

June 23, 1942.

R. E. JONES

2,287,686

SHAVING OR HAIR CLIPPING APPARATUS

Filed Jan. 29, 1940

2 Sheets-Sheet 2

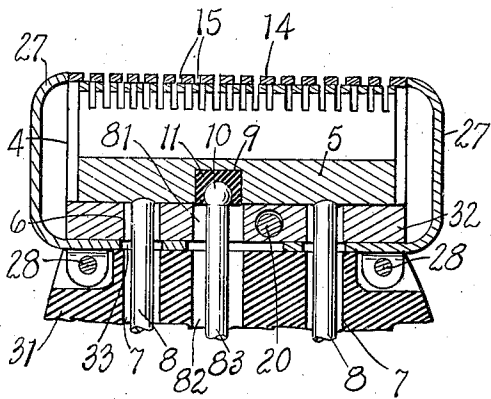


Fig. 8

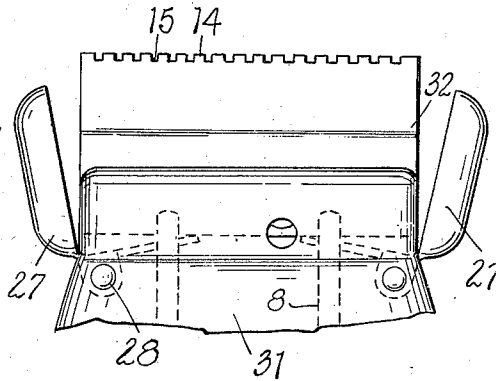


Fig. 9

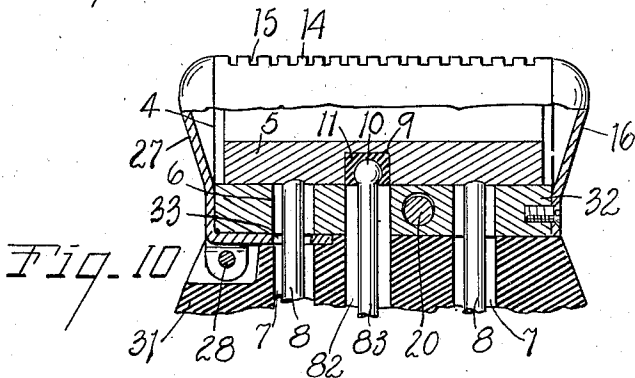


Fig. 10

INVENTOR.
Ralph E. Jones
BY *Earl & Chappell*
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,287,686

SHAVING OR HAIR CLIPPING APPARATUS

Ralph E. Jones, Grand Rapids, Mich.

Application January 29, 1940, Serial No. 316,154

12 Claims. (Cl. 30—43)

This invention relates to improvements in shaving or hair clipping apparatus.

The main objects of this invention are:

First, to provide an improved hair clipping or shaving device of the electrically actuated mechanical type, wherein the cleaning thereof is facilitated.

Second, to provide a device of the type described having improved provisions for facilitating and expediting the removal of clippings from the interior thereof when desired.

Third, to provide a device of the type described wherein the operation is improved, being substantially less noisy by reason of the elimination of vibration and chattering.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined in the claims.

The present invention relates to improvements in electrically actuated mechanical shaving devices of the type illustrated in my Patents No. 2,228,768 of January 14, 1941, No. 2,251,455 of August 5, 1941, and No. 2,203,021 of June 4, 1930. In part, these improvements relate to the mechanical actuating structure whereby motion is transmitted from an electrical actuating member to a cutter in such manner as to reduce the vibration and chattering thereof, thereby reducing noise and prolonging the life of the device. To this extent the present structure resembles certain details of that illustrated in the last named of the above patents, while in other details relating to the facilitated removal of clippings and facilitated cleaning of the device, the present structure is generally similar to that covered by the first mentioned Patent No. 2,228,768, identified above.

Preferred embodiments of the invention are illustrated in the accompanying drawings, wherein:

Fig. 1 is a view in side elevation illustrating an electrically actuated hair clipping or shaving device well known in the art with the improvements in accordance with my invention embodied therein.

Fig. 2 is an enlarged fragmentary section on line 2—2 of Fig. 3, illustrating details of the improved structure of the apparatus.

Fig. 3 is an end view of the device illustrated in Figs. 1 and 2 looking from the left of those figures.

