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PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in and relating to Shaving Units and Dispensers Therefor

5 We, WILKINSON SWORD LIMITED, a British Company of 16, Pall Mall, London, S.W.1., do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to a novel combination of shaving units and dispensers therefor. It will be made clear hereafter what is meant in the present specification by the term "shaving units".

15 At the present time the majority of shaving is by the use of thin double-edge razor blades which are fitted by the user in a razor frame, the blades being replaced when they are no longer fit for further use. Such razor frames are provided with a so-called "guard" which is often formed like a comb 20 to admit hairs between its teeth, and which in use is moved over the skin at an angle to the skin such that the cutting edge of the blade cuts into the hairs immediately above the level of the skin. This angle will be referred to as the "shaving angle". 25

30 For satisfactory shaving the shaving angle must be large enough to enable the blade to cut into the hairs rather than bending them over, but not so large that the cutting edge tends to dig into the face and cut the skin. It will be understood that the shaving angle is determined by the relative position of the cutting edge and the surface of the guard.

35 In an attempt to achieve optimum positioning of the cutting edge relative to the guard surface razor frames are on sale in which the flexing of the blade, when clamped in the razor frame, can be varied to a limited extent in order to adjust this spacing. However, because of tolerances in blade manufac-

ture and between different makes of razor blades it is not always possible to adjust to the optimum condition and readjustment may be necessary each time a blade is replaced.

45 There have been proposals in patent specifications for a type of razor which would not suffer from this disadvantage. This consists of a complete razor frame molded in a plastics material with the razor blade permanently secured in the head of the razor. With this construction it would be possible to set the spacing between the guard surface and the cutting edge during manufacture of the razor. However, with such razors, when the blade is no longer fit for use the complete frame must 55 be discarded.

60 It is an object of the present invention to obtain the benefits of having a preset spacing between the guard surface and the cutting edge whilst avoiding the disadvantage of having to store complete replacement razors for replacement of the existing razor when the blade thereof is no longer fit for use.

65 According to the present invention there is provided a razor blade dispenser comprising a housing in combination with a plurality of shaving units, each shaving unit consisting of a substantially rigid member to which a razor blade is secured in a permanent manner with said rigid member providing a guard 70 surface at a predetermined spacing from a cutting edge of the blade, said housing exposing, at least successively, sufficient of the rigid member of each shaving unit, so that said shaving units can be withdrawn successively from said dispenser by means of a handle which may be engaged with an exposed portion of each rigid member.

75 It will be seen that the present invention utilizes shaving units which each consist of a 80

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subsequently rigid member to which a razor blade is secured in a permanent manner, the rigid member having a guard surface located at a preset spacing from the cutting edge of the blade. Thus, each shaving unit takes the place of the head of a conventional razor frame and has the razor blade already fitted therein in a permanent manner. The shape of these shaving units is chosen so that a number of them can be stored compactly in a dispenser which is so designed that a handle can be applied to a shaving unit to withdraw it from the dispenser for use. When the blade is no longer fit for use the shaving unit can be discarded or returned to a portion of the dispenser designed to receive used shaving units. Another shaving unit can then be withdrawn by means of the handle.

At no time is it necessary for a shaving unit to be handled. By contrast with conventional razors it is necessary to handle the razor blade at least partially to eject them from their dispenser before they can be further withdrawn by hooking them onto the razor frame. Likewise they must be handled to insert them into the used blade compartment.

It will be seen that this combination of dispenser for storing shaving units together with a handle common to the shaving units, should be contrasted with the complete disposable razors previously proposed in patent specifications. A dispenser containing five shaving units is the equivalent of five such disposable razors and can be stored in far less space with consequent advantage to the manufacturer, the distributors and shopkeepers, as well as the users. There is the additional important advantage that whilst the shaving units are in the dispenser the delicate cutting edge is protected from damage or from causing injury.

There is an obvious hygienic advantage in replacing the complete head, or at least that part of the head which comes into contact with the face during shaving, at each replacement of a blade.

