

March 13, 1945.

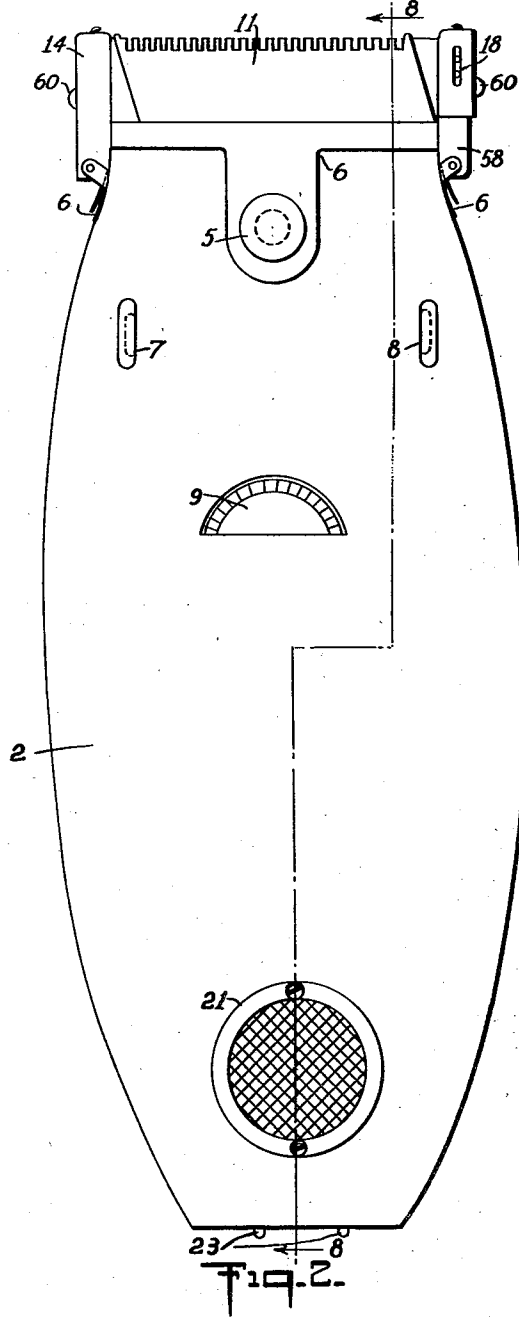
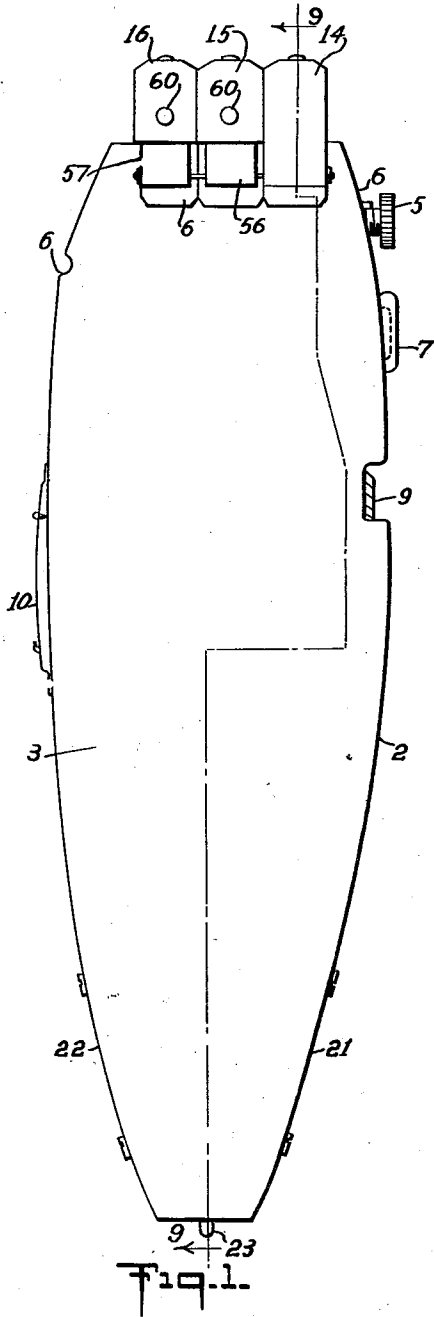
H. H. McGUFFIN

2,371,535

SAFETY RAZOR OF THE DRY SHAVER TYPE

Filed Feb. 25, 1943

3 Sheets-Sheet 1



INVENTOR

Harry Houston McGuffin

March 13, 1945.

