

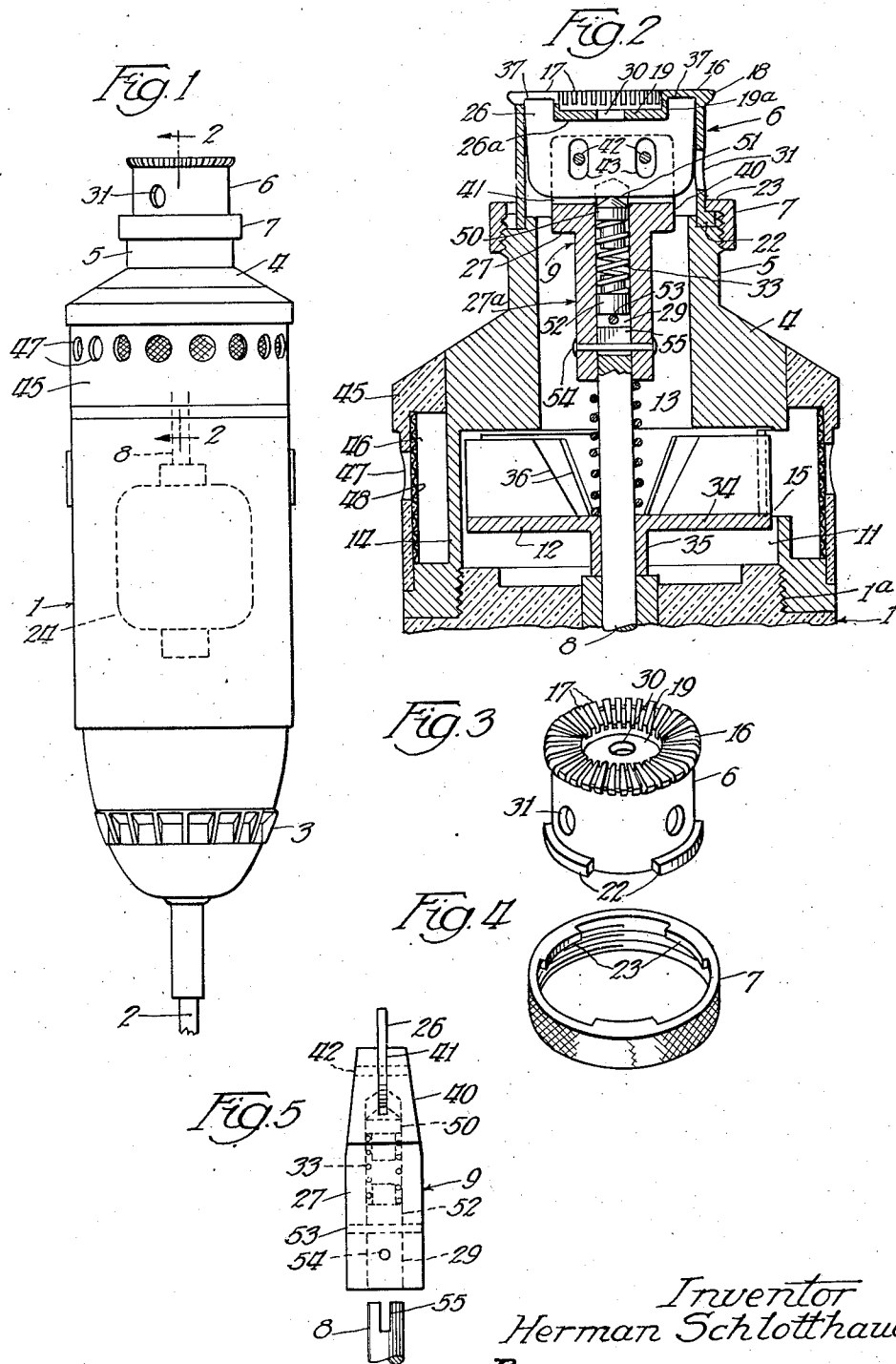
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SHAVER

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SHAVER

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This invention relates to shaving devices and more particularly to the so-called "dry shavers" and is in the nature of an improvement upon the shaver shown and described in my prior application for patent on "Shaver," Serial No. 292,004, filed August 26, 1939, now Patent No. 2,376,197 dated May 15, 1945.

