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 DRY SHAVER HAVING A SPRING BIASED ROCKING LEVER
 TO RECIPROCATE A CUTTER BLOCK
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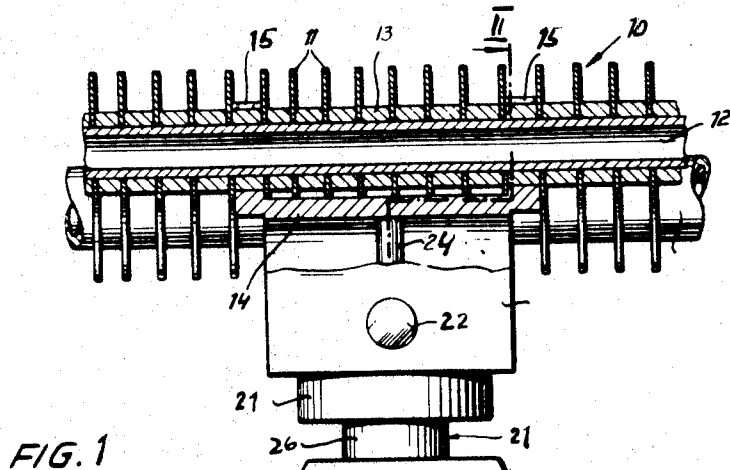


FIG. 1

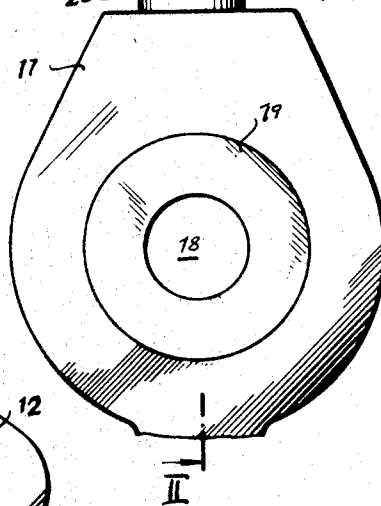
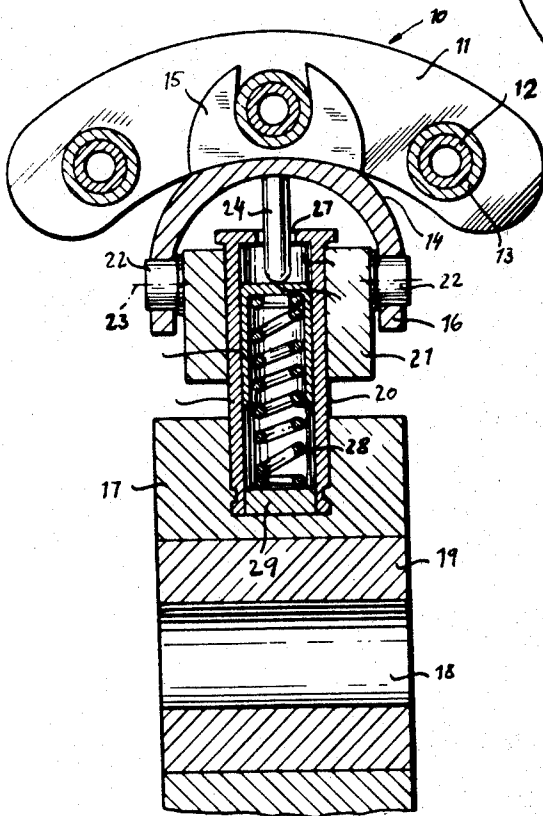


FIG. 2



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2 Claims. (Cl. 30—43.92)

ABSTRACT OF THE DISCLOSURE

A shearing head for electric razors which comprises a rocking lever, a cutter block, and a shearing comb sheet having an inner face. The cutter block reciprocates by the rocking lever urged by a spring towards the inner face of the shearing comb sheet. A driving pin is provided on the rocking lever. A sliding guide bushing is provided and a bearing member is swingably mounted on the sliding guide bushing having a pivot pin. The cutter block is operatively connected with the driving pin by means of the guide bushing and the bearing member. A ram having an end face is disposed in the center of the bearing member, as well as projects into the space defined between the pivot pin. The driving pin includes a piston having a supporting face, the end face of the ram forcibly engages the supporting face of the piston by means of the spring, and the engaging point of the end face of the ram with the supporting face of the piston is disposed at the center of the pivot axis defined by the pivot pins.

