

Jan. 3, 1939.

J. H. RAND, JR

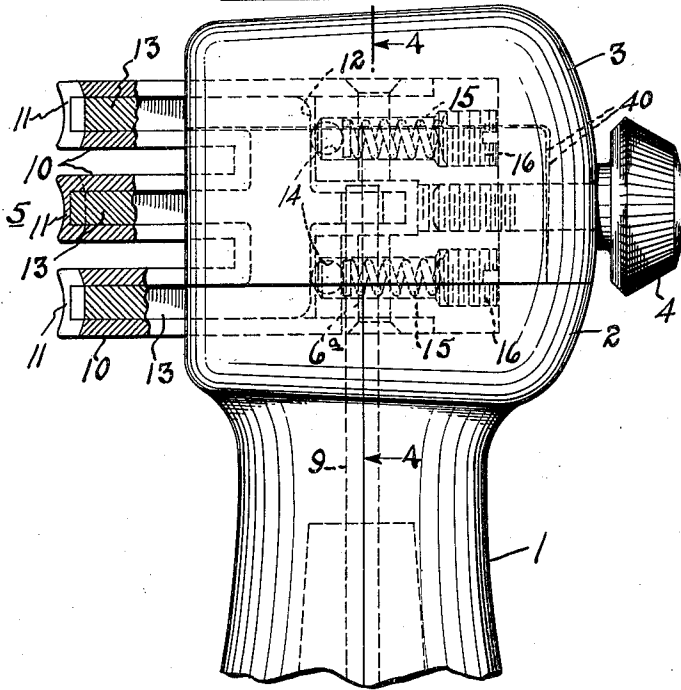
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MULTIPLE SHAVING IMPLEMENT

