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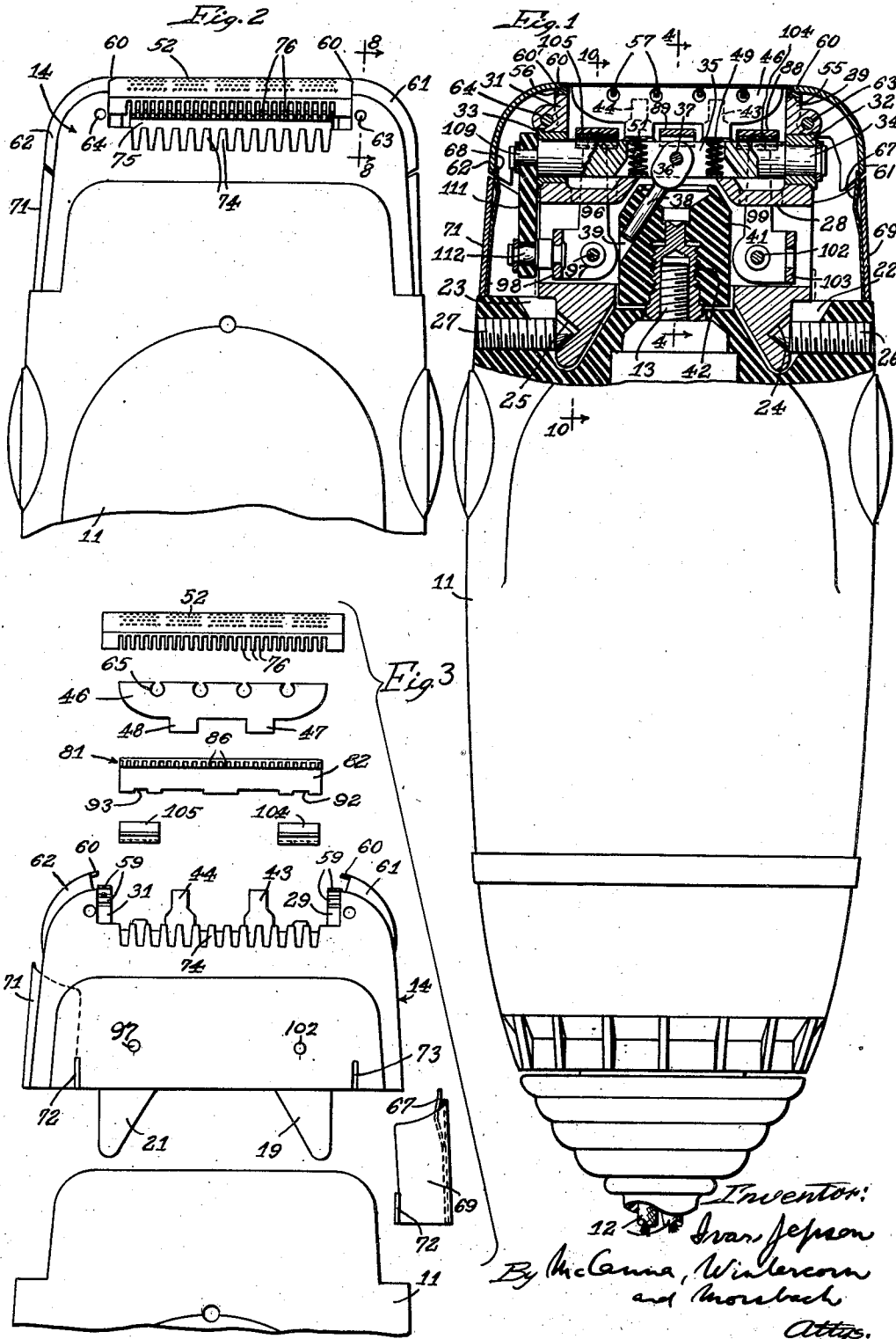
I. JEPSON

