July 10, 1945. V. KOBLER ET AL 2,379,969

DRY SHAVING APPARATUS

Filed March 27, 1944

FIG.1

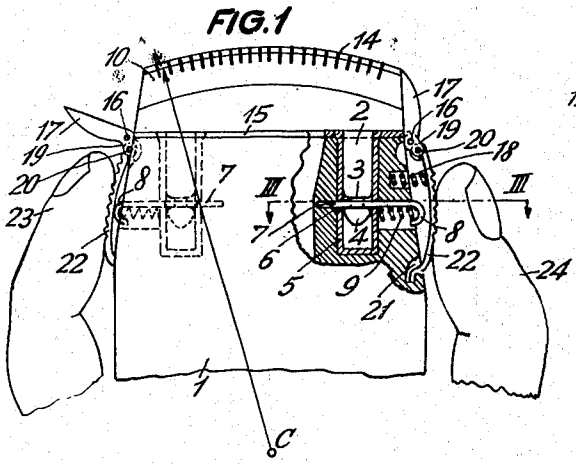


FIG.2

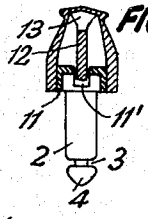


FIG.3

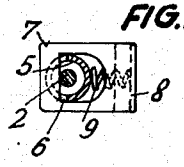


FIG.4

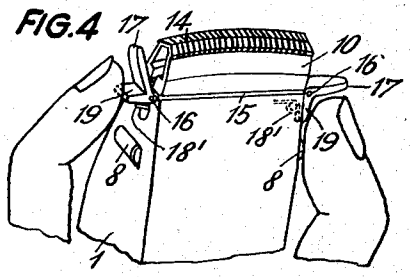


FIG.5

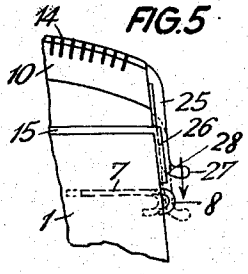


FIG.6

