July 8, 1941. T. A. SCHAAD 2,248,390

TOY VACUUM SWEEPER

Filed July 5, 1940 2 Sheets-Sheet 1

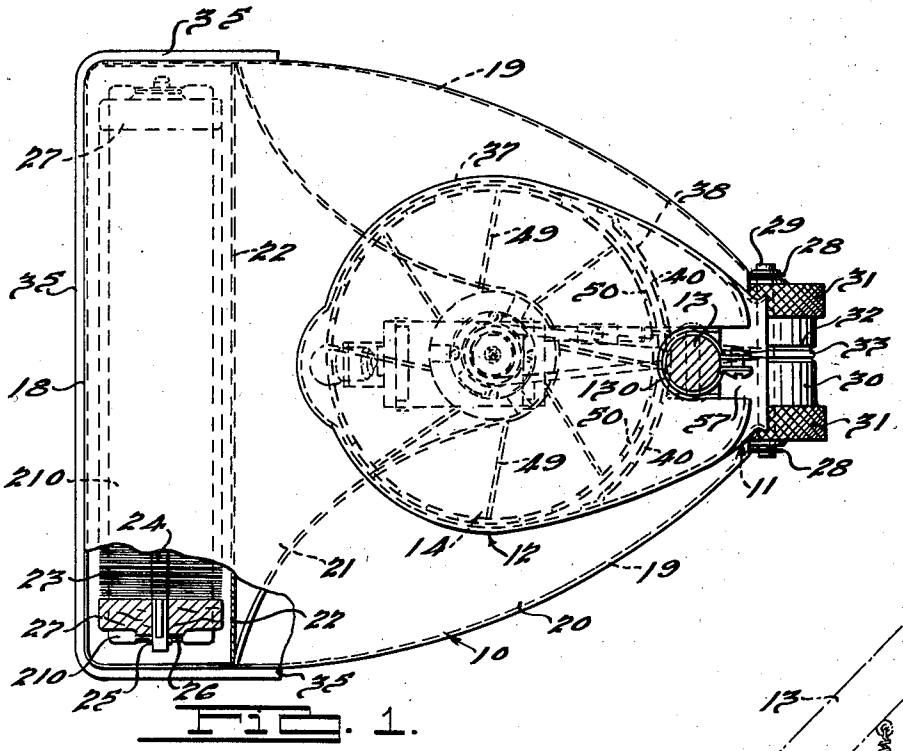

Fig. 1.

