Feb. 12, 1957 K. T. GRATHWOHL 2,780,862

DISPOSABLE RAZOR HAVING EASY CLEANING SLOPING SURFACES

Filed April 14, 1954

Fig. 1

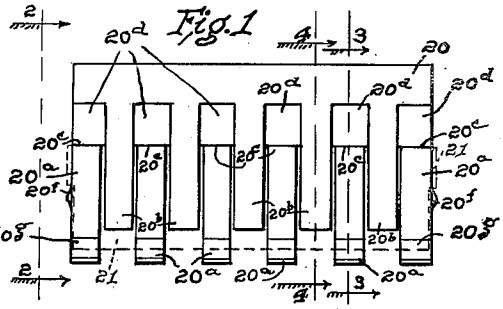


Fig. 2

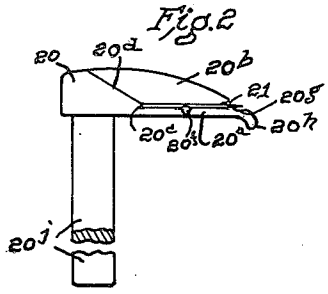


Fig. 11

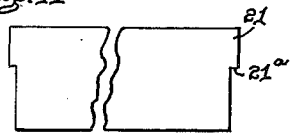


Fig. 3

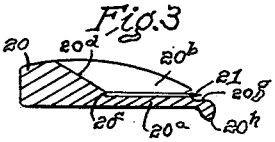


Fig. 4

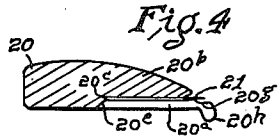


Fig. 12

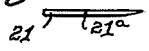


Fig. 5

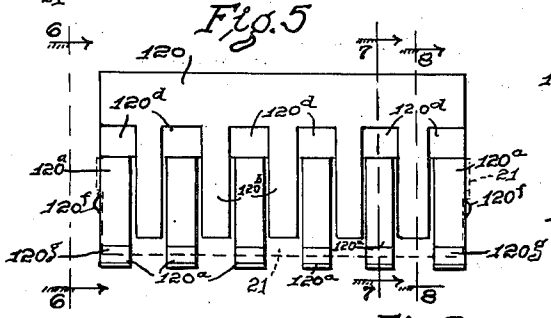


Fig. 6

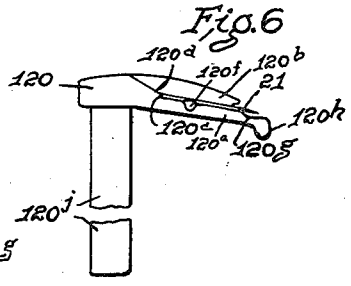


Fig. 7

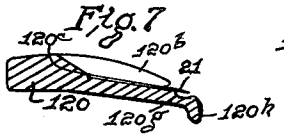


Fig. 8

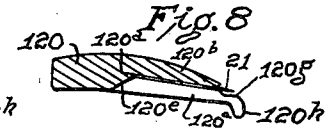


Fig. 9

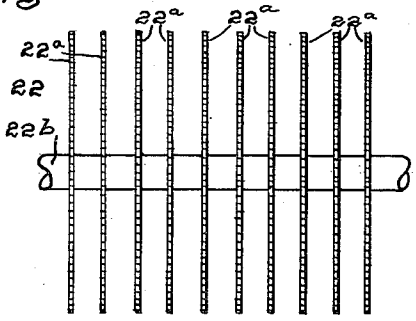
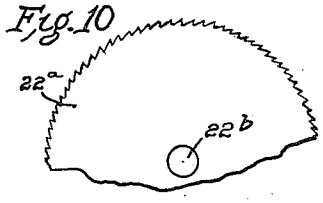


Fig. 10



Inventor

Kenneth T. Grathwohl

By Walter W. Burns

Attorney

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DISPOSABLE RAZOR HAVING EASY CLEANING SLOPING SURFACES

Kenneth Tuthill Grathwohl, Greenport, N. Y.

Application April 14, 1954, Serial No. 423,031

2 Claims. (Cl. 30—32)

This invention relates to safety razors and particularly to those razors made in a single piece.

The wide extent of the use of safety razors has brought about many changes in construction and merchandising. The wide use of vending machines, for example, has shown that they may be used for the sale of most any article which can be used by the traveling public. In order to sell in a vending machine, the article must be of the cheapest type and in some instances, cheap enough to be thrown away after one use.

The primary object of this invention is the provision of an improved safety razor.

Another object of the invention is the provision of an improved safety razor of a single piece but retaining all of the advantages of the two piece razors.

Another and still further object of the invention is the provision of an improved safety razor being capable of being die-cast of either plastic or metallic material and in the casting process, leaving a space for the insertion of the razor blade.

Still another object of the invention is the provision of an improved razor which is capable of being cast in one piece with provision for guide means forward of the edge in position for protecting the forward edge of the blade to avoid the user being cut but free of contact with the edge of the blade.

