Jan. 2, 1934. L. SCRUGGS 1,941,583

POWER OPERATED SHAVING APPARATUS

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FIG. 1.

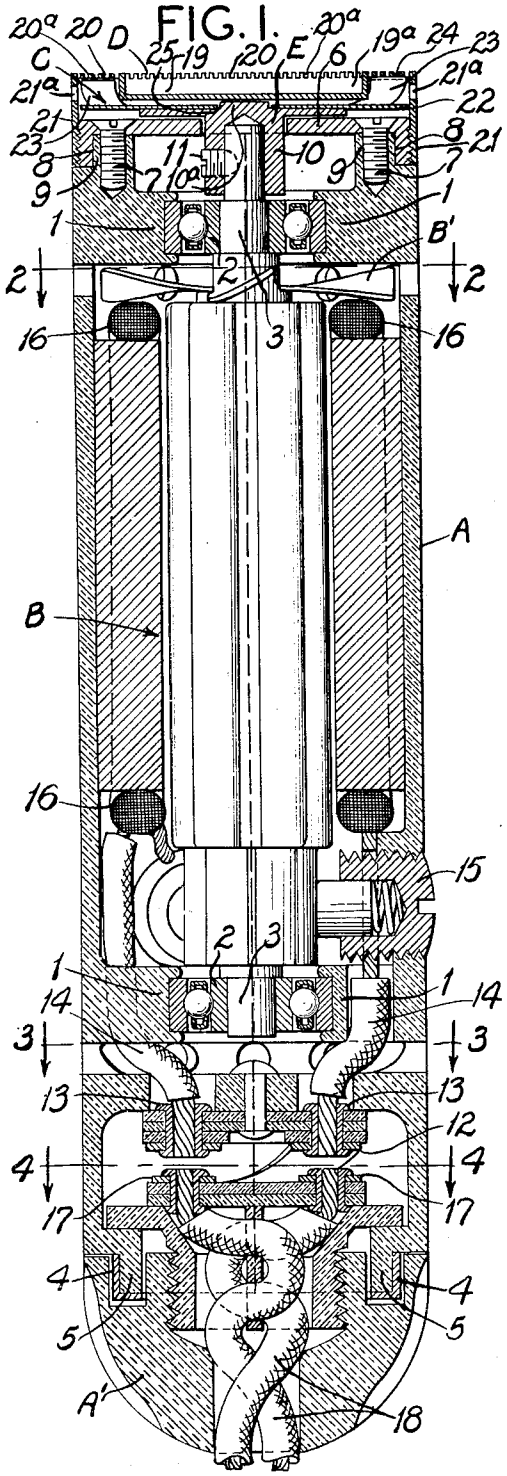


FIG. 2.

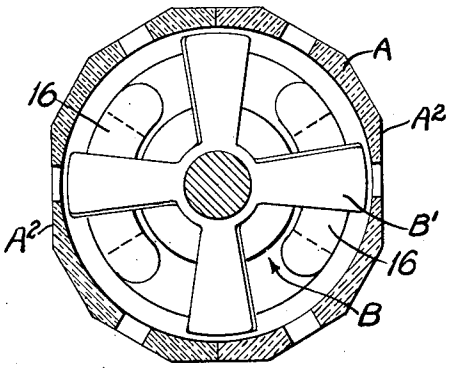


FIG. 3.

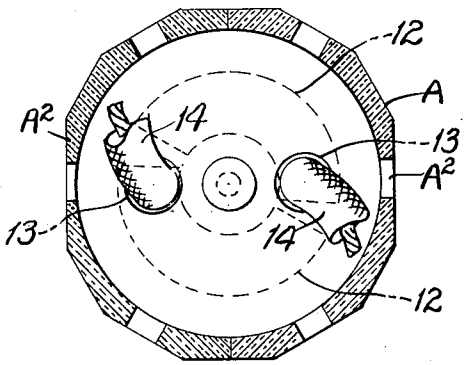
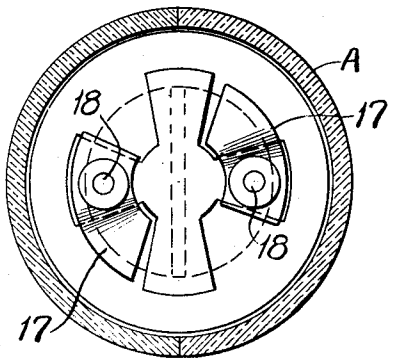


FIG. 4.



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POWER OPERATED SHAVING APPARATUS

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FIG. 5.