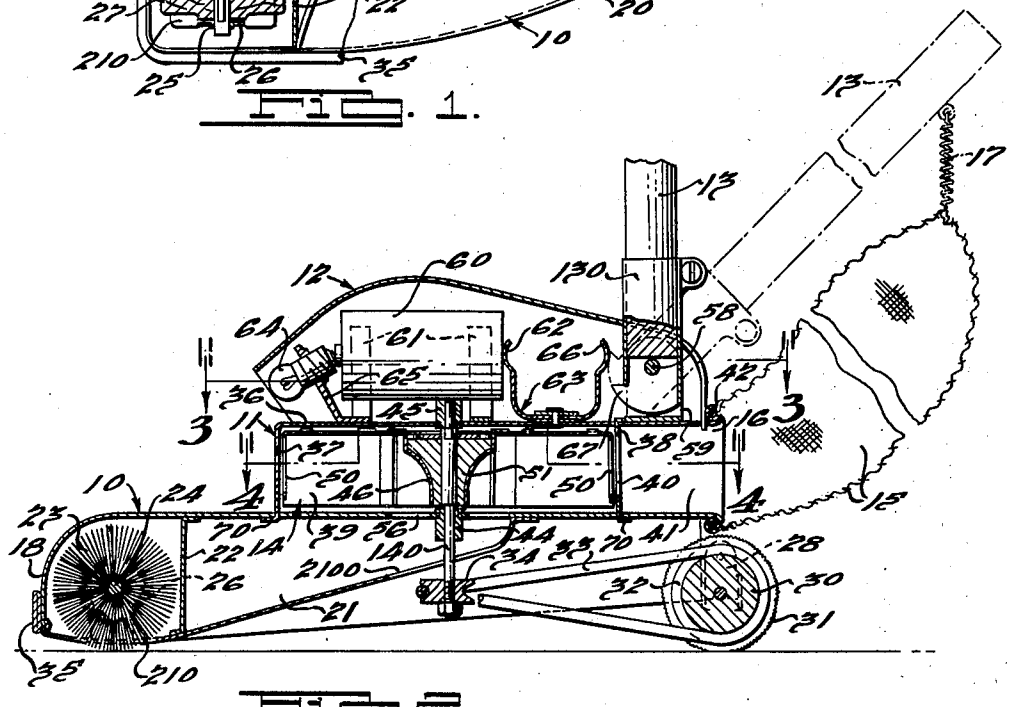

Fig. 2.

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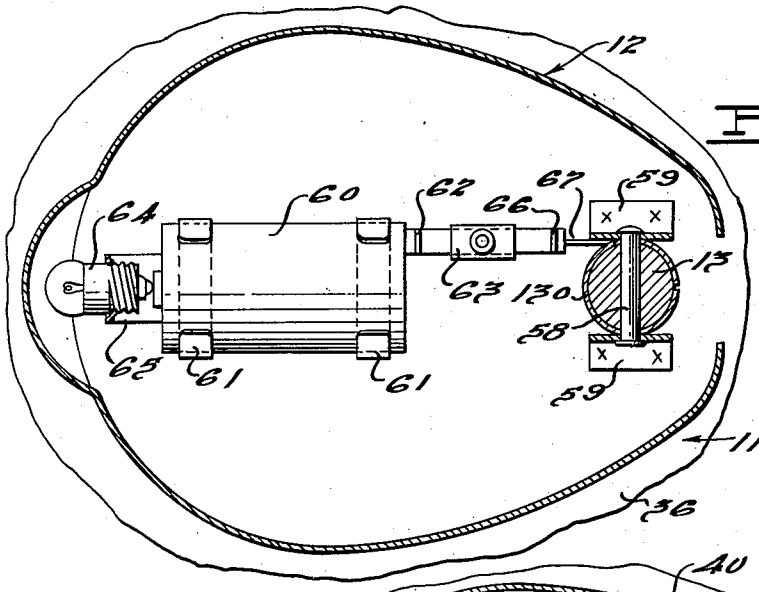

Fig. 3.

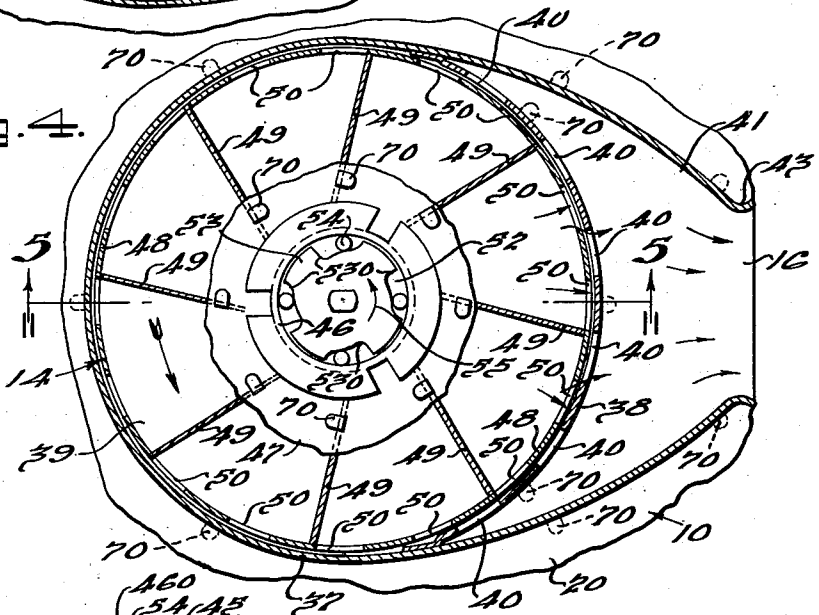

Fig. 4.