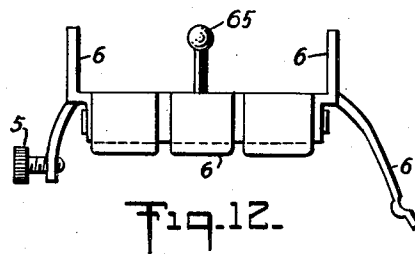
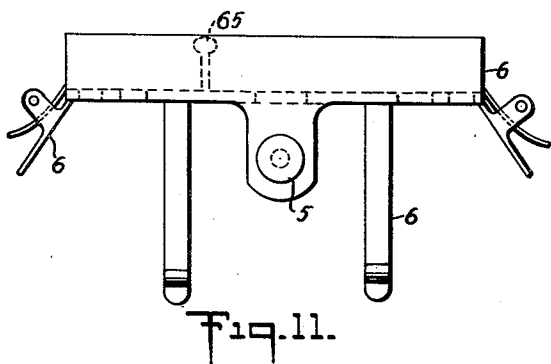
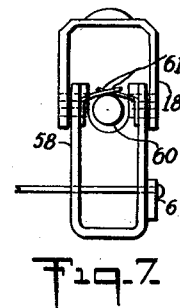
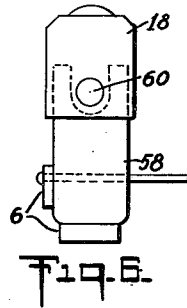
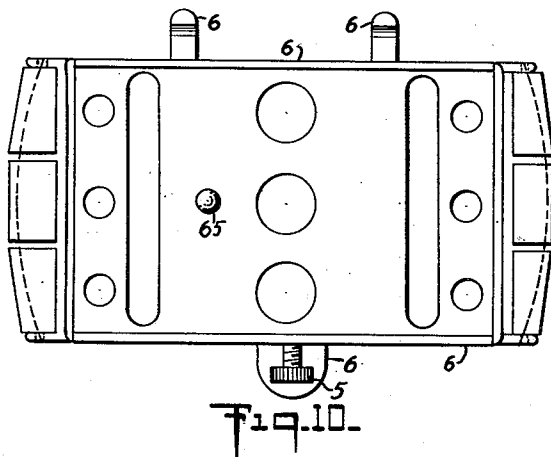
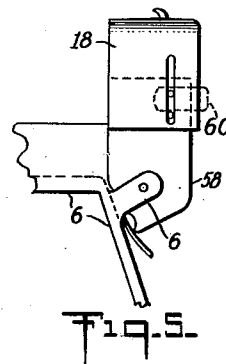
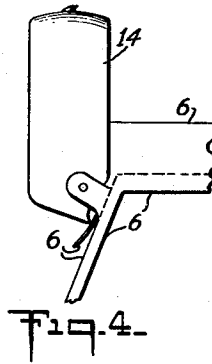
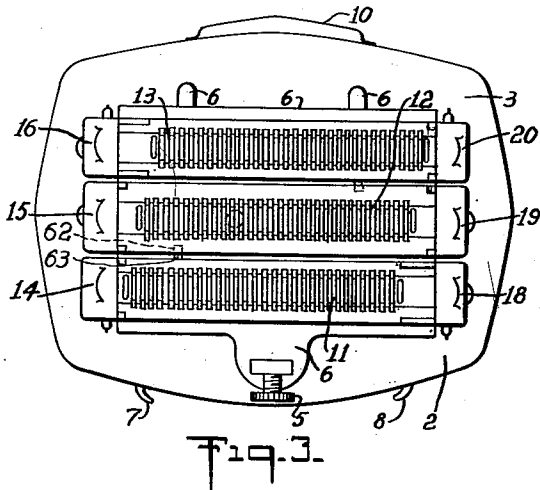
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SAFETY RAZOR OF THE DRY SHAVER TYPE

Filed Feb. 25, 1943

3 Sheets-Sheet 2



INVENTOR

Harry Houston Mc Guffin

March 13, 1945.