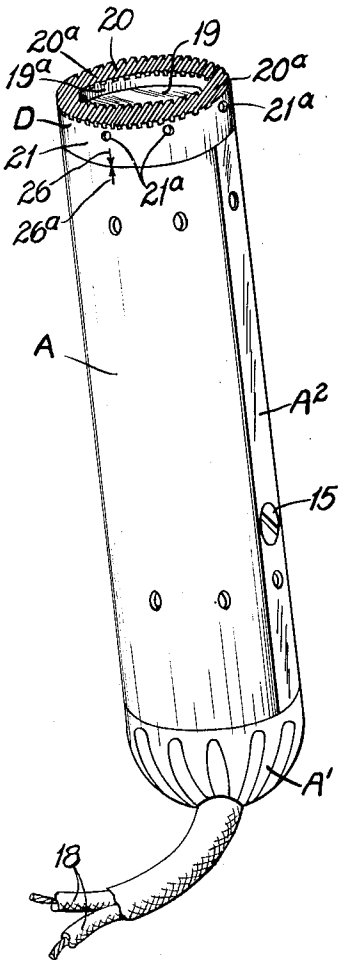


FIG. 6.

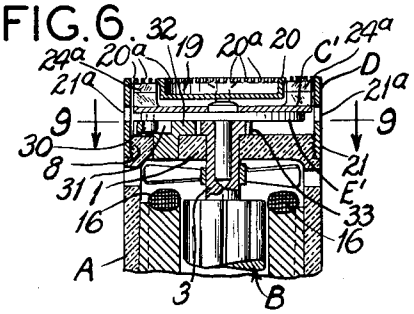


FIG. 7.

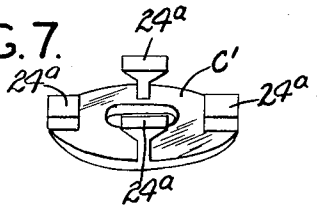


FIG. 8.

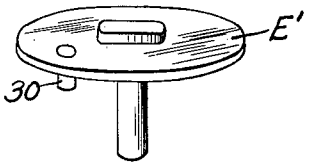
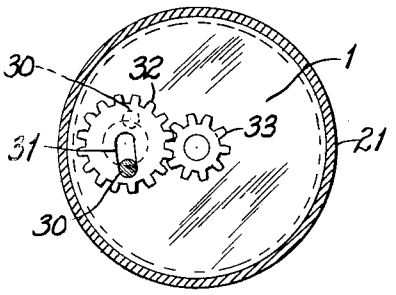


FIG. 9.



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POWER OPERATED SHAVING APPARATUS

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FIG. 10.

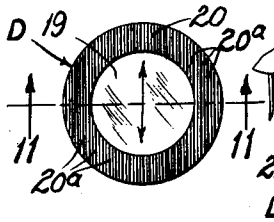
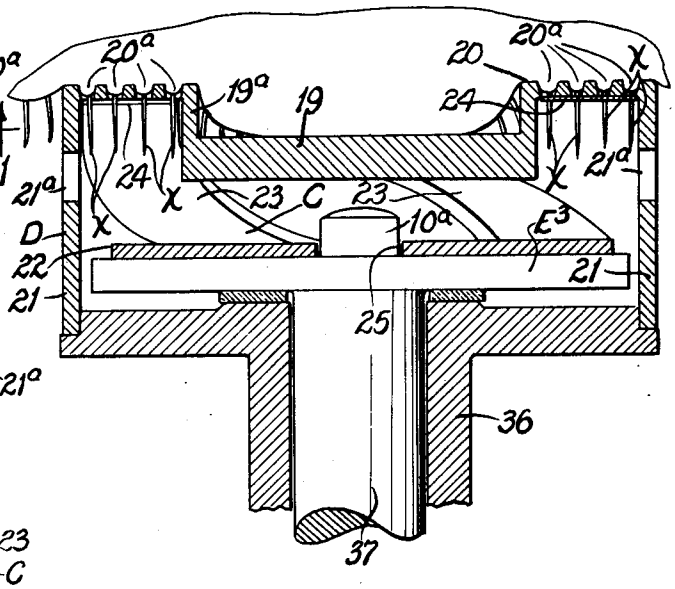


FIG. 11.



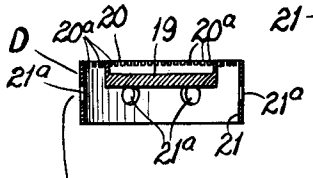
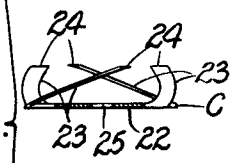


FIG. 12.



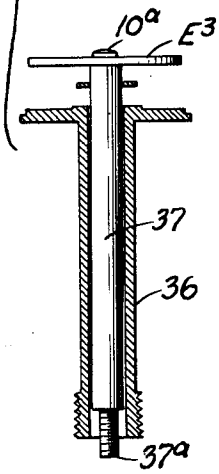


FIG. 13.

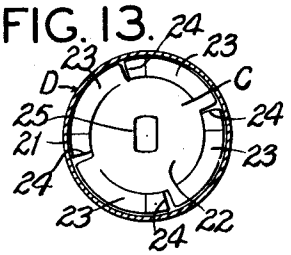


FIG. 15.