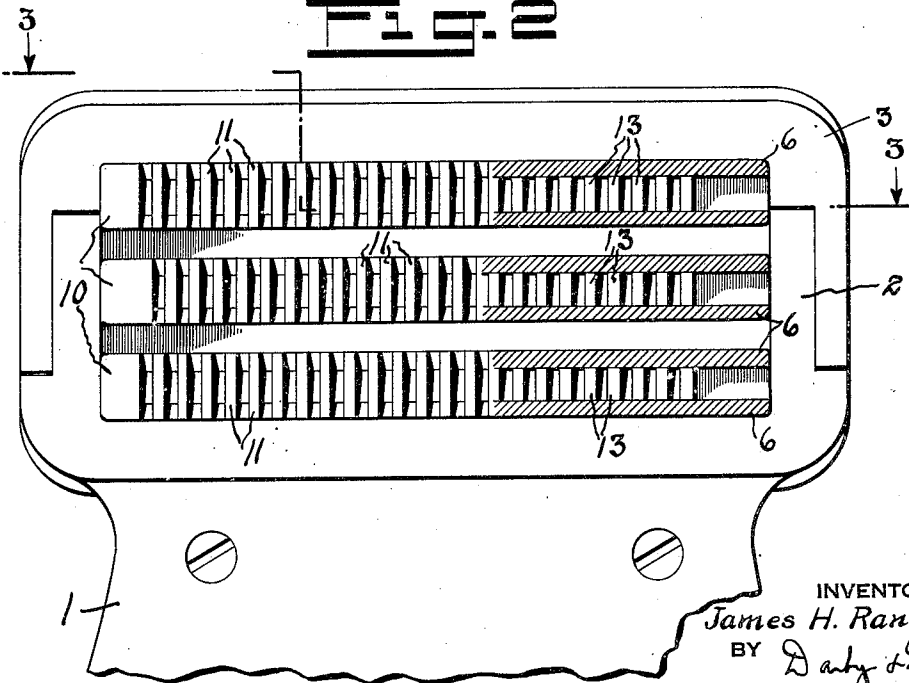
Filed March 2, 1937

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**Fig. 1**



**Fig. 2**



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FIG. 3

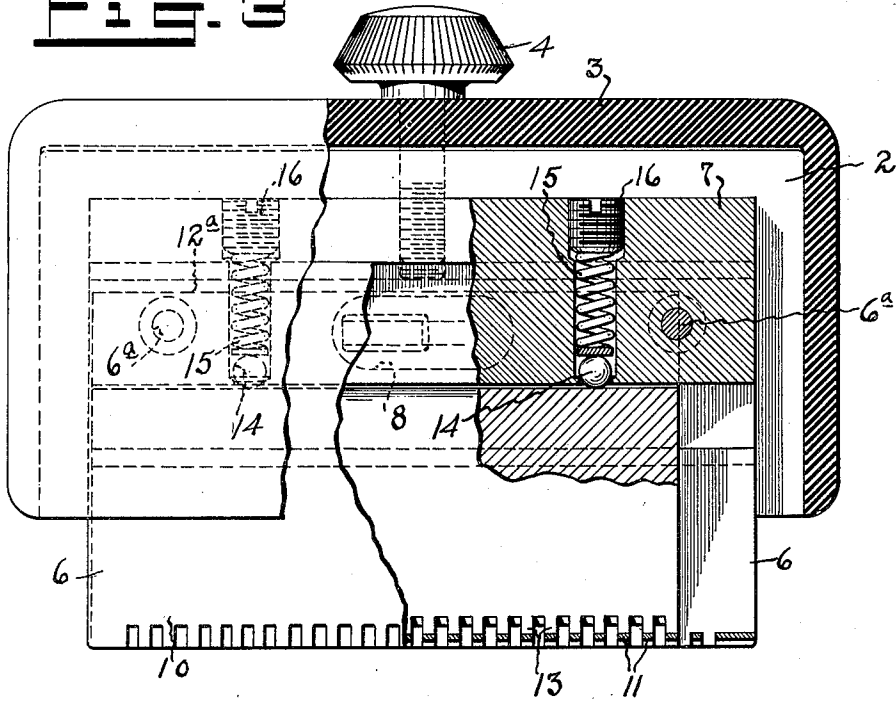
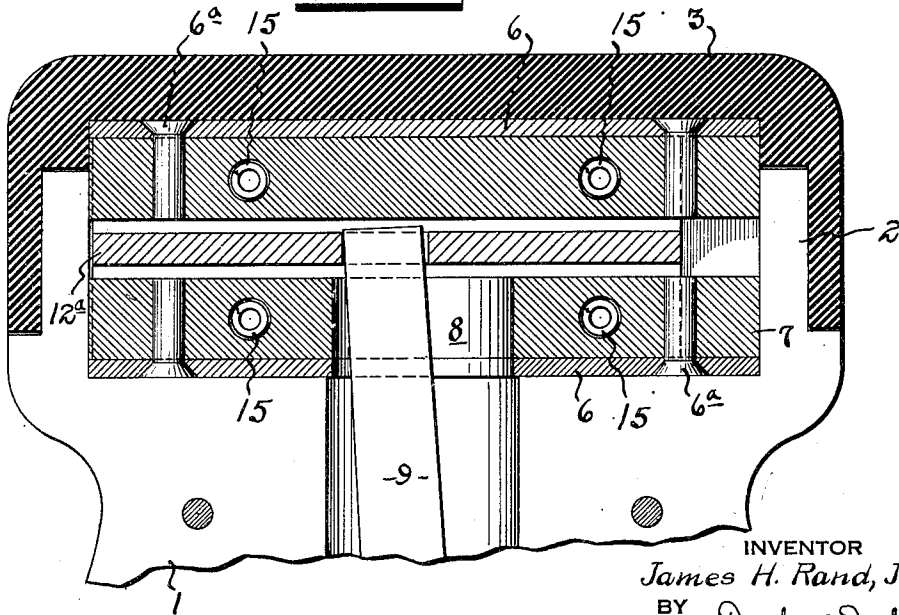