Reference has been made to the advantage of being able to fix the spacing between the cutting edge of the blade and the guard member during manufacture of the shaving units. Such shaving units may be manufactured with more than one relative setting of cutting edge to guard member and in this case the head may be marked in some way, for example by colour coding, to indicate the particular blade setting. Thus, there might be three blade settings, one designed to provide a very close shave, the second a normal shave and the third a less close shave.

That surface of a shaving unit which normally comes into contact with the face of the user may be treated to provide it with a predetermined coefficient of friction and, here again, shaving units may be provided with a different coefficient of friction duly indic-

ated by suitable coding. Thus, where a user prefers the portion of the shaving unit which contacts the skin to slide freely over the skin the surface may be given a low coefficient of friction. This can be done, for example, by ensuring that this portion of the surface is of a material having a low coefficient of friction, for example polytetrafluoroethylene. On the other hand some users may prefer the surface in contact with the skin to have a high coefficient of friction in order to strength the skin and in this case the surface may be suitably treated to ensure that it has a relatively high coefficient of friction.

Several embodiments of razors and dispensers for use therewith will now be described, by way of example, with reference to the accompanying drawings in which;

Figure 1 is an end view of a shaving unit,

Figure 2 is a plan view of a shaving unit,

Figure 3 is underside plan view of a shaving unit, whilst

Figure 4 is a sectional view along the line IV—IV in Figure 3;

Figure 5 is a rear view of the handle for holding a shaving unit,

Figure 6 is a sectional side view of the handle, whilst

Figure 7 is a plan view of the handle;

Figure 8 is a part sectional plan view of a dispenser for containing the shaving units, and

Figure 9 is a sectional side view of the dispenser.

Figure 10 is a plan view of an alternate construction of dispenser,

Figure 11 is a sectional side elevation along the line XI—XI in Fig. 10,

Figure 12 is an underside plan view of the dispenser of Fig. 10,

Figure 13 is an end elevation as seen from the right in Fig. 10, and

Figure 14 is a view as seen from above in the direction of the arrow XIV in Fig. 11.

Figure 15 is a sectional side elevation of a further possible construction of dispenser showing a part of the handle, with the head of the handle in a position to withdraw a shaving unit,

Figure 16 is a similar view to Fig. 15 but with the head, of the handle released from a used shaving unit,

Figure 17 is a plan view of the modified shaving unit suitable to be stored in the dispenser of Fig. 15,

Figure 18 is an elevational view of the handle, and

Figure 19 is a plan view of the dispenser of Fig. 15.

Referring now to Figure 1 this shows a shaving unit 10 of a plastics material, for example polystyrene, in which the blade 10a

is moulded so that its cutting edge 10b is pre-fixed relative to the guard surface 10c. Channels 10d are provided in the head to facilitate rinsing of the exposed portion of the blade after use. A locating groove 10e is provided in the underface of the unit to locate with a corresponding projection provided on the razor frame, as will be described hereafter, whilst a step 10f is provided on the upper face of the unit to engage a movable clamp on the frame, as will also be described hereafter.

As mentioned above the shaving units may be manufactured with various settings of the cutting edge relative to the guard member and with the surface 10c having an appropriate co-efficient of friction.

Referring now to Figures 5 to 7 these show a shaving unit 10 mounted in the handle 11 with the groove 10e of the underface mating with an elongated projection 11b on the seat 11a of the handle. The rear end of the unit 10 abuts against a step 11c at the rear end of the seat 11a. The shaving unit 10 is held in position on the seat 11a by a pivoted clamp 12 whose forward upper end is urged downwardly onto the step 10f on the upper face of the unit 10 by a leaf spring 13 bearing on the lower limb of the clamp. The head is freed by pressing on a thumb plate 12a of the clamp thereby pivoting the clamp against the reaction of the spring 13.

The shaving units 10 are stored in the dispenser 14 shown in Figures 8 and 9 abutting one another rear face to front face with the rear edge of the units (not shown) facing towards the left hand end of the dispenser (as viewed in Figure 8) with the endmost unit at the left hand end having exposed at least its locating groove 10e and step 10f because they are not covered by the upper plate 14b and lower plate 14c of the dispenser. In this way the handle can be brought into engagement with this endmost unit whilst the thumb plate 12a is depressed so that the projection 11b can be engaged in the locating groove 10e and the thumb plate 12a then released so that the unit 10 now located on the seat 11a can be withdrawn from the dispenser.

