Feb. 11, 1958 J. L. KLEINMAN 2,822,610

SHAVING IMPLEMENT HAVING A FRICTIONAL MOTOR COMPARTMENT COVER

Filed May 16, 1951 2 Sheets-Sheet 1

Fig. 1.

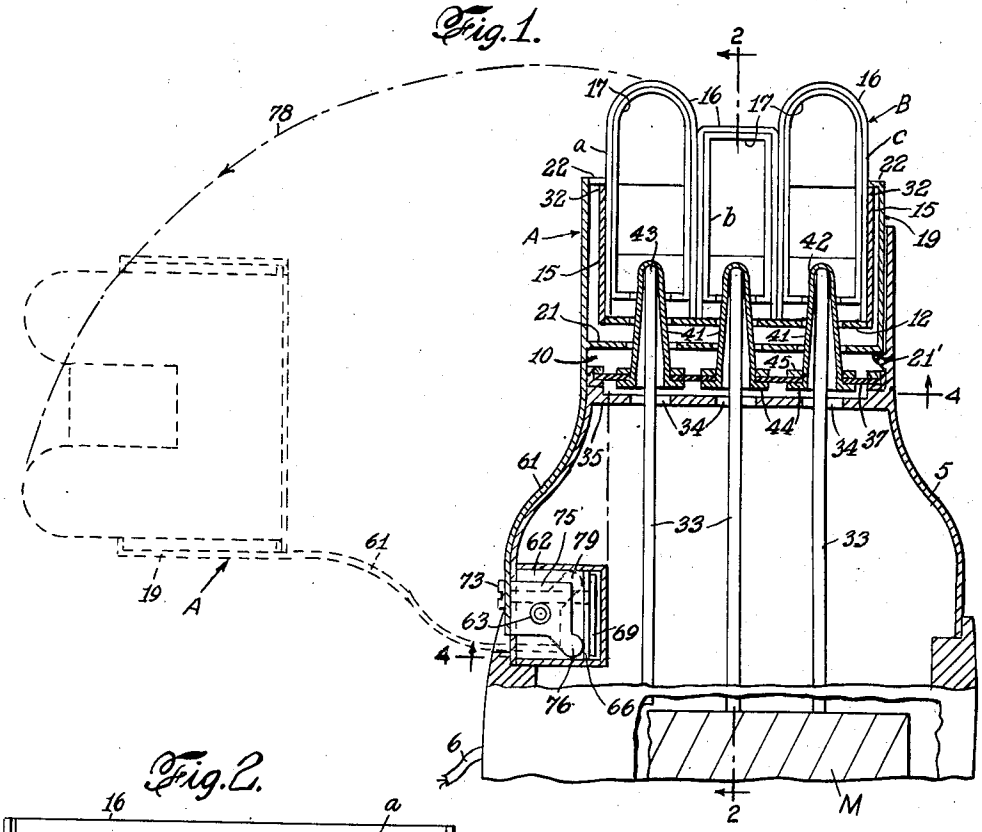


Fig. 2.

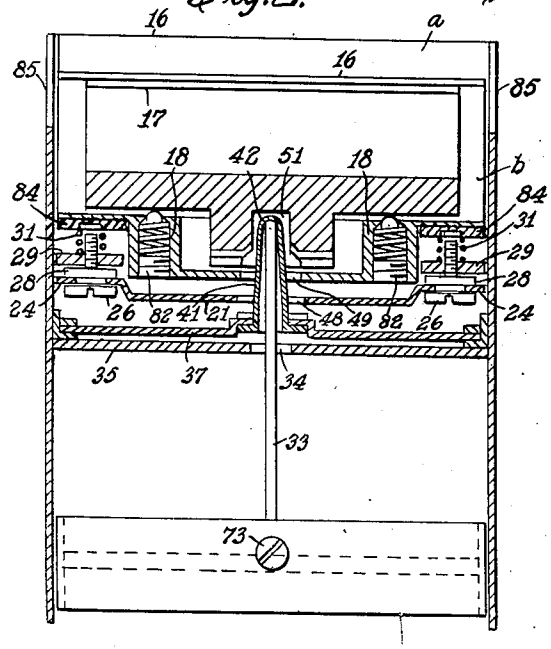
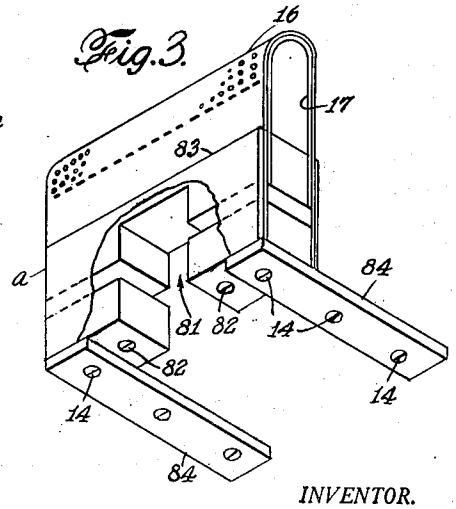


Fig. 3.



INVENTOR.

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Filed May 16, 1951 2 Sheets-Sheet 2

Fig. 4.

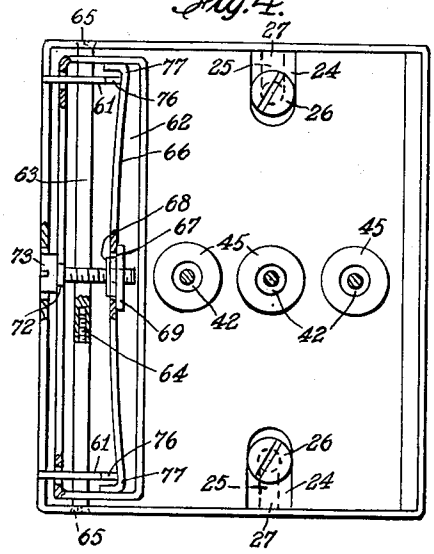


Fig. 5.