2,370,542

SHAVING IMPLEMENT

Filed Jan. 2, 1940

3 Sheets-Sheet 1



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2,370,542

SHAVING IMPLEMENT

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3 Sheets-Sheet 2

Fig. 4

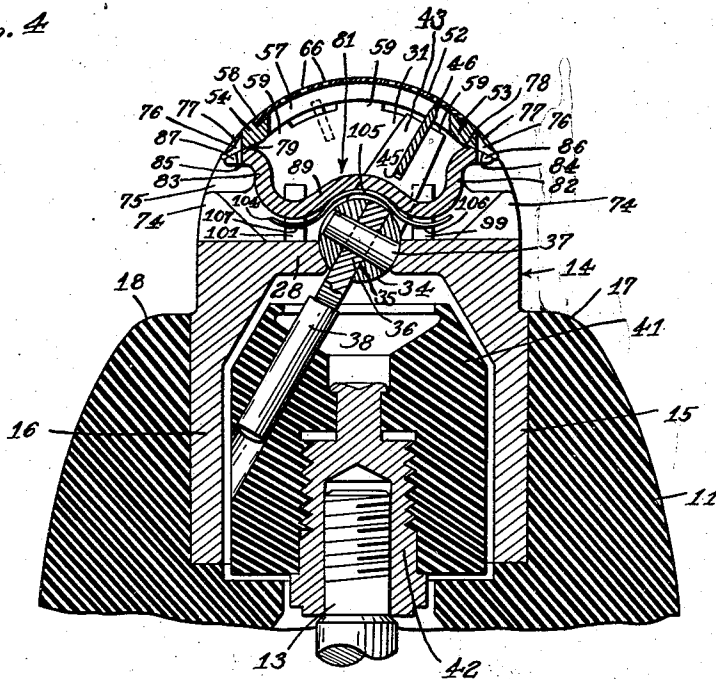
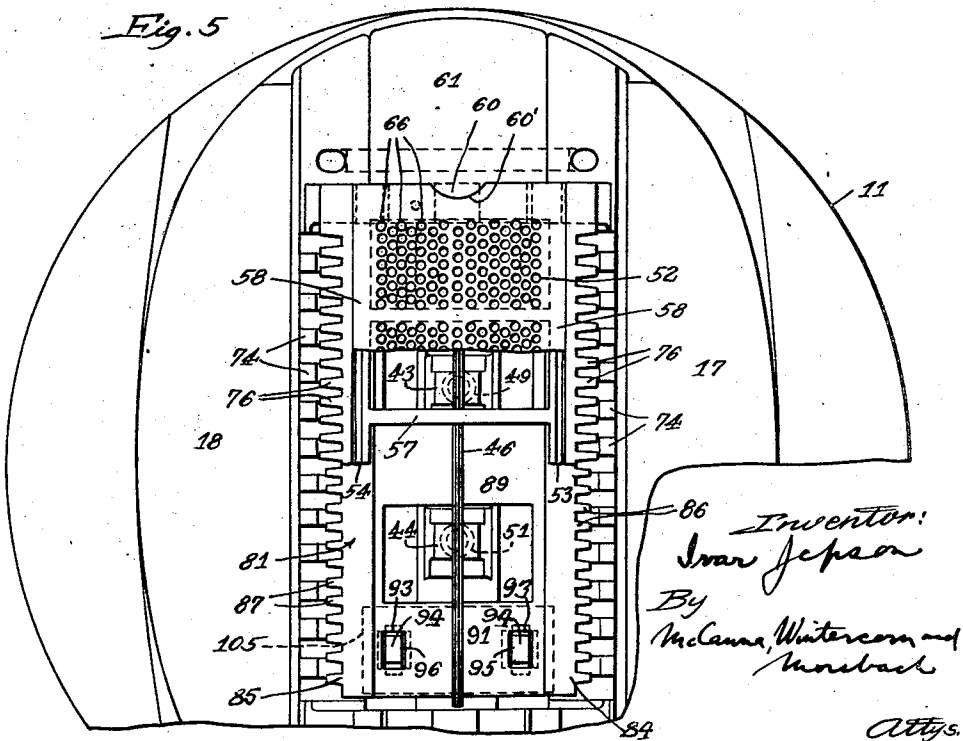


Fig. 5



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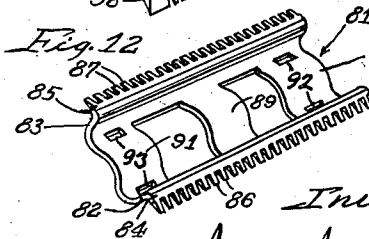
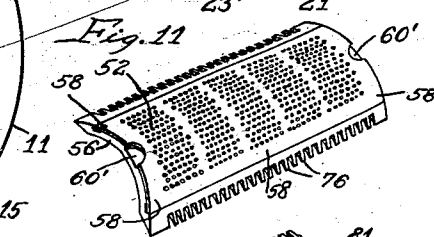
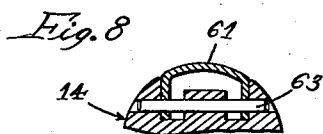
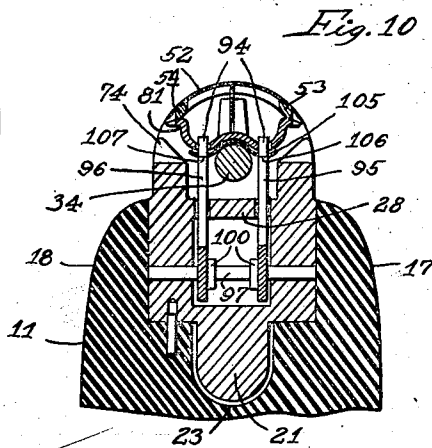
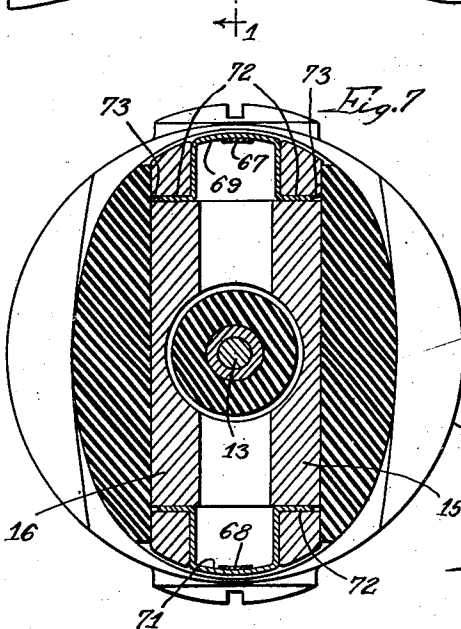
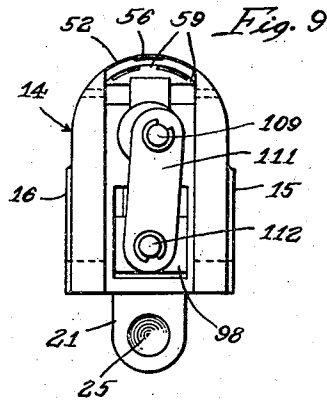
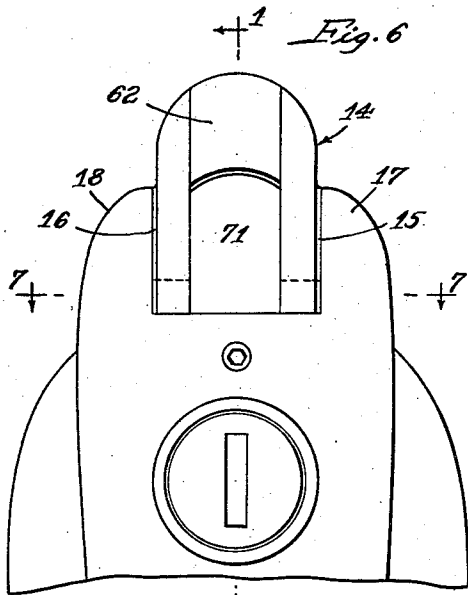
I. JEPSON