When the next new shaving unit is required the used unit at present fitted to the handle is inserted in the other end of the dispenser, that is the right hand side as viewed in Figure 8, and is pushed into the dispenser to displace to the left all the shaving units already in the dispenser, thereby moving a further unused unit into the withdrawal position at the left hand end. After this movement has been effected the thumb plate 12a is depressed so that the handle 11 can be detached from the used unit 10 and the handle then taken to the other end of the dispenser where it can be engaged with a new unit to withdraw it for use.

To retain the shaving units in position a tongue 14a is formed in each side wall of the dispenser at the right hand end and two similar tongues at the left hand end. With a choice of suitable material for at least the side walls, the tongues will be sufficiently resilient to flex outwardly and allow shaving units to move from right to left, but not in the opposite direction. To locate the shaving units positively in correct position a slot 10a (Fig. 3) is formed in each end wall of the units 10, each slot 10g being entered by the tip of the adjacent tongue 14a when the unit is in the appropriate position.

The alternative construction of dispenser shown in Fig. 10 to 14 is designed for storing shaving units 21 similar to those shown in Figs. 1 to 4 and can be used with a handle similar to that shown in Figs. 5 to 7. Referring now to Fig. 11, this shows the dispenser with one shaving unit 21 in the first of the five storage positions for new shaving units. Fig. 11 also shows a shaving unit 22 at the entrance of the used compartment 23.

The dispenser is moulded from plastics material and is preferably a one-piece moulding, although it could be assembled from more than one moulding. The compartments for holding unused shaving units are defined by five pairs of flexible tongues 24a, 24b extending towards one another in pairs from each vertical side wall 25 of the dispenser, leaving a wide passage down the middle of the dispenser to enable the handle to be applied to the central portion of the shaving unit when it is desired to withdraw an unused shaving unit. At the end remote from the outer walls each tongue is provided with a projection 24a1, 24b1 (Figs. 11 and 14), which engages in the underside of the rinsing channel 21a of the shaving unit to hold the latter in position with its forward end against the base 26 of the dispenser. A web 24a2, 24b2 at the root of each tongue locates the unused shaving unit but the remainder of each tongue is spaced to leave a gap between the rear of the forwardly facing undersurface of the shaving unit and the adjacent rearwardly facing undersurface of the tongue to facilitate location of the handle when it is positioned to engage a shaving unit for withdrawal. The tongues 24a, 24b are sufficiently flexible so that they are deflected as the projections 24a1, 24b1 move out of the rinsing channel 21a as the shaving unit is withdrawn following its engagement by the handle.

The front end of the dispenser is open to admit used shaving units into the used compartment 23. Two downwardly depending tongues 27 normally extend downwardly into the used compartment 23 and are deflected upwardly by the forward end of a shaving unit as it is pushed-in upside down, until the tongues 27 come opposite the underside of the rinsing channel 22a whereupon the tongues

27 can spring back to their normal position and prevent the shaving unit from moving back out of the compartment 23. The unused shaving units are withdrawn progressively from the front of the dispenser so that as it is desired to feed in further used shaving units into the compartment 23 the used units already in the compartment 23 can be pushed progressively towards the rear of the dispenser as the later used units are inserted.

The angle of inclination of the tongues 24a, 24b may be chosen with the following considerations in mind. If the angle is too great the length of the dispenser may become undesirably long whereas if the angle is too shallow it may become difficult to engage the handle with a shaving unit in order to withdraw the latter because of the handle fouling the dispenser.

The apertures in the base 26 of the dispenser are to facilitate withdrawal from the mould.