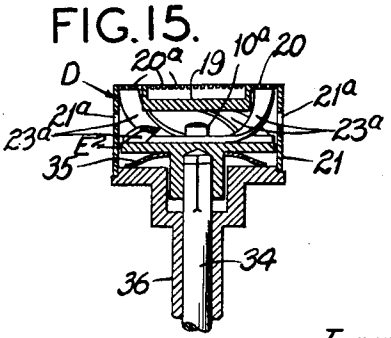
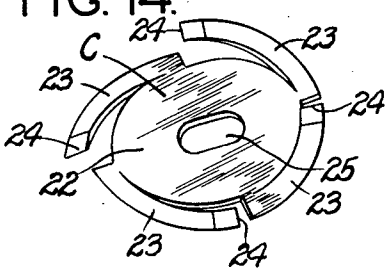


FIG. 14.



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UNITED STATES PATENT OFFICE

1,941,583

POWER OPERATED SHAVING APPARATUS

Loyd Scruggs, St. Louis, Mo.

Application May 12, 1932. Serial No. 610,855

16 Claims. (Cl. 30—12)

This invention relates to power-operated shaving apparatus, i. e., shaving machines of the kind or type that employ a movable cutter, and has for its main object to provide a practicable power-operated shaving apparatus that will successfully remove hair from the user's skin without danger of cutting the skin, and without liability of pulling the hair, in the event the shaving operation is performed without the use of lather, shaving cream or a similar preparation that is applied to the face preparatory to the shaving operation.

Another object is to provide a shaving apparatus of the general type mentioned, which is of such design that considerable skill or care on the part of the user is not required to assure successful use of the apparatus.

Another object is to provide a shaving apparatus of the general type mentioned, that can be manufactured and sold at a sufficiently low cost to bring it within the financial reach of the majority of persons who shave, and which is of such design and construction that it is not liable to get out of order when subjected to daily use.

Another object is to provide a power-operated shaving apparatus that is equipped with a removable blade or cutter which is of such design that it can be accurately honed or sharpened.

Another object of my invention is to provide a power-operated shaving apparatus, that is equipped with a multiedged cutter whose cutting action is very similar to the cutting action of the conventional manually-operated razor, and which is of such design that when the apparatus is in use the cutter acts as a suction fan to induce or create a circulation of air which is utilized to prevent the cutter and guard from becoming overheated.

And still another object of my invention is to provide a power-operated shaving apparatus, which, in addition to producing a quick, close shave, will also massage the user's skin, and by the suction action of the blade or cutter, effectively remove small particles of loose skin or dead skin.

Briefly described, my improved power-operated shaving apparatus consists of a high speed, rotatable or oscillating cutter provided with one or a plurality of relatively short cutting edges or blades, and a safety guard for said cutter provided with a channel or trough in which the blade or cutting edges on the cutter are housed, the web of said channel or trough being slotted so as to form rigid or inflexible, bar-like portions separated from each other by narrow slits or openings through which the hairs project into the path of movement of the rotatable or oscillating blade or cutting edges. The cutter is preferably provided with a plurality of cutting edges, and in the preferred form of my invention herein illustrated is constructed in such a manner that when it is in operation it will act as a high speed suction fan, to cool the cutter and guard, clean out the slots in the web of the channeled portion of the guard, and also exert a suction on the user's skin which tends to draw the hairs into the slots of the guard, hold the skin in snug engagement with the guard, and remove loose particles of dead skin from the surface being shaved. Usually, the blades or cutting edges of the cutter will be approximately one fourth of an inch or less in width or length, although I wish it to be understood that my invention is not restricted to any particular length or width of blade. In the form of my invention herein illustrated the movable cutter is provided with a plurality of relatively narrow segmental-shaped arms, bent or deformed out of the plane in which the central portion of the cutter lies, and having their terminals or free ends sharpened to produce relatively short, beveled, keen cutting edges. By providing the safety guard with a channel or trough that serves as a raceway for the cutting edges or blades of the cutter, and forming slits or slots in the web of said channel, I am able to make the slotted portion of the guard thin enough (for example .005 or .006 of an inch) to produce a "close" shave, due to the fact that the ribs or bar-like portions that lie between the slots or slits in the web of the channel will not flex or bend because they are relatively short and are integrally connected at their ends to the side wall portions of the channel or trough in which the blades or cutting edges operate.

The safety guard is of circular form in outline and is herein illustrated as being provided with a depressed central portion that is surrounded by an annular channel-shaped raceway having a slotted web that constitutes a skin contacting surface which lies in a different plane than the bottom of the depressed portion of the guard, thus in effect forming a guard, which, upon being pressed against the user's skin, will cause the part of the skin contacted by the annular slotted portion of the guard to be pressed inwardly, and the part of the skin surrounded by the slotted portion of the guard to protrude into the depressed or recessed central portion of the guard. When the guard is moved over the surface being