A still further object of the invention is the provision of an improved safety razor of a single piece, the razor blade space having blade-contacting surfaces in staggered relationship along the length of the blade.

Still another and further object of the invention is the provision of a safety razor made in a single piece, the razor blade space having blade-contacting surfaces in staggered relationship along the length of the blade, there being projections or stops at the outer contacting surfaces to prevent accidental movement of the blade from its place.

Still another and further object of the invention is the provision of a safety razor made in a single piece with blade contacting fingers on both sides of the razor blade position, and having slanting surfaces at the rear of the spaces between the fingers extending rearwardly and away from substantially the rear of the blade to assist in the cleaning of the razor.

Other and further objects of the invention will be apparent to those skilled in the art from a reading of the complete specification.

Referring now to the drawing wherein are illustrated two embodiments of my invention,

Fig. 1 illustrates one embodiment of the invention showing the face-contacting side of the head of the razor.

Fig. 2 is a view taken from the line 2—2 in the direction of the arrows of Fig. 1.

Fig. 3 is a sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a sectional view on the line 4—4 of Fig. 1.

Fig. 5 is a view similar to Fig. 1 but of another modification.

Fig. 6 is a view taken from the line 6—6 of Fig. 5 in the direction of the arrows.

Fig. 7 is a view on the line 7—7 of Fig. 5.

Fig. 8 is a sectional view on the line 8—8 of Fig. 5.

Fig. 9 is an elevational view of a gang circular saw for trimming the edges of the fingers.

Fig. 10 is a partial sectional view of one of the blades of the saw of Fig. 9 with a portion broken away.

Fig. 11 is a plan view of the blade which I use with my razor.

Fig. 12 is an edge view of the blade shown in Fig. 11.

Throughout the specification and drawing, the same reference characters refer to the same or similar parts.

Referring to Figs. 1 to 4, the reference character 20 designates the head of the razor generally. This head 20 is provided with forwardly extending guard fingers 20^a and holding fingers 20^b. The inner guard fingers 20^a are longer than the holding fiingers 20^b which latter contact with the face of the user, more intimately.

In Figs. 2, 3, 4 and 11, there is illustrated the razor blade 21, it being shown in position for use, in Figs. 2, 3 and 4. The head 20 is preferably so made that there is a shoulder 20^c at the position of the rear edge of the razor blade so as to have a definite stop for the razor blade to prevent its being accidentally displaced to the rear.

Since one of the purposes of this invention is to provide a razor which will be cheap but effective for at least several shaves, it is necessary to provide for easy cleaning. To provide for this feature, the surfaces 20^d at the rear of the shoulders 20^c and between adjacent fingers 20^a are inclined with relation to the surface of the razor blade in front of them. For example, the inclined surfaces to the rear of the guard fingers 20^a, which are designated as 20^d are located between the fingers 20^b and provide spaces for the easy passage of water in cleansing between these fingers 20^b. Likewise, the slanting surfaces 20^e are provided to the rear of the fingers 20^a to facilitate the washing between the fingers 20^a as shown in Fig. 4. At the outsides of the outer guard fingers 20^a at about their middles are small lugs 20^f which are made integral with the guard fingers 20^a on which they are formed. These lugs 20^f are of a height above the surface of the fingers 20^a not greater than the thickness of the razor blade 21.

Referring to Figs. 2, 3, and 4, it will be seen that each of the guard fingers 20^a is provided with a depressed portion 20^g near the ends where the fingers contact the face of the user and at the extreme ends 20^h, the fingers are turned downwardly to facilitate passing over the skin of the face. This feature permits the full length of the razor blade 21 to come into contact with the face and yet the skin is protected from being cut by the razor blade edge.

Connected to or preferably integral with the head 20 of the razor is a handle 20^j which is made of any convenient shape and length.

In the making of this razor, any suitable material as metal or plastic may be used. The method used may depend upon the particular details of the shape within the scope of the invention as claimed. In die-casting, one method is to have the upper die member (as the razor is illustrated) form the upper surface of the razor head and the face-contacting surfaces of the fingers 20^b and also the sides of these fingers 20^b, as well as the upper surfaces of the guard fingers 20^a and their slant surfaces 20^d. The upper die member would also form those portions of the shoulder 20^c which are located between the adjacent sides of the nearest fingers 20^b.

The complementary die member would form the under surfaces of the head section, all of the fingers 20^a and 20^b and the sides of the fingers 20^a, as well as those portions

of the shoulder 20^c which are between the fingers 20^a. The lugs 20^f would be formed, half by the upper die member and half by the complementary die member.

