

Oct. 22, 1935.

B. C. BECKER

2,017,937

SUCTION CLEANER

Filed April 22, 1933

2 Sheets-Sheet 1

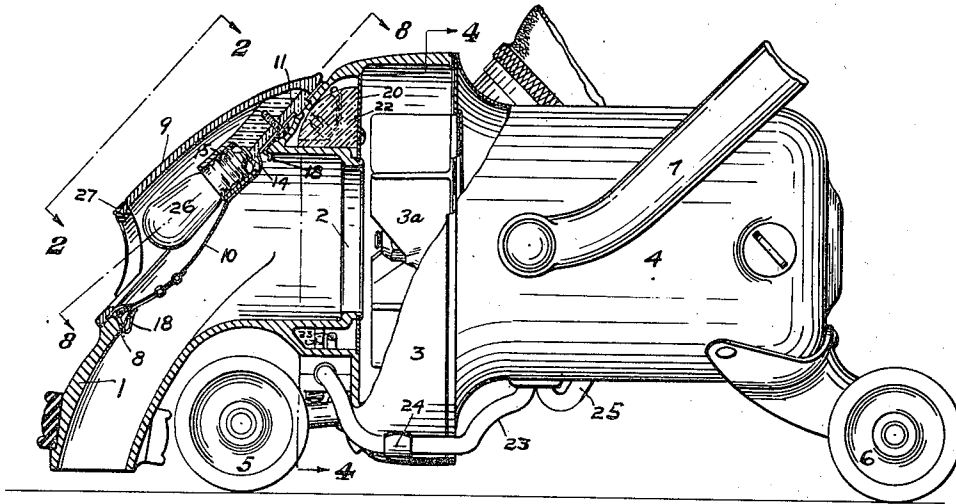


Fig. 1

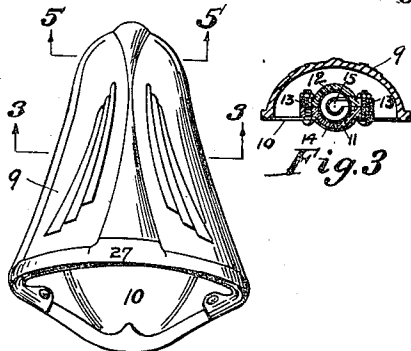


Fig. 2

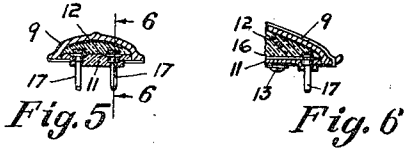


Fig. 5

Fig. 6

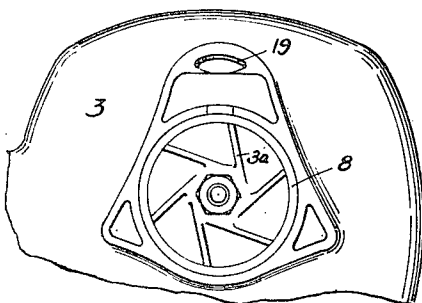


Fig. 9

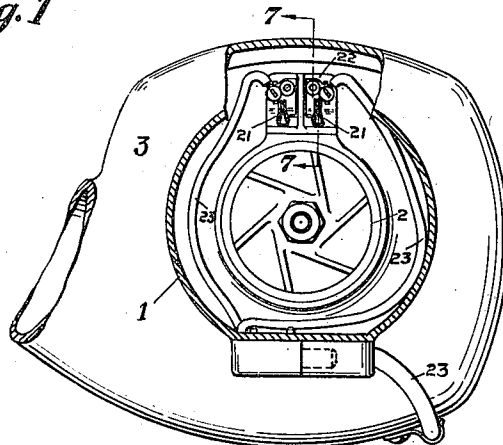


Fig. 4

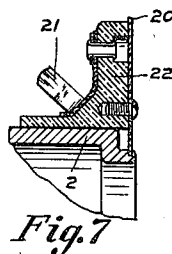


Fig. 7

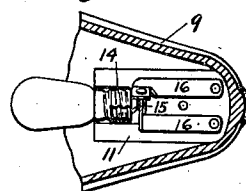


Fig. 8

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SUCTION CLEANER

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2 Sheets-Sheet 2

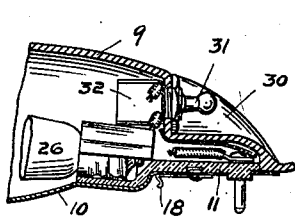


Fig. 10

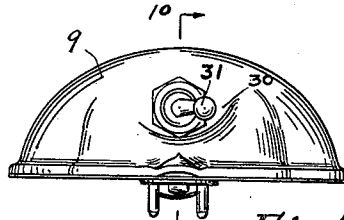