shaved, preferably in the direction that the slots in the guard extend, the hairs on the part of the skin surrounded by the slotted portion of the guard and the hairs on the part of the skin located in advance of the path of travel of the guard, will enter the slots in the guard, and thus be cut off by the action of the multi-edged blade or cutter which rotates or oscillates at a high speed. The depressed or recessed central portion of the guard also acts as a vacuum cup that causes the user's skin to be massaged when the guard is moved to and fro over the skin. I wish it to be understood, however, that the depressed or recessed central portion of the guard is not necessary to the successful operation of my apparatus, and can be omitted without departing from the spirit of my invention. The essential thing is that the rotatable or oscillating blade or blades of the apparatus be relatively short and housed inside of an annular or segmental shaped channel on the guard, having a slotted web provided with rigid or inflexible, spaced portions that permit the hairs to protrude into the path of the blade or blades without danger of the blades injuring the skin from which the hairs are being removed. Thus, instead of providing the guard with a depressed or recessed central portion, the said portion of the guard may extend flush with the top face of the web of the channeled portion of the guard, or the guard may consist simply of a ring-shaped member of substantially channel shape in cross section having its web slotted or slitted, as previously described.

Owing to the fact that the guard is not relied upon to co-act with the movable blade or cutter to sever the hairs, but instead, is utilized for the purpose of preventing the multi-edged blade or cutter from digging into the skin, it is possible to form the guard from various materials. The only essential characteristic or quality of the material from which the guard is formed is that it must be rigid enough to prevent the bar-like portions in the web of the channeled portion of the guard from flexing or springing when the apparatus is in use, but still be thin enough to insure the movable cutter or blade traveling in close proximity to the skin from which the hair is being removed, so as to effect a close, clean shave. It need not be tempered material, or material that is capable of receiving and holding a cutting edge, and if it were possible to do so, it would be highly practicable to provide the web portion of the channel of the guard with slots or openings having rounded edges, because the edges of the slots in said web portion are not depended upon to co-act with the blade or cutter to sever the hair. In the preferred form of my invention herein illustrated the guard is formed from a sheet metal stamping shaped so as to produce a cup-like central portion surrounded by an annular channel-shaped raceway in which the sharp-edged arms on the movable cutter travel, the top part or web of said annular raceway being slotted so as to provide openings in the guard through which the hairs protrude into the path of the cutting edges on the rotatable cutter.

Figure 1 of the drawings is a vertical longitudinal sectional view of a power-operated shaving apparatus, constructed in accordance with my invention.

Figure 2 is a horizontal sectional view, taken on the line 2—2 of Figure 1, looking in the direction indicated by the arrows.

Figure 3 is a horizontal sectional view, taken on the line 3—3 of Figure 1, looking in the direction indicated by the arrows.

Figure 4 is a horizontal sectional view, taken on the line 4—4 of Figure 1, looking in the direction indicated by the arrows.

Figure 5 is a perspective view of the apparatus illustrated in Figures 1 to 4, inclusive.

Figure 6 is a vertical longitudinal sectional view, illustrating a shaving apparatus constructed in accordance with my invention, in which the movable cutter or blade is oscillated instead of rotated, as in the form of the invention shown in Figure 1.

Figure 7 is a perspective view of the movable blade or cutter that is used in the apparatus shown in Figure 6.

Figure 8 is a perspective view of the carrier on which said movable blade or cutter is mounted.

Figure 9 is a horizontal sectional view, taken on the line 9—9 of Figure 6, looking in the direction indicated by the arrows.

Figure 10 is a top plan view of one form of guard that may be used either with the apparatus shown in Figure 1, or with the apparatus shown in Figure 6.

Figure 11 is an enlarged vertical sectional view, taken on approximately the line 11—11 of Figure 10, looking in the direction of the arrows, illustrating the action of the guard on the user's face and showing how the hairs protrude through the channeled portion of the slots in the guard.

Figure 12 is an exploded sectional view, illustrating the guard, the movable cutter or blade and the cutter carrier, of an apparatus in which the cutter carrier is rotated by a flexible shaft.

Figure 13 is a top plan view of the cutter or blade used in the apparatus illustrated in Figure 1.

Figure 14 is a perspective view of said blade or cutter, primarily for the purpose of illustrating how the arms of same act as a suction fan when the apparatus is in use; and

Figure 15 is a vertical sectional view of an apparatus embodying my invention, in which a spring is used to hold the cutting edges or blades in intimate contact with the slotted portion of the guard.

The apparatus illustrated in Figures 1 to 5, inclusive, which represents one form of my invention, comprises a handle A of substantially tubular shape, constructed in the form of a tubular shell or cylinder that serves as a housing for an electric motor, designated as an entirety by the reference character B, which is used to rotate a multi-edged blade or cutter C over which a slotted guard D is arranged. A fan B' is preferably combined with the motor, so as to induce a circulation of air through the motor housing that prevents the parts of the motor from becoming overheated. The handle, shell or motor casing A is preferably composed of a plurality of longitudinally-divided sections constructed of bakelite or any other suitable material, and said handle is provided on its interior with ribs 1 (see Figure 1) that serve as supports for friction reducing bearings 2, preferably ball bearings, whose inner raceways receive the armature shaft 3 of the motor B. The sections of said handle or housing are herein illustrated as being held together at one end by a retaining ring or ferrule 4 that is slipped over reduced extensions 5 on said sections, and held together at the opposite end by means of an end plate 6 attached by screws 7 to the handle sections and provided with an annular flange 8 that surrounds extensions 9 on

said sections, as clearly shown in Figure 1. The blade or cutter C is removably mounted on a carrier E that is arranged above the end plate 6, looking at Figure 1, and said carrier E is provided with a hub 10 that projects inwardly through a center opening in the end plate 6 and which is provided with a set screw or other suitable means 11 for attaching the carrier E to the armature shaft 3 of the motor. Obviously, the cutter C can be combined with the driving means in various ways without departing from the spirit of my invention. The guard D which will be hereinafter more fully described, is removably mounted on an externally-threaded portion of the end plate 6.