One of the objects of this invention is to provide a novel connection between the cutting blade and the coupling member which couples the blade to the motor shaft. As in the shaver of my co-pending application, the blade is urged toward the face portion of the cutting head by a resilient means, such as a coiled spring, but in the instant shaver no means are required to prevent the spring from thrusting the cutting assembly from the shaft whenever the cutting head is removed from the housing, and one of the objects of this invention is the provision of resilient means within the coupling member for urging the blade into cutting position, the coupling member being coupled to the shaft by a simple pin and slot connection.

Another object is to provide for a floating blade which may rock on a fulcrum and slide in its support, thereby preventing any possibility of binding between the blade and cutting head and also preventing excessive heating.

Another object is the provision of a shaver which is simple in construction, efficient in operation, does not pull the hair or pinch the skin, is durable and not likely to come into disrepair.

With these and other objects and advantages in view, this invention consists in the several novel features hereinafter fully set forth and claimed.

The invention is clearly illustrated in the accompanying drawing in which:

Fig. 1 is a side elevation of a shaving device embodying a simple form of the present invention;

Fig. 2 is an enlarged vertical central section taken along the line 2—2 of Fig. 1;

Fig. 3 is a perspective view of the cutting head;

Fig. 4 is a perspective view of a certain lock ring which fastens the cutting head to the cutting head support; and

Fig. 5 is an end elevation of the cutter assembly and a fragment of the motor shaft detached therefrom.

Referring to said drawing, the reference character 1 designates a motor housing composed of any suitable material in which is mounted the operating motor 24 of suitable design and capacity and provided with an extension cord, a fragment of which is seen at 2 and having on its

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free end a plug (not shown) whereby it may be plugged into an electric outlet. A switch 3 is provided for turning the current on or off from the motor.

The cutting head assembly comprises a housing 4 carried at one end by the motor housing, as by the screw threaded connection shown as 1a in Fig. 2. The housing 4 has a reduced portion or neck 5 which provides a cutting head support upon which the cutting head 6 is seated and is removably secured as by a lock ring 7 threadedly secured upon the cutting head support and formed with inwardly extending lugs 23 which are arranged to impinge upon outwardly extending lugs 22 formed on the cutting head 6. The lugs 23 on the lock ring are spaced apart to enable the lugs 22 of the cutting head, when brought in register with the spaces between the lugs 23, to be detached from the cutting head support for the purpose of removing the cutter assembly for sterilizing the blade or for any other purpose. When, however, the lock ring 7 is screwed down tight with the lugs 23 impinging upon the lugs 22 the cutting head is rigidly secured in place.

The motor shaft 8 extends from the motor 24 through the housing and cutting head support and carries the cutter assembly 9 upon its upper end. The housing 4 is formed with a chamber 11 through which the shaft extends and in which is a centrifugal fan 12 that is secured upon the motor shaft. The fan 12 may comprise a disc 34 having a hub 35 fast on the motor shaft and vanes or blades 36 extending up from the disc. A coiled spring interposed between the fan disc 34 and cutter assembly 9 surrounds the shaft 8 and urges the cutter assembly in an outward direction. The chamber 11 communicates with the cutting head through a bore 13, and the cylindrical wall 14 of the housing 4 is formed with several openings 15 through which air and hair clippings, drawn in from the cutting head, may be discharged into a hair collecting chamber 46 formed between the wall 14 and an apertured ring 45 which is removably secured to the housing 4 as by friction. Behind the apertures 47 in the ring 45 is a fine screen 48 which prevents the hairs from being blown through the apertures 47. The collected hair clippings may be removed by removing the ring 45 and shaking the hair out. In the end wall 19 of the cutting head is an opening 30 and in the side wall of the cutting head are openings 31 through which air is drawn into the interior of the shaver by the fan and discharged through the openings 47.