Fig. 11

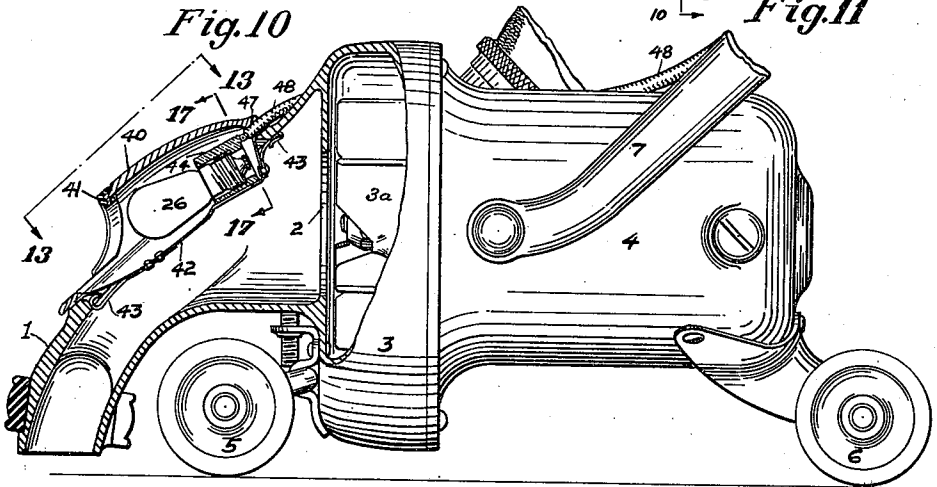


Fig. 12

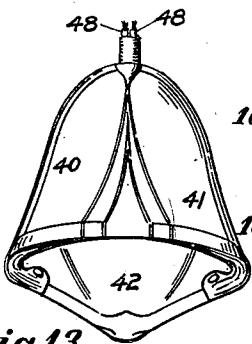


Fig. 13

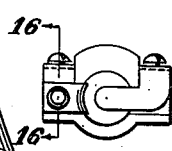


Fig. 14

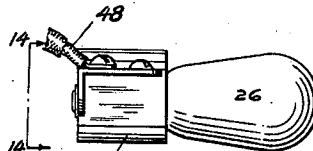


Fig. 15

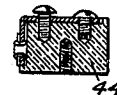


Fig. 16

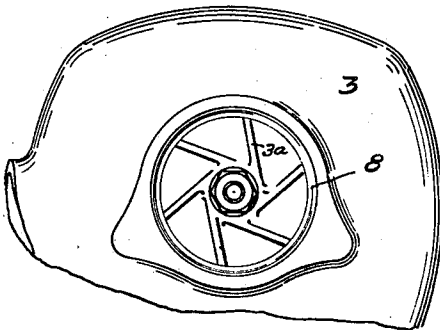


Fig. 18

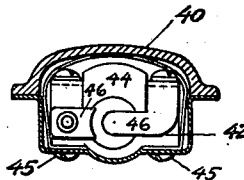


Fig. 17

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SUCTION CLEANER

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Application April 22, 1933, Serial No. 667,376

8 Claims. (Cl. 240—2)

The present invention relates to suction cleaners in general, and more particularly to floor illuminating means for suction cleaners.