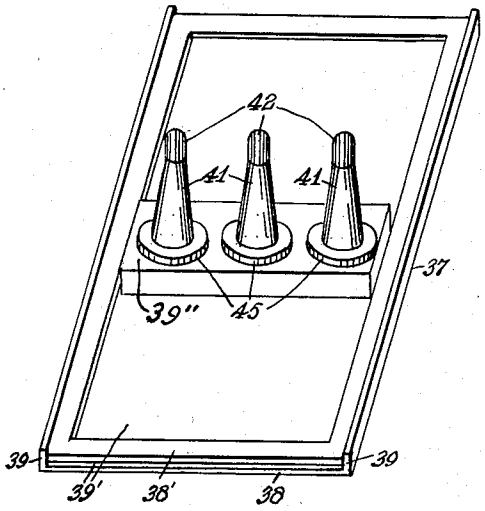


Fig. 9.

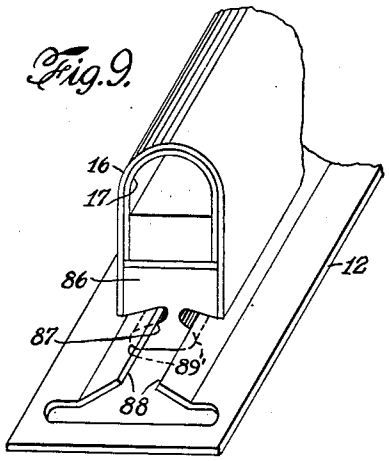


Fig. 6.

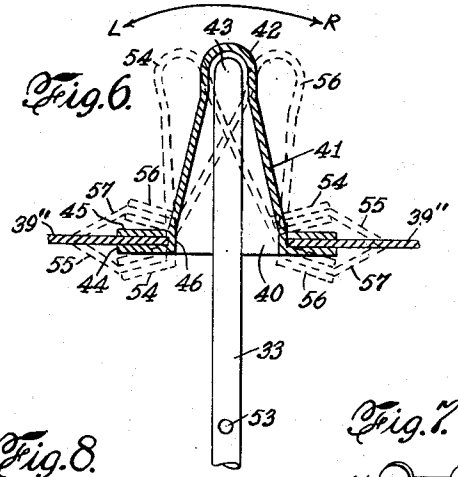


Fig. 8.

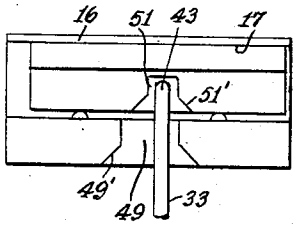


Fig. 7.

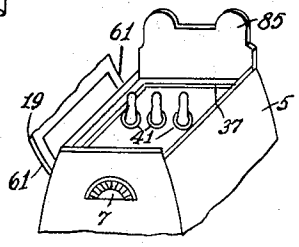
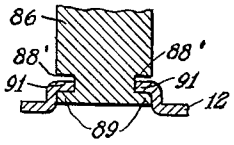


Fig. 10



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United States Patent Office 2,822,610 Patented Feb. 11, 1958

2,822,610

SHAVING IMPLEMENT HAVING A FRICTIONAL MOTOR COMPARTMENT COVER

Jacob L. Kleinman, New York, N. Y.

Application May 16, 1951, Serial No. 226,685

10 Claims. (Cl. 30—41)

This invention relates to the construction of shaving-implements in general, and more particularly to a type known as electric razors and is filed as a continuation in part of my copending application for shaving implement, filed Feb. 5, 1947, S. N. 726,706, matured into Patent No. 2,629,169, issued Feb. 24, 1953.

In accordance with my invention, I produce a shaving-implement comprising a handle and a shearing unit and a cover-element underlying the shearing section and embracing portions of the actuating elements and covering the openings through which such actuating elements protrude and wherein such shearing section is adapted to be moved or swung out of normal shaving position for the removal or replacement of the said cover-element or for the removal of sheared hair therefrom, and wherein the said shearing unit is provided with adjustable resilient means adapted to permit such shearing unit to yield to a desired degree when pressed against the face for shaving purposes.

There is, therefore, thus produced, in accordance with my invention, a shaving-implement wherein the openings through which portions of the actuating element protrude are fully covered by a removably mounted cover-element to prevent the entrance of sheared hair into the motor compartment, and wherein the shearing unit may be swung, or moved, out of its normal position for the purpose of removing or replacing such cover-element and also for cleaning the shaved hair from such shearing unit, and closure elements to prevent displacement of shaved hair from such shearing unit while shaving, and whereby such unit may be adapted to yield to a desired degree thereby providing a suitable cushioning touch of its shearing face against the skin to be shaved, and means for holding the shearing unit in a stationary manner when in desired position.