FIG. 4



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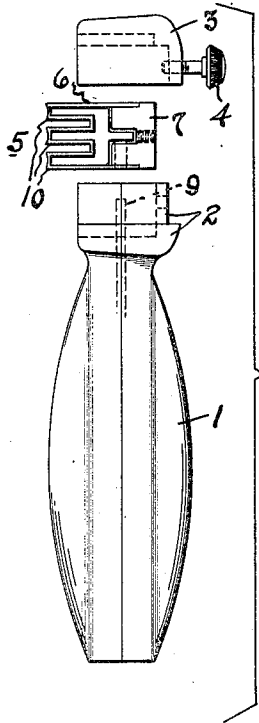
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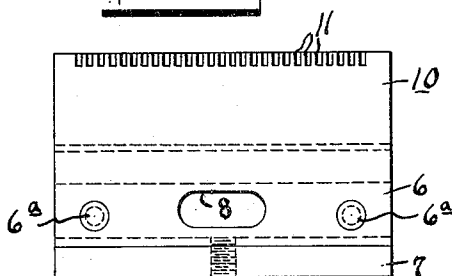
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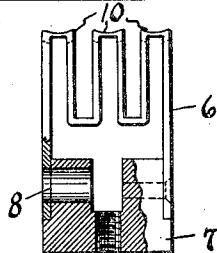
**FIG. 5**



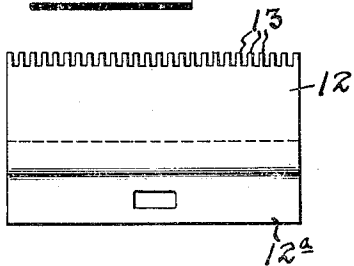
**FIG. 6**



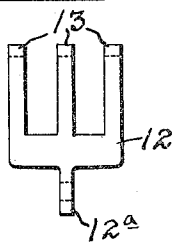
**FIG. 7**



**FIG. 8**



**FIG. 9**



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# UNITED STATES PATENT OFFICE

2,142,084

## MULTIPLE SHAVING IMPLEMENT

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mesne assignments, to Remington Rand Inc.,  
New York, N. Y., a corporation of New York

Application March 2, 1937, Serial No. 128,587

5 Claims. (Cl. 30—43)

This invention relates to improvements in shaving devices of the so-called dry type which are employed without any water, soap or shaving preparations.

5 An important object of this invention is to provide a dry shaving implement having a multiple shaving head comprising a plurality of individual pairs of cutting elements.

10 A further object of this invention is to provide in a shaving implement of this type a fixed outer shear plate having a plurality of sets of cutter bars and a single inner cutter having distinct portions thereof cooperating with the sets of cutter bars to provide complete shaving elements.

15 A further object of this invention is to provide in a multiple shaving implement of this type a structure by means of which all of the movable cutters are actuated by a single motive device.

20 These and many other objects as will appear from the following disclosure are secured by means of this invention.

25 This invention resides substantially in the combination, construction, arrangement and relative location of parts, all in accordance with the following disclosure.

In the accompanying drawings,

30 Figure 1 is an enlarged side elevational view of the cutter head portion of a device in accordance with this invention, showing some parts in cross-section;

35 Figure 2 is a front elevational view thereof showing portions of the cutter elements in cross-section;

Figure 3 is a cross-sectional view taken on the line 3—3 of Figure 2;

40 Figure 4 is a cross-sectional view taken on the line 4—4 of Figure 1;

Figure 5 is a side elevational exploded view of the device;

Figure 6 is a side elevational view of the outer shear plate;

45 Figure 7 is an end elevational view thereof with some parts broken away to show sections;

Figure 8 is a side elevational view of the inner cutter; and

Figure 9 is an end elevational view thereof.

50 The handle and casing 1 is constructed of any suitable material and preferably molded in the form illustrated in Figure 5 in two parts which are normally held in cooperating relation by means of screws to form a closed casing. Within the casing is mounted the motor (not shown) which is usually of an electric type suit-

able for the purpose. The casing is shaped to form a handle by means of which an operator manipulates the device, and has on its upper end an enlarged head portion 2 shaped to receive a cap portion 3 to be held thereon by means of a screw 4 in a manner to be described later.