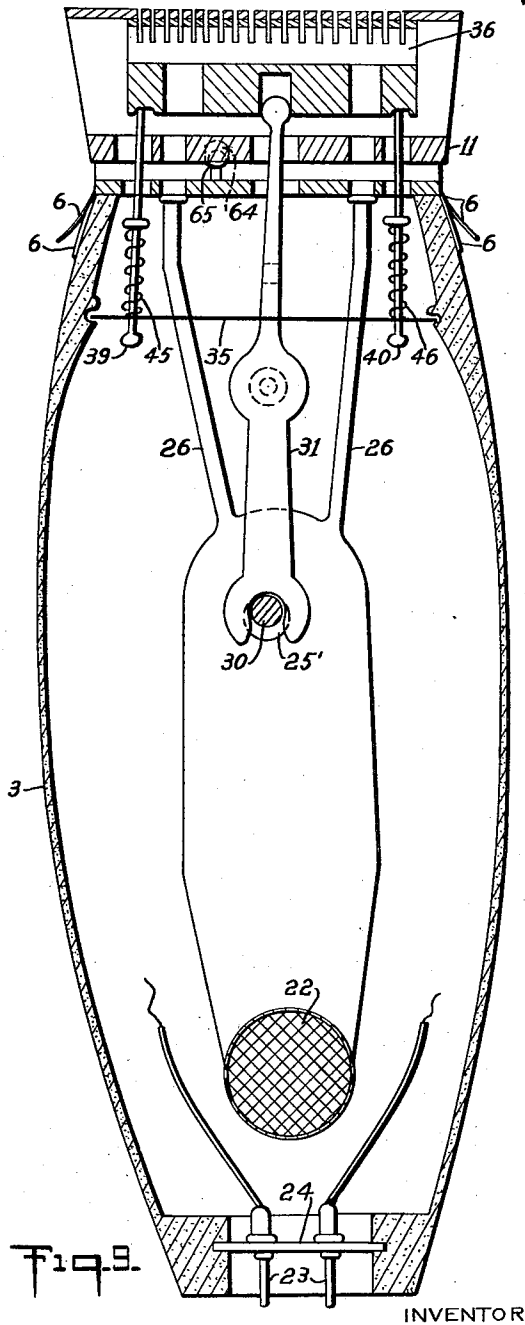
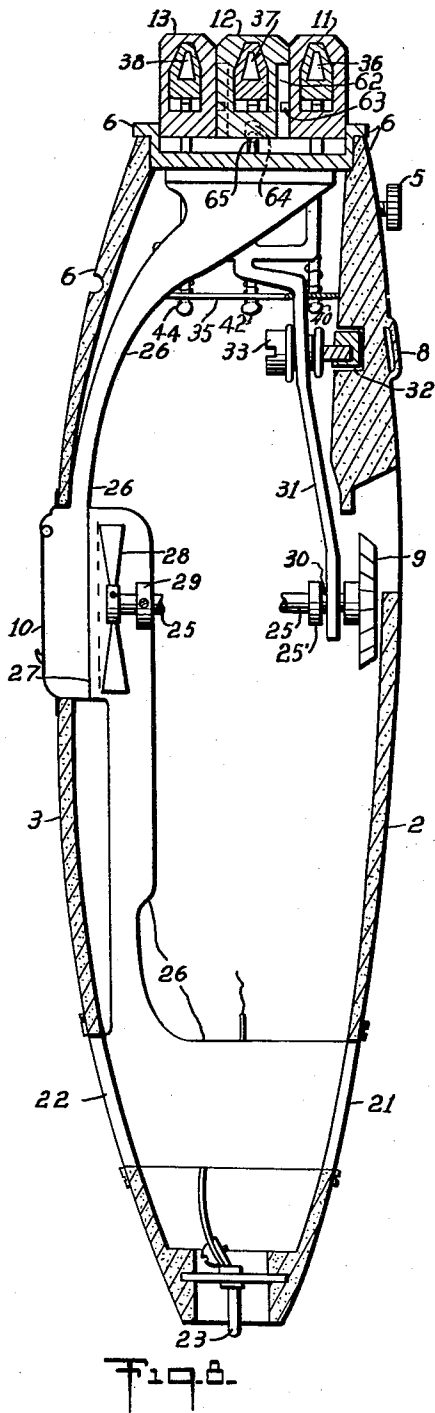
H. H. McGUFFIN

2,371,535

SAFETY RAZOR OF THE DRY SHAVER TYPE

Filed Feb. 25, 1943

3 Sheets-Sheet 3



Harry Houston McGuffin

UNITED STATES PATENT OFFICE

2,371,535

SAFETY RAZOR OF THE DRY SHAVER TYPE

Harry Houston McGuffin, Dorset, Vt.

Application February 25, 1943, Serial No. 477,041

14 Claims. (Cl. 30—43)

This invention relates to changes for the better in safety razors and more particularly to vitally necessary changes in shaving or clipping equipments of the dry shaver type which require no preparation with water, soap or other material, of the skin from which whiskers are to be cut off and thus eliminated from the surface of the skin.

One object of this invention is to make available a safety razor of the dry shaver type which is a motor operated, hand manipulated portable device very similar in appearance to the usual type of dry shaver, but very different in actual results and operation. This device may preferably comprise three or more shearers heads different from all other types, which change position automatically due to the change in plane of the skin surface and to the slight pressure necessary in the hand manipulation of the dry shaver. Practically any cross section of the face presents a convex curve to the dry shaver and this dry shaver presents as near as possible a concave edge, that is from end to end of the cutting edge of the dry shaver or a concave arc touching the convex face which heretofore has not been done. This so-called concave edge is automatically changed to fit the skin surface at any time during the stroke of the dry shaver. The shearers are operated by the motor through a single connecting rod and will not cause much disturbance by vibration because of a feature which will be mentioned in a later paragraph.

Another object of this invention is to make available an effective cleaning device or equipment which is constantly working as long as the dry shaver is in use and constantly provides a gentle suction at the shearers heads to pull the face skin closer to the outside shearer members and the whiskers down into the slots of the shearer members to insure a better shearing action. The reciprocating inside shearers being constantly cleaned will not cause much disturbance due to vibration. The constant flow of air through the shearers heads will keep them cool from heat caused by the high friction of the inside reciprocating shearer members. The flow of air will keep the shearers retainers or holders clean. The flow of air will also come into the handle by the motor starting wheel and carry cut whiskers out of it and up into the inlets into the cut whisker pocket. The flow of air will keep the motor and whole interior of the handle cool. The motor should be of the oilless bearing type. The suction fan is operated by the shaver motor, and is on the motor armature shaft.

