. The pulley 34 is rigidly connected with the inner adjacent ends 43^a and 44 so that the pair of cylinders are revolved simultaneously. The outer ends 42 and 43 of the cylinders 40 and 41, respectively, are made convex so that they will fit in sockets in the end walls of the housing 10.

Each cylinder is provided with a longitudinal slot 45 approximately 120° apart although any number of slots may be provided which will be sufficient for the purpose. These slots are formed by slitting each cylinder longitudinally and bending the portion of the metal on opposite sides of the slit inwardly as shown at 46 to provide a reinforced edge 47 for a purpose which will be presently explained. A triangularly-shaped block 48 is located centrally of each cylinder and is provided with spaced angle irons 49 at each face 50 of the block 48 to provide a seat for a metallic U-shaped member 51. In two of the seats are mounted a pair of elastic holders 52 which are complementarily formed and extend longitudinally of the U-shaped member 51. The inner or bottom portion of each member as shown at 53 is cut away to provide a space between the bottom of the U-shaped member and the bottom of the holders 52. Each holder is provided with a groove 54 to receive a flange 55 of a blade 56 which is T-shaped in cross section. The outer longitudinal edge of each section of the holder is sheared off at an angle and engages a portion of the inner wall of the cylinder. It will be noted that the blades 46 as shown in Figs. 2 and 3 are formed in sections and are spaced from each other throughout their length. The outer ends of the blades project over the outer face of the co-operating sections 52 of the holder, as shown at 58. The portions of the holders, as shown at 59, extend between each blade 56 for spacing the blades longitudinally of the holder.

The blade 60 instead of being formed in sections extends approximately the length of the associated holders 61 and since the blade extends throughout the approximate length of a holder the spaced members 59 of the holder shown in Fig. 3 are omitted. However, the undercut grooves 54 are formed in the associated sections of the holder to receive the flanges 55 of the blade 60 for securing the blade in position. The opposite ends of the blade adjacent the outer surfaces of the sections of the holder are extended, as shown at 62, to overlap the portions of the holder adjacent their ends. It will be seen by this construction that when the block 48 is inserted within the cylinder and that the sections of the holders which are located within the U-shaped member 61 are readily moved into place between the angle irons 49 with the blade 56 or 60 projecting through the respective slots of the cylinder at approximately 120° apart.

The construction shown in Fig. 7 is similar to that shown in Figs. 2 to 6, inclusive, except that the outer surface 70 of a section 71 of a holder is curved to conform to the inwardly curved portion 72 adjacent the slot or passage 73 in the cylinder 74. The walls

of the cylinder adjacent the slots 73, as shown at 75, are bent outwardly and returned upon the cylinder to provide a reinforcing flange or rib. The blade 56 projects through the slot and has its flanged ends 55 secured within the undercut grooves within the resilient section 71 of the holder. The bottom of the sections, as shown at 77, are cut away to reduce those portions of the sections adjacent the bottom 78 of the U-shaped trough or member 51.

By the above construction it will be seen that the beater may be readily assembled or disassembled without the necessity of the employment of screws or bolts or any fastening means whatever. It is only necessary to slide the block 48 in its place within the cylinder and then to insert the sections of the holder which is mounted within the U-shaped member 41 between the angle irons 49. The elastic sections of the holder permit the blades 56 or 60 to be moved inwardly since the portion 77 of the section is weakened by the reduced portions at these points. Furthermore, the elasticity of the sections of the holders themselves permit the sliding inward movement of the blades. Furthermore, when the block 48 is moved into position it will force the sections of the holder outwardly and cause them to frictionally engage the portions of the inner wall of the cylinder adjacent the slots 45.

I claim:

1. A device of the character described comprising a casing having a portion adapted to be moved in close association with a surface to be cleaned, said portion having a suction opening, a cylinder mounted adjacent said opening, beater blades, means for resiliently mounting said blades on the cylinder, the blades projecting through said opening, and means for revolving said cylinder.

2. A device of the character described comprising a casing having a portion adapted to be moved in close association with a surface to be cleaned, said portion having a suction opening, a cylinder mounted adjacent said opening, beater blades, means for resiliently and removably mounting said blades on the cylinder, the blades projecting through said opening, and means for revolving said cylinder.

3. In a device of the character described, a casing, a beater mounted for rotation in the casing and comprising a cylinder having spaced slots, a triangularly-shaped block within the casing provided with seats, elastic holders mounted in the seats and having longitudinally disposed edges co-acting with the inner walls of the cylinder, and blades mounted in the holders and projecting through the slots.

4. In a device of the character described, a casing, a beater mounted for rotation in

the casing and comprising a cylinder having spaced slots, a block in the cylinder carrying seats, holders located in the seats, blades carried by the holders and projecting through the slots, portions of the holders engaging the inner walls of the cylinder for aiding and supporting the holders and block within the cylinder.

5 In a device of the character described, a casing, a beater mounted for rotation in the casing and comprising a cylinder having spaced slots, a block in the cylinder carrying seats, elastic holders located in the seats, blades carried by the holders and projecting through the slots, portions of the holders engaging the inner walls of the cylinder for aiding and supporting the holders and block within the cylinder.

10 6. In a device of the character described, a casing, a beater mounted for rotation in the casing and comprising a cylinder having spaced slots, a block in the cylinder carrying seats, holders located in the seats, blades carried by the holders and projecting through the slots, portions of the holders engaging the inner walls of the cylinder for aiding and supporting the holders and block within the cylinder, the block being triangularly shaped in cross section and acting as a wedge for forcing the holders against the inner wall of the cylinder.

20 7. In a device of the character described, a casing, a beater mounted for rotation in the casing and comprising a cylinder having spaced slots, a block in the cylinder carrying seats, holders located in the seats, blades carried by the holders and projecting through the slots, portions of the holders engaging the inner walls of the cylinder for aiding and supporting the holders and block within the cylinder, the holders being formed of complementary parts adapted to be fitted together and held in operative relation by the pressure exerted by the block.

30 8. In a device of the character described, a casing, a beater mounted for rotation in the casing and comprising a cylinder having spaced slots, a block in the cylinder carrying seats, holders located in the seats, blades carried by the holders and projecting through the slots, portions of the holders engaging the inner walls of the cylinder for aiding and supporting the holders and block within the cylinder, the holders having undercut grooves, the blades having flanges received by the grooves.

40 9. In a device of the character described, a casing, a beater mounted for rotation in the casing and comprising a cylinder having spaced slots, a block in the cylinder carrying seats, holders located in the seats, blades carried by the holders and projecting through the slots, portions of the holders engaging the inner walls of the cylinder for aiding and supporting the holders and

block within the cylinder, the holders being formed of complementary members, each member having a longitudinal groove, the blades having flanges received by the grooves.

Signed at Marion, in the county of Marion, and State of Ohio, this 18th day of February, A. D. 1929.

BENJAMIN F. BLAKE.