The outer shear plate 6 of the cutter head unit 5 is formed up from a thin sheet of suitable steel having a thickness for example of the order of ten thousandths of an inch. The sheet or strip 6 is reversely bent several times as shown to provide a plurality of oppositely facing channels of which three, as indicated at 10, have closed outer ends. The outer ends of the channels 10 are slotted, as is clear from the drawings, to form the outer cutter bars 11 of which, as is apparent, three sets are thereby formed, with the sets arranged side-by-side in parallel relation and spaced from each other.

The side walls of each channel are spaced about twenty-five thousandths of an inch apart to receive the inner cutter. Thus each complete shaving element has an overall width of forty-five thousandths of an inch.

25 This channel member 6 forms an overall larger channel which is closed at its open ends by means of a rectangular block 7 of suitable material to which it is secured by means of the rivets 6<sup>a</sup>. On one side an opening 8 is provided for purposes to be described later.

30 The inner or movable cutter 12 is made from a piece of suitable steel in the form of a fork having a rearwardly projecting stem or flange 12<sup>a</sup>, as is clear from Figures 8 and 9. The ends of the arms or tines of the fork are transversely slotted to form the parallel cutter bars or teeth 13. The tines or arms of the fork are of sufficient width to fit in the channels 10 and form a snug sliding fit therewith. When in place, as is clear from the various figures, the cutter bars 13 operate in back of and in contact with the rear faces of the cutter bars 11. The stem or flange 12<sup>a</sup> is provided with an opening as shown in Figure 8 to receive the upper end of the operating lever 9, as is clear from Figures 1 and 4. The operating arm 9 projects through the block 7 at the opening 8, as is clear from Figure 4. The lever 9, as is common is caused to oscillate by the motor in a well known manner, and by reason of its engagement with the stem 12<sup>a</sup> effects transverse movement of the tined inner cutter 12 with respect to the outer shear plate. Thus the teeth or cutter bars 13 have a transverse movement with respect to the cutter bars 11 of the outer shear plate.

55

The inner cutter is held against the rear faces of the outer cutter bars 11 by means of the balls 14 which are mounted in recesses in block 7 and are engaged by springs 15, the tension of which may be adjusted by the screw plug 16. As is clear from Figure 4, four sets of these balls are employed positioned to engage the rear faces of the inner cutter 12 on opposite sides of the stem 12<sup>a</sup>. It will be seen that the cutter head itself comprises a complete assembly which may be mounted on and removed from the housing. To apply it to the housing it is set down into the rectangular recesses formed by the portion 2 of the upper end of the casing and the cap 3 fits down thereover surrounding the walls of the recess which receives the cutter head.

As is clear from Figure 1, the walls 40 of the portion 2 and the cap 3 diverge slightly so that when the screw 4 passes through the cap and engages a threaded opening at the rear of block 7, it will cause the forward end of the cap adjacent the channels 10 to pivot downwardly as the screw is tightened, thereby securely locking the cap in place, and at the same time securing the cutter head within the casing.

As is particularly clear from Figure 1, the end faces of the channels 10, that is the outer surfaces of the cutter bars 11, are transversely curved with the result that the cutter bars 11 are thinnest near their centers and of gradually increasing thickness towards the ends thereof.

The construction here disclosed permits of the reduction of the thickness of the outer cutter bars to extremely small thicknesses. In the first place, the cutter bars are relatively short because the distance which they span between the side walls of each channel is only equal to the thickness of the arms of the inner cutter, which as noted above is of the order of twenty-five thousandths of an inch. Because of their shortness it is possible by transversely curving the outer surfaces of the bars by removing the metal therefrom by grinding or otherwise, to make the cutter bars 11 extremely thin in the region of their longitudinal centers, insuring an extremely close shave.