2,370,542

SHAVING IMPLEMENT

Filed Jan. 2, 1940

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,370,542

SHAVING IMPLEMENT

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Application January 2, 1940, Serial No. 311,969

21 Claims. (Cl. 30—34)

This invention relates to shaving implements of the so-called dry shaver type, and has particular reference to improving the cutting mechanism.

Of the many problems encountered in the development of this type of shaver, none has faced the industry more persistently and been more difficult of solution than that of reducing long hair of the beard to a length suitable for close shaving. The necessity for this arises from the fact that the cutting mechanism designed for close shaving is not adapted for shaving the beard when the hair becomes unduly long. A further necessity arises through the fact that the operator may shave in a careless manner, leaving unshaved hairs here and there about the face, which hairs soon become too long for the usual close shaving mechanism. Also, irregular or unusual types of hair growth peculiar to certain individuals makes it difficult to cut all hairs, particularly to a point where they can be cut by means of a close cutting shaver. The problem of reducing the length of the long hair resulting from these and other causes becomes serious and numerous attempts have been made to solve it.

The present invention contemplates a solution of the problem mentioned and to this end one of its objects is the provision of a shaver arranged to rapidly perform a shaving operation, regardless of the length of the beard, wherein a coarse shaving area having cutting teeth is provided for reducing long hair to close shaving condition, and a close shaving area is provided for completing the shaving operation, the arrangement being such that the operations may be performed simultaneously in a shaving stroke or independently, depending on condition of the beard or preference in use.

Another object of the invention is the provision of a shaver having a cutter mechanism of novel characteristics adapted for improved shaving.

A still further object of the invention is the provision of a shaver having a plurality of cutters arranged in coacting relation for different types of shaving operations, and common means for driving the cutters.

Another object of the invention is the provision of a novel form of stationary cutter means and a novel form of movable cutter means adapted for coacting use in a dry shaver.

Another object of the invention is the provision of a shaver having a plurality of movable cutters adapted for the problem above-men-

tioned, and improved means for driving the cutters.

Other objects and advantages will appear to those skilled in the art from the following description and the accompanying drawings, in which—

Figure 1 is a longitudinal fragmentary section through a shaver embodying my invention, the section being taken substantially on the line 1—1 of Fig. 6;

Fig. 2 is a fragmentary side view thereof;

Fig. 3 is a view in the nature of an expanded view showing certain of the parts separated in the manner in which the shaver head is assembled;

Fig. 4 is a section substantially on the line 4—4 of Figure 1 with the eccentric driving pin moved into the plane of the section;

Fig. 5 is an end view with parts of the comb structure broken away to show the cutters;

Fig. 6 is a side view taken at right angles to Fig. 2;

Fig. 7 is a section on the line 7—7 of Fig. 6;

Fig. 8 is a fragmentary section on the line 8—8 of Fig. 2;

Fig. 9 is a side view of the shaver head with the comb retaining mechanism removed showing part of the drive for the coarse cutter;

Fig. 10 is a section on the line 10—10 of Figure 1; and

Figs. 11 and 12 are perspective views of the comb part and the toothed cutter part, respectively.

In Figure 1 of the drawings I have shown the invention as embodied in a conventional type of dry shaver, the numeral 11 designating the housing for a motor adapted to drive the shaver. The housing also serves as a handle for manipulation of the device. A conventional electric cord 12 leads into the housing to supply electric current to the motor which may be of any suitable type. In this instance the armature shaft 13 of the motor projects from the opposite end of the housing for the purpose of driving the cutters. It will be understood that in its broader aspects the invention is not limited to any particular type of movement of the cutter driving shaft 13 and that any suitable means may be employed for driving the cutters, consistent with my invention.

