Dec. 28, 1954 E. B. BLANCHARD 2,697,876

HAIR REMOVAL DEVICE

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Fig 1.

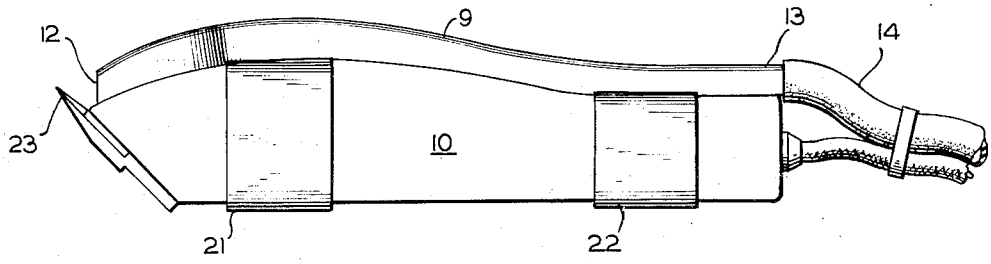


Fig 2.

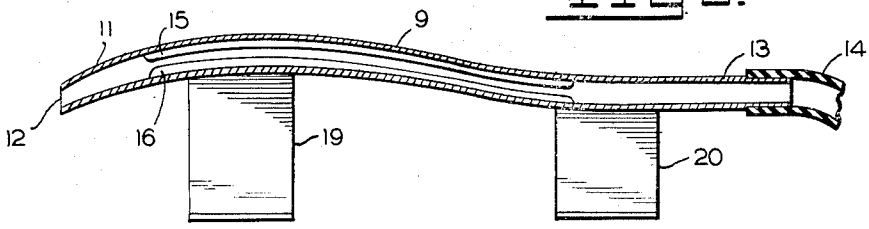


Fig 3.

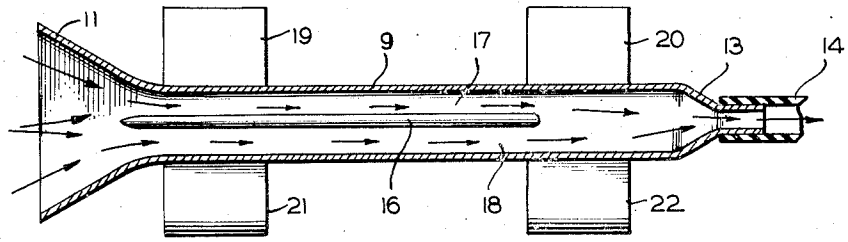
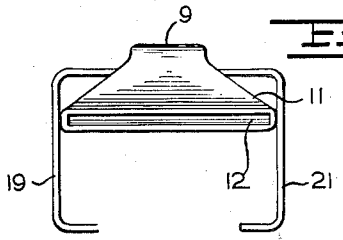


Fig 4.



INVENTOR
ELLIS B. BLANCHARD

BY Martin J. Brown

ATTORNEY

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Fig 5.

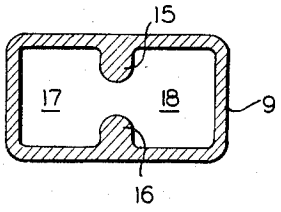


Fig 6.

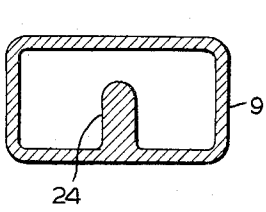


Fig 7.

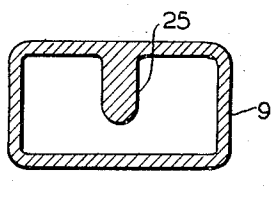


Fig 8.

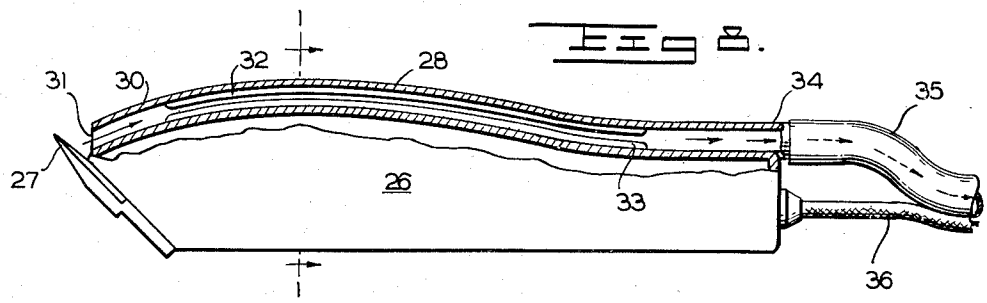


Fig 9.