Any suitable type or kind of switch may be used to control the energizing circuit of the motor B. In the apparatus illustrated in Figure 1 a switch of the turn-button type is mounted on the outer end of the handle A, said switch comprising a rotatable actuating member A' constructed in such a way that it will encase or surround the retaining ring 4 that is mounted on one end of the sections of the handle A. The spring contacts 12 of said switch are fastened to binding posts 13 from which wires 14 lead to the brushes 15 and to the field coil 16 of the motor B, and the rotatable actuating member A' of said switch is provided with conducting elements 17 to which the positive and negative wires 18 of the energizing circuit are attached. When the actuating member A' of the switch is in one position the conducting elements 17 will bear against the spring contacts 12, and thus maintain the energizing circuit in a closed condition, and when said actuating member A' is given a fractional turn, the conducting elements 17 will move out of engagement with the contacts 12, and thus interrupt the circuit.

In using the apparatus the user grasps the handle A between his thumb and fingers and holds said handle in a position at approximately right angles to the surface from which hair is to be removed, with the guard D pressed against the skin. When arranged in such a position, the blade or cutter C will be maintained in a plane approximately parallel to the portion of the user's face that is to be shaved. The guard D, which is of circular form in outline, as shown more clearly in Figure 5, is preferably provided with a depressed or recessed central portion 19, and a slotted annular portion 20 of channel shape or trough shape in cross section, that surrounds said recessed central portion 19. At the peripheral edge of the guard is a flange 21 provided with internal screw threads which co-operate with external screw threads on the flange 8 of the end cap 6, previously referred to. The annular channeled portion 20 of the guard, has a web which lies in a different plane than the bottom of the recessed portion 19 of the guard, and said web is provided with numerous slots or open spaces 20*a* through which the hairs on the face protrude into the path of travel of the cutting edge or edges on the cutter C. Said slots or open spaces 20*a* may be arranged in various ways and may be of various sizes or dimensions, and the ribs or bar-like portions lying between the slots of the guard may be made of various thicknesses. If the web of the channeled portion of the guard is made of material of substantial thickness, the entire area of the web of the channeled portion of the guard may be slotted, but when said web is made of very thin material, such, for example, as material of .005 to .006 of an inch in thickness, it is not practicable to slot or slit the entire area of said web. In such cases the guard is provided with a segmental slotted portion or a plurality of segmental slotted portions. The guard D may be formed from a sheet metal stamping, and the recessed central portion 19 of the guard constitutes in effect a vacuum cup that causes the user's face to be massaged during the shaving operation. The ribs or bar-like portions that lie between the slots 20*a* of the guard are attached at their outer ends to the peripheral flange 21 of the guard, and are attached at their inner ends to the annular rim 19*a* of the massaging cup or recessed central portion 19 of the guard. By constructing the guard D in this manner I am able to produce a slotted guard whose slotted portion, although extremely thin, will be absolutely rigid or inflexible during the shaving operation, as the ribs or bar-like portions lying between the slots are very short and are integrally connected at their ends to two concentrically-arranged parts of the guard, i. e., the outer flange 21 and the cup rim 19*a*, which form the side walls of the raceway in which the blades or cutting edges operate.

The blade or cutter C is preferably formed from material of the kind that is commercially known as razor blade stock, and comprises a substantially disk-shaped center portion 22 (see Figures 13 and 14) that is provided with a plurality of narrow segmental-shaped arms 23 which are bent or deformed so as to lie in a different plane than said center portion 22. The terminal or free end of each of the arms 23 is provided with a sharp, beveled, keen cutting edge 24, and at the center of the substantially disk-shaped portion 22 of the blade is a non-circular-shaped opening 25 that is adapted to receive a lug 10*a* of corresponding shape, formed on the top side of the blade carrier E. Said blade is adapted to be mounted on the carrier E in such a way that the beveled cutting edges 24 of the arms 23 will bear squarely upon the inner face of the slotted annular web 20 of the channeled portion of the guard D. Accordingly, when the motor B is in operation, the cutter carrier E will revolve at a high speed and the multi-edged blade or cutter C will sever, by a shaving or shearing action, the hairs that protrude through the slots 20*a* of the guard. The blade C can be easily removed from the carrier E simply by unscrewing the guard D from the externally-screw-threaded flange 8 of the end plate 6 and then lifting the blade off of the lug 10*a* on the carrier E.