In the embodiment of the invention herein shown, the structure includes a shaving head suitably applied to one end of the housing 11 and secured thereto in operative position to be driven from the shaft 13. In the present instance this head includes a frame designated generally by

the numeral 14 having side portions 15 and 16 adapted to seat in part between outwardly extending flanges 17 and 18 formed on the end of the housing 11, and depending ears 19 and 21 located in recesses 22 and 23 formed in the end of the housing 11 between the flanges 17 and 18, as best shown in Figure 1. The ears 19 and 21 have sockets 24 and 25 for the reception of screws 26 and 27 threaded in the housing 11, whereby to clamp and retain the shaving head in position in the end of the housing 11. The walls 15 and 16 are connected by a horizontally disposed transverse wall 28 extending longitudinally of the frame and by spaced vertically disposed transverse walls 29 and 31, the outer edges of the walls 29 and 31 being arcuate for the purpose of supporting the comb, as will presently be more fully described. Positioned in the transverse walls 29 and 31 are bearings 32 and 33 which carry a rock-shaft designated generally by the numeral 34. The rock-shaft has a transverse slot 35 therein intermediate its ends within which is positioned the flattened end 36 of a drive pin, the end 36 being pivotally supported in the slot on a bearing pin 37. The thickness of the flattened end 36 closely approaches the width of the slot 35 so as to snugly fit therein, but being capable of rotation on the pin 37. The opposite end of the drive pin is cylindrical as shown at 38 and is received in a cylindrical opening 39 in a drive head 41, the opening 39 being arranged diagonally as best shown in Figure 1 so that as the head 41 is rotated about its axis, the rock-shaft 34 will be rocked from side to side. The head 41 is in this instance threaded onto a bushing 42 which is received on the threaded end of the shaft 13, whereby to be rotated by operation of the motor within the housing 11. The rock-shaft 34 is provided with a pair of outwardly extending fingers 43 and 44, each provided with slots 45 for the reception of a cutter blade 46, which I shall hereafter designate as the close shaving cutter. This cutter has substantially the form shown in Figs. 1, 3 and 4, and has a sliding fit in the slots 45 of the fingers 43 and 44, whereby to be oscillated with movement of the rock-shaft 34. The cutter has depending ears 47 and 48 which extend into the slots in the fingers 43 and 44 and seat against light springs 49 and 51 which act to urge the cutter outwardly in the slots 45.

The close shaving cutter 46 cooperates with a comb seated at its opposite longitudinal ends against the outer edges of the transverse partitions 29 and 31. This comb is formed in a manner which will best appear from Figs. 3, 4, 5 and 11, and includes a central arcuate portion 52 which preferably is of properly tempered steel approximately .002" in thickness. This thin, resilient plate is suitably secured to a frame having longitudinal side portions 53 and 54, arched end portions 55 and 56, and a plurality of intermediate arched ribs 57 which extend between the side members 53 and 54 and serve to support the intermediate portions of the plate 52. In this instance the plate 52 is secured on the frame by means of soldering, brazing, welding or riveting along the marginal edges 58. (Figs. 4 and 11). However, my invention in its broader aspects is not to be limited to the use of a plural part comb, but contemplates any comb structure having the characteristics set forth in the claims. The comb structure may, therefore, be fabricated from a single piece of metal or from plural pieces. The outer edges of the walls 29 and 31 are provided with a plurality of projections 59 provid-

ing accurately located seats for the frame portions 55 and 56 to accurately support the comb with respect to the remainder of the head. The comb is held in position on said seats 59 by suitable retaining means such as by a pair of spaced pawls as indicated at 61 and 62 which span the space between the side walls 15 and 16 and are pivotally secured in place by pins 63 and 64 extending between these walls. Each pawl is provided at its inner end with means including a projecting holding lug 60 to accurately engage and locate the comb in its operative position on the supporting seats 59. As shown in Fig. 5, the pawl fits against the adjoining end of the comb and its lug 60 fits into a complemental locating recess 60' in the end of the comb. The pawls are rotatable on the pins 63 and 64 between the positions shown in Figure 1 and that shown in Fig. 3 to withdraw the lugs 60 from the recesses 60' and permit convenient removal of the comb from the head. The pawls are normally held in the closed position, as shown in Figure 1, by means of springs 67 and 68 positioned on enclosing members 69 and 71, which enclosing members span the space between the walls 15 and 16 from the bottom of the pawls to the end of the housing 11, these enclosing members being secured in place as shown in Figs. 3 and 7 by means of laterally disposed flanges 72 which are received in slots 73 of the side portions 15 and 16 and are conceded by the parts 17 and 18 of the housing when the head is seated. The operator presses inwardly and depresses the pawls 61 and 62 at their lower ends to rotate them to the position of Fig. 3 for removal of the comb, as heretofore described.