Fig. 4 is a fragmentary view illustrating a modified embodiment of my invention and in section corresponding approximately to that of Fig. 2.

Fig. 5 is a fragmentary view in side elevation illustrating a further modified embodiment of a device generally similar to that of Fig. 4.

Fig. 6 is a fragmentary view in section generally similar to that of Figs. 2 and 4, illustrating a still further modified form of device contemplated by my invention.

Fig. 7 is a fragmentary view in side elevation illustrating the position of the parts for removal or disassembly of the device illustrated in Fig. 6.

Fig. 8 is a fragmentary view in vertical longitudinal section through the head and handle of the device illustrating a construction in accordance with the embodiment of Fig. 6 having similarly pivoted guard elements at each end of the cutter head, the guard elements being shown in operative closing relation to the ends of the cutter head.

Fig. 9 is a fragmentary view in side elevation illustrating the apparatus of Fig. 8 with the guard elements thereof in retracted, inoperative position.

Fig. 10 is a modification of the structure illustrated in Fig. 6 in which one of the guard elements is fixedly attached to the cutter head.

In the drawings, the reference numeral 1 indicates an electrically actuated mechanical shaving device, which has a handle or body 2 of a suitable size for gripping and adapted to house a motor (not shown). At its outer end, this handle is provided with a channel-like recess, as illustrated in the above identified patents, for receiving an open ended cutter head 3, which head is detachably secured to the handle in a manner to be described. The cutter head is provided with a channel-like cutting member 4 receiving and housing the reciprocable cutter 5 and the head is provided with spaced openings 6 aligned with further openings 7 in the handle for receiving the thrust pins 8 for urging cutter 5 against the cutter member 4. The head and handle are provided with still further aligned openings 31, 32, respectively, to receive the actuating rod 33 by which cutter 5 is reciprocated from a motor (not shown). The invention includes means for accomplishing this reciprocation without vibration whereby the device is substantially noiseless in operation. For this last named purpose, the head 5 is provided with a rectangular socket or seat 9 and the actuating rod 33 is provided with an enlarged spherical end 10 receiving a cap-like rubber cushion 11 which fits within socket 9 (though with sufficient clearance to allow its removal therefrom) and serves to reciprocate head 5 without destructive

vibration or noise. The opening 81 in the head is of sufficient size to enable the head to be lifted up over the cushioned end 10 of the rod when it is desired to remove the head from the handle.

The outer cutter 4 has rounded sides 13 merging into the flat face 14 thereof, which latter is provided with transverse slots 15 in a well known manner forming guard and cutter bars which coact with similar cutter bars on the cutter 5 to furnish a sliding shearing action in a well known manner.

The construction also includes end members or guards 16, 17, the former of which is fixedly secured to the head 3 by means of a screw 18, while the latter is attached to the handle 2 in a manner to be hereinafter described in detail. These guards are provided with rounded portions 19 which merge into the rounded sides 13 of the head and also into the flat face 14 of the latter, with the result that a cutter having well rounded smooth sides and ends is provided free from any digging or abrasive action in use.

The cutter head is removably attached to the handle by means of a transversely extending tapered parallel sided pin 20 which is similar to that illustrated in my copending application for patent, Serial No. 314,287, filed January 17, 1940, and coacts with the head and handle in the manner illustrated in that application. Therefore, I deem it unnecessary to particularly point out details of construction and operation thereof in this application.

The guard 17 of the present device is one which is capable of a swinging action transverse to the line of reciprocation of the cutter 5, having provision for pivotally removing and replacing the same from and to operative position. To this end, the guard 17 is provided with an elongated spring 21 riveted thereto and apertured medially at 22 to receive a drive screw or rivet 23 which engages the handle and serves as a pivot for the member 17 thereon. The spring 21 is preferably placed under slight flexing tension so as to resist accidental displacement in an angular direction and the extremity or tail 24 thereof is provided with a projection or lug 25 which engages a suitable depression in the handle to further resist displacement. In order to insure accurate alignment of the guard with the sides and top of cutter head 4, the latter is provided with a keeper recess 26 closely engageable by a detent tongue 261 integral with guard 17.