Other objects, features and advantages will appear upon consideration of the following detailed description and of the drawings in which:

Fig. 1 is a left side elevation of a dry shaver of the present invention in an upright position with the cutting devices at the top;

Fig. 2 is a front elevation of the dry shaver of Fig. 1;

Fig. 3 is a top plan view;

Fig. 4 is a side elevation of a retaining holder for an end of a shear unit at the left front or right rear of Fig. 3;

Fig. 5 is a side elevation of a retaining holder for any of the other ends of the shear units;

Fig. 6 is a front elevation of the retaining holder of Fig. 5;

Fig. 7 is a rear elevation of the retaining holder of Fig. 5;

Fig. 8 is a central longitudinal section of the dry shaver taken on the line 8—8 of Fig. 2;

Fig. 9 is a central longitudinal section of the dry shaver taken on the line 9—9 of Fig. 1;

Fig. 10 is a top plan view of the base holder or channel for all of the shearers units;

Fig. 11 is a front elevation of the structure of Fig. 10; and

Fig. 12 is an end elevation of the structure of Fig. 11.

2 is the front part of the plastic dry shaver case, that is the part on which the starting wheel of A. C.—D. C. motor shows on the outside of the case. 3 is the back part of plastic dry shaver case. 5 is a fillister headed screw for attaching member 6 to the plastic dry shaver case. 6 is a channel holder for the three metal shaver members 11, 12 and 13 as well as associated members. 9 is the starting wheel of the A. C.—D. C. motor for starting if it is necessary. The motor should be so designed that the starting wheel when turned to the left will start the motor. The starting wheel will be on the front of the dry shaver. 10 is a tight fitting snap spring round cover which closes the cut whisker pocket and makes it practically so that no air can come in by the edges of the pocket cover when it is closed. Members 11, 12 and 13 are outside shear members (members 11 and 13 are identical in size and shape) which go with the inside shear members 36, 37 and 38 respectively. 14 is a snap spring holder with no internal springs. This holds the non-level changing end of member 11. Devices 15, 16, 18 and 19 are snap spring holders, with internal springs, which retain members 11, 12 and 13 at the proper shaving level to which they are at the moment depressed. Holder 20 is the

same as holder 14 except that it holds the non-level changing end of member 13. 21 is a round wire mesh to cover the outlet of member 26 to allow the flow of air to go outside of the dry shaver case. 22 is a mesh similar to 21.

23 are terminal prongs for electric circuit to the motor. 24 are mountings for the terminal prongs for electric circuit. 25 are the ends of the motor armature shaft which are important in showing the operation of certain members of this dry shaver. 26 is the interior copper casing or the envelope which is used to carry the air stream necessary for this type of dry shaver. 27 is a high grade filter which will pass the flow of air readily but will not pass any solid matter such as whisker clippings. 28 is a fan with one or more blades as required to make a suction under the shear device and a flow of air through all of device 26 the outlet of which is through members 21 and 22. 29 is a collar on shaft 25 and inside envelope 26 which prevents an exhaust of air into the interior of the plastic dry shaver case. 30 is the eccentric part or crank of the shaft 25 between the starting wheel and a collar 25, a pivoted lever 31 has a forked lower end straddling the eccentric or crank 30 and at its upper end has three or more branches or tines, one each for operating the three or more shear members 36, 37 and 38 (members 36, 37 and 38 are identical as to shape and size). 32 is a drilled and tapped metal member embedded in member 2 to receive screw 33. 33 is a fillister headed screw which in place acts as the pivotal point for connecting rod 31.

35 is a flat member for holding shearer pressure rods, such as 39 and 40 (Fig. 9) and 40, 42 and 44 (Fig. 8) and associated helical springs, one on each rod, such as 45 and 46 (Fig. 8). 36 is the inside shear member associated with outside shear member 11. 37 is the inside shear member associated with outside shear member 12. 38 is the inside shear member associated with outside shear member 13. 39 is a pressure rod to hold up left end of member 36 to shear with 11. 40 is a pressure rod to hold up right end of member 36 to shear with member 11. 42 is a pressure rod to hold up the right end of member 37 to shear with member 12. Paired with this is a similar rod to hold up the left end of member 37. 44 is a pressure rod to hold up the right end of member 38 to shear with member 13. A similar rod holds up the left end of member 38.

Each pressure rod has an abutment at its mid-length and is surrounded therebelow by a helical spring pressing the rod upward against the respective inner shearing member. 45 is a strong spring for pressure rod 39. 46 is a weak spring for pressure rod 40. A medium strength helical spring is provided for pressure on each end of the middle shearer 37. A weak spring is provided on the left end of shearer member 38, and a strong spring on the pressure rod at the right end of 38. These helical springs are all made strong enough to insure proper pressure for good shearing action between the respective inside and outside shear members. 56 is the lower inside part of member 15. 57 is the lower inside part of member 16. 58 is the lower inside part of member 18. 59 is the lower inside part of member 19. 60 are cylindrical spring slides riveted inside of parts 15, 16, 18 and 19. Members 61 are right angled metal springs inside of parts 56, 57, 58 and 59. The motor is not shown as the dry shaver requires only a standard motor such as is used in any present first class dry