The present invention relates to a shearing head for electric razors with a cutter block reciprocated by a rocking lever and pressed by a spring towards the inner face of a shearing comb sheet, which cutter block is connected with a driving pin provided on the rocking lever by means of a slidable guide bushing and a bearing member swingably provided on the latter.

The rocking lever serves as connecting member between the electric drive of an electric razor and the reciprocating cutter block. For a reliable and noiseless operation of the razor, the transmission member provided within the range of the shearing head, which transmission member transmits the movement of the rocking lever to the cutter block, is of essential importance.

Devices are known, which have a cutter block secured to the rocking lever by means of transmission members of the mentioned type for a semi-universal movement. In those transmission members a driving pin, provided on the rocking lever, carries a slidable guide bushing on which on one end a helical screw supports itself and on which furthermore a bearing member is swingably mounted. By this arrangement the cutter block is pressed towards the inner face of the shearing comb sheet and simultaneously swingable about its cross-axis. The spring charge of the cutter block is thus transmitted to the bearing member by means of the pivot bearings. It has been shown that the transmission of the spring load by means of the pivot bearings onto the bearing member is not satisfactory, since the wear of the parts is thereby too high and the operation is too noisy.

It is, therefore, one object of the present invention to provide an electric razor of the above stated type, which lacks the drawbacks of the known structures.

It is another object of the present invention to provide an electric razor wherein a ram is arranged in the center of the bearing member, which ram projects with its end face into the space between the pivot bearings on the

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guide bushing and its end face is forcibly engaged through a supporting face of the driving pin, caused by the spring load on the spring charge of the cutter block. As readily apparent, the spring charge of the cutter block, which originates from a spring charged supporting face of the driving pin, is now transmitted by means of a ram through the bearing member of the cutter block, which is disposed in the center of the bearing member. The flow of forces originating from the spring charged supporting face of the driving pin does not pass on its way to the cutter block the pivot bearing of the bearing member. Rather this pivot bearing is free from spring forces, which brings about low wear and an operation which lacks any noises. Furthermore, a unitary spring charge of the cutter block is obtained.

Advantageously the engaging point between the end face of the ram and the supporting face of the driving pin is disposed at the height of the center of the axis of the pivot bearings. In this case the engaging point is simultaneously that point, about which the ram is tipped on its supporting face during swinging of the cutter block about its cross-axis. A sliding of the ram on its supporting face and thereby unnecessary wear is avoided. The ram lies practically always at the same point of the spring charged supporting face of the driving pin. Suitably one rounds up the end face of the ram and connects the latter rigidly with the bearing member.

The spring charged supporting face on the driving pin can be produced in an advantageous manner, such that the driving pin comprises a sleeve being connected at one end with a rocking lever and having at the other end an opening, wherein the inner space of the sleeve has a spring-biased piston slidable in the direction towards the opening. The spring charged displaceable piston is the supporting face for the ram, which projects through the opening into the inner space of the sleeve.

It is advisable to narrow down the opening of the sleeve relative to the piston diameter, so that the piston and its spring remain inside of the sleeve, in case of release of the bearing member. Such driving pin can be prefabricated as a structural unit already together with the spring, which is disposed inside thereof. Also by this arrangement the assembly of the cutter block, connected with the bearing member, with the driving pin of the rocking lever is simplified. This is particularly of importance as these parts can be easily separated from each other for the purpose of cleaning.

With these and other objects in view which will become apparent in the following detailed description, the present invention will be clearly understood in connection with the accompanying drawing, in which:

FIGURE 1 is a side elevation of a shearing head designed in accordance with the present invention, its upper portion being shown in section; and

FIG. 2 is a section along the lines II—II of FIG. 1.