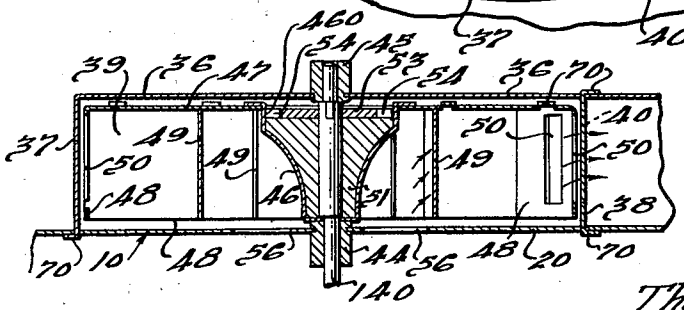

Fig. 5.

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2,248,390

TOY VACUUM SWEEPER

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Application July 5, 1940, Serial No. 343,989

4 Claims. (Cl. 46—14)

This invention relates to improvements in toys. The primary object of the invention is to provide a novel, attractive and realistic toy simulating a vacuum sweeper.

A further object of the invention is to provide a toy vacuum sweeper which, when pushed over a carpet or the like, simulates a vacuum sweeper both in noise and in dust bag inflation but without actually performing the usual vacuum cleaning operation.

Other objects of the invention will become apparent by reference to the following detail description taken in connection with the accompanying drawings, in which:

Fig. 1 is a top plan view of a toy vacuum sweeper embodying the invention, the dust bag thereof being omitted.

Fig. 2 is a side elevational view of the toy vacuum sweeper disclosed in Fig. 1 including a showing of the imitation dust bag thereof in its inflated position.

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 2 with the imitation dust bag omitted.

Fig. 4 is a horizontal sectional view showing a preferred siren construction taken on the line 4—4 of Fig. 2.

Fig. 5 is a detailed vertical sectional view taken on the line 5—5 of Fig. 4.

Referring now to the drawings wherein like numerals refer to like and corresponding parts throughout the several views, the toy vacuum sweeper embodying the invention disclosed therein comprises a base 10, intermediate siren section 11 and hood 12 all formed to simulate a vacuum cleaner of usual commercial construction when secured together, an operating handle 13 pivotally connected to the top of the intermediate siren section 11, a siren impeller 14 rotatably mounted in the intermediate siren section 11, and a reticulated bag 15 connected at its lower end over the rear air passage 16 of the siren section 11 and supported at its upper end in depending relationship from the operating handle 13 by such means as a spring 17. The base section 10 is mounted on suitable mobile means from which the siren impeller 14 is operated as hereinafter described in detail.

The base 10 is formed with a front 18, sides 19, top 20 and a bottom closure 21 extending from the front 18 to a point rearward of the depending shaft 140 of the siren impeller 14. A transverse partition 22 is provided rearward of a brush 23 located at the front end of the base 10 to prevent dust and dirt from the said brush element 23 from being drawn through the siren section 11 into the reticulated imitation dust bag 15. The brush 23 is preferably formed integral with or fixed on a transverse shaft 24 rotatably mounted in suitable bearings 25 formed in vertically disposed spaced ears 26 struck up from the bottom closure 21 at the same time the brush aperture 210 is provided as shown in Figs. 1 and 2. A pair of wheels 27 are fixed on the transverse shaft 24 near the ends thereof and serve as the mobile means for the front of the toy vacuum sweeper.

The rear of the base 10 has a pair of vertically disposed spaced ears 28 extending rearwardly from the side members 19 through which the axle 29 of the dual rear wheel 30 is mounted. The said dual rear wheel 30 is provided with spaced anti-friction treads 31 and has a belt groove 32 formed therebetween into which is disposed a flexible belt 33 employed to rotate the siren impeller 14. The depending shaft 140 of the said impeller 14 extends through a suitable aperture 2100 in the bottom closure 21 and has fixed thereon a pulley 34 around which the flexible belt 33 is stretched.

It will be observed that the pair of spaced ears 26 may be flexed to admit of mounting and removal of the brush 23 and front wheels 27 carried by the shaft 24 and that the pair of spaced ears 28 may be flexed to admit of mounting and removal of the axle 29 and the dual rear wheel 30. A folded canvas bumper 35 is preferably secured around the front 18 and forward portion of the sides 19 of the base 10.