It is an object of the present invention to provide a new and novel floor illuminator for a suction cleaner. A further object is the provision, in a suction cleaner, of a detachable headlight. Still another object is the provision, in a suction cleaner, of a combination headlight and converter plate which can be removed from the cleaner when it is desired to use dusting tools therewith and which can be supplied as an accessory for a suction cleaner. These and other more specific objects will appear upon reading the following specification and claims, and upon considering in connection therewith the attached drawings to which they relate.

In the drawings in which preferred embodiments of the present invention are disclosed:

Figure 1 is a side view, partially in cross section, showing the present invention embodied therein;

Figure 2 is a top view of the detachable floor illuminator looking in the direction of the arrows 2—2 of Figure 1;

Figure 3 is a section upon the line 3—3 of Figure 2;

Figure 4 is a section upon the line 4—4 of Figure 1;

Figure 5 is a section upon the line 5—5 of Figure 2;

Figure 6 is a section upon the line 6—6 of Figure 5;

Figure 7 is a section upon the line 7—7 of Figure 4;

Figure 8 is a section upon the line 8—8 of Figure 1;

Figure 9 is a partial front view of the cleaner nozzle showing the seat for the detachable lamp;

Figure 10 is a section upon the line 10—10 of the embodiment of the invention shown in Figure 11;

Figure 11 is a rear view of an embodiment of the removable headlight-cover plate which includes a switch;

Figure 12 is a side view of a suction cleaner embodying a second modification of the invention, a section being shown through the cleaner nozzle;

Figure 13 is a top view of the headlight per se, being a view in the direction of the arrows upon the line 13—13 of Figure 12;

Figure 14 is a rear view of the lamp socket being taken upon the line 14—14 of Figure 15;

Figure 15 is a side view of the headlight and

socket removed from the casing of the cleaner headlight;

Figure 16 is a section upon the line 16—16 of Figure 14;

Figure 17 is a section upon the line 17—17 of Figure 12;

Figure 18 is a partial front view of the cleaner nozzle shown in Figure 12 with the headlight removed from its seat.

Referring to the drawings, and Figures 1 to 9 10 inclusive in particular, a preferred embodiment of the present invention is disclosed embodied in a suction cleaner of a common and well known type. The cleaner includes a surface-contacting nozzle 1 interiorly connected through an inlet 2 15 to the fan chamber 3 which houses a rotating suction-creating fan 3a driven by an unshown motor within the motor casing 4. Front wheels, one of which is indicated by the reference character 5, and rear wheels, one of which is indicated by the reference character 6, provide means which support the cleaner for movement upon the surface covering undergoing cleaning. A pivoted handle 7 is provided which extends upwardly from the body of the cleaner and provides means through which the operator can exert a propelling force.

As in the usual suction cleaners of this type the front wall of nozzle 1 is provided with an opening 8 through which a dusting tool converter 30 can be inserted to seat in the fan chamber inlet 2 for the purpose of making effective the cleaner suction at a distant point in the dusting tool hose which is carried by the converter member. In the ordinary suction cleaner this converter 35 opening 8 is closed by a removable cover plate when the machine is used in on-the-floor operation. In a suction cleaner constructed in accordance with the present invention the usual cover plate is replaced by a removable headlight 40 which includes a reflector casing and light-creating means, the casing being so formed that it also performs the function of the usual cover plate. In the drawings, and in Figures 1 and 2 in particular, it is seen that the reflector casing 45 comprises an elliptical top wall, indicated by the reference character 9, and an integral bottom wall 10 of which extends across the bottom of the cup-shaped member 9 and is itself shaped so as to cooperate with the member 9 to form a 50 reflector. Members 9 and 10 may be secured together in any suitable manner. At the upper end of the reflector casing formed by members 9 and 10 contacting bodies 11 and 12 of insulating material are secured to the bottom plate 55