To illustrate the ordinary commercial utility of my shaving implement in daily life, a shaving-implement constructed in accordance with my invention, of whatever style or type it may be made, could be utilized to great advantage; for example, the seat portion of the handle in the ordinary type of electric shavers (for supporting the shearing section) is provided with openings for the actuating elements to pass therethrough to engage the movable shearing member for operable purposes. Each of these openings are of a size larger than the thickness of the actuating element for the purpose of permitting such element to move freely within such opening. A great number of the shaved hairs, which come through the shearing slots, accumulate within the chamber of the movable member. These hairs usually make their way through the opening of the stationary member and then through the openings of the seat underneath the shearing section thus entering the motor compartment and clog up the motor, in which case the motor becomes defective and the parts thereof can not operate freely and properly. Furthermore, the movements of the clogged up joined sections increase motor noise and occasionally cause the motor parts to wear

out quickly and lose their proper frictional fit, in which case the motor becomes deficient and useless, and causes great annoyance and discomfort to the user.

Whereas in an electric razor made in accordance with my invention, the above-mentioned objectionable features are completely eliminated. In my structure, the openings through which the actuating elements pass are being fully covered by a removably mounted cover-element which is positioned underneath the shearing members, thereby preventing the sheared hair from entering the motor chamber and clogging up the motor parts. Thus the normal operation of the motor will not be hampered by any foreign matter thereby prolonging its life, efficiency and smooth operation, granting the user shaving comfort and satisfaction to an extent not accomplished heretofore by the ordinary type of electrically operated razors.

The fact that my cover-element covers all of the openings through which the actuating elements pass lessens, to a great extent, the sound of the motor noise.

In addition thereto, the fact that my shearing unit is provided with adjustable yielding means (which may be adjusted to any desired degree) formed in a manner whereby the shearing face of the unit may be applied, to the face to be shaved, with a cushioning touch effect, will, to a great extent, minimize breakage possibilities of the fine shearing teeth of the stationary member, when the latter is placed against the face for shaving purposes, thereby eliminating possible injuries to the face being shaved.

From the above, it is evident that my present invention is an important contribution to the art of making electric razors. It solves the above mentioned problems in a complete and satisfactory manner. It will be readily seen, that, an electric razor, produced, in accordance with my invention, fulfills a long-felt need in the industry of electric razors. Namely, by underlying my removably mounted cover-element underneath the shearing unit in a manner embracing each of the actuating elements and covering fully the openings located at the seat portion of the handle, causes such cover-element to serve as a non-perforated receptacle having the sheared, or shaved, hair stored thereon and be kept away from such openings and be prevented from entering the motor compartment, or chamber, thus such sheared hair will not clog up the joined parts of the motor; so that such motor will be kept in a clean condition and be able to operate freely and normally in its compartment, thereby prolonging the life, use and efficiency of such motor.

The above-mentioned cover-element by covering completely the openings at the seat portion of the handle muffles the sound and reduces the motor noise, thereby eliminating annoyance and irritation to the user, and instead provides a pleasant and nerve-soothing feeling while shaving. This of course is a very desirable feature, which will tend to stimulate the marketing of the razor.

Thus, an electric razor, produced, in accordance with my invention, fulfills a long-felt need in the electric razor industry. The herein invention teaches a new and unique form of structure not known heretofore in the art of manufacturing electric razors. A structure wherein the motor chamber, or compartment, is protected against the falling or flowing of shaved hair into the vicinity of the motor, so that such motor is maintained within its compartment in a clean and unclogged-up condition, thereby prolonging the life, efficiency, and service of such motor, and wherein the shearing section may be moved out of its position as an assembled unitary structure thereby facilitating cleaning of the instrument, and wherein the shearing section is provided with means adapted to minimize breakage possibilities of the fine shearing teeth

thereby prolonging the life and usefulness of the shearing unit. Thus applicant's invention solves the most vexing problems in the art of making electric razors. An electric razor, made in accordance with my invention, will last longer, will operate more efficiently, and will therefore render better service to the user, and can be utilized to great advantage in a satisfactory manner.

The variety of possible application of my novel construction in connection with different types of shaving-implements, as hereinabove indicated, is so prolific that for the purpose of illustrating the invention the specific embodiment of my invention in its application to a shaving-implement exhibiting the greatest difficulties has been selected. Such shaving-implement is one which necessarily must conform most rigidly to the contours of the portion to be shaved and one which has the field of greatest possible commercial use. For this purpose I have selected for illustration of my novel construction, a shaving-implement consituting a multiple-head electric razor, so that the principles of construction may be best illustrated in a shaving-implement known as a multiple-head electric razor.

The objects of the present invention are attained by a novel construction which will be hereinafter described and illustrated in the drawing in connection with a specific embodiment of the invention.

In the accompanying drawing in which such specific embodiment of my invention is illustrated, Fig. 1 is a cross-sectional view of an electric shaving-implement, constructed in accordance with my invention, showing, in dotted lines, the position of the assembled shearing section when such section is swung out from its position within the recessed portion of the handle.

Fig. 2 is a cross-sectional view on line 2—2 of Fig. 1.

Fig. 3 is a perspective view showing one of the outer units and base structure of the assembled shearing section.

Fig. 4 is a view taken along the line 4—4 of Fig. 1.

Fig. 5 is a perspective top view of the cover-element forming the partition for covering the openings at the seat portion of the handle.

Fig. 6 is a cross-sectional view showing the actuating element and the cover-member in normal position and also in operative position.

Fig. 7 is a perspective top plan view showing the cover element in its normal position when the assembled shearing section is swung out of its position.

Fig. 8 is a side view showing one of the shearing units.

Fig. 9 is a perspective view showing a modified form of the shearing unit and base structure, and

Fig. 10 is a cross-sectional view showing a modified form of Fig. 9.

Referring more particularly to the drawings, in which similar reference characters identify similar parts in the several views, in my novel shaving implement:

Numeral 5 indicates a motor-containing handle which may be made of any desirable material (metal or plastic) and may be molded or machined to any suitable style or shape, and is provided with a motor M which is adapted to be connected to a source of power by a cable 6.