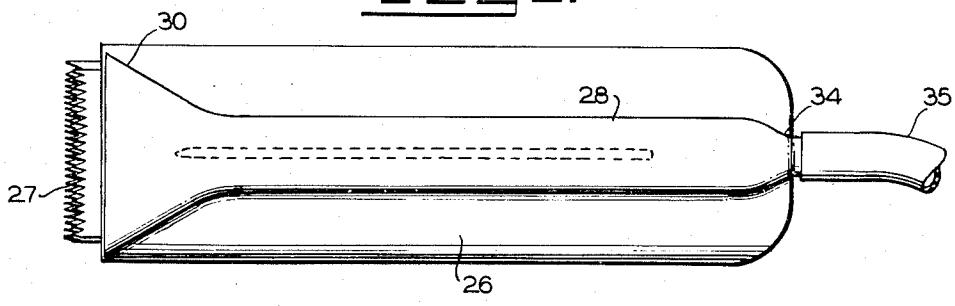
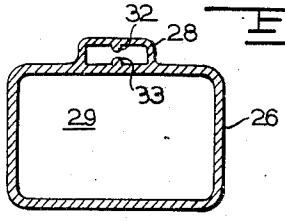


Fig 10.



INVENTOR
ELLIS B. BLANCHARD

BY Martin J. Brown

ATTORNEY

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2,697,876

HAIR REMOVAL DEVICE

Ellis B. Blanchard, Tampa, Fla.

Application September 5, 1952, Serial No. 308,115

8 Claims. (Cl. 30—133)

My invention relates to a device for removing loose or cut hair from a surface. More specifically in my invention loose or cut hair is taken from a hairy surface by means of a partial air vacuum applied to that surface. After an extended period of thorough study and experimentation, I have constructed a device which removes loose or cut hair from a surface such as a person's head, the skin of an animal, etc., in an economical, efficient and highly satisfactory manner.

In further describing my invention I shall refer to the manner in which the device may be used to remove hair cut from a human head by barber clippers; however, it should be understood that the device is also applicable to remove loose or cut hair, sometimes hereinafter referred to as free hair, from any surface at the time it is severed from that surface or at any time thereafter.

In making a device suitable for my purpose several considerations are of importance. The partial vacuum must be strong enough to remove the hair but the suction must not be so strong that it lifts the uncut hair from its reclining position on the head. It is of economical importance to produce the desired amount of vacuum with the least source of power.

Of prime consideration is the necessity of applying equal suction to all parts of the surface being subjected to the vacuum in order to remove the free hair from each portion thereof without causing too great a suction at any portion of the surface. For instance, when in removing cut hair from the head the partial vacuum is applied along the entire length of the cutting edge of the barber's clippers, it being most desirable to obtain effective hair removal over the greatest area where the hair is being severed, the vacuum must be strong enough to remove the hair but yet not too strong at any point to stand the uncut hair on its end as it is being cut. Therefore, the pull of the vacuum must be substantially equal and within the desired range at all points along the edge in order to remove the hair effectively and efficiently without disturbing the barber's impression of the contour of the hair remaining on the head. Further the device must not interrupt the barber's line of sight to the clipper's cutting edge. Additionally, the hair, as it is drawn into the suction stream, should be removed to a collecting bag without clogging the vacuum conduit.

Any device to accomplish the purposes stated should be readily adaptable to clippers now being used by barbers as well as to new models which will appear on the market in the future. In considering all desiderata mentioned above as well as others that are known to those in the art, I have constructed a device for removing hair by partial vacuum which will be described in detail in the figures of the drawings and the disclosure which follows.

