

DRY SHAVER

The invention relates to a dry shaver with a movable cutting head and a shaver foil which co-operates with this (head) which is curvably fixed on the side walls (running along the length of the cutting head) of a removable mounting. Such a dry shaver is described and illustrated in DE-PS 1,284,323.

In order to be able to remove the shaver foil mounting from the cutting head, the shaver foil must not undercut the cutting head at any point, because if it does the cutting head would stand in the way of the removal of the shaver foil mounting. The possible looping angle of the shaver foil can for this reason not be greater than 180 degrees. In practice one would choose a looping angle of 120 degrees so that the shaver foil immediately comes free from the cutting head on being lifted off and is not fouled by it.

This relatively small looping angle has the disadvantage that the working shaving surface of the dry shaver is comparably small. Thereby it produces a smaller shaving capacity. Due to the fact that the shaver foil mounting should extend as far as the housing of the dry shaver so that it also immediately comes free from the cutting head on being lifted off, the dry shaver has to be considerably thicker than the diameter of the cutting head. Therefore it has a clumsy/awkward shape which not only does not look nice, but also adversely influences its ease of being handled.

Older dry shavers are known in which the shaver foil is simply fixed over the cutting head without any additional strengthening or a removable mounting (DE-PS 802 052). In these constructions large looping angles can also be provided in principle, because the shaver foil on being removed from the cutting head is not lifted off but unwound. Amongst other principal defects in such constructions it has however been shown to be disadvantageous in that as a result of its thin size of about 0.05mm the very fragile shaver foil was frequently damaged by too tight a setting on the cutting head or even due to other unskilled handling. Apart from this the removal and re-setting of the shaver foil causes considerable effort to be involved and requires care/skill, with the result that this necessary operation for the cleaning of the dry shaver is frequently regarded as onerous.

Another possibility that has become known in order to arrive at a larger looping angle is to construct the shaver foil like a tube or tube section and to push in the longitudinal direction onto a cylinder-shaped cutting head. In practice such constructions have not succeeded because the easily damaged shaver foil can be damaged on being pushed on through the edges of the single razor of the cutter head. This applies above all to the front edge of the shaver foil which is exposed unprotected on being pushed on.

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The present invention has the object of developing a dry shaver of the aforementioned type in which the shaver foil may undercut the cutting head on one side and may loop with an angle of more than 180 degrees, in which it is however still possible to remove the shaver foil from the cutting head without danger of damage quickly and simply, and thereby to have this free for inspection and cleaning.

This object is solved according to the invention such that at least one of the side walls is at least partly constructed to be capable of swinging out around a swivel axis running along the length of the shaver head.

This solution according to the invention is possible with dry shavers with a cutting head moving backwards and forwards as well as with otherwise constructed dry shavers with a cutting head-shaver foil-system, e.g. a dry shaver with a cutter roller rotating around a horizontal axis or an oscillating cutter arrangement. The advantage of the present invention lies in the fact that even in dry shavers in which the shaver foil undercuts the cutting head or loops at more than 180 degrees, the shaver foil can be removed from or replaced on the cutting head without trouble, quickly and without danger of damage. As this operation is usually carried out after every use of the dry shaver in order to clean the cutting head with a brush, the handling of the dry shaver is made considerably easier by this simplification and improvement.

A further advantage is that the shaver foil mounting in its operational position can be narrower than the diameter of the cutting head. Therefore the dry shaver as a whole can be less thick than its predecessors. Furthermore another advantage of the invention is that the shaver foil mounting is better to clean with the shaver foil in the swung-out position, than a former shaver head frame with shaver foil.

It is not imperative to construct one or both side walls of the shaver foil mounting so that they are completely capable of swinging out, it is enough if the respective side wall is partly capable of swinging out, i.e. always with the measured part of the side wall corresponding to the measurements of the shaver foil, which carries the mounting means for the shaver foil.

An advantageous construction of the invention is that the side wall is fixable by means of a groove arrangement in an operating position, in which the shaver foil loops around the cutting head in a large angle. This means of construction is structurally particularly advisable and especially simple in its handling. Compared to previous dry shavers with shaver head frames, for the removal and replacement of the shaver foil mounting with the shaver foil a single additional task is simply required, i.e. the swinging out or in of the one side wall or at least a part of the same.

Particularly large looping angles of the shaving foil can be attained according to another advantageous construction of the invention wherein the shaver foil mounting is formed by two holding sections which are pivotable in a gripping manner around a common axis. Thereby advantageously the holding sections each have a surface which is held on to the axis by two arms, whereby the shaver foil in its turn is secured to these surfaces.

According to a further construction of the invention, the arrangement of a system for cutting long hair is possible advantageously on one of the side walls which are capable of swinging out, whereby the system for cutting long hair, after setting of the shaver foil mounting can be coupled with an operating device.