The intermediate siren section 11 comprises a top 36 and sides 37 and is secured over the top 20 of the base 10. A semi-circular partition 38 secured within the said siren section 11 and abutting against the top 36 thereof and the top 20 of the base 10 forms, together with the forward portion of the sides 37 of the said siren section 11, an impeller chamber 39 in which the siren impeller 14 rotates. The said semi-circular partition 38 is provided with a plurality of circumferentially spaced fixed siren orifices 40 through which air from the siren impeller is forced during the rotation thereof. Air from the said siren impeller passes through the rearwardly disposed neck 41 of the siren section 11 and out the rear air passage 16 therefrom into a reticulated bag 15 which has its open end secured over the rear air passage 16 by such means as a rubber band 42 which engages the said rearwardly disposed neck 41 at the peripheral groove 43 formed therearound with the said reticulated bag 15 therebetween.

The said impeller shaft 140 is preferably shouldered at both ends and is mounted for free rotation through a lower bearing 44 and an upper bearing 45 fixed in the top 20 of the base 10 and the top 36 of the intermediate siren section 11 respectively. The siren impeller 14 has a central hub 46 which is mounted for free rotation around the said impeller shaft 140, has a circular top 47, a continuous periphery 48, and a plurality of generally radially disposed blades 49, all as best shown in Figs. 4 and 5. The said continuous periphery 48 of the siren impeller 14 has a plurality of circumferentially spaced air outlets 50 therein formed to register with the fixed siren orifices 40 in the said semi-circular partition 38 forming one side of the impeller chamber 39 as the said impeller rotates.

The central hub 46 of the siren impeller 14 has a suitable core 51 of a bearing material such as iron or brass which not only serves as a sleeve bearing for the hub 46 around the siren impeller shaft 140 but the said core 51 gives the impeller inertia to maintain itself spinning after once set in motion. The top of the said core 51 is kept down from the top of the hub 46 of the siren impeller 14 to form a clutch chamber 52 into which is positioned a clutch member 53 and a plurality of clutch rollers 54, the said clutch member 53 being keyed to the siren impeller shaft 140 and formed into cams 530 which urge the clutch rollers 54 into wedged engagement between the clutch member 53 and the inner periphery 460 of the hub 46 when the impeller shaft 140 turns the clutch member 53 in the direction indicated by the arrow 55 in Fig. 4.

Whenever the siren impeller 14 rotates at a speed faster than the impeller shaft 140, the clutch rollers are carried by the inner periphery 460 of the hub 46 out of engagement therewith and the impeller then rotates freely by its own inertia independent of the impeller shaft 140. Suitable apertures 56 in the top 20 of the base 10 located in circumferentially spaced relationship around the lower impeller shaft bearing 44 permit air to be drawn into the siren impeller 14 through the aperture 2100 in the bottom closure 21 of the base 10.

The moving forward of the toy vacuum sweeper over a carpet or the like rotates the impeller 14 through the belt drive 33 from the dual rear wheel 30 to the impeller shaft 140 and through the clutch member 53 as hereinbefore described in detail. The said impeller 14 draws air from below the sweeper and forces the said air through its air outlets 50 and through the fixed siren orifices 40 out the rear air passage 16 of the siren section 11 through the reticulated imitation dust bag 15. The siren impeller 14, its air outlets 50, and its fixed orifices 40 are so proportioned as to "pitch" the siren to simulate the noise of a full-sized vacuum sweeper. The size of the mesh of the said reticulated dust bag 15 is such as will permit air from the siren to flow relatively freely therethrough and yet cause the bag to become inflated by its resistance to air passing therethrough. Thus, in a simulation of a vacuum sweeper, the combination herein disclosed of a siren having its discharge directed through a reticulated bag produces the sound effect of a full-sized operable vacuum sweeper with the additional desirable visual effect of bag inflation.

The hood 12 is formed dome-shaped, is slotted at 57 to permit the operating handle 13 to extend therethrough, and is secured over and to the top 36 of the intermediate siren section 11. The said handle 13 is pivoted by means of a suitable fitting 130 on a horizontally disposed pivot 58 extending transversely through a pair of suitable supporting angles 59 welded or otherwise secured to the top 36 of the said intermediate siren section 11.