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The cutting head 6 has an annular face portion 16 formed with a circular depression or recess, the bottom of which is formed by a disc-like wall 19. The wall 19 connects with the annular face portion 16 through a cylindrical wall 19a and said annular face portion 16 is provided with a multiplicity of radial slots 17 which extend from the cylindrical wall 19a to the marginal edge of the face portion 16, which edge portion is in the form of a bead 18 to provide a comb for raising the hairs to be cut and holding them in a position perpendicular to the face portion as they enter the slots. The slots extend through the cylindrical wall 19a, which wall also provides a comb to guide the hairs to the slots.

The cutter assembly 9 comprises a cutting blade 26, a coupling member 27 and a coiled compression spring 33 confined in a bore 29 formed in the stem 27a of the coupling member and said spring functions to urge the blade into hair cutting position. The blade is formed with a pair of cutting edges 37 which have a wiping contact with the inner face of the annular face portion 16 of the cutting head and said cutting edges 37 cooperate with the ribs which separate the slots in the annular face portion to cut hair. Below the cutting edges 37 the blade is notched and the edge 26a of the notch is held in contact with the inner face of the disc-like wall 19 by the spring 33 whereby the end thrust is taken up by the wall 19, permitting the cutting edges to merely have a wiping contact with the underside of the annular face portion 16 which is made considerably thinner than the wall 19.

The head 40 of the coupling member 27 is approximately rectangular in form being slightly longer in one dimension than the other and a slot 41 is formed in the head 40 which extends inward from its end along the axis of the coupling member. The blade extends through the slot 41 and is connected to the coupling member by two pins or the like 42 which extend through the head of the coupling member and through holes 43 in the blade. The holes are made somewhat larger than the diameter of the pins to permit rocking and lengthwise movement of the blade in the head.

To one end of the spring 33 adjacent the blade is secured a fulcrum member 50, such as a cylindrical block having a conical end 51 that bears against the adjacent edge of the blade, and a small cylindrical block 52 is secured to the other end of the spring and bears against a pin or the like 53 which extends through the stem 27a of the coupling member. The spring is held under compression and yieldingly urges the blade into cutting position. The entire cutter assembly may be removably connected to the motor shaft in any suitable manner. The means here shown for this purpose consists of a pin or the like 54 which extends through the stem of the coupling member and enters a slot 55 formed in the end of the motor shaft.

The entire cutter assembly may be detached from the shaft for the purpose of sterilizing the blade or for any other purpose. In order to remove the cutter assembly, the lock ring 7 is backed off slightly to bring the lugs 23 into register with the spaces between the lugs 22 of the cutting head 6 which may then be detached from the cutting head support, after which the entire cutter assembly may be lifted from the shaft. To reassemble these parts the cutter assembly is replaced on the shaft with the pin 54 entering the slot 55 of the shaft, the cutting head is re-

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placed by inserting the lugs 22 between the lugs 23 of the lock ring and the latter is then turned down, thereby clamping the cutting head upon the cutting head support. The coupling member 27 and the fulcrum block 50 and other block 52 are formed of non-conducting material to guard against any leakage of current to the cutting head.

In operation the motor rotates the cutter assembly very rapidly thereby causing the cutting edges 37 to sever hair entering the slots 17. Air is drawn in through the openings 30, 31 in the cutting head by the fan and discharged through the openings 47 in the ring 45, the hair clippings also being drawn through the chambers 13, 11 and discharged into the hair collecting chamber 46. After the surface has been shaved the device is cleared of the hair clippings by merely removing the ring 45 and with it the accumulated hair clippings which, due to the air current, have a tendency to be deposited upon the screen behind the openings 47. The screen may be cleaned merely by tapping the ring upon a hard surface to knock out the hair clippings. The cutting head is easily removed, as has been heretofore explained and the blade may be readily sterilized. The circulation of air through the cutting head and around the wall 19 maintains the head and particularly the contacting surfaces between the blade 26 and wall 19 cool, thus preventing excessive heating of the head.