A indicates the assembled, removably-mounted, shearing-section positioned upon the seat portion 10 of the handle 5. This shearing-section may comprise one or more shearing heads, or shaving units. Such units may be made of any suitable material and be styled or shaped in any desirable manner and be held in desired position by any suitable means.

For illustrative purposes I am showing my assembled shearing-section comprising three individually removable shearing units, *a*, *b* and *c*. Each of these units being individually secured to the base portion, or section, 12 by any suitable means, for example, friction fit, solder, rivets or screw-threaded members 14, in a manner forming an assembled unitary structure or shaving set as indicated by arrow B.

The base portion 12 may be shaped in any suitable manner, for example, it may be provided with side flanges 15, positioned in any suitable manner, for a purpose which will be hereinafter explained.

Each of the units *a*, *b* and *c*, comprises a stationary shearing member 16 having an inner movable shearing member 17 and resilient means 18 adapted to hold the shearing members 16 and 17 in frictional engagement with each other for hair cutting or shaving purposes.

The assembled set indicated by arrow B may, if desired, be secured to or encased in a carrier 19. Such carrier 19 may be provided with a floor 21 and with inwardly inclined flange portions 22 for a purpose which will be hereinafter explained.

For the purpose of explaining applicant's invention the following may be pointed out.

The thickness of the shearing teeth of the stationary member of an electric razor (which faces the skin to be shaved) is approximately about 6 or 8 thousandths of an inch, thereby permitting the inner shearing member to cut the hair being shaved close to the skin. The razor must therefore be placed against the face to be shaved in a gentle manner for shaving purposes; pressing the razor tightly, or deeply, against the face, will cause the thin shearing teeth of the stationary member to flex and press against the movable shearing teeth thereby preventing the free movement of such movable shearing teeth; in which case the stationary teeth are apt to be distorted, or break, and injure the face being shaved.

My invention, which solves the above-mentioned problem, comprises the following novel and unique structural features.

The floor 21 of the carrier 19 is provided with raised or flange portions 24 (Figs. 2 and 4). Each of these portions 24 is provided with a slot or opening 25. A screw-threaded member 26, which is provided with an additional shoulder portion 28, is moved, sidewardly in a slidable manner, through the front opening 27 of the slot 25 until it is placed in desired position upon the flange portion 24, in a manner whereby the head portion 26 is positioned under the flange 24 and the shoulder portion 28 is positioned on top of the flange 24, thereby preventing the downward or longitudinal movement of the screw member 26. The threaded section of the screw member 26 is provided with a non-circular, or non-rotatable nut element 29. A resilient element or spring member 31 is carried by the nut element 29, and this member 31 is adapted to press against the floor of the base section 12 (or 84) in a manner forcing the set arrow B upwardly until the shoulder portions 32 of the walls 15 engage the flange portions 22, thereby holding the set arrow B in a controllable resilient manner while in position for shaving purposes. The nut element 29, which is non-rotatable, will upon the rotation of the screw member 26, move upwardly or downwardly, depending upon the direction in which the screw member 26 will be rotated, thereby adjusting the tension of the spring member 31 and arranging the cushioning touch of the shearing face to the desired degree. If desired, the nut 29 may be moved upwardly to the highest position thereby placing the set arrow B in an almost stationary or non-movable position. This is, of course, optional with the individual user.

The spring members 31 are of equal tension, and are adapted to yield equally when the implement is placed against the face for shaving purposes, but if desired, each individual resilient member 31 may be individually adjusted to provide the desired tension.

It is naturally understood that my disclosure herein is for illustrative purposes only. And that the shaving implement may comprise any number of units, or head structures (one or more) which may be provided with the above described adjustable cushioning-touch tensioning device; or, if desired, the individual shearing unit may individually be provided with my adjustable cushioning-touch tensioning device.

Almost all of the electric shaving implements are pro-

vided with actuating elements of a type for example as indicated by numeral 33, which extends from the motor (M) through openings 34 formed in the floor 35 of the seat 10, for the purpose of operating the reciprocatory or movable shearing member 17. These openings 34 are each of a size larger than the thickness of the individual actuating elements 33, thereby affording such actuating elements the means to move freely within such openings 34. These openings, in the ordinary type of razors, are not completely closed or sealed, so that shaved matter enters into the motor compartment and clogs up the motor, causing (as hereinabove explained) damage to the instrument, and annoyance and inconveniences to the user.

My present invention solves this problem in a complete and satisfactory manner. My cover-element or partition 37, which is positioned within the recessed portion 10, comprises an open frame member 38 (see Fig. 5) provided with upstanding flange portions 39. A closely woven material-element 39', for example, such as rayon, silk, or rubber, or any other suitable material, is positioned within the frame member 38. A ring or washer 38' is then positioned tightly between the flange portions 39 in a manner holding the edge portion of the material element 39' tightly secured between the open frame member 38 and the washer 38'.