The cutter 46 is provided with a plurality of openings 65 along its cutting edge for the purpose of receiving the arched ribs 57 and permitting the cutter to have close intimate contact against the inner wall of the comb plate 52. The portions of the comb plate between the ribs 57 and between these ribs and the end portions 55 and 56 of the plate are provided with a plurality of hair-receiving openings 66 whereby, when this portion of the comb is pressed against the skin, the short hair of the beard will be caused to enter through the openings 66 and be severed in response to the oscillating action of the cutter 46. The openings 66 are of a suitable shape and kind adapted for close shaving. In the preferred embodiment (and there are distinct advantages in this), the thin tempered shear plate is perforated by dies to provide the openings 66, but it will be understood that in the broader aspects of my invention these openings might be otherwise formed, as by machining or grinding. In the embodiment here shown the cutter 46 is oscillated at a high rate of speed and because of its free, floating arrangement, it is responsive to centrifugal force and urged by such force into contact with the inner side of the comb. The slight pressure of the springs 49 and 51 is also utilized in urging the cutter blade against the comb, although these springs are not essential in this type of cutter operation. Also, in the present embodiment I have shown round hair-receiving openings 66 of approximately .018" diameter closely positioned in shaving areas separated by the portions overlying the narrow ribs 57. This size and shape of opening I have found to be most practical and advantageous for close shaving. The diameter of openings bears a definite relation to the thickness of the shear plate which in this case is .002" through the perforated areas. These dimensions

may be changed, but I prefer to maintain approximately this relation. This type of close shaving comb is for purpose of illustration and any suitable close shaving comb structure may be employed within the broader aspects of my invention. Likewise the cutting means need not be confined to an oscillating blade type but my invention contemplates broadly the use of any suitable type of close shaving comb and cutter structure in combination with the toothed, long hair cutting means described hereinafter.

The structure heretofore described constitutes what I term the close shaving mechanism for the reason that it is best adapted for shaving relatively short hair. It will be seen that it is necessary for the hair to be relatively short in order to enter the small openings 66 with facility, and while shaving a relatively long beard can be accomplished with this portion of the shaver, it is necessary that the operator go over the face a greater number of times than would otherwise be necessary when the beard is shorter. In order to increase the shaving rate where a relatively long beard is encountered or when the beard hairs are irregular and also to enable the use of the shaver on longer hair than is usually encountered in the beard, such, for example, as in shaving under the arms, on the legs, on the back of the neck and the like, auxiliary shaving mechanism is provided. In the present embodiment this auxiliary mechanism includes a plurality of guard teeth, as shown at 74, along the upper edges of the side walls 15 and 16, the side walls terminating slightly short of the side edges of the comb to provide an open space 75 between the side edges of the comb and the upper end of the side walls. It will be understood, of course, that this secondary cutting arrangement can be provided on either one or both sides of the shaver head, in this instance it being shown on both sides thereof. The longitudinal frame members 54 and 53 of the comb are likewise provided with a plurality of teeth 76 spaced along the side edges thereof, these teeth preferably being formed integral with said frame members. These teeth are ground away slightly, as shown at 77 (Fig. 4), on their upper faces just behind the rounded ends which converge with the flat lower faces and form pointed but not necessarily sharp terminal ends. The lower faces 78 and 79 of the frame members 53 and 54 are preferably in flat planes arranged at an angle with respect to each other; in other words, they do not lie in the same plane but diverge outwardly, as best shown in Fig. 4. The faces 78 and 79 are accurately ground to provide cutting edges on the under side of the teeth 76. These faces 78 and 79 may, however, be comparatively flat arcs ground from a common center. By reason of this construction I am able to provide relatively long teeth having substantial body section, considering the comparatively small dimensions necessary in an implement of this kind. Positioned against the comb frame members 53 and 54 is a secondary cutter designated generally by the numeral 81, shown in perspective in Fig. 12. This cutter has longitudinal side members or bars 82 and 83, the upper faces of which are accurately ground to diverge outwardly and downwardly to conform with the inclination of the faces 78 and 79, as shown at 84 and 85. These upper portions are shaped to provide rows of teeth 86 and 87 shaped to seat against the surfaces 78 and 79 of the comb, the teeth thereof cooperating with the teeth 76 of the comb to form shearing cutters. The side bars are connected by cross bars 88 and

89 and 91 which curve upwardly over the rock-shaft 34 and in spaced relation thereto to interconnect the side bars 82 and 83, as best shown in Figs. 1, 4 and 12. The cross bars 88 and 91 are provided with openings 92 and 93 at their opposite ends for clearance of the driving mechanism. This mechanism may be of any suitable or preferred construction. In the present embodiment the openings 93 serve to receive fingers 94 on the ends of upstanding cutter supporting and driving arms 95 and 96, which arms project upwardly on opposite sides of the rockshaft 34 and are pivotally supported on a pin 97 extending between the side walls 15 and 16 (see Figs. 1 and 10). The arms 95 and 96 are interconnected by a cross bar 98 and are supported for pivotal movement on a fixed pin 97 by means of bearings 100. The fingers 94 and the openings 93 are so proportioned as to allow a small amount of lateral clearance but such that upon oscillation of the arms 95 and 96 about the pin 97 substantially no lost motion will occur between the fingers 94 and the cutter 81. A pair of cutter supporting arms 99 and 101 similar to the arms 95 and 96 and having fingers similar to the fingers 94 are carried on a transverse pin 102 similar to the pin 97 and are interconnected by a cross bar 103 so as to be integral, the arms and associated parts being identical. Leaf springs 104 and 105 are provided with slots, not shown, and seat over the fingers 94, the slots being of such size that the ends of the springs seat against shoulders 106 and 107 on the fingers 95 and 96 and on the fingers 99 and 101, the springs being shaped so that the central portion 108 thereof bears only against the central portion of the straps 88 and 91, as best shown in Fig. 4, thereby urging the teeth 86 and 87 against the teeth 76 so as to exert a shearing pressure therebetween.