shaver. The drawings, however, are made to show the motor space clear for the installation of the motor and such parts of the armature shaft as are shown to be used by the members of these drawings. 62 is a spring unit, one unit each to be attached to each end of member 6 to function as springs to hold firmly in place members or shearer, outside shearers, while the dry shaver is in operation and the springs are so designed that the six shearer holders, three on each end of member 6, may be tipped down from a perpendicular to the floor of member 6 to a parallel to the floor of member 6 to release said shearer members. 63 is a ball ended stud fixed to the floor of member 6 half way between the front and back and about one third of the way from the left hand end. A hole is drilled almost through the base of member 12, which hole is just large enough to afford a sliding fit to the ball of the ball ended stud. Channels are provided near the opposite ends and on opposite sides and perpendicular to the base of member 12. Projecting cylindrical parts are fixed to the contacting sides of members 11 and 13 and these projecting parts are just large enough to slide freely in the channels cut in the sides of member 12. The combination as above outlined will serve to fix all of the outside shear members 11, 12, and 13 for practically no endwise movement when in proper operating position, but will allow up and down movement for member 12 and opposite and tilting movement for members 11 and 13 and all at the same time, while at this same time the inside reciprocating shearers 36, 37, and 38 are operating.

This disclosure is continued bringing into the foreground the various elements and their reference numbers so that the actual operation of the dry shaver may be more readily seen by reference to the associated drawings and that fuller comprehension may be had of the absolute dissimilarity of its real operation and greater efficiency to that of any other dry shaver. It will be plain when this description is followed along with the drawings, that this device will accomplish a feat never obtainable before, that of meeting the convex face surface with a practically face contour matching concave combination from left to right or across the line of stroke of whisker cutting edges. This dry shaver is designed to use air suction for the constant effective cleaning of the shaver while in use and the added advantage must be available, that is no whisker clippings can possibly get into the nose or mouth and thus irritate the breathing system of the user and no hair cuttings can go anywhere but into the cut whiskers pocket. A gentle air suction at the shearer heads will tend to bring the face skin more closely to the outside shearer members and to pull the whiskers down into the shear slots and thus insure a better shave. A flow of air will answer the much needed cooling needs of the dry shaver which has always been a problem. Another distinct advantage is that of the automatic changing in plane of the three shearer faces from a right angle, in the direction of the motor rotation, to the axis of the shaver handle and each shearer changing to a different plane from the others so that the combination of the three at the same time and under slight shaving pressure on the convex skin surface tends to present a concave shaving edge to the face skin surface and when pressure is released the shearers immediately return to their right angle

to the axis of the shaver handle and each one at a same level with each other.

When the dry shaver with one end of the electric current carrying cord connected to the dry shaver and the other end connected to an outlet of the building current supply is taken in the hand and brought up to the face outside shear members 11, 12 and 13 touch the face skin and with the slight pressure required in all face shaving these same members 11, 12 and 13 take different angles the total of which forms a practically concave shaving edge to meet the convex face skin surface. Members 15, 16, 18 and 19 as well as members 56, 57, 58, 59, 60 and 61 enter into the retracting shaver holders and the flat right angled springs 61 which bear on 60 inside the retracting shaver holders must never have more pull strength or anywhere as much pull strength as the push strength of the weakest of the helical springs on the pressure rods. The reason for this is obvious as the shaver heads must always go to the proper next position at the right moment. The helical springs which give force to the push rods, which in turn hold inside shear members 36, 37, 38 which press against respectively outside shear members 11, 12 and 13, that is so the transverse slotted openings of the respective shear members will on reciprocal movement of the inside members 36, 37, 38 and the endwise fixed position of the outside members 11, 12, 13 shear any hair or whiskers which may be pushed into the shear slots and these shear slots when inside and outside members are centered must coincide. They, the shear slots, must extend through the top plane edges of both inside and outside members, so that whiskers may fall into them as the shaver is stroked over the face. All devices which fit into channel 6 must do so with a sliding fit and not a binding fit. Helical springs which give pressure rods their force and the rods in turn hold the shear members 36, 37, 38, shearing surfaces, to the shearing surfaces of their respective outside shearing members 11, 12 and 13 and insure the cutting of the whiskers. To get the concave effect of the shearer combination, the helical spring 45 is quite strong and its mate 46 is quite weak but strong enough to hold the shearers properly together, and the springs for the middle shearing device are both of medium strength. The springs for the other outside shearing devices are relatively strong and weak as described above.

Numeral 62 is used to indicate the perpendicular channels one in the front left hand end of member 12, and the other in the back right hand end thereof, each about $\frac{1}{2}$ inch from the extreme ends of member 12. Numeral 63 is used to indicate a round stud fixed to the back side of member 11 and fitted to slide in, without vibration, the front channel of member 12, this stud to be about $\frac{1}{2}$ inch from the extreme left end of member 11. Numeral 63 is also used to indicate a similar round stud fixed to the front side of member 13, about $\frac{1}{2}$ inch from its extreme right hand end. This stud is intended to slide in the back channel of member 12 without vibration when in operation. Numeral 64 is used to indicate the drilling in the latitudinal center of the base of member 12 and about $\frac{3}{8}$ of an inch from the extreme left hand end. Numeral 65 is used to indicate the ball ended stud fixed to the latitudinal center of the floor of member 6 and about 1 inch from the left hand end of member 6. The ball of member 65 is meant to

slide without vibration in the drilling 64 in member 12.

Many of the members in fact all of them have been identified with the exception of member 31.