The handle A is preferably provided at two diametrically-opposed points with relatively wide, flat surfaces A^2 which the user grasps with his thumb and fingers in the operation of holding the apperatus in correct shaving position, and in order that the guard D may be easily assembled in such relationship with the handle A that the slots 20*a* of the guard will be sure to extend parallel with the two opposed finger gripping portions A^2 of the handle, co-operating designating marks 26 and 26*a* are formed on the handle and on the exterior of the flange 21 of the guard, as shown in Figure 5, so as to assist the user to properly set or position the guard when it is being combined with the handle. If the blade or cutter C is made of razor blade stock, the guard D is so constructed that when it is screwed into operative position on the end plate 6, the slotted portion 20 of said guard will exert a slight inward pressure on the arms 23

of the blade C, and thus hold the beveled terminal ends of said arms in snug engagement with the inner face of the slotted portion of the guard.

In Figure 11 of the drawings I have illustrated the action of the guard D on the user's face during the shaving operation, and by referring to said figure it will be noted that when the guard is pressed against the user's face, the hairs *x* on the face protrude through the slots 20*a* of the guard and are thus cut off by the keen cutting edges 24 of the blade which travel at a high speed in the annular raceway formed by the slotted portion of the guard. The part of the skin that is surrounded by the slotted annular portion 20 of the guard protrudes into the recessed central portion 19 of the guard, and hence, when the guard is moved over the skin, each portion of the skin over which the guard travels will be subjected to two shaving operations. In other words, during an upward stroke of the apparatus over the user's face, the hairs on the portion of the face lying in advance of the guard will be subjected to a shaving operation by the cutting edges traveling over the top half of the annular portion 20 of the guard, and as the guard continues to move upwardly, the said portion of the face from which the hair was just removed enters the recessed portion 19 of the guard, and thereafter is subjected to another shaving operation by the cutting edges of the blade that travel over the lower half of the slotted annular portion 20 of the guard. In this way a clean shave is obtained rapidly and without liability of subjecting the user to discomfiture, as the high speed of the blade C, coupled with the fact that the cutting edges 24 of the blade are beveled and very sharp, causes the hairs to be cut clean without subjecting the hairs to a pull, as is apt to occur in a power-operated shaving machine of the kind in which the cutting of the hairs is effected by the conjoint action of a movable cutter and a stationary cutter.

Owing to the fact that the blade C is provided with a plurality of segmental arms 23 that are bent sufficiently to cause the cutting edges on the terminals of said arms to lie in a different plane than the central disk-shaped portion 22 of the blade, the arms 23 function similar to the blades of a suction fan when the apparatus is in use, and create or induce a circulation of air which is used to prevent the guard D and the blade C from becoming overheated or clogged with hair or loose particles of skin, and to effect the removal of small particles of loose or dead skin on the surface being shaved. As shown in Figures 1 and 5, the annular flange 21 of the guard D is provided with numerous holes 21*a*, and when the carrier E is rotating at a high speed, the arms 23 of the blade C create a rapid circulation of air through the annular raceway in the guard through which said arms travel, said circulating air absorbing heat from the cutter C and from the slotted portion of the guard on which the terminal ends of the arms 23 bear. The centrifugal action produced by the rotatable blade C, coupled with the rapid flow of air set in motion by the arms 23 of the blade, tends to cause the short pieces of hair severed by the blade to be discharged from the interior of the guard D through the outlet openings 21*a* in same. The suction fan-like action of the high speed rotating blade C also creates a suction which is exerted on the user's skin, with the result that the hairs on the surface being shaved, over which the guard travels, are drawn inwardly through the slots in the guard, the skin is held in intimate contact with the outer surface of the guard, and in fact, drawn slightly into slots of the guard, and any small particles of dead skin are drawn into the annular raceway of the guard and then discharged through the discharge openings 21*a* of the same. The most successful dry shaving is accomplished when the hairs and skin are perfectly dry. The drier the skin and hairs, the more satisfactory is the shaving effect. The suction fan action of the cutter of my apparatus effectively draws the moisture and perspiration from the face and hairs, putting the skin in perfect condition for effecting a perfect shave. This is an important advantage, particularly when the skin is perspiring.

My apparatus has many features and characteristics that distinguish it from and make it an improvement upon prior power-operated shaving machines. One characteristic of my apparatus which makes it more efficient, easier to use and less expensive to construct, is that it does not require and is not dependent for its success on the use of a stationary cutter or other stationary part provided with a sharp edge or edges that coact with a movable cutting edge or plurality of movable cutting edges to sever the hairs in the shaving operation. My improved apparatus is preferably provided with a single movable blade or cutter (either a single edged or multi-edged blade), and the shearing of the hairs is effected in practically the same manner as the cutting operation of a sickle, a scythe, or a conventional hand-operated razor, i. e., by the movement of a sharp, beveled, keen edged blade that is maintained in a plane substantially parallel to the surface being shaved, and which, upon coming in contact with a hair, shears the hair, due to the momentum of the blade and to the sharp, beveled, keen cutting edge with which it is provided. Another distinguishing characteristic of my improved apparatus is that the rotating cutter acts as a suction fan to keep the blade and guard cool; to prevent the slots in the guard from clogging with hair or particles of dead skin; to hold the skin in intimate contact with the guard, and to cause small particles of loose skin or dead skin to be removed. Still another desirable characteristic of my apparatus is, that it is equipped with a removable blade that can be manufactured and sold at a very low cost, and which is of such design that the cutting edges of same can be sharpened quickly and easily by arranging the cutter in engagement with a hone with the beveled edges 24 of the arms 23 in contact with the hone.