A further construction of dispenser and handle for co-operation therewith will now be described with reference to Figs. 15 to 19. The shaving units 30 to be stored in the dispenser 31 are of generally similar construction to those shown in Figs. 1 to 4 and have a blade 30a. However, instead of the groove 10e a keyway 30b of limited length is provided and the step 10f is omitted, the rear portion of the shaving unit being somewhat tapered. The shaving units 30 each have forward and rearward projections 30c, 30d projecting from each end. The handle 32 has a head 32a providing an elongated opening for receiving a shaving unit 30, the width of the head being such that the forward and rearward projections 30c, 30d of the shaving unit project beyond the respective ends of the head 32a. The handle 32 has a projection 32b at each end of the head 32a for a purpose to be described hereafter. A detent 33 is urged outwardly by a spring 34 to project into the opening in the head 32a.

The dispenser 31 consists of a base 31a and side walls 31b and has an open top. For withdrawal of a shaving unit 30 the head 32a of the handle is pushed downwardly over that shaving unit 30 which is at the left hand end of the dispenser 31 until the spring-loaded detent 33 in the head 32a is depressed by contact with the upper edge of the shaving unit 30. After further downward movement of the head 32a the detent 33 clicks into position in engagement with the keyway 30b in the shaving unit, as shown in Fig. 15, to secure the shaving unit in the head so that the shaving unit 30 can be withdrawn by upward movement of the head 32a. A spring 35 in the dispenser then moves the next shaving unit 30 into the withdrawal positions.

To return a used shaving unit to the dispenser the head 32a with the shaving unit 30 fixed therein is fed into the right hand end

of the dispenser. The engagement of the projections 32b of the head 32a with cam surfaces 31c on each wall 31b together with the engagement of the lower end of the shaving unit with a step 31d in the base of the dispenser cause upward movement of the shaving unit 30 until the rearward projections 30d engage the underside of the flange 31b1 on the side walls 31b. Thereafter, further upward movement of the shaving unit 30 is prevented and as the head 32a continues to move upwardly, due to the cam surfaces 31c, the detent 33 is depressed and disengaged from the recess 30b thereby releasing the shaving unit 30 from the head 32a. During the movement of the used shaving unit into the dispenser, keys 31e formed in the inside faces of the side walls 31b are depressed and then return after sufficient inward movement to retain the shaving unit in the dispenser. In this way the handle is freed from the used shaving unit and can then be used to pick up a shaving unit from the other end of the dispenser.

It will be understood that the handle may take many other forms, the principle requirement being that it has means for ready engagement and eventual disengagement from a shaving unit, the latter being so formed and located in the dispenser that a selected shaving unit can be engaged by the handle to remove it from the dispenser so that the razor is ready for use without the blade being touched by hand.

Thus, in alternative constructions the handle may be provided at the appropriate end with a suitable screw-threaded projection or screwthreaded recess for engagement with a corresponding screwthreaded recess or projection, respectively, provided in the shaving unit. On the other hand, the engagement between the handle and a shaving unit may be by means of a dove tail shaped projection on one of the members engaging with a corresponding shaped recess in the other. Other possible arrangements comprise engagement by means of a collet and wedge, a resilient button or by any other suitable means by which engagement and disengagement between the members may be readily effected when it is desired to change a shaving unit.

The dispenser may also take many other forms. For example the dispenser may be designed so that the selected shaving unit is removed by transverse movement in a slot with light friction holding the shaving unit in position prior to selected removal or it may be held by a light pinch grip which is overcome by tension on the handle.

In yet another construction of dispenser, when a used shaving unit is returned the handle may be released from the shaving unit by sideways movement, the used shaving unit being prevented from moving sideways with the handle due to abutment of the relative

end of the shaving unit with a side wall of the dispenser.

- In any of the above described constructions of dispenser the spring-loaded detent, or other portion of the handle which secures the handle to a shaving unit, may have an externally protruding portion. When a used shaving unit is being returned to the used compartment of the dispenser the protruding portion on the handle engages a co-operating part on the dispenser so that the detent is operated to release the used shaving unit and allow withdrawal of the handle.

- The shaving units and razors herein described are the subject of the Complete Specification of cognate patent applications 40110/68 and 40111/68 (Serial No. 1160543).