Figure 1 is a side view of the preferred embodiment of my invention removably attached to barber clippers;

Figure 2 is a longitudinal cross-sectional view of the preferred embodiment of my invention taken along the center thereof;

Figure 3 is a sectioned plan view of the preferred embodiment of my invention taken along a line through the middle of the conduit **9** and mouth **11** of Figure 2;

Figure 4 is a front view of the preferred embodiment of my invention of Figure 2;

Figure 5 is a transverse cross-sectional view of the conduit **9** of the preferred embodiment of my invention of Figure 2;

Figure 6 is a cross-sectional view similar to that of Figure 5 but illustrating a second embodiment of the conduit **9**;

Figure 7 is a cross-sectional view similar to that of Figure 5 but illustrating a third embodiment of the conduit **9**;

Figure 8 is a side view partly in section of the preferred embodiment of my invention constructed as an integral unit with barber clippers;

Figure 9 is a plan view of the device of Figure 8 with the position of the ribs **32** and **33** shown by dotted lines;

Figure 10 is a cross-sectional view of the device of Figure 8 taken along the line **1—1** with the clipper power mechanism of the lower compartment **29** omitted.

Figures 1 to 5 illustrate the preferred form of my invention which is a device for effecting a partial vacuum along and directly behind the cutting edge of barber clippers to remove the hairs cut by the clippers. Like numerals of these figures designate the same parts of my device. This device comprises an elongated conduit or throat **9** curved, if necessary, to fit the contour of the clippers **10** to which the device is to be removably attached, having joined to one end thereof a laterally flared mouth **11** having at its second end an opening **12** of a length greater than the width of the conduit. The opposite end of the conduit **13** is adapted to receive a flexible vacuum tube **14**. The tube may be permanently or removably connected to the conduit and leads to a source of vacuum of conventional design but of relatively small power (not shown) and having a removable bag for collecting the hairs picked up by my device.

Disposed in the conduit and running lengthwise thereof along the middle portion of the upper and lower internal surfaces are opposed ribs or vanes **15** and **16**. These ribs begin in the flared opening at a distance from the adjacent end of the conduit of less than one-half the depth of the flare and extend along the conduit for a distance equal to at least the length of the opening **12** of the flared mouth **11**. However, it is preferred that the ribs extend along the conduit for substantially its entire length the better to equalize the vacuum along the opening **12**. The height of ribs **15** and **16** is such that taken together they extend across at least half the height of the conduit but yet they do not touch each other to prevent passages **17** and **18** of the conduit from communicating with each other. The ends of the ribs extending into the flared mouth gradually taper down to the internal surface of the mouth. It is preferred that the flared mouth be unobstructed except for these tapered ends of the ribs in order to facilitate the alignment of the incoming hairs along the length of the mouth as shown in Figure 3 by the arrows. This construction permits quick, efficient and easy removal of the maximum amount of hair while avoiding clogging of the mouth.

Along each side of the conduit **9** are legs **19**, **20**, **21**, and **22** of two clamps which fit adjustably around the barber clippers **10** to which this device may be attached during normal use. These clamps may be replaced by any other suitable means for attaching the device to the clippers. The exact location of the device upon the clippers, i. e. the distance between the clipper cutting edge **23** and the opening **12**, may be adjusted to suit the type of clippers being used to give the best performance without obstructing the barber's view. It is to be understood that the device may be used by itself to remove from the head loose hair, dandruff, or even hair cut by scissors or clippers not having my attachment.

Each element of construction of this device serves a particular function to make it satisfy the considerations necessary to a successful hair removal device noted above. For instance, the elongated conduit and flared mouth with the opening therein for gathering the hair produce the greatest amount of suction along the opening with the least vacuum power. The ribs running lengthwise along the conduit prevent a greater suction in the middle portion of the opening **12** than at its ends. This rib construction results in substantially equal suction along the entire length of the opening giving equal hair pick-up power at all points along its length. If the suction at the ends of the opening were strong enough to remove cut hair from the head without this rib construction being present, then the suction at the middle of the opening would

necessarily be so great as to lift the hair on its end as it is being cut by the clippers and thus prevent the barber from judging correctly the contour of the hair remaining on the head. Accordingly, by providing the rib construction I equalize the suction at all points of the opening **12** to give effective hair removal along the entire length of the opening without having suction at any point which is too strong to defeat the barber's efforts to give his customers well-groomed hair.

It is essential in my invention that the ribs extend into the conduit a distance from the point of jointure with the flared mouth at least the length of the opening **12** and preferably more. If the length of the rib is substantially less than the minimum designated, then the equal suction will not be produced along the length of the opening. Similarly, to be effective the ribs must occupy at least one-half the height of the conduit but yet they must not touch and divide the conduit into two separate air passages. Finally, I prefer to taper the ends of the ribs extending less than one-half the depth or length of the flared mouth into the internal surface of the mouth to help align the incoming hairs along the length of the conduit and to present a substantially unobstructed passageway.