Another feature of the invention which is apparent from Figure 2 is that the various cutter bars 11 of the three sets are staggered with respect to each other, so that the slots which define them are out of alignment. This insures that when the device is moved over the surface of the skin in a straight line the hairs may enter the slots of the different units over the entire area engaged by the device because the slots of each unit respectively engage different areas of the skin. Thus the slots of one unit move along paths which are staggered with respect to the slots of the other units, so that the hairs of substantially the entire surface over which the device is moved enter the slots of the units. Thus with one stroke of the device it is possible to more completely clip off the hair than would be the case if but a single unit were used. It is apparent of course that where a single unit is used there is no clipping action on any single stroke on the surfaces engaged by the outer faces of the cutter bars. An important advantage therefore of this construction employing a plurality of sets of staggered cutter bars is to effectively cover the entire area under the face of the cutter head on one stroke.

Another feature of the invention is the arrangement by which the separate units are spaced from each other so that the hairs may enter the

slots of the units from either end. The result is that the instrument may be operated back and forth over the surface of the skin under conditions which insure that the hairs will enter the slots from either direction. For example, in moving the device over the face so that the uppermost cutter unit of Figure 1 precedes the others, its frictional engagement with the skin stretches and smooths out the skin so that the following cutter head will operate over smooth stretched skin. This is highly advantageous as will be recognized by the fact that anyone in shaving with straight razors or with dry shavers of this type, naturally stretches the skin with one hand as he operates the shaving device thereover. This facilitates the cutting action of the shaving device first, by tending to place the hairs in an erect position, and secondly, by providing a smooth plain surface against which the face of the cutting device may move.

It will be apparent to those skilled in the art that the features of this invention may be embodied in other physical forms without departure from the true scope thereof. For example less than or more than three separate elements or units may be incorporated into a single cutter head without departure from the scope of the invention. I do not, therefore, desire to be strictly limited to the disclosure as given for purposes of illustration, but rather to the scope of the claims granted me.

(What is claimed is:

1. A shaving implement as described comprising a housing forming a handle, a shaving head mounted on the end of the housing comprising an outer shell slotted to provide cutter bars and an inner cooperating slotted cutter, a cover on the end of the housing enclosing a substantial portion of the cutter head and forming a continuation of the housing, and means for simultaneously securing the cutter head and cover on the end of the housing.

2. A shaving implement as described comprising a housing forming a handle, a shaving head mounted on the end of the housing comprising an outer shell slotted to provide cutter bars and an inner cooperating slotted cutter, a cover on the end of the housing enclosing a substantial portion of the cutter head and forming a continuation of the housing, and means for simultaneously securing the cutter head and cover on the end of the housing, the plane of the outer faces of the cutter bars of the shell extending substantially parallel to the longitudinal axis of the housing.

3. A shaving implement as described comprising an elongated housing, a multiple cutter head unit comprising an outer shell formed into a plurality of narrow alternately facing channels, the bases of the channels on one side lying in a plane and being transversely slotted to form cutter bars, and an inner cooperating cutter slotted to form cutter bars engaging the rear faces of the cutter bars of the shell, a cover for enclosing a substantial portion of the cutter head and fitting on the end of the housing, and means for simultaneously locking the cutter head and cover on the end of the housing.

4. A shaving implement as described comprising an elongated housing, a multiple cutter head unit comprising an outer shell formed into a plurality of narrow alternately facing channels, the bases of the channels on one side lying in a plane and being transversely slotted to form cutter bars, and an inner cooperating cutter slotted to form cutter bars engaging the rear faces of the cutter

bars of the shell, a cover for enclosing a substantial portion of the cutter head and fitting on the end of the housing, and means for simultaneously locking the cutter head and cover on the end of the housing, the inner cutter being solid and the slots in the shell and inner cutter being of substantially the same depth whereby the cut hairs may fall out of the ends of the slots.

5. A shaving implement as described comprising an elongated housing, a multiple cutter head unit comprising an outer shell formed into a plurality of narrow alternately facing channels, the

bases of the channels on one side lying in a plane and being transversely slotted to form cutter bars, and an inner cooperating cutter slotted to form cutter bars engaging the rear faces of the cutter bars of the shell, a cover for enclosing a substantial portion of the cutter head and fitting on the end of the housing, and means for simultaneously locking the cutter head and cover on the end of the housing, the plane of the outer faces of the cutter bars of the shell lying parallel to the longitudinal axis of the housing.

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