5 Notice the multiple ends of member 31 which reciprocate members 36, 37 and 38 are cylindrical and perpendicular to the center long axis of members 36, 37 and 38, and fit into straight walled channels of the above members and these walls are parallel with the long axis of the shaver handle. This allows the above mentioned inside shear members to be tipped endwise or lowered or raised and still be reciprocated at the same time. The outside shear members 11, 12, 13 are fixed in the following manner, notice Fig. 12 and see the ball ended stud 65 which is located on the bottom of the common channel of member 6, this is fixed in that position and fits a cylindrical hole in the bottom of member 12 when it is put into place and this fixes the member 12 as far as endwise movement is concerned, but it can be tipped endwise. Notice on the sides of member 12 one on each side, channels 62, perpendicular to its bottom, and these channels receive cylindrical studs 63 on the matching side each of members 11 and 13. This, as can be seen, will lock members 11, 12 and 13 in place in member 6, and allow no endwise movement, but make free tipping movement to the necessary extent. Notice that all three shearer outside members 11, 12 and 13 fit into one common channel member 6.

Air suction is made by the following means, a copper envelope 26 is provided, see Figs. 8 and 9 wherein it will be noted that two small copper passages lead down from member 6 to the large part of the copper envelope back of the motor, and in this part of envelope 26 a small hole makes room for the motor armature shaft to extend through into the envelope 26, and on which shaft is placed a collar 29 set screw fastening to fit as closely as possible to the inside of envelope 26 to prevent a blast of air from escaping into the inside of the shaver handle. A suction fan is placed on the armature shaft at this point and directly before this is placed a high grade filter which forms the back of the cut whiskers pocket and the two small copper passages from member 6 lead into the pocket, and of course the large part of the copper envelope forms the sides of the pocket. The snap spring cover of the pocket 10 shows in Fig. 8. This same figure and Fig. 9 shows how the copper envelope goes down to the bottom of the shaver handle 2 and 3 to the fine wire mesh outlets 21 and 22.

The gentle air suction through members 11, 12 and 13 tends to pull face skin closer to the above-mentioned outside shear members and thus insure a better shave. This is all in addition to a self-cleaning dry shaver.

The whiskers due to gentle suction at the shearer heads 11, 12 and 13 will be pulled down into the transverse slots of the outside shear members 11, 12, 13, and far enough down so they will be cut off by the shearing action of the corresponding inside shear members 36, 37, 38 with the above-mentioned outside members.

While the shaver is in use there will be constant air flow inward to every opening in the shaver head, and for that reason every particle of cut hairs or any light object will be taken into the shearer slots and anything light near them will be immediately taken into them and in no instance thrown out so that it may get into the

nose or throat of the user nor will it get onto his clothes, and all cut particles will be carried to the shaver cut whiskers pocket.

The outside shear members are 11, 12, 13 and the three inside shear members reciprocate inside of the outside members. The three inside shear members are 36, 37 and 38 and due to the necessary high speed of the reciprocation must make all six members hot due to friction and constant air flowing through the slots of the inside and outside shearers tends to keep them cool.

The shearers retainers 14, 15, 16, 18, 19 and 20 will have while the shaver is in operation, a constant gentle stream of air going in by them and in cases through them to member 6 and the inlets to envelope 26, and thence to the cut whiskers pocket covered by cover 10. This will mean that all cut whiskers will be kept cleared out of the retainers.

The motor starting wheel 9 in the front side of the shaver handle 2 and 3 will have a necessarily small clearance by it into the shaver handle through which air will be drawn because the pipes to the cut whiskers pocket terminate in and through channel 6 and the motor connecting rod 31 passes through a hole or better three holes in channel 6 and the six pressure rods also pass through six holes in channel 6 and if there was not a constant stream of air passing upwards through these holes in channel 6 and downwards from the top of channel 6 to and through the small copper pipes to the cut whiskers pocket, cut whiskers would drop down these holes to the interior of the handle with the disadvantage of cut whiskers in the motor and other necessary mechanisms. This same constant stream of air will also keep all of the moving frictional parts cool.

Member 26 is to be made of copper, and as you will see by consulting Figs. 8 and 9 that an air stream will be flowing through it at all times when the dry shaver is in operation. The frictional heat released inside the handle 2 and 3 by the motor and other moving parts will in large parts be taken up by the copper member 26, because of the high receptivity of copper to heat, and with a stream of air through it and exhausted through meshes 21 and 22 it will tend to keep the interior of the handle 2 and 3 cool together with all of its contained parts.

Members 26, 21, 22, 10, 27, 25, 28, 29 all enter into the air suction arrangement of the dry shaver, and their values are paramount and are considered of distinct importance in this work.

Other paragraphs in this specification cover the all around advantages shown possible in dry shavers and necessary to make them what they should be to meet the never met needs of the shaver or user of safety razors in general.