Due to the centrifugal action of the fan, maximum efficiency is obtained therefrom, thus insuring that all hair clippings enter the chamber 46 and are accumulated therein.

It will be seen from the above description that I have provided a shaving device having a very efficient cutting mechanism and having a cutter assembly including the coiled spring which urges the cutting blade into cutting position which cutter assembly may be easily detached from the motor shaft.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described, or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. A shaving device comprising in combination, a power driven rotatable shaft, a blade having cutting edges, a cutting head having an annular slotted face portion which cooperates with the cutting edges of the blade to sever hairs, said cutting head having also a depressed disc-like wall, a slotted coupling member for coupling said blade to the shaft, said blade being held in the slot of the head and said coupling member having an axially extending bore therein in which the end of the shaft is received; means for removably securing the coupling member to the shaft and a coiled spring supported in the bore of the coupling member for urging the blade against the depressed disc-like wall of the cutting head.

2. A shaving device comprising in combination, a power driven rotatable shaft, a blade having cutting edges, a cutting head having an annular slotted face portion which cooperates with the cutting edges of the blade to sever hairs, said cutting head having also a depressed disc-like wall, a slotted coupling member for coupling said blade to the shaft, said blade being held in

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the slot in said coupling member and the latter having an axially extending bore therein in which the end of the shaft is received, means for removably securing the coupling member to the shaft, a pin secured in the coupling member and extending across the bore thereof, and a coiled spring contained in the bore and supported by said pin, said spring functioning to urge the blade against said depressed disc-like wall of the cutting head.

3. A shaving device comprising in combination, a power driven rotatable shaft, a blade having cutting edges, a cutting head having an annular slotted face portion which cooperates with the cutting edges of the blade to sever hairs, said cutting head having also a depressed disc-like wall, a slotted coupling member for coupling said blade to the shaft, said blade being held in the slot of the coupling member, and the latter having an axially extending bore therein in which the end of the shaft is received, means for removably securing the coupling member to the shaft, a pin secured in said coupling member and extending across the bore thereof, a coiled spring in the bore of the coupling member, a block carried by one end of the spring and bearing against the pin, and a fulcrum member carried by the other end of the spring, said fulcrum member having a conical end bearing against the blade and forming a fulcrum therefor, said spring functioning to urge the blade against the depressed disc-like wall of the cutting head.

4. A shaving device comprising in combination, a cutting head having an annular slotted face portion and a depressed disc-like wall, a cutting blade having cutting edges cooperating with said slotted face portion to cut hairs, a power driven shaft, a coupling member between said blade and shaft, said coupling member having a slotted head in which the blade is received, pins secured in said head and extending through oversize holes

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in the blade, said coupling member having also an axially bored stem extending from the head, a pin extending through said stem, a coiled spring in the bore of the stem interposed between said pin and the blade and having a fulcrum member for the blade secured upon one end of the spring, the latter functioning to urge the blade against said depressed disc-like wall, and a pin and slot connection between the coupling member and shaft.

5. In a shaving device, a motor driven shaft, a cutter assembly removably secured on one end of said shaft, said cutter assembly including a cutting blade, a coupling member for coupling the blade to the shaft, said coupling member having a slotted head to receive the blade, a pin and slot connection between the head and blade permitting relative movement between the blade and head, said coupling member having also an axially bored stem to receive one end of the shaft, and a coiled spring in the bore of the stem for urging the blade in an outward direction, said pin and slot connection maintaining the blade in the head against the pressure of the spring, and a cutting head having a slotted annular cutting face portion cooperating with said blade to sever hairs, and a depressed disc-like wall, said spring functioning to urge the cutting blade against said disc-like wall.

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