Further advantages of the invention arise from the following description of two of the numerous possible forms of construction of the invention. Reference is made to the drawing. This shows:

Fig. 1 the shaver head of a dry shaver in cross-section wherein all the parts unnecessary for the understanding of the invention have been done away with,

Fig. 2 the shaver head in perspective view,

Fig. 3 a simplified perspective illustration of one type of shaver foil mounting with cutting head.

Fig. 1 shows a housing 1 of a dry shaver with a set up frame-type shaver foil mounting 2. The shaver foil mounting 2

has side walls 4 and 5 running parallel to a cutting head 3. The cutting head 3 can be a cutting block moving backwards and forwards but also a rotating cutting roller; it can be connected firmly or removably with the operating lever of the motor (not shown) in the housing, or in the case that a cutter roller is located securely or removably in the housing such that the cutting head on removing of the shaver foil mounting is either also raised up out of its position or remains on the operating element.

A part 6 of the side wall 5 is capable of swinging outwards around a swivel axis 7 running in the longitudinal direction of the cutting head 3, such that it can take up the position shown in dashes in the drawing. A shaver foil 8 is secured on one side to the side wall 4 and on the other side to the part 6 of the side wall 5 (which part is capable of swinging out). This part 6, as shown in Fig. 2, is at least as wide as the shaver foil 8 and surrounds the mounting means 8' for the shaver foil 8. The part 6 of the side wall 5 is detained by means of a locking device 9 in the swung-out and -in position. The shaving foil 8 thereby bears against the cutting head 3 with a large looping angle. Not shown in the drawing is the fact that the part 6 of the side wall 5 can carry a shaving section for long hair which can be connected, after setting of the shaver foil support 2, by means of an operating apparatus, also not shown.

The described system works as follows: For the removal of the shaver foil mounting 2 with the shaver foil 8, the part 6 of the side wall 5 is firstly swung outwards such that the part 6 arrives in the position shown in dashes. Thereby the locking force of the locking device 9 can be overcome. When the part 6 of the side wall 5 is situated in its swung-out position the shaver foil 8 has partly come away from the cutting head 3 so that its looping angle has become smaller. Thereby the shaver foil mounting 2 with the shaver foil 8 can easily be removed upwards from the housing of the dry shaver, without there being any danger of damage to the shaver foil 8 or the cutting head 3.

Fig. 3 shows a cutting head 11 in the form of a cutter roller over which is stretched a shaver foil 12 shown in dashes. The ends of the shaver foil 12 are secured to two surfaces 13 and 14 which are connected by means of two arms 15, 16 or 17, 18 respectively, to an axis 19, 19'. In this manner the surfaces 14 with arms 15, 16 and the surfaces 13 with arms 17, 18 form two holding sections 20 and 21, which are pivotable in a gripping manner around the common axis 19, 19'.

To set up the shaver foil 12 on the dry shaver, the shaver foil mounting consisting of the two holding sections 20, 21 with the shaver foil 12 are firstly put with outwardly tilted surfaces 13, 14 on the shaver head 11. Then the surfaces 13, 14 are tilted on to one another such that the shaver foil with increasing looping angle lies on the cutting head 11. Securing

devices on the dry shaver housing hold firm in the end position the surfaces 13 and 14 tilted on top of one another.

Claims

1. Dry shaver with a movable cutting head (3, 11) and a shaving foil (8, 12) cooperating with this head and fixed in a curved manner on to the side walls (5, 6, 13, 14) of a mounting (2) which is removable from the shaver housing, these side walls running in the longitudinal direction of the cutting head, characterised in that at least one of the side walls (5, 6, 13, 14) is at least partially formed so as to be capable of swinging out around a swivel axis (7, 19, 19') running in the longitudinal direction of the cutting head (3, 11).

2. Dry shaver according to claim 1, characterised in that the part (6) of the side wall (5) which can swing out can be fixed in an operating position by a locking device (9), and in this position the shaving foil (8) passes through a wide angle round the cutting head (3).

3. Dry shaver according to claim 1, characterised in that the shaving foil mounting is formed by two holding sections (20, 21) which are pivotable in a gripping manner around a common axis (19, 19').

4. Dry shaver according to claim 3, characterised in that the holding sections (20, 21) each have a surface (13, 14) which is held on the axis (19, 19') by two arms (15, 16, 17, 18), and that the shaving foil (12) is



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2. Dry shaver according to claim 1, characterised in that the part (6) of the side wall (5) which can swing out can be fixed in an operating position by a locking device (9), and in this position the shaving foil (8) passes through a wide angle round the cutting head (3).
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connected to these surfaces (13, 14).

5. Dry shaver according to claim 1 or any one of the following claims, characterised in that one of the side walls (6, 13, 14) which can swing out has a system for cutting long hair, which can be actuated by an operating device after attaching the shaving foil mounting (2).