Now to cover a few items not directly mentioned in the above paragraphs. Members 14 and 20 which are snap spring holders for one end each of shaver members 11 and 13. Notice particularly that members 11 and 13 do have a slight endwise movement when the angle is changed during the shaving operation but they do have no reciprocating movement. Member 12 has no reciprocating movement either. Snap spring holding members 15, 16, 18 and 19 with their allied members 56, 57, 58, 59, 60 and 61 retract as one end each of members 11 and 13 are pressed down and return to normal as members 11 and 13 return upward to normal. The retainers for member 12 do the same when both

ends of member 12 go down under pressure. It will be noted that cylindrical spring slides 60 are riveted to the inside end of members 15, 16, 18, 19 and flat, short, bent flat springs are riveted to each inside side of members 56, 57, 58 and 59. The short flat, right angled bent, springs eight in all are members 61. In riveting the springs 61 to the sides of the inside members 56, 57, 58 and 59, the rivets will be allowed through to the outside for a distance not quite the thickness of the metal from which the above members are made. The outside part of the retainer members 15, 16, 18 and 19 will have small slots cut in their sides so that the rivet ends may guide them in up and down sliding. (See Figs. 4, 5, 6 and 7.)

The present invention involves many advantageous features as shown above and in the following.

The shearers follow the contour curves of the face both crossways and with the line of stroke along the face. In use the planes of the tops of the shearers are constantly changing to follow the contour of the face.

The three sets of shearers are in a common holder in contact one with another and the center shearer outside member fixes the two outside, transverse slotted shearer devices from moving in any direction except up and down cross-ways to the line of shaving stroke. While all three outside shear members remain fixed in a bunched group and in a line parallel to the direction of the rotation of the motor, the inside shear members which are also slotted transversely, reciprocate and thus cut whiskers through the shearing action of the transverse slots of the fixed outside shear members and the transverse slots of the three inside shear members which reciprocate. The placing of the three shearers adjacent to one another and in one common holder makes the dry shaver more simple and adds to its efficiency.

Provision is made to make the dry shaver self cleaning. This is done by means of an easy suction of air through all of the working parts to take all of the cut whiskers to the cut whisker pocket. A harsh or hard suction of air is not needed as the cut whiskers are light and require but little to move them.

Gentle suction at the shearer heads will tend to draw the skin closer to the outside shearers and insure a much better shave.

Suction at the shearer heads will tend to pull the whiskers down into the shearer slots so that the inner cutter bar slots will receive them and cut them off as it reciprocates inside the outer slotted shearer device.

A gentle suction at the shearer heads will prevent flying whisker clippings from getting into the respiratory system of the user and eliminate the nuisance of accumulations of cut whiskers from getting onto the clothes or around the user.

The gentle suction of air through the three or more outside transverse slotted shear devices and through the three or more inside transverse slotted shear devices will tend to cool them and carry off heat due to the necessary friction of the shearer devices.

The suction of air which also necessarily passes through the end retainers will carry out whiskers to the inlets towards the cut whisker pocket thus keeping the shearer retainers clean.

The suction of air which also necessarily passes by the motor starting wheel and into the plastic case or handle will keep the motor cool and carry any cut whiskers which might leak in by the con-

necting rod and pressure rods back out of the plastic handle to and through the inlets to the cut whisker pocket.

The copper air stream envelope in the dry shaver handle will tend to cool the motor and the whole interior of the handle because of the high heat conductivity of copper and the constant stream of air which flows through it and out of its outlets at the base of the handle.

All through the centuries of face shaving straight razors and safety razors have been designed to cut the whiskers off from a plane surface and the face is not a plane surface. Attempts have been made with dry shavers to meet the convex surface of the face with a convex dry shaver in some cases. This dry shaver meets the convex surface of the face with a, as near as possible, concave edge to the face skin surface. This edge changes automatically from straight to concave dependent upon the skin surface and the slight pressure on the shaving device. This slight pressure must be used with any sort of shaving device and this one particular dry shaver mentioned herein calls for no more pressure than usual.

It should be understood that various changes may be made and that various features may be used without others, without departing from the true scope and spirit of the invention.

Having thus described my invention, I claim:

1. A dry shaver comprising a plurality of shear-er heads, means for supporting said heads so that they will automatically adjust themselves by light pressure against the skin to cooperate with a curved skin surface both across and with the line of dry shaver stroke, and means for operating said heads irrespective of their changes in position in respect to each other or the base channel which with the aid of the retainers holds the shearers in the proper position for each moment.

2. A dry shaver comprising a plurality of shear-er heads, means for yieldably supporting said shearer heads for movement forwardly and rearwardly and for tilting movement between opposite ends of each head, and means for operating said heads irrespective of the positions assumed by said heads.

3. A dry shaver comprising a plurality of shear-er heads, a holder in which said shaver heads are held side by side, retainers cooperating with opposite ends of said heads to prevent movement thereof out of the holder, yielding supporting means acting on the ends of said heads to enable inward and return movement thereof, with respect to fixed base channel for heads, either the same at both ends or differently at their ends, and means for operating said heads irrespective of their positions.

4. A dry shaver comprising a plurality of shear-er heads with slightly elongated shearer ends, arranged one behind another, each of said shear-er heads comprising an outer shearer member and an inner member movable in the outer member, means for guiding the shearer heads for movement in parallel planes, and an actuating member for said inner shearer members pivotally supported at an intermediate point and having a forked end to cooperate with the different interior members, and a single end operated by motor means.