The material-element 39' may be provided with an extension or upwardly formed box 39'', this box 39'' is, at suitable locations, provided with openings 40, each opening 40 is adapted to receive therethrough, in a friction fit manner, a tubular member 41. This member 41 is tapered upwardly and terminates into a closed top section 42. This top section 42 is adapted to fit over the top portion 43 of the actuating element 33. The lower end portion of the tubular member 41 is provided with a flange section 44 adapted to be positioned under the material element 39'' when the latter is brought down into its desired position; a ring or washer 45 is then placed over the material element 39'', this ring fits tightly over the straight wall portion 46 and holds the edge portion of the material element 39'' clamped tightly to the flange section 44; so that when this cover element 37 is placed into its position at the recessed handle section 10 it will cover completely every one of the openings 34, through which the actuating elements 33 protrude, and will also cover the top portions 43 of each of the actuating elements 33, and when the shearing section arrow A is placed in its position at the recessed handle portion 10, it will rest upon the support 21', and the top portion 43 of the actuating element 33 together with its cover, the tubular member 41, will then pass through the opening 48 in the floor 21 (Fig. 2) of the carrier 19, and through the opening 49 of the stationary shearing member 16, and will then seat itself within the opening 51 of the shearing member 17 for operable purposes. The hairs collected in the shearing units will travel through the openings 49 and 48 and land upon the non-perforated receptacle formed by the cover-element 37 and will be withheld from reaching the openings 34 and thereby be prevented from entering into the motor compartment. In this way, it is evident, that the motor M will be kept in its compartment in a clean and unclogged condition, and will be able to operate in a smooth and satisfactory manner, thereby prolonging the life and usefulness of the shaving implement.

The box 39'' being made of a soft or flexible material will permit or facilitate the side movements of the member 41 in either direction. For example, when the implement is in a stationary non-operating position, as in Fig. 2, the actuating element 33 will assume an erect position as shown in Fig. 6. But, when the instrument will be in an operative position, the actuating element 33 will move upon its pivot 53 in a manner whereby the top portion 43 will move there-and-back within the space indicated by arrows L and R. Such top portion 43 will then move portions of the cover 41 in the same direction, for example, if the top portion 43 will move towards arrow R the member 41 will assume a position as indicated by numeral 56, in which case the material element 39'' will assume a position as indicated by numeral 57. And when the top portion 43 will move towards arrow L the member 41 will assume a position as indicated by numeral 54 in which case the material element 39'' will assume a position as indicated by numeral 55. Thus the portion 43 may move the movable shearing member 17 in desired directions for operable purposes and the shaved matter will be withheld from the motor compartment.

It will be seen that the cover element 37 fits snugly in its position within the recessed handle portion 10, and that it covers and conceals all open spaces leading to the motor compartment. As a matter of fact, if desired, the handle portion may be so built that the floor 35 or part thereof may be eliminated and the cover element 37, which is positioned under the shearing section arrow A, may act as a partition, or wall portion, between the motor and the shearing section, thereby forming a completely closed chamber for the motor and its actuating elements. The disclosure herein is for illustrative purposes only, as various changes in form of structure may be resorted to without departing from the spirit of the invention.

Naturally, the cover element 37 may be made in any suitable style, shape or form and be positioned at any suitable location, and embrace the actuating elements in any desirable manner and be secured in its position by any suitable means. For example, such cover element 37, while being explained as being secured to a portion of the handle 5, may, if desired, be secured to the shearing unit or shearing section in a manner underlying such unit, and forming a partition between the motor compartment and the shearing section covering such motor compartment, thereby preventing the entrance of shaved matter from the shearing section into the motor compartment within the handle 5.

The carrier 19 is provided with a pair of arms 61 adapted to be seated in a box or spaced section 62 formed in one of the side walls of the casing 5. These arms 61 are secured in a pivotal manner in their position by a pivot or screw-threaded element 63. This element 63 comprises two sections each positioned through a wall portion and through one of the arms 61 and then interlocked with each other in a screw-threaded connection as at 64, each of these sections having an enlarged slotted head portion 65 for being tightened or loosened for the removal or replacement of the carrier 19.

The box 62 is provided with a spring element 66. This element 66 is provided with an opening 67 which is seated loosely upon a shoulder portion 68 of a non-rotatable nut 69. The front wall 71 of the box 62 is provided with an opening 72 adapted to receive a screw-threaded element 73. This element 73 engages the nut 69 in a screw-threaded connection thereby holding the spring 66 in desired position and controlling its tension.

Each of the end portions of the arms 61 is provided with a plate member 75. This plate 75 is provided with a rounded end portion 76 which presses against the end portions 77 of the spring element 66 for holding, by means of frictional spring tension, the carrier 19 in desired position within the recessed section 10 of the handle 5 (Figs. 1 and 4). When it is desired to remove the assembled shearing section A from its seat, then the carrier 19 is moved sidewardly in a manner as indicated by the broken line indicated by arrow 78, in which case the end portions 76 then move upwardly, pressing against the end portion 77 of the spring 66, in a manner as indicated by the dotted lines 79. Thus the carrier 19 is held in a stationary manner while in a swung-open position.

The shaving section arrow A may, if so desired, be provided with a centrally located cutout portion or section arrow 81 (in a manner as exemplified by the shearing unit *a*, Fig. 3) for the purpose of providing suitable clearance space for the carrier 19 to pass, during its move-

ments, the top portions 43 of the actuating elements 33 and the top portions 42 of the cover members 41.

The base portion 12 is provided with openings (not shown) adapted to permit access to the screw-threaded elements 82 to adjust the tension of the spring means 18. But if desired, the base section 12 may consist of two separate portions, for example, as indicated by numeral 84. Such separate portions may be positioned away from the screw elements 82, and may be secured to the shearing units by screw-threaded members 14, and thus provide access to the screw elements 82.