My invention contemplates driving the cutter 81 by the same means or prime mover in the housing as is employed for driving the cutter 40. In the present embodiment a crank pin 109 is eccentrically positioned on the end of the rock-shaft 34 and a link 111 is positioned thereon for longitudinal movement in response to rotary motion of the rock-shaft. The opposite end of the link 111 has a universal connection with a pin 112 which is fixedly secured to the adjacent cross bar 98. Said universal connection is provided by making the bearing portion of the pin 112 spherical so that it coacts with the annular bearing in the link to transmit motion from the link to the pin without binding. It follows that as the link moves vertically with respect to Figure 1, the arms 95 and 96 are oscillated on the pin 97, thus imparting reciprocating motion to the cutter 81 sufficient to cause the teeth 86 and 87 of the cutter to move back and forth across the adjacent teeth on the edges of the comb to perform a shearing or shaving operation. During this operation the arms 99 and 101 oscillate idly by reason of their connection with the cutter 81 and merely serve as part of the guiding and supporting means for this cutter. The prime mover in this instance is the motor driven shaft or armature shaft 13, or the rock-shaft 34 may be considered the prime mover or driving means common to both cutters. While this feature of operating both cutters from a common driving means is of particular merit in giving simultaneous close shaving and coarse shaving operations, it should be understood that my invention in its broader aspects contemplates operation of the

cutters independently by the provision of driving mechanism for this purpose.

The shaving mechanism last described constitutes a coarse shaving mechanism best adapted for the purpose of reducing relatively long hair to the optimum length for shaving by means of the first described or close shaving portion of the shaver. The coarse shaving mechanism also has particular utility in the cutting of long or irregular hairs usually found on the neck and adjacent portions. The projecting teeth on the comb are so constructed as to be particularly well adapted for engaging beneath these hairs and guiding them into or across the cutting edges of the coacting teeth. A slight rocking motion of the head in the direction of movement thereof as it is drawn over the skin is particularly helpful in picking up these hairs and in promoting faster shaving with this mechanism. It will also be observed that this coarse shaving mechanism operates in what may be termed coarse shaving areas which are located in close proximity to and at opposite sides of the close shaving area so that by merely tilting the shaver slightly this close shaving area is brought into registration with the face. Thus, in a single stroke or movement of the shaver across the face both the coarse shaving area as well as the close shaving area may be utilized. On the other hand, the shaving areas are so arranged that in the normal close shaving operation the coarse shaving areas do not interfere with the close shaving operation but neither are beneficial because of reducing long hair and also because the coarse shaving elements are removed from the immediate close shaving area and therefore eliminate any tendency toward irritation when close shaving.

It will be apparent that I have provided a shaver combining coarse and close shaving operations in such manner that the two types of operations may be successively conducted from the same instrument and in such manner that isolated or irregular long hair may be promptly picked up in the course of shaving or by a simple tilting of the shaver as it rests against the face. Also, I have combined in a single head, coarse and close shaving mechanisms coacting in a novel manner for use simultaneously and independently merely according to the position of the shaver in its application by the user. It will be further seen that both of the coarse shaving cutters contact the comb along areas which approximate line contact, and as a result it is possible to maintain intimate contact and pressure between the complementary shearing elements; that I have provided separate shearing means for the different types of cutting operations operated from a unitary drive mechanism without increasing the space required for the cutters; that I have provided a novel form of coarse shaving cutter, novel means for actuating the cutter, and novel means for applying the shearing tension thereto; and that I have provided a novel comb for a shaver adapted to perform the shaving operation in an improved fashion. It will also be seen that I have provided an improved comb structure in which the coarse shaving comb teeth may be relatively long and of relatively heavy section material so that they will function effectively and will withstand a considerable amount of rough treatment without becoming bent out of alignment or being broken, also that the close shaving cutting edges are incorporated in an extremely thin section of relatively large shaving area

adapted for efficient use over a comparatively long period. This improved comb structure is adapted for coaction with cutting means in a compact organization of parts. The comb structure is also adapted for economic manufacture and it constitutes a unit replaceable at a comparatively low cost.

While I have shown a particular embodiment of my invention, it will be understood that I do not wish to be limited thereto since many modifications may be made, and I therefore contemplate by the appended claims to cover any such modifications as fall within the true spirit and scope of my invention.

I claim:

1. The combination in a shaving implement, of a head having a thin transversely arcuate shear plate perforated to provide a close shaving portion and having a longitudinal row of clipping teeth projecting from one side, a cutter adapted to be oscillated transversely in coaction with the inner side of said shear plate, a second cutter underlying the head having a row of projecting clipping teeth and adapted to be reciprocated longitudinally in coaction with the teeth on the head, and means for operating said first mentioned cutter and said second cutter for close shaving and coarse shaving operations.