While I prefer to equip the apparatus with a rotatable multi-edged cutter or blade, as previously explained, it is practicable to use an oscillating blade or cutter. Accordingly, in Figures 6 to 9 of the drawings I have illustrated a power-operated shaving apparatus embodying my invention, that comprises elements or parts similar to those used in the apparatus previously described, with the exception that an oscillating blade carrier E′ is employed, and said carrier is provided with a blade C′ composed of a disk-shaped portion provided with a plurality of double-edged cutting devices 24*a* which oscillate back and forth and shear the hairs that protrude through the slots in the slotted annular portion of the guard D that is arranged over the blade. The carrier E is provided on its under side with an eccentrically-disposed pin 30 which projects

into an elongated slot 31 formed in a gear 32, which meshes with a pinion or gear 33 that is attached to the armature shaft 3 of an electric motor housed in the handle of the apparatus, as shown in Figure 6. When the driving means is in operation, the gear 32 rotates, and thus imparts an oscillatory movement to the carrier E', with the result that the double-edged cutting devices 24a on the blade C' oscillate back and forth and shear the hairs that protrude through the slots of the guard D when said guard is moved over the user's skin.

As previously stated, I prefer to form the multi-edged blade or cutter of the apparatus from razor blade stock, and construct said blade so that it comprises a disk-shaped member 22 provided with a plurality of segmental-shaped arms 23 deformed in such a way that the terminal ends of same will lie in a different plane than the disk-shaped central portion 22. When a blade or cutter of the design referred to is constructed from razor blade stock, the arms 23 of same will have sufficient inherent resiliency to insure the cutting edges 24 at the terminal ends of same lying in close contact with the inner face of the slotted portion of the guard D, in order to shear the hair practically flush with the surface of the skin. It is not essential, however, that the blade be provided with resilient arms, as the same effect can be obtained by providing the blade with rigid or substantially rigid segmental-shaped arms sharpened at their terminal ends, and mounting said blade on a carrier that is acted upon by a spring which exerts a thrust on the carrier in a direction tending to hold the beveled cutting edges on the ends of said arms in intimate contact with the inner surface of the slotted portion of the guard.

In Figure 15 of the drawings I have illustrated an apparatus constructed in this manner, in which the cutter or blade comprises a substantially disk-shaped central part provided with segmental shaped arms 23a provided at their terminal ends with sharp, beveled cutting edges, and said blade is mounted on a carrier E^2, which is combined with an operating shaft 34 in such a way that the carrier will rotate with said shaft, but still will be capable of a slight longitudinal movement relatively to the shaft. Said carrier E^2 is acted upon by a spring 35 which constantly exerts a thrust on the carrier, tending to move it lengthwise of its operating shaft 34, and thus cause the cutting edges at the terminal ends of the rigid arms 23a to be held against the inner surface of the slotted web 20 of the channeled portion of the guard D that houses the blades or cutting edges of the cutter.

So far as my broad idea is concerned, it is immaterial what type or kind of means is used to actuate the blade or cutter of the apparatus. An actuating means consisting of an electric motor housed in the handle of the apparatus is preferably employed as previously described, but, if desired, a flexible shaft may be used to rotate or oscillate the cutter or blade of the apparatus. Accordingly, in Figures 11 and 12 of the drawings, I have illustrated an apparatus constructed in accordance with my invention, which comprises a handle piece 36 that serves as a bearing for an operating shaft 37, which is intended to be connected with a flexible drive shaft, not shown, by means of a threaded or other suitable type of connection 37a on the shaft 37. The shaft 37 is provided at one end with a carrier E^3 on which a multi-edged cutter or blade C of the kind previously described is adapted to be removably mounted, said blade being protected by a removable guard D of the kind previously described, that comprises a slotted annular portion 20 which surrounds a recessed central portion or vacuum cup 19. While I have herein illustrated the cutter as being removably mounted on a carrier which, in turn, is connected with the driving means, I wish it to be understood that it is immaterial, so far as my broad idea is concerned, how the cutter is combined with the means that rotates or oscillates said cutter.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A shaving apparatus, comprising a guard that is adapted to be pressed against the surface being shaved, said guard comprising a central recessed portion and an annular slotted portion that surrounds said central portion, and a power-operated blade or cutter provided with sharp, beveled cutting edges that travel over the slotted portion of the guard.