In the ordinary type of electric shavers the stationary member 16 and the movable member 17 are each provided with openings, for example, such as 49 and 51, adapted to receive the top portion 43 of the actuating element 33. These openings, in the actual structure, are very small in size, just large enough for operable purposes, particularly so with respect to the opening in the movable member 17 which is adapted to receive the top portion 43 of the actuating element 33. It is therefore very difficult for the average person to arrange for the meeting of the top portion 43 with the opening 51 of the movable member 17, when placing his shearing unit upon the recessed portion of the handle. The average user presses upon the top portion of the unit while trying to place same in desired position. Such action frequently results in the breakage of the fine shearing teeth of the stationary shearing member, in which case such user is compelled to resort to a "service station" to have his shearing head placed upon the recessed handle portion of his razor. Often times the user has to pay for new shearing heads replacing those previously damaged by the user, causing such user aggravation and annoyance resulting, at times, in the discontinuance of using an electric razor.

My present invention solves this problem in a complete and satisfactory manner, it teaches new and unique arrangements of structure not heretofore utilized in the construction of electric razors. For example, applicant provides the opening 49 of the stationary shearing member 16 with a beveled or enlarged front portion as at 49', and also provides the opening 51 of the movable shearing member 17 with a beveled or enlarged front opening 51', but, the outer end portion of this enlarged front portion 51' is of a size approximately matching the size of the opening 49, so that when the user is placing his shearing head into its position within the recessed portion of the razor handle, the top portion 43 of the actuating element 33 will readily locate the beveled wall portion 49' and slide into the opening 49, and will then easily engage the enlarged opening 51', and slide the member 17 into desired position, until such top portion 43 will seat itself within the opening 51 in a manner adapted to operate such shearing member 17 for hair cutting or shaving purposes.

From Fig. 6 it will be seen that the movement of the top portion 43, of the actuating element 33, while the latter is being pivoted upon its pivot 53, is limited to a distance, for example, as indicated by arrows L and R. But in reality such distance may be only about 3/16 of an inch, so that while the actual size of the opening 49 (Fig. 8) may be about a few thousandths of an inch larger than 3/16, yet, the outer end portion of the beveled wall section 49' may be about 5/16 of an inch, so that when the shearing unit is placed into desired position it will be quite natural for the portion 43 to readily locate the opening 49' and then slide into the opening 49.

The opening 51 is usually about several thousandths of an inch larger in size than that of the top portion 43, it can therefore be readily understood that if the opening 51 would not have been provided with the beveled portion 51', and the movable shearing member 17 would have been positioned towards one of the end portions of the stationary shearing member 16, that in such a case the top portion 43 would be blocked by the floor of the shearing member 17 and would thus be unable to locate or enter into the opening 51 (such is frequently the case with the ordinary type of electric shavers). It will therefore be clearly seen, that, by providing the opening 51 with a beveled or enlarged end or front portion 51', whose outer portion is of sufficient size, the top portion 43 will easily locate the opening 51 and seat itself therein. Even if the top portion 43 engages only the wall portion 51' its upward movement will cause the movable shearing member 17 to move into desired position, until such top portion 43 will seat itself into the opening 51 for operable purposes. It is thus clear that this portion of my invention herein disclosed, constitutes an important contribution to the art of making electrically operated shaving implements.

If desired, the screws 14 may be eliminated, and the plate or base portion 12 may be apertured or be provided with upwardly extending angularly disposed flange portions 88 (Fig. 9), and the lower portion of the side walls of the stationary member of the individually completed shearing unit 86 may each be provided with a suitable flange portion 89' adapted to be positioned within the apertured plate as shown at numeral 87 having its shaving unit 86 seated upon the flanged or end portions 88 and be held thereon in a frictional manner.

I desire it to be understood, that the disclosures herein are for illustrative purposes only, and not for limitation purposes. Naturally, various changes or modifications of structure may be resorted to without departing from the spirit of the invention, for example, if desired, the lower portion of the stationary member 86 may be provided with slotted or grooved sections shaped in a manner providing a horizontally disposed slot as indicated by numeral 88' (Fig. 10), and the end portions 88 may be shaped in a manner providing horizontally disposed flange portions as indicated by numeral 91, and the shearing unit 86 may be slidably placed into desired position and be held therein in a frictional manner as indicated by numeral 89.

It is readily understood, that the flange portions 88 or 91 will spring or yield to an extent permitting the slidable movements of the unit 86 while such unit is being placed into desired position upon the flange portions 88, or 91, or while removing such units therefrom.

From the above it will be seen that the instrument, made in accordance with my invention, operates in the following manner. The individual shearing units are secured to the base portion thereby forming an assembled set. This set is then placed into a carrier. The carrier is provided with adjustable spring tensioning means pressing against the set. Such carrier is secured to the handle of the implement in a manner having the open end portions of the shearing members facing adjacent wall portions of the handle. When the implement is placed against the face for shaving purposes the spring elements will yield to a desired degree thereby cushioning the touch of the shearing face against the face being shaved. When it is desired to clean the shearing section of shaved hair, the carrier is then removed or swung out of its position, and the shearing members, as well as the cover element 37, are then exposed for cleaning purposes (or for replacement of the cover element 37). Returning the carrier to its position upon the handle, the instrument will then again be in normal shaving position for shaving purposes. Turning the screw-element 73 in a certain direction will cause the nut 69 to be moved forward, pulling the spring 66, thereby increasing the tension of the end portions 77 against the portions 76 of the arms 61. Turning the screw-element 73 in the opposite direction will cause the nut 69 to move backwardly and release the pressure against the spring 66 thereby releasing the tension of the end portions 77 against the portions 76 of the arms 61. Thus the tension of the end portions 77 may be adjusted to the desired degree.