2. A shaving implement operable by a driving means and having a comb provided with perforations for close shaving and a row of projecting teeth for coarse shaving, the comb comprising a unitary structure replaceable as such on the implement, a cutter coacting with the inner side of the perforated portion of the comb, a second cutter having projecting teeth coacting with the comb teeth, means whereby each cutter is independently urged into cutting relation with its respective coacting comb portion, and means for driving said cutters for simultaneous close shaving and coarse shaving operations.

3. The combination in a shaving implement, of a head having a thin transversely arched shear plate perforated to provide a close shaving portion and having a longitudinal row of clipping teeth projecting from one side thereof, a cutter adapted to be oscillated transversely in coaction with the inner side of said shear plate, a second cutter underlying the head having a row of projecting clipping teeth and adapted to be reciprocated longitudinally in coaction with the teeth on the head, means whereby the first mentioned cutter and the teeth of the second mentioned cutter are independently urged into intimate shearing contact with the perforated head and the clipping teeth, respectively, and means for operating said first mentioned cutter and said second cutter for close shaving and coarse shaving operations.

4. The combination in a shaving implement, of an upwardly arched relatively stationary comb structure having a close shaving portion and a longitudinal row of clipping teeth projecting from one side thereof, a downwardly arched cutter frame beneath the comb structure having a longitudinal row of clipping teeth projecting from one side for coacting with the clipping teeth on the comb structure, a cutter located between the upwardly arched comb structure and the downwardly arched cutter frame coacting with the underside of the perforated portion of the comb structure, and means for operating the first mentioned cutter and the cutter frame for close shaving and coarse shaving operations.

5. The combination in a shaving implement, of a comb comprising a supporting frame having

longitudinal side members each having an outwardly projecting row of clipping teeth, and a thin resilient shear plate supported on said frame intermediate said side members, the shear plate being perforated to provide a close shaving portion; a cutter coacting with the inner side of said shear plate, a cutter frame underlying the comb having longitudinal side members each provided with an outwardly projecting row of clipping teeth coacting with the adjacent row of teeth on the comb; means whereby the first mentioned cutter and the cutter frame are independently urged into intimate shearing contact with the perforated comb and the rows of clipping teeth, respectively; and means for operating said first mentioned cutter and said cutter frame for close shaving and coarse shaving operations.

6. The combination in a shaving implement, of a comb comprising a supporting frame having longitudinal members connected by curved ribs, a thin shear plate conforming to the curvature of said ribs and extending at its edges into proximity to said longitudinal members and secured thereto, the shear plate having hair-receiving openings and cutting edges adapted for close shaving, one of said longitudinal members having cutting teeth formed on the outer edge thereof; a cutter coacting with the inner side of the close shaving portion of the shear plate and adapted to be oscillated laterally in coaction therewith; a cutter frame having longitudinal members underlying said longitudinal members of the comb in sliding engagement therewith and one of said members on the cutter frame having cutting teeth coacting with the first mentioned cutting teeth for coarse shaving; and means for oscillating the first named cutter and reciprocating said cutter frame for close shaving and coarse shaving operations.

7. The combination in a shaving implement, of a comb comprising a supporting frame having longitudinal members connected by curved ribs, a thin shear plate conforming to the curvature of said ribs and extending at its edges into proximity to said longitudinal members and secured thereto, the shear plate having hair-receiving openings and cutting edges adapted for close shaving, one of the longitudinal members having cutting teeth on its outer edge; a cutter coacting with the inner side of the close shaving portion of the shear plate and adapted to be oscillated laterally in coaction therewith; a cutter frame underlying the comb having cutting teeth coacting with the cutting teeth on the comb for coarse shaving when the cutter frame is reciprocated lengthwise; and means for oscillating the first named cutter and reciprocating said cutter frame for close shaving the coarse shaving operations.

8. A shaving implement having a removable comb unit comprising a thin perforated arched portion and a row of clipping teeth projecting from one side, cutter means coacting with the underside of said perforated portion and having clipping teeth coacting with the clipping teeth on the comb unit, means for operating said cutting means for close shaving and coarse shaving operations, a housing structure for said parts on which the comb unit is removably seated, the housing structure being provided with a narrow elongated opening contiguous to and extending throughout the length of said comb teeth, and a finger actuated catch mounted on the housing structure at each end of the comb unit and constructed for engaging an end portion of the comb unit for holding the latter seated in its operating

position and being releasable from said engagement for permitting removal of the comb unit.

9. A shaving implement having a removable comb unit comprising a thin perforated arched portion and a row of clipping teeth projecting from one side, cutter means coacting with the underside of said perforated portion and having clipping teeth coacting with the clipping teeth on the comb unit, means for operating said cutting means for close shaving and coarse shaving operations, and a housing structure for said parts on which the comb unit is removably mounted, the housing structure being provided with a narrow elongated opening contiguous to and extending throughout the length of said comb teeth and having a row of guard teeth extending into said opening in cooperative relation with the teeth on the comb unit.

10. The combination in a shaving implement operable by a driving means, of an arched comb having a central portion provided with a plurality of openings for close shaving and an edge portion provided with teeth for the reception of long hair for clipping, a cutter positioned edgewise against the inner surface of said central portion, a cutter extending longitudinally of said edge portion having teeth along an edge thereof cooperable with the teeth of said edge portion, and means operating between the driving means and the cutters for reciprocating the close shaving cutter laterally of said central portion and the clipping cutter longitudinally of said edge portion.