In the event that it is desired to remove clippings from the interior of cutter 5 and the cutter head, the guard member 17 may be readily swung manually to an inoperative position first releasing the detent tongue 261, and the clippings removed without removing the head from the handle. The guard 17 is then swung back to operative position and held there by spring tension as described. However, in the event that it is desired to remove the head and cutter from the handle for more thorough cleaning or sterilization, the securing pin 20 may be removed as described in my application, Serial No. 314,287, identified above, and the head 4 separated from the handle, carrying with it the guard 16. Once the cushioned actuating member 83 is freed from the cutter 5, the latter may be readily slid outwardly from the recess in the head in which it is received.

All of the foregoing details contribute to a razor structure which is simplified in nature and much more easily manipulated for cleaning and the like than presently known devices.

In Fig. 4, I illustrate a modified embodiment of the foregoing construction, wherein the guard element 262 is pivoted directly on the handle by means of a drive screw 263 and has an integral fold 264 intermediate its length engageable with a keeper recess 265 in the cutter head to insure alinement of the guard with the shear face of the head. The guard is maintained in snug end engagement with the head by means of a curved spring element 266 having one end thereof secured to the handle interiorly thereof as at 267 and passing to the outer side of the device through an aperture 268 in the handle. A bent portion 269 on the other extremity of the spring engages the guard 262 to resiliently thrust the same against the cutter head end. This provides a structure which is effective in operation and neat in appearance.

As a modification of the form illustrated in Fig. 4, a spring 270 secured by drive screws or rivets 271 directly to the outer surface of the handle may be employed, this spring having engagement with the guard 262 in a similar manner to that discussed in connection with Fig. 4. In either of these embodiments, the guard 262 is shiftable to expose the end of the head in the same manner as in the structure of Figs. 1 to 3. The detent portion of the guard is merely removed from its keeper recess 265 by flexing the thrust spring associated therewith, whereupon the guard may be swung in a plane at right angles to the head.

In Figs. 6 to 10, I illustrate a modified embodiment of my invention, including a hingedly mounted guard element 27 adapted to swing in the plane of reciprocation of the cutter, being pivoted on a pin 28 in a recess in the handle, which pin is arranged transversely of that plane. This guard element has an extension or leg 29 offset therefrom slightly less than 90°, which extends into the channel-like recess 30 of the handle 31 wherein the cutter head 32 is received and is engaged by the latter in operative position as illustrated. Being at less than a right angle to the guard, the extension or leg 29 is flexed somewhat to maintain the guard snugly against the end of the head. This extension 29 is provided with a suitable aperture or recess 33 for receiving the thrust pin 8 and permitting limited outward movement of the guard, as illustrated in Fig. 7.

In utilizing the device of Figs. 6 to 10, when it is desired to clean the cutter, the tapered retaining pin 20 is withdrawn, whereupon the extension of the guard element which is under flexing tension, as pointed out above, urges the head upwardly while at the same time the guards 27 swing outwardly and the cutter 5 may be freely removed from the handle. Upon replacement of the cutter to operative position relative to the handle, the guard is automatically swung to operative end engaging relation to the cutter head, there being no need for detents or other alining devices. Reinsertion of the pin 20 locks the parts in operative relation.

It will be understood that the swingable guard elements, such as I have illustrated in Figs. 4 and 5 and Figs. 6 and 7, are adapted to be associated with a cutter head having an opposite guard 16 secured thereto in the manner illustrated in Fig. 2. I have illustrated such a device having a guard fixedly mounted on the cutter head in Fig. 10. However, it will likewise be apparent to those skilled in the art that in each of these embodiments it is very possible and

highly practical to duplicate the swingable guard structure at each end of the cutter head. I have illustrated this type of structure in Figs. 8 and 9, using reference numerals similar to those appearing in Figs. 6 and 7. In the event hinged elements are utilized at each end of the cutter head in accordance with the disclosures of Figs. 6-10, it is evident that it would no longer be desirable to urge the cutter head laterally relative to the handle by inclination of the tapered pin. Hence, in these figures I have illustrated that pin as exerting merely a downward force. Snug engagement of the guard elements with the ends of the head is assured by the spring tension to which they are subjected. In the form of Fig. 10 the guard element 16 is, of course, secured to the cutter head itself.

I have illustrated and described my improvements in embodiments which are very practical. I have not attempted to illustrate or describe other embodiments or adaptations as it is believed this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a razor structure having a handle and an open ended cutting head adapted to be removably attached thereto, a pair of guard elements for said head disposed at the opposite ends thereof, one of said elements being pivotally secured to the handle to pivot with reference to the head and transverse the length thereof and thereby expose or cover the adjacent end of the head, spring means on said pivoted guard element engaged by the head and handle for holding the element in operative closing relation to the end of the head, and means for removably securing said head to said handle.