It is to be noted that there is a space showing between the fingers. This is to promote the production of sharp edges at the sides of the fingers. If for any reason, as by formation of fins, it is found that the fingers do not have sufficiently sharp edges where they contact the razor blade, and sharp edges at these places are desired, there is provided a gang saw **22** comprising the saws 22^a mounted on the shaft 22^b as illustrated in Figs. 9 and 10. These saws are spaced, between centers, a distance equal to the distance between centers of the spaces between the fingers so that when used, the saws will take a fine cut from the sides of each of the saws at a single cut. During the cutting operation, the razor is held by a suitable jig while the cutting is done. The gang saw is suitably mounted so that the razor and saw may be given relative bodily movement to bring the two together to properly perform the function of the saw. As the particular means for doing this step are well known in the art, no further description will be given. When the razor is complete, it is only necessary to insert the blade. In this connection, it has been found that the thin type of blade is preferable to the thicker variety. Since the two die members in forming space for the razor, pass each other leaving a space for the razor blade extending from one end of the head to the other, it is only necessary to insert the end of the razor blade in one end of the slot, so formed, permitting it to ride the top of the near lug 20^f. The resiliency of the blade permits it to be pushed through until it is all in the space designed to receive it. When in place with the forward end of the razor blade against the lug 20^f at the far end, the end being pushed, will snap into its position behind the lug 20^f and the razor and blade are ready for use. The shoulder 21^a holds the razor blade and prevents forward movement. If it should be desired to remove the razor blade, it is possible to do this by raising one end of the razor blade to clear the lug 20^f and at the same time, pressing on the opposite end of the razor blade. When the razor blade starts and rides on the lug 20^f, it may then be pulled all the way out.

The foregoing description has been directed to a form of razor which has its razor blade in a plane substantially perpendicular to the axis of the handle. It may be found to be desirable to have the razor blade cutting edge operate at a different angle with relation to the handle. In Figs. 5 to 8, I have illustrated such an embodiment. This embodiment will now be described.

Referring to Figs. 5 to 8, the reference character **120** designates the head of the razor generally. This head **120** is provided with forward guard fingers 120^a and holding fingers 120^b. The guard fingers 120^a are longer than the holding fingers 120^b which latter contact more closely with the face of the user.

In Figs. 6, 7, 8, and 11, there is illustrated the razor blade **21**, it being shown in position for use, in Figs. 6, 7, and 8. The head **120** is preferably so made that there is a shoulder 120^c at the position of the rear edge of the razor blade so as to have a definite stop for the razor blade to prevent its being accidentally displaced to the rear.

Since one of the purposes of this invention is to provide a razor which will be cheap but effective for at least several shaves, it is necessary, as in the form already described, to provide for easy cleaning. To provide for this feature, the surfaces 120^d at the rear of the shoulders 120^c are inclined with relation to the fingers 120^a in front of them. For example, the inclined surfaces to the rear of the guard fingers 120^a, which are designated as 120^d are located between the fingers 120^b and provide spaces for the easy passage of water in cleansing between these fingers. Likewise, the slanting surfaces 120^e are provided to the rear of the fingers 120^b to facilitate the washing between the fingers 120^a as shown in Fig. 8. On the outsides of the guard fingers 120^a, at about their middles, are small lugs 120^f which are made integral with the guard fingers 120^a on which they are formed. These lugs 120^f are of a height above the surface of the fingers 120^a, not greater than the thickness of the razor blade **21**.

Referring to Figs. 6, 7, and 8, it will be seen that each of the guard fingers 120^a is provided with a depressed portion 120^g near the ends where the guard fingers contact the face of the user and at the extreme ends 120^h, the fingers are turned downwardly to facilitate passing over the skin of the face. This feature permits the full length of the razor blade to come into contact with the face and yet the skin is protected from being cut by the razor blade edge.

Connected to or preferably integral with the head **120** of the razor is a handle 120^j which is made of any convenient shape and length.

As already indicated, the razor may be made of any suitable material such as any of the many suitable plastics, or it may be made of metal.

The construction is such that it may be used indefinitely, inserting new razor blades as required, although it is possible to make the razor so cheap that it may be sold in a vending machine to be thrown away after using the first time. And in spite of its cheapness, it has all of the safety and cleansing features of the two or three part razors.

While two embodiments of my invention are illustrated and described in detail, it is to be understood that the disclosure is merely illustrative and that modifications and changes in material and form and proportions may be made without departing from the spirit of the invention and within its scope as claimed.

Having described my invention, what I claim is:

1. A safety razor comprising a body portion, a row of holding fingers integral with the body and extending to positions short of the position of the cutting edge of the razor blade which the razor is designed to receive, a row of guard fingers integral with the body portion and extending beyond the position of the said cutting edge, the fingers of one row being opposite the spaces between the fingers of the other row, and stop means in position to hold the blade in place when inserted, the body portion having gently sloping surfaces in directions rearwardly and outwardly of the fingers and extending rearwardly from the position of the rear edge of the said blade.

2. A safety razor comprising a body portion, a row of holding fingers integral with the body and extending to positions short of the position of the cutting edge of the razor blade which the razor is designed to receive, a row of guard fingers integral with the body portion and extending beyond the position of the said cutting edge, the body portion having gently sloping surfaces in directions outwardly and rearwardly from the position of the rear of said blade.

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