2. A shaving apparatus, comprising a handle adapted to be held in a position at substantially right angles to the surface being shaved, a guard at the inner end of said handle provided with a substantially annular-shaped, slotted, channeled portion having a slotted web and a rotatable cutter provided with keen cutting edges that travel in said channel portion over the slotted web of same.

3. A shaving apparatus, comprising a handle adapted to be held in a position at substantially right angles to the surface being shaved, a guard at the inner end of said handle provided with a substantially annular-shaped, slotted portion, and a rotatable blade or cutter provided with keen cutting edges that travel over the slotted portion of the guard, said guard also comprising an imperforate central portion whose bottom lies in a different plane from that in which the slotted annular portion of the guard lies.

4. A shaving apparatus, comprising a handle provided at its inner end with a perforated part that is adapted to be pressed against the surface being shaved, said part having an annular-shaped channel or trough, and a rotatable cutter provided with blades or cutting edges housed by said channel and constructed so that when it is in operation the cutter will induce a circulation of air through said perforated part.

5. A shaving apparatus, comprising a handle of approximately tubular form, an electric motor housed in said handle, a safety guard at the inner end of said handle adapted to be pressed against the surface being shaved, said guard having a substantially annular-shaped channel whose top web is slotted, and a rotatable cutter actuated by said motor and provided with relatively narrow arms positioned in said trough and provided with cutting edges that contact with the inner side of the web of said channel.

6. A shaving apparatus provided with a handle constructed in the form of a sectional shell, an electric motor arranged inside of said shell, friction-reducing bearings for the armature shaft of said motor carried by said shell, a removable guard at the inner end of said handle provided with a slotted annular portion and a depressed imperforate central portion, a carrier attached to the armature shaft of said motor, and a removable blade or cutter on said carrier provided with sharp-edged arms that travel over the slotted portion of the guard.

7. A blade for a shaving apparatus, comprising a substantially disk-shaped central portion, and a plurality of narrow segmental-shaped arms on said central portion having their terminals or free ends sharpened to form keen cutting edges of approximately one quarter inch or less in length, said arms being deformed so as to lie in a different plane than the plane in which said central portion lies.

8. A shaving apparatus provided with a power-operated cutter having a short blade or cutting edge that moves in an arc and shears the hairs which it encounters, and a safety guard provided with a channel or trough that houses said blade, the web of said channel being slotted so as to form rigid, spaced portions between which the hairs protrude into the path of the blade.

9. A shaving apparatus provided with a power-operated cutter having a plurality of short blades or cutting edges that move in an arc in a plane substantially parallel to the surface being shaved, and a removable guard positioned between said cutter and the surface being shaved and provided with a rigid, slotted, channeled portion that serves as a raceway for said blades or cutting edges.

10. A shaving apparatus provided with a power-operated, rotatable or oscillating cutter having a plurality of arms equipped with razor-like cutting edges and disposed so as to function similarly to a suction fan when the cutter is in operation, and a safety guard for said cutter having a channel or trough that receives said arms, the web of said channel being slotted so as to form spaced, bar-like, rigid portions between which the hairs extend into the path of said cutting edges.

11. A shaving apparatus provided with a power-operated cutter having a short blade or cutting edge that moves in an arc, a safety guard provided with a slotted, channeled portion that houses said blade, and a vacuum cup on said guard.

12. A shaving apparatus provided with a power-operated cutter having a plurality of short blades or cutting edges that move in an arc, a safety guard provided with a slotted, channeled portion that houses said blades, and a means on said guard that tends to produce a massaging effect during the shaving operation.

13. A shaving apparatus provided with a power-operated, rotatable or oscillating cutter having a central portion equipped with a relatively narrow arm deformed so as to lie in a different plane than said central portion, said arm having a relatively short cutting edge, and a safety guard provided with an arc-shaped channel or trough that houses said arm, the web of said channel being slitted so as to permit the hairs to protrude through said guard into the path of said cutting edge.

14. A shaving apparatus, comprising a guard adapted to be pressed against the surface being shaved and maintained in a plane substantially parallel to said surface, the skin contacting portion of said guard being of substantially annular form in outline and provided with slots, a power-operated cutter provided with a short cutting blade that moves in an arc and shears the hairs that protrude through the slots in said guard, and a channel or trough on said guard which houses said blade.

15. A shaving apparatus, comprising a guard that is adapted to be pressed against the surface being shaved, said guard having an arc-shaped raceway provided with a rigid web that is slitted so as to produce openings through which the hairs on the skin protrude into the raceway, and a power-operated cutter having arms positioned in said raceway and provided with cutting edges that act on the inner side of the slitted web of the raceway.

16. A shaving apparatus, comprising a guard that is adapted to be pressed against the surface being shaved, said guard having an arc-shaped raceway provided with a rigid web that is slitted so as to produce openings through which the hairs on the skin protrude into the raceway, a power-operated cutter having arms positioned in said raceway and provided with cutting edges that act on the inner side of the slitted web of the raceway, and a spring that exerts pressure on said cutter in a direction tending to hold the cutting edges of same in engagement with said slitted web.

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