Figures 6 and 7 represent the two modifications of the rib construction noted in the device of Figures 1 to 5. In the modifications of Figures 6 and 7 there is only a single rib in the conduit **9**. The rib **24** lies along the lower surface of the conduit in Figure 6, while the rib **25** depends from the upper surface of the conduit in Figure 7. Both of these ribs have a height greater than one-half the height of the conduit. The minimum and preferred lengths of these ribs are the same as those of the ribs in Figures 1 to 5. The modifications of the ribs of Figures 6 and 7 give substantially equal suction along the opening **12**; however, the form of the invention shown in Figures 1 to 5 gives a better suction effect and is the preferred embodiment of my invention.

In Figures 8 to 10 the hair removing device of my invention is modified to be an integral part of the hair clippers. The previous forms of my invention are designed to be removably attached to hair clippers in order that they may be applied to clippers now in use. Although these previous forms may be applied to clippers made in the future as well as those already manufactured, it may be more desirable to construct my invention so that the hair removing device forms an integral part of the clipper, for instance, as in Figures 8 to 10.

In Figures 8 to 10 electrical hair clippers **26** having a cutting edge **27** disposed at one end have an elongated conduit **28** directly behind the cutting edge and a power mechanism compartment **29** both formed by the body of the clippers **26**. The conduit has joined therewith a laterally flared mouth **30** having a longitudinal opening **31** as in Figures 1 to 4. This opening is placed a distance behind the cutting edge to give proper hair pick-up which depends upon factors such as the usual hair length cut, the type of machine, etc., Alternatively, if desired, the conduit and mouth may be slidably mounted on the hair clipper, but still remaining an integral part thereof, to facilitate the removal of different lengths of hair from the surface or cutting edge. For instance, when cutting long hairs as when clipping a dog the conduit and mouth may be moved a distance behind the cutting edges to permit the entire length of hair cut to lie in front of the opening of the laterally flared mouth and thus be more easily removed. Correspondingly, when short hairs are cut the conduit and mouth are moved closely behind the cutting edge. This adjustability may be provided in the devices of Figures 1 to 7 simply by the operator of the clippers who merely adjusts the position of legs **19**, **20**, **21** and **22** to suit his purpose.

The ribs **32** and **33** of Figures 8 to 10 are similar to ribs **15** and **16** of Figures 1 to 5, and, of course, the rib modifications of Figures 6 and 7 may be adapted to the device of Figures 8 to 10. The conduit **23** has an open end **34** having a permanently attached or removable tube **35** leading to a source of vacuum (not shown). Wires **36** lead to a source of electricity which powers the clippers.

The devices of my invention may be made of a light metal, plastic or any other suitable materials, and may be attached to or made an integral part of hair clippers powered by any means such as electricity, by hand, etc.

My invention has been constructed and used with great success. The advantages of the device herein described are many. In a barber shop it is hygienic and removes the free hair, dandruff and loose scale from the clippers or surface being cut; it prevents the hair from falling on the floor or on the customer thereby keeping both cleaner than under present tonsorial practices; it helps prevent the small bits of hair from falling down the neck and itching or otherwise irritating the skin; it helps cool the cutting teeth of the clippers; and it reduces the need of the hot bibs now used to cover the customers. Other advantages are obvious and well-known to those skilled in the art.

I claim:

1. In a device for removing free hairs from a surface comprising an elongated conduit having joined to a first end thereof a laterally flared mouth with a latitudinal opening along its larger end which is longer than the width of the conduit for receiving the free hairs, said conduit having rib construction disposed longitudinally along the middle portion of the internal surface of the conduit; said rib construction extending into said conduit from the smaller end of the flared mouth a distance at least about equal to the length of said opening with this portion of the rib construction in the conduit having a height of at least about one-half the height of the conduit but less than the total height of the conduit, one end of said rib construction extending into said mouth a distance less than about one-half the length of said mouth, and a second end of said conduit having an opening therein.

2. In a device for removing free hairs from a surface comprising an elongated conduit having joined to a first end thereof a laterally flared mouth with a latitudinal opening along its larger end which is longer than the width of the conduit for receiving the free hairs, said conduit having a rib disposed longitudinally along the middle portion of each of the upper and lower internal surfaces of the conduit, said ribs extending into said conduit from the smaller end of the flared mouth a distance at least about equal to the length of said opening with these portions of the ribs in the conduit having a combined height of at least about one-half the height of the conduit but less than the total height of the conduit, one end of said ribs extending into said mouth a distance less than about one-half the length of said mouth, and a second end of said conduit having an opening therein.