If desired, the tubular-member 41 may be eliminated, and the actuating member 33 may be provided with a

shoulder portion for example such as 44, and the covering material of the box 39'' may embrace frictionally the actuating member 33, or may be clamped thereon by a screw-threaded element, or washer, in a manner for example as indicated by numeral 45.

Or, the cushioning touch device may, if desired, be incorporated within the handle structure.

Or, if desired, the cushioning touch device may be eliminated, or the set B may be utilized without the carrier 19.

The arms 61 may, if so desired, be eliminated and the set arrow B, or the carrier 19, may be secured directly to the handle portion in a pivotal or hingeable manner.

Or, the spring element 66 may, if so desired, be eliminated, and the portions 76 may be provided with individual spring elements adapted to be seated in individual compartments, and provided with adjustable means. Of course, the spring element 66 is self-adjustable and is therefore preferable.

Naturally, if the individual shearing unit, for example, unit *a* (Fig. 3) is to be provided with my cushioning touch device, then, each of the side walls of such unit may be provided with suitable shoulder portions 83, adapted to engage flange portions 22 of a carrier for operable purposes.

It will thus be seen that various changes in form of structure or modifications (even though not mentioned herein) may be resorted to without departing from the spirit of this invention.

From the above it is evident, that my present invention teaches an entirely new form of structure in the art of making electrically operated shaving implements. The novel form, or manner, in which my shearing section is constructed, the new combination of parts and sections, combined in a new and heretofore unknown manner, provides a shaving instrument constructed on a new principle. The manner in which provision is made to prevent the entrance of sheared hair into the motor compartment for the protection of the motor, and also the means for the protection of the shearing teeth, establishes an entirely new and modern principle in the construction of electric razors. It creates a shearing device of a new and unique design, provided with practical and outstanding features, performing new functions unknown heretofore, a shaving-implement capable of performing its shaving operation to the fullest extent of its structural shearing ability, thus rendering a complete, clean and precise shave in a comfortable and pleasing manner to the user. It will therefore be seen that my invention, herein illustrated and described, provides a practical and useful shaving-implement of a novel and patentable nature, it solves the most vexing problems in the electric razor industry, it can be utilized to great advantage by the user.

It will therefore be seen, that I have invented and perfected a shaving-implement provided with a removably mounted shearing section of a new and unique design and structure, a shaving-implement which is practical, useful and therefore of commercial value, and although I have shown certain preferred forms or illustrations in order to explain and describe the novelty of my invention, yet, by showing such structure, I do not, by any means, limit myself to these structures, nor to the terms used in describing same, as they are for illustrative purposes only. Various suggestions and changes of structure may be resorted to, and I desire it to be understood that I have same in mind when showing and describing this invention, and seek protection by Letters Patent. And although I have mentioned in describing this invention of what material certain parts may be made, how they may be formed, shaped or styled and how they may be assembled, yet I desire it to be understood that this structure, or parts thereof, may be made of any suitable material, and shaped, formed, styled or arranged in any desirable manner, assembled and used in any convenient way so that the parts may be easily taken apart, removed, cleaned, replaced and reassembled, and that various changes in detail may be resorted to without departing from the spirit of this invention.

I claim:

1. In an electrically operated shearing implement, a handle, said handle provided with a compartment, a motor located within the said compartment, said handle provided with a recessed portion, said recessed portion having a floor and side walls, the said floor provided with an opening, a removably mounted shearing section adapted to be seated within the said recessed portion, means adapted to hold the said shearing section in its position, said shearing section comprising individually removable shearing units, said shearing section provided with adjustable cushioning means adapted to cushion the touch of the said units when their shearing faces are placed against the face being shaved, each of said units comprising a stationary shearing member provided with a chamber opening through the respective end portions thereof and a movable shearing member positioned within the said chamber, the said motor provided with actuating elements extending within the said recessed portion, said actuating elements adapted to engage the said movable shearing member for moving same within the said chamber, the shearing means of the movable member adapted to cooperate with the shearing means of the said stationary shearing member for shaving purposes, the said movable shearing member provided with a chamber opening through its respective end portions, the said chambers adapted to receive the cut hair while shaving, each of the open end portions of the chamber of the stationary shearing member positioned against one of the said side walls in a manner whereby such side walls are adapted to prevent the escape of sheared hair from such chambers, a removably mounted cover-element positioned under the said shearing section in a manner covering the opening of the said floor and also covering the said actuating elements, the said shearing section provided with a pair of arms, said arms secured to a side portion of the handle in a pivotal manner, said shearing section adapted to be swung out from its normal position into an open position, means adapted to hold the said shearing section in the said open position, said shearing section adapted to be swung back into normal position for shaving purposes, and means for obtaining a source of power to operate the said shearing section.

2. An electrically operated shaving implement comprising a handle and a shearing section, said shearing section provided with a shearing face adapted to cut hair while positioned against the face being shaved, said shearing section provided with tensioning means adjustable to various degrees for cushioning said shearing section to the touch of the said shearing face while the latter is positioned against the said face being shaved.

3. A shaving implement comprising a handle and a shearing section, said shearing section comprising a base portion and a shearing unit, the said unit provided with grooved sections, the said base portion provided with flange portions, said flange portions adapted to fit within the said grooved sections of the said unit, said flange portions being thinner than the height of said grooved sections permitting vertical movements of said unit to slide said unit into desired position upon said flange portions and to remove said unit from said flange portions, said flange portions adapted to hold said unit in desired position upon the said base portion.