11. The combination in a shaving implement, of a shear plate having an arched portion provided with a plurality of openings for close shaving, an adjoining row of projecting teeth for the reception of long hair for clipping, a cutter positioned edgewise against the inner surface of said arched portion, a second cutter having teeth cooperable with the teeth of said row and reciprocable longitudinally thereof to perform a clipping operation, and means for reciprocating the close shaving cutter laterally and the clipping cutter longitudinally.

12. The combination in a shaving implement, of a comb arched transversely of its length and having a central close shaving portion and opposite edge portions provided with projecting teeth for clipping, a rock-shaft beneath the concave side of the comb extending longitudinally thereof, a cutter on the rock-shaft bearing against the inner surface of the central portion of the comb, movable thereover in shearing relation therewith in response to rocking motion of the shaft, a second cutter disposed below the comb having edge portions engaging said edge portions substantially throughout the length thereof and having teeth cooperable with the teeth of said edge portions for clipping, and spring means acting on said second cutter about midway between said edge portions to urge the cutter teeth into shearing relation with the teeth on the comb.

13. The combination in a shaving implement, of a comb arched transversely of its length and having a central close shaving portion and opposite edge portions provided with projecting teeth for clipping, a rock-shaft beneath the concave side of the comb extending longitudinally thereof, a cutter on the rock-shaft bearing against the inner surface of the central portion of the comb, movable thereover in shearing relation therewith in response to rocking motion of the shaft, a second cutter disposed below the comb having edge portions engaging said edge portions sub-

stantially throughout the length thereof and having teeth cooperable with the teeth of said edge portions for clipping, a plurality of pivotally supported levers for supporting said second cutter in shearing relation with the comb, and means for rocking said levers to reciprocate the second cutter longitudinally of the comb.

14. The combination recited in claim 13, wherein said second cutter spans the comb between the rock-shaft and the first mentioned cutter and said levers are disposed on opposite sides of said shaft, and spring means acting between the levers and the second cutter along the longitudinal centerline of the second cutter to urge the same into clipping relationship with the comb.

15. The combination recited in claim 13, wherein said rock-shaft has a crank-pin and a link acts between said crank-pin and said levers to rock the levers with movement of the rock-shaft to simultaneously reciprocate the cutters.

16. The combination in a shaving implement, of a comb comprising a central portion of thin section metal having a multiplicity of small hair-receiving openings and a marginal frame of heavy section metal having solid teeth spaced along a longitudinal side thereof; a laterally reciprocating cutter coacting with the under side of the central portion for close shaving; and a longitudinally reciprocating cutter having teeth coacting with said teeth on the comb for clipping.

17. In a shaving implement a comb having a thin shear plate arched transversely provided with hair-receiving openings adapted for close shaving and having in fixed relation with the shear plate longitudinal side members of comparatively heavy section metal each provided with a row of outwardly projecting clipping teeth adapted for coarse shaving, the under side of said members being accurately finished to provide shearing surfaces in planes diverging downwardly and outwardly.

18. The combination in a shaving implement, of a replaceable comb unit having a thin shear plate provided with hair-receiving openings adapted for close shaving and a longitudinal side member of comparatively heavy section metal provided with a row of outwardly projecting clipping teeth adapted for coarse shaving, means

supporting the comb unit only at its ends beyond said row of teeth, and means releasably engaging said ends of the comb unit to clamp it to said supporting means and to permit quick removal of the comb unit therefrom.

19. In a shaving implement operable by a driving means, in combination, an arched shear plate for close shaving, an adjoining row of teeth extending longitudinally of said shear plate for clipping hair, a cutter coacting with said shear plate adapted to be laterally oscillated in a cutting action, a cutter having a row of clipper teeth coacting with said row of teeth adapted to be reciprocated longitudinally in a cutting action, and means operated by said driving means to laterally oscillate the first mentioned cutter and longitudinally reciprocate the second mentioned cutter.

20. In a shaving implement operable by a driving means, in combination, a longitudinal shear plate arched transversely and provided with openings adapted for close shaving, a member contiguous to one side of the shear plate having a row of clipper teeth extending lengthwise of said shear plate, a cutter coacting with the inner side of the shear plate, a second cutter coacting with the inner side of the clipper teeth, means whereby each cutter is independently urged into coaction with its coacting member, and means operated by said driving means to simultaneously reciprocate the first and second mentioned cutters.

21. A shaving implement having an arcuate comb adapted for close shaving and a cutter adapted to be oscillated in coaction therewith, a comb arranged in juxtaposition to the first mentioned comb having a row of clipper teeth, a cutter adapted to be reciprocated in coaction with the second mentioned comb, and power drive means for simultaneously operating said cutters including a rotary drive member having an eccentric means connected for transmitting oscillatory motion to the first mentioned cutter and a second eccentric means connected for transmitting reciprocating motion to the second mentioned cutter.

IVAR JEPSON.

CERTIFICATE OF CORRECTION.

Patent No. 2,370,542.

February 27, 1945.

IVAR JEPSON.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, line 31, for "conceded" read --concealed--; page 5, first column, line 57, for "the" before "coarse" read --and--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office

Signed and sealed this 14th day of August, A. D. 1945.

Leslie Frazer

(Seal)

First Assistant Commissioner of Patents.