10 by means of screws and nuts 13, 13, as is clearly indicated in Figure 3. Spaced recesses at the forward ends of blocks 11 and 12 cooperate to form a recess adapted to receive and seat an electric light bulb, contact 14 and seat member 15 being electrically connected through conductors 16, 16 to prongs 17, 17 which extend downwardly through the body 11 at the upper end of the reflector-cover, as is clearly illustrated in Figures 1 and 5. At its upper and lower ends the bottom plate 10 is provided with springs 18, 18 which are adapted, when the headlight unit is in position on the cleaner, to extend under the front wall of the nozzle 1 and to cooperate in securing the headlight in place.

Positioned above the converter opening 8 in the front wall of the nozzle 1 is an opening 19 which connects the exterior of the machine with a dead space, a term applied to a hidden unused space in a machine, which is formed within the cleaner casing between the front wall 20 of the fan chamber and the casing wall. Contact seats 21, 21 are positioned immediately below the opening 19 and in this dead space, being carried by a divided insulating body 22 which is itself secured to the fan chamber wall 20. Leads 23, 23 extend around the inlet 2 of the fan chamber and to the bottom of the casing at which point they pass through the wall of the inlet casing, around the side of the fan chamber 3 where they are secured by a suitable spring clip 24, and on to the motor where suitable connection is made to the incoming power brought to the motor by lead 25.

In a cleaner constructed in accordance with this embodiment of the invention with an electric lamp bulb 26 seated within the seat 15 and in contact with contact 14, electric current is conveyed thereto by way of the contacts 17, 17 and 21, 21, from the current-carrying means 23. The cooperating walls 9 and 10 are so shaped that the light generated by the lamp 26 is thrown downwardly ahead of and across the nozzle 1 and illuminates that portion of the covering immediately ahead thereof so that the user of the machine can accurately determine the presence or absence of foreign matter upon the surface covering. To protect articles of furniture from contact with the front edge of the wall 9 a guard of resilient material such as rubber, indicated by the reference character 27, incloses the edge thereof as is clearly seen in Figures 1 and 2.

Referring now to Figures 10 and 11 in particular a second embodiment of the removable headlight-cover is shown quite similar to that above-described with the exception that the upper end of the wall 9 of the headlight is recessed, as at 30, to provide a protected space for the actuating lever 31 of a suitable switch 32 which is itself positioned in the headlight closely adjacent to the seat of the headlight bulb. In the present embodiment the seat for the lamp bulb 26 is carried entirely by the lower insulating body 11, the upper insulating body being eliminated. In other respects this embodiment is quite similar to that aforedescribed.

Referring now to Figures 12 to 18, inclusive, a third embodiment of the present invention is disclosed in which the headlight-cover plate is so constructed that it can be embodied in a suction cleaner not originally designed therefor. In this construction the cleaner nozzle is again indicated by the reference character 1, the fan chamber by the reference character 3, the inlet by the reference character 2, it being noted that in this em-

bodiment there is no dead space surrounding the inlet 2, there being a suction-creating fan 3a within the fan chamber as in the first embodiment. The remaining parts of the cleaner are identical with those described in connection with the first embodiment. In this construction the cover-headlight again comprises a convex top wall which is indicated by the reference character 40, and the front edge thereof is again protected by a resilient furniture guard, indicated by the reference character 41. A bottom plate 42 is also provided which covers the top plate 40 and cooperates therewith to provide the reflector unit. Plate 42 is provided with spaced securing springs 43, 43 at its upper and lower edges which are adapted to underlie the front wall of the nozzle, as in the first embodiment, to secure the light in place. In this embodiment an insulating body 44 is secured at the upper end of the reflector unit by means of screws 45, 45, being interiorly provided with a socket for the headlight bulb 26, and with contacts 46, 46 which make electrical contact through suitable connections with the incoming leads 48, 48 which enter the reflector casing through an opening 47 at the rear end thereof. As the leads 48, 48 extend rearwardly around the fan chamber and are adapted to be suitably connected to a source of electrical power exterior of the cleaner motor it is possible to attach the headlight in a machine which was not 30 originally designed therefor.