5. In a dry shaver, shearer heads and means for causing the shaver heads under slight pressure applied to the handle of the dry shaver to form a, practically, and ever changing concave

length or like a few continuous sides of a many sided polygon from right end to left end, across the line of stroke, shaving edge which will return to a straight line and flat plane when the slight pressure is released on the handle of the dry shaver, and this is done by spring pressure of various strengths on the push rods holding the inside reciprocating, transverse slotted shearing elements up to the outside, practically fixed for no endwise movement, slotted the transverse way shearing members, along with opposing springs of less strength in the collapsible and automatic returnable, ones, of the end retainers for the outside shearing members.

6. A motor operated dry shaver wherein the motor operates the shearing heads to shear whiskers and operates a suction fan to remove the cut whiskers from the shearer heads comprising a shearer body, a plurality of shearer heads and shearer head holders on said body, a plurality of ducts leading from said heads into said body, a hair pocket in the side of said body, copper tubes leading from said ducts into said pocket, a fan for drawing air through the ducts and pocket, and a motor in the body for operating the shearer heads and fan.

7. A motor dry shaver, that is operated by a small electric motor, wherein the motor operates the inside shear members of the shearing heads to shear against the outside shearing head members to cut whiskers from the face, comprising a whiskers pocket in the side of the shaver, copper tubes leading into said pocket, a screen on the inner side of said pocket, a fan adapted to draw air from the shearers through said tubes, pocket and screen, and a removable cover in the side of said body over said pocket.

8. A dry shaver comprising a plurality of shaver heads each mounted in the common base channel, a motor operated suction fan equipped to be operated by the motor, a copper pocket within the handle, copper suction intake tubes from the shaver heads base channel to said pocket, a larger copper exhaust tube from the filter side of the exhaust side of said fan which tube has two outlets at the base of the handle to exhaust air, a high grade filter in the inner side of said pocket just between the fan and pocket, thru which filter only air can pass to the fan and down thru the copper exhaust tube, meaning also that no hair or any foreign particles can get into the interior moving or stationary parts in the handle, also in this same pocket within the handle, and a snap spring cover to open on the surface to the outside of the handle so that severed whiskers or other particles can be emptied easily.

9. A motor operated dry shaver comprising a single mounting channel for holding a plurality of shaver heads, a plurality of independent shaving heads in said channel each comprising inner and outer shearing members, means for mounting each of said heads and allowing limited vertical movement as a whole or tilting movement in a longitudinal vertical plane with respect to the base of said channel and spring means resiliently supporting each end of each of said outer members.

10. The device of claim 9 in which a ball ended stud is fixed in a centrally located part of said channel and the outer shearing member of an intermediate head is provided with a vertical bore for the reception of said stud to prevent endwise movement of said member.

11. The device of claim 9 in which the outer

shearer member of one shaver head is provided with a stud on its side facing an adjacent shaver head and the outer member of said adjacent shaver head is provided with a slot perpendicular to its base or nearly perpendicular to its base for the reception of said stud to prevent relative longitudinal movement of the outer shearer members of the off longitudinal center respective shaver heads when assembled in said channel.

12. A motor operated dry shaver comprising a body, a plurality of independent shaving heads, means of mounting said heads on one end of said body preventing lateral and longitudinal movement of said heads and allowing limited vertical movement of the same heads and these heads are prevented from any appreciable longitudinal movement by means of a ball ended stud centrally located on the body end holding device or the combination of body end holding devices and this ball ended stud enters into a bore in the base of the center outside shear member and this same outside shear member, centrally placed has perpendicular slots in its sides or nearly so to its base which receive studs on the sides of adjacent shaving heads to allow tilting of said heads without any appreciable longitudinal motion and at the same time allow the inside or contained reciprocating shear members to operate effectively against the outside shear members of the respective shaving heads to cut off hairs from the skin and in addition to this the body end holding device or combination of body end holding devices prevent any lateral movement of the shaving heads removably placed therein.

13. A motor operated dry shaver comprising a body, a plurality of shaving heads, means mount-

ing said heads on one end of said body preventing lateral and longitudinal movement of said heads, outside shearer members, allowing limited vertical movement of said heads which heads when pressure is released return automatically to a common plane due to spring control, and cooling equipment within the body consisting of a motor operated suction fan, two ducts from upper end of body to an openable pocket with contained filter ahead of the fan and back of the fan a single exhaust tube with two outlets to and through both front and back lower sides of said body, said tubes or ducts and pocket to be constructed of rapid heat conducting material, such as copper, for interior indirect cooling with direct cooling for the shaver heads by the above mentioned and direct cooling for the interior by the intake of air by and around the motor starting wheel and up through holes in the upper end equipment the body, from there down through the two intake ducts to the pocket and out to the air through exhaust tube or duct, and also for directing a flow of air into the handle past the motor starting wheel and up to the top of said handle to the cooling and cleaning ducts, which will keep the interior of the handle clear of cut whiskers, dust and other foreign objects.

14. A dry shaver according to claim 1 with means whereby the cutting edges or tops of the shearer heads return automatically to a common plane or separate planes as arranged for when some or all of the hand shaving pressure is released, and means whereby the shaver when in use will always present a total shaving edge conforming essentially to the face skin surface being shaved at that instant.

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