WHAT WE CLAIM IS:—

1. A dispenser comprising a housing in combination with a plurality of shaving units, each shaving unit consisting of a substantially rigid member to which a razor blade is secured in a permanent manner with said rigid member providing a guard surface at a predetermined spacing from a cutting edge of the blade, said housing exposing, at least successively, sufficient of the rigid member of each shaving unit so that said shaving units can be withdrawn successively from said dispenser by means of a handle which may be engaged with an exposed portion of each rigid member.
2. A dispenser according to claim 1, wherein the shaving units are positioned in said housing with the razor blades lying in substantially parallel planes.
3. A dispenser according to claim 1, wherein the housing is of rectangular shape and the shaving units lie transversely to the longitudinal axis of the housing.
4. A dispenser according to any one of claims 1 to 3, wherein the shaving units abut one another face-to-face.
5. A dispenser according to any one of claims 1 to 4 wherein the shaving units are urged by a resilient member towards one end of said housing and are withdrawn in turn from that end.
6. A dispenser according to any one of claims 1 to 5, wherein said housing has provision for receiving used shaving units, so

that a shaving unit no longer fit for use can be restored to said dispenser by means of the handle before a new shaving unit is withdrawn.

7. A dispenser according to any one of claims 1 to 6 in combination with a handle for withdrawing said shaving units, wherein the handle and each shaving unit are provided with means by which they can be selectively secured together.

8. A dispenser according to any one of claims 1 to 6, wherein each shaving unit has a keyway or other projection or recess for positive interlocking with a co-operating portion of the handle.

9. A dispenser according to any one of claims 1 to 6 in combination with a handle for withdrawing said shaving units, wherein the handle has a resiliently restored push member displacement of which moves a detent or other catch to secure a shaving unit to said handle upon release of the push member.

10. A dispenser according to any one of claims 1 to 9, wherein the housing is of a plastics material.

11. A dispenser according to any one of claims 1 to 10, wherein the substantially rigid member is of a plastics material.

12. A dispenser according to any one of claims 1 to 11, wherein said rigid member is shaped adjacent said guard surface to facilitate washing away of cut hairs.

13. A dispenser according to any one of claims 1 to 12, wherein said guard surface is treated to provide it with a predetermined coefficient of friction.

14. A dispenser according to any one of claims 1 to 13, wherein said dispenser is provided with locating means for positive location of said handle relative to said dispenser whilst a shaving unit is being withdrawn from said dispenser by said handle.

15. A combination of a dispenser and a plurality of shaving units substantially as described herein.

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end of the shaving unit with a side wall of the dispenser.

In any of the above described constructions of dispenser the spring-loaded detent, or other portion of the handle which secures the handle to a shaving unit, may have an externally protruding portion. When a used shaving unit is being returned to the used compartment of the dispenser the protruding portion on the handle engages a co-operating part on the dispenser so that the detent is operated to release the used shaving unit and allow withdrawal of the handle.

The shaving units and razors herein described are the subject of the Complete Specification of cognate patent applications 40110/68 and 40111/68 (Serial No. 1160543).

WHAT WE CLAIM IS:—

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2. A dispenser according to claim 1, wherein the shaving units are positioned in said housing with the razor blades lying in substantially parallel planes.
3. A dispenser according to claim 1, wherein the housing is of rectangular shape and the shaving units lie transversely to the longitudinal axis of the housing.
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5. A dispenser according to any one of claims 1 to 4 wherein the shaving units are urged by a resilient member towards one end of said housing and are withdrawn in turn from that end.
6. A dispenser according to any one of claims 1 to 5, wherein said housing has provision for receiving used shaving units, so

that a shaving unit no longer fit for use can be restored to said dispenser by means of the handle before a new shaving unit is withdrawn.

7. A dispenser according to any one of claims 1 to 6 in combination with a handle for withdrawing said shaving units, wherein the handle and each shaving unit are provided with means by which they can be selectively secured together.

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13. A dispenser according to any one of claims 1 to 12, wherein said guard surface is treated to provide it with a predetermined coefficient of friction.

14. A dispenser according to any one of claims 1 to 13, wherein said dispenser is provided with locating means for positive location of said handle relative to said dispenser whilst a shaving unit is being withdrawn from said dispenser by said handle.

15. A combination of a dispenser and a plurality of shaving units substantially as described herein.

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