4. A shaving implement comprising a handle and a shearing section, said handle provided with a motor compartment, said shearing section provided with a shearing face adapted to cut hair off the face being shaved, a motor located within said compartment, said motor provided with actuating elements, a cover-element positioned under the said shearing section in a manner forming a partition between the said shearing section and the said motor compartment, the said cover element provided with

tubular members adapted to cover the top portions of the said actuating elements, said cover element adapted to receive the said cut hair thereby preventing the clogging up of the motor parts by such cut hair, said shearing section adapted to be removed from its normal position for the removal of the said cover element, said shearing section adapted to be placed back into desired position for shaving purposes, and means for obtaining a source of power to operate said shaving implement.

5. In a shaving implement, a handle and a shearing section, said handle provided with a motor compartment, a motor within said compartment, said motor provided with actuating elements, said shearing section comprising a stationary shearing member, said shearing member provided with a chamber, an inner shearing member movable within the said chamber of the said stationary member, the said stationary member having a main opening, said main opening provided with an enlarged bevelled end portion, said enlarged end portion forming a leader for the top portion of the said actuating element to lead such top portion into the said main opening of the stationary shearing member, the said inner shearing member provided with a main opening, the said main opening of the inner member provided with an enlarged bevelled open end section, the said enlarged open end section of the main opening of the inner shearing member forming a leader for the said top portion of the said actuating element leading such top portion into the said main opening of the said inner shearing member, said top portion of the said actuating element adapted to move the said inner shearing member within the chamber of the said stationary member for shaving purposes.

6. A shaving implement comprising an assembled handle having a seat for a shearing section, a plate, an assembled shearing unit, said unit comprising a complete assembled outer stationary shearing member and an inner movable shearing member, spring tensioning means within said stationary shearing member for holding said inner member in frictional engagement within the said stationary member, the lower portion of said stationary member having side flanges, said plate having resilient flange portions, said side flanges adapted to be moved under the said flange portions to slide said assembled unit into desired position upon the said plate and be held thereon against displacement for shaving purposes, said plate and said unit positionable upon the said seat of said handle as an assembled unitary structure.

7. A shaving implement comprising an assembled handle having a seat and a removable assembled elongated shearing section upon said seat, said shearing section having chamber openings through its respective end portions, a motor compartment within said handle, a through centrally located opening within said seat, said opening extending into said motor compartment, an actuating element extending from said motor compartment for engaging and operating the said shearing section for shaving purposes, a removable yieldable element, said removable element secured frictionally to a portion of said seat and embracing the said actuating element forming a non-perforated partition underlying centrally the said shearing section and covering the said opening of the said seat for blocking the entrance of sheared hair into the said motor compartment, means for covering the said end portions of the said chamber openings, said shearing section being removable from the said handle for the removal of said partition upwardly from the said seat.

8. An electrically operated shaving implement comprising a handle and a removable shearing section, said handle having a motor compartment and a seat over said compartment for supporting said shearing section thereon, said seat having an approximately centrally located opening, said shearing section comprising a plate having a plurality of individually assembled separate shearing units secured thereto forming an assembled unitary structure of said plate and the said individual units, a plurality of actuating elements, said elements extending from the said motor compartment through the said opening of the said seat, each of said actuating elements adapted to engage one of said individually assembled shearing units to operate such unit for shaving purposes, a separate removable yieldable element, said removable element positioned in frictional engagement with portions of said seat and embracing each of the said actuating elements individually forming a non-perforated partition underlying centrally the said shearing section and simultaneously therewith covering the said opening of the said seat for blocking the entrance of sheared hair through such opening into the said motor compartment, said shearing section adapted to be removed as a unitary structure from the said seat for the removal of said partition upwardly from the said seat and the said actuating elements.

9. An electrically operated shaving implement comprising a handle and a removable shearing section, said handle having a motor compartment, said handle having a seat for supporting said shearing section thereon, said seat having at least one centrally located opening, said shearing section comprising a base portion having at least one individually assembled shearing unit secured thereto forming an assembled unitary structure of said base portion and the said unit, an actuating element, said actuating element extending through said opening of said seat and adapted to engage the said assembled shearing section to operate said unit for shaving purposes, a separate removable non-perforated cover element, said cover element having end portions, said cover element underlying centrally said shearing unit having the said end portions engaging frictionally portions of said seat, the center portion of said cover element being yieldable, said yieldable center portion embracing the said actuating element covering the said opening of the said seat for blocking the entrance of sheared hair into the said compartment, said shearing section being removable from the said seat for the removal of the said removable cover element upwardly from the said portions of said seat.

10. A shaving implement comprising an assembled handle having a motor compartment and a plurality of actuating elements and a removable partition and a removable shearing section, said handle having a seat above the said motor compartment for supporting the said shearing section thereon, said seat being apertured centrally thereof, said shearing section comprising a plurality of separate individually assembled shaving units and a base portion united into a unitary assembled shearing section, each of said units comprising a stationary shearing member and an inner movable shearing member, the under face of each of said members having an opening positioned in alignment with an opening formed in the said base portion, the upper portions of said actuating elements extending outwardly from the said motor compartment through the said apertured seat, each one of said upper portions positioned within the opening of said base portion and within the openings of one of said units to operate the said inner movable member for shaving purposes, said removable partition secured frictionally in desired position, the center portion of said partition being yieldable, said yieldable center portion embracing each of the said actuating elements individually and underlying centrally said shaving units and simultaneously therewith covering said apertured seat, said partition being non-perforated to block the entrance of sheared hair through the said apertured seat into the said motor compartment, said shearing section being removable as an assembled unitary structure upwardly of said seat for the removal of the said partition upwardly from the said actuating elements and the said seat.

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13

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