3. In a device for removing free hairs from a surface comprising an elongated conduit having joined to a first end thereof a laterally flared mouth with a latitudinal opening along its larger end which is longer than the width of the conduit for receiving the free hairs, said conduit having a rib disposed longitudinally along the middle portion of the upper internal surface of the conduit, said rib extending into said conduit from the smaller end of the flared mouth a distance at least about equal to the length of said opening with this portion of the rib in the conduit having a height of at least about one-half the height of the conduit but less than the total height of the conduit, one end of said rib extending into said mouth a distance less than about one-half the length of said mouth, and a second end of said conduit having an opening therein.

4. In a device for removing free hairs from a surface comprising an elongated conduit having joined to a first end thereof a laterally flared mouth with a latitudinal opening along its larger end which is longer than the width of the conduit for receiving the free hairs, said conduit having a rib disposed longitudinally along the middle portion of the lower internal surface of the conduit, said rib extending into said conduit from the smaller end of the flared mouth a distance at least about equal to the length of said opening with this portion of the rib in the conduit having a height of at least about one-half the height of the conduit but less than the total height of the conduit, one end of said rib extending into said mouth a distance less than about one-half the length of said mouth, and a second end of said conduit having an opening therein.

5. In a hair clipper, a cutting edge along one end, an elongated conduit for removing cut hair from adjacent the cutting edge disposed behind the edge and operatively associated therewith, said conduit having joined to the end thereof nearer the cutting edge a laterally flared mouth with a latitudinal opening along its larger end which is longer than the width of the conduit for receiving the cut hairs, said conduit having rib construction disposed longitudinally along the middle portion of the internal surface

of the conduit, said rib construction extending into said conduit from the smaller end of the flared mouth a distance of at least about equal to the length of said opening with this portion of the rib construction in the conduit having a height of at least about one-half the height of the conduit but less than the total height of the conduit, one end of said rib construction extending into said mouth a distance less than about one-half the length of said mouth, and a second end of said conduit having an opening therein.

6. In a hair clipper, a cutting edge along one end, an elongated conduit for removing cut hair from adjacent the cutting edge disposed behind the edge and operatively associated therewith, said conduit having joined to the end thereof nearer the cutting edge a laterally flared mouth with a latitudinal opening along its larger end which is longer than the width of the conduit for receiving the cut hairs, said conduit having a rib disposed longitudinally along the middle portion of each of the upper and lower internal surfaces of the conduit, said ribs extending into said conduit from the smaller end of the flared mouth a distance at least about equal to the length of said opening with these portions of the ribs in the conduit having a combined height of at least about one-half the height of the conduit but less than the total height of the conduit, one end of said ribs extending into said mouth a distance less than about one-half the length of said mouth, and a second end of said conduit having an opening therein.

7. In a hair clipper, a cutting edge along one end, an elongated conduit for removing cut hair from adjacent the cutting edge disposed behind the edge and operatively associated therewith, said conduit having joined to the end thereof nearer the cutting edge a laterally flared mouth

with a latitudinal opening along its larger end which is longer than the width of the conduit for receiving the cut hairs, said conduit having a rib disposed longitudinally along the middle portion of the upper internal surface of the conduit, said rib extending into said conduit from the smaller end of the flared mouth a distance at least about equal to the length of said opening with this portion of the rib in the conduit having a height of at least about one-half the height of the conduit but less than the total height of the conduit, one end of said rib extending into said mouth a distance less than about one-half the length of said mouth, and a second end of said conduit having an opening therein.

8. In a hair clipper, a cutting edge along one end, an elongated conduit for removing cut hair from adjacent the cutting edge disposed behind the edge and operatively associated therewith, said conduit having joined to the end thereof nearer the cutting edge a laterally flared mouth with a latitudinal opening along its larger end which is longer than the width of the conduit for receiving the cut hairs, said conduit having a rib disposed longitudinally along the middle portion of the lower internal surface of the conduit, said rib extending into said conduit from the smaller end of the flared mouth a distance at least about equal to the length of said opening with this portion of the rib in the conduit having a height of at least about one-half the height of the conduit but less than the total height of the conduit, one end of said rib extending into said mouth a distance less than about one-half the length of said mouth, and a second end of said conduit having an opening therein.

No references cited.