I claim:

1. In a suction cleaner, a body including a nozzle and a fan chamber, said nozzle having an opening in one of its walls to permit access to the interior thereof, a removable closure unit for said opening having spaced top and bottom walls and interiorly shaped as a reflector, said reflector being arranged on said nozzle to direct light rays downwardly against a surface covering undergoing cleaning forward of and across said nozzle, an electric light bulb, insulating means mounting said bulb relative to said reflector, and current-carrying means conveying electricity to said bulb.

2. In a suction cleaner, a body including a nozzle and a fan chamber, said nozzle having an opening in one of its walls opposite the inlet of said fan chamber to permit the insertion of a dusting tool converter into said inlet, a plate closing said opening in said nozzle, means removably securing said plate in position, a wall positioned over said plate and cooperating therewith to form a reflector having a forwardly facing opening, a lamp socket rigidly mounted on said reflector, a lamp bulb seated in said socket, and current-carrying means to convey electricity to said socket.

3. In a suction cleaner, a body including a nozzle and a fan chamber, said nozzle having an opening in its front wall opposite the inlet of said fan chamber to permit the insertion of a dusting tool converter there thru into said inlet, a removable closure for said opening, a lamp socket carried by said closure, a lamp bulb carried by said socket, a protecting wall overlying said bulb and spaced above said closure, a resilient guard member carried by said wall to protect foreign objects and to reduce shocks transmitted to said bulb, and current-carrying means connected to said socket and extending therefrom.

4. In a suction cleaner, a body including a nozzle and a fan chamber, said nozzle having an opening in one of its walls to permit access to the interior thereof, electrical contacts carried by said body below the surface thereof and close-

ly adjacent said opening, electrical conducting means connecting said contacts to a source of electricity, a headlight unit removably secured over said opening including a plate sealing same, 5 a lamp socket, a lamp in said socket, a protecting plate for said lamp, and current-carrying contacts connected to said socket removably contacting said first-mentioned contacts.

5. An accessory for a suction cleaner of the 10 type having an opening for insertion of a dusting tool converter in its nozzle, comprising a headlight unit including removable means to seal and close said opening, a lamp socket, a lamp in said 15 socket, a protector for said lamp superimposed on said closing means and extended forward and above said lamp, and current-carrying means connected to said socket and adapted to be connected to a course of electricity.

6. An accessory for a suction cleaner of the 20 type having an opening for insertion of a dusting tool converter in its nozzle comprising a headlight unit including removable means to close said opening, means to secure removably said unit in place, a lamp socket mounted on said closing 25 means, a lamp in said socket, a protecting wall on said closing means overlying said lamp, a

resilient guard on said wall, and current-carrying contacts connected to said socket and adapted to contact current-carrying means upon a suction cleaner to convey electricity to said socket.

7. In a suction cleaner, a body including a nozzle and a fan chamber, said nozzle having an 5 opening in one of its walls to permit access to the interior thereof, a headlight unit removably mounted on said nozzle and including sealing means to engage and close said opening, said unit 10 including a detachable lamp, an electrical conducting means to connect said lamp to a source of current in said cleaner.

8. In a suction cleaner, a body including a nozzle and a fan chamber, said nozzle having an 15 opening in one of its walls opposite the inlet of said fan chamber to permit the insertion of a dusting tool converter into said inlet, a headlight unit removably mounted on said nozzle and including sealing means to engage and close 20 said opening, said unit including a detachable lamp and electrical contacts, and cooperating contacts on said cleaner connected to a source of electric current and adapted to connect to said 25 contacts on said unit.

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