Within the hood 12 is preferably mounted a flash light battery 60 on suitable spring clips 61 secured to the top 36 of the intermediate siren section 11 and is urged by the forward leg 62 of a U-shaped spring contact 63 against the bottom contact of a head light bulb 64 which is threaded into a suitable bracket 65 secured to and grounded to the top 36 of the siren section 11. The said U-shaped spring contact 63 is secured in insulated relationship to the top 36 of the said siren section 11 and has its rear leg 66 positioned for contact by the contactor 67 on the lower end of the operating handle fitting 130, the said contactor 67 being grounded to the top 36 of the siren section 11 through the operating handle fitting 130, the pivot 58 and the pair of pivot supporting angles 59.

When the operating handle 13 employed for pushing the toy vacuum sweeper herein disclosed is moved from its vertical position shown in Figs. 1 and 2 to the position indicated by the dot and dash lines in Fig. 2, the head light 64 becomes lighted whereby to further simulate a commercial modern vacuum sweeper.

The various elements of the toy vacuum sweeper herein disclosed may be secured together by the usual tab and slot construction indicated by the numeral 70 throughout the drawings and some of the parts thereof may be welded or riveted together in a manner well known to those skilled in the metal working art.

The applicant has herein provided a toy vacuum sweeper which does not pick up dirt but which perfectly simulates a commercial modern vacuum cleaner in both noise of operation, visual bag inflating and, coupled therewith, the applicant has included inexpensive head light means adapted to shine when the operating handle of the toy vacuum sweeper is moved to a position in which the toy may be operated by pushing over a carpet or the like.

Although but one embodiment of the invention has been disclosed and described in detail, it is obvious that many changes may be made in size, shape, arrangement and detail of the various elements of the invention without departing from the spirit thereof, and it is not intended to limit the scope of the invention other than by the terms of the appended claims.

I claim:

1. In a toy vacuum sweeper including mobile means therefor, a siren pitched to simulate the noise of a vacuum sweeper including an impeller, an air inlet thereto and an air outlet therefrom, a reticulated bag fixed over said siren outlet, and means for rotating the impeller of the said siren operable by said mobile means responsive to pushing the toy across the floor whereby to simulate the noise of a vacuum sweeper, the said reticulated bag having suitably spaced mesh to admit of inflation thereof by air passing therethrough without unduly impeding passage of air from the said siren.

2. In a toy vacuum sweeper including mobile means therefor, a siren pitched to simulate the noise of a vacuum sweeper including an impeller, an air inlet thereto and an air outlet therefrom, a reticulated bag fixed over said siren

outlet, means for rotating the impeller of the said siren operable by said mobile means responsive to pushing the toy across the floor whereby to simulate the noise of a vacuum sweeper, and clutch means associated with said means for rotating the impeller and permitting said impeller to rotate freely when the speed of the means for rotating the same lags with respect to the rotation of the impeller.

3. In a toy vacuum sweeper including mobile means therefor, a siren pitched to simulate the noise of a vacuum sweeper including an impeller, an air inlet thereto and an air outlet therefrom, a reticulated bag fixed over said siren outlet, means for rotating the impeller of the said siren operable by said mobile means responsive to pushing the toy across the floor whereby to simulate the noise of a vacuum sweeper, and clutch means associated with said means for rotating the impeller and permitting said impeller to rotate freely when the speed of the means for rotating the same lags with respect to the rotation of the impeller, the said reticulated bag having suitably spaced mesh to admit of inflation thereof by air passing therethrough without unduly impeding passage of air from the said siren.

4. In a toy vacuum sweeper including a housing and mobile means therefor, an air inlet to said housing and an air outlet therefrom, a reticulated bag fixed over said air outlet, means operable responsive to pushing said toy vacuum sweeper across the floor for passing sufficient air through said housing and through said reticulated bag to inflate said reticulated bag, and means cooperating with said means for supplying air through said housing and reticulated bag for creating noise simulating a vacuum sweeper.

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