2. In a razor structure having a handle and an open ended cutting head removably attached thereto, a pair of guard elements for said head disposed at the opposite ends thereof, one of said elements being pivotally secured to the handle to pivot with reference to the head and thereby expose or cover the adjacent end thereof, and means for removably securing said head to said handle, said pivoted guard element having means engaged by said head and handle to retain the element in operative closing relation to the end of the head.

3. In a shaving device of the type described having a handle having an open ended cutting head and a cutter slidably received by said head and coacting therewith, means for removably securing the head to the handle, a pair of guard elements for the ends of said head, at least one of said elements being hingedly connected to the handle and having a guard portion merging with the outer surfaces of the head, said last named guard element having an extension offset approximately at right angles thereto and extending into a space between said head and handle, whereby to be operatively held in place by the latter.

4. In a shaving device of the type described, a handle having a cutting head removably attached thereto and a reciprocable cutter received by said head and coacting therewith, and a pair of guard elements for the ends of said head, at least one of said elements being hingedly connected to the handle to swing parallel to the direction of reciprocation of said cutter, said guard element having an offset element extend-

ing into a space between said head and handle whereby to be operatively held by the head in covering relation to its end.

5. In a shaving device of the type described including a handle and open ended cutting head removably attached to one end of the handle, said head having a cutter reciprocable therein and coacting with said head, and guard elements disposed at either end of said head, one of said guard elements being fixedly secured to said head and the other thereof being pivotally connected to said handle to swing in a plane normal to the direction of reciprocation of the cutter, there being coacting means on said last named guard element and handle to maintain the element in operative relation to the adjacent end of the head.

6. In a shaving device of the type described including a handle and open ended cutting head removably attached to one end of the handle, said head having a cutter reciprocable therein and coacting with said head, and a guard element disposed at an open end of said head, and pivotally connected to said handle, said last named guard element having means thereon engaged by said head and urged by the latter in a direction to maintain the element in operative relation to the adjacent end of the head when the head is in operative position on the handle.

7. In a shaving device of the type described including a handle and open ended cutting head removably attached to one end of the handle, said head having a cutter reciprocable therein and coacting with said head, a guard element disposed at one end of said head and pivotally connected to said handle, and spring means engageable with said guard element and handle to maintain the element in operative covering relation to the adjacent end of the head, said element being swingable a substantial distance outwardly from its operative covering relation to the head to permit removal of the head from the handle.

8. In a shaving device of the type described including a handle and cutting head removably attached to one end of the handle, said head having a cutter reciprocable therein and coacting with said head, guard elements disposed at either end of said head, said guard elements being pivotally connected to said handle to swing relative to the head in the direction of reciprocation of the cutter, and means on said guard elements engageable between and clamped by said head and handle to maintain the elements in operative relation to the ends of the head.

9. In a shaving device of the type described, the combination of a handle, an elongated cutting head detachably secured thereto and open at one end for the insertion and removal of a cutter, and a guard element pivotally secured to said handle for pivotal swinging movement transversely of the length of said head to cover the open end thereof when in operative position, said guard being provided with a detent means engaging said handle for retaining said guard in its operative position.

10. In a shaving device of the type described, the combination of a handle, a cutting head detachably secured thereto and open at one end for the insertion and removal of a cutter, and a guard element pivotally secured to said handle for pivotal swinging movement relative to said head to cover the open end thereof when in operative position, said guard being provided with a

means engageable by said head and handle for retaining it in operative position.

11. In a shaving device of the type described, the combination with a handle, of a cutting head removably mounted on said handle, a cutter reciprocable in said cutting head and provided with an inwardly facing socket, an oscillating cutter actuating member provided with a spherical tip, and a cap-like resilient cushion on said tip coacting with said cutter socket and separable with said member from the head when the latter is removed.

12. In a shaving device of the type described including a handle and open ended cutting head removably attached to one end of the handle, said head having a cutter reciprocable therein and coacting with said head, a guard element disposed at one end of said head and pivotally connected to said handle to swing transverse the line of reciprocation of the cutter, and spring means connected to said guard element and handle to maintain the element in operative covering relation to the adjacent end of the head.

RALPH E. JONES.