Referring now to the drawing, the dry razor comprises a shearing head which has at its upper end a cutter block 10, which consists of individual cutter blades 11, the latter being connected together by means of tubes 12 and intermediately disposed distance holders 13. The cutter block 10 is arranged on its bearing member 14. The integrally formed bearing member 14 has at its ends two upwardly bent webs for gripping the cutter block 10 and two bow-shaped upwardly bent leg members 16.

The rocking lever 17, of which merely the upper part is shown in the drawing, has an opening 18 with an inserted bearing bushing, which serves for mounting the rocking lever 17. At the upper end of the rocking lever 17 is disposed a driving pin 20, which extends in longitudinal direction of the rocking lever 17. The driving pin 20 is surrounded by a slidable guide bushing 21. The guide bushing 21 has at the oppositely disposed sides each

a pivot pin 22, on each of which a leg 16 of the bearing member 14 engages by means of a recess provided therein. By this arrangement, the cutter block 10 is swingable about the axis 23.

In the longitudinal center and at the apex of the bow-shaped upwardly directed legs 16 of the bearing member 14 is secured a ram 24. The ram 24 projects with its rounded end face 25 into the space between the two pivot pins 22 and in particular such that the point of the rounded end face 25 comes to lie in the height of the axis 23 through the two pivot pins 22. This end face 25 cooperates with a spring-biased supporting face provided on the driving pin 20.

The driving pin 20 comprises a sleeve 26, the lower end of which is secured to the rocking lever 17 and the upper end of which has a narrowed opening 27 at its end face. The outer face of the sleeve 26 serves as a slide bearing for the guide bushing 21. Inside of the sleeve 26 is disposed a helical spring 28, one end of which engages on a counter-bearing 29 at the lower end of the sleeve 26 and the other end of which supports itself on a piston 30 displaceable inside of the sleeve 26. By the tension of the helical spring 28, the piston 30 is pressed towards the narrowed opening 27 of the sleeve 26.

After assembly of the individual parts of the shearing head the ram 24 projects, as shown in FIG. 2, through the opening 27 at the upper end of the sleeve 26, and comes into engagement forcibly at the spring-biased piston 30 inside of the sleeve 26. The engaging point between the piston 30 and the end face 25 of the ram 24 is disposed in a plane extending through the axis 23 of the pivot pin 22.

The force exerted upon the ram 24 by the spring 28 by means of the piston 30 is transmitted by the ram to the cutter block 10, which is now pressed over its entire length equally towards the shearing comb sheet (not shown) disposed thereabove.

As already mentioned, the present invention is not limited to the shown example, rather various changes are possible. Such it would be possible to make the bearing member 14 releasable from the cutter block 10.

While I have disclosed one embodiment of the present invention, it is to be understood that this embodiment is given by example only and not in a limiting sense, the scope of the present invention being determined by the objects and the claims.

I claim:

1. A shearing head for electric razors comprising a rocking lever, a cutter block, and a shearing comb sheet having an inner face,

said cutter block being reciprocated by said rocking lever urged by a spring towards said inner face of said shearing comb sheet,
a driving pin provided on said rocking lever,
a sliding guide bushing,
a bearing member swingably mounted on said sliding guide bushing having a pivot pin,
said cutter block being operatively connected with said driving pin by means of said guide bushing and said bearing member,
a ram having an end face and disposed in the center of said bearing member, as well as projecting into the space defined between said pivot pins,
said driving pin including a piston having a supporting face,
said end face of said ram forcibly engaging said supporting face of said piston by means of said spring, and
the engaging point of said end face of said ram with said supporting face of said piston being disposed at the center of the pivot axis defined by said pivot pins.
2. The shearing head, as set forth in claim 1, wherein said driving pin comprises a sleeve connected at one end with said rocking lever and has at the other end an opening, and
said piston is axially movable within said sleeve and spring-biased in the direction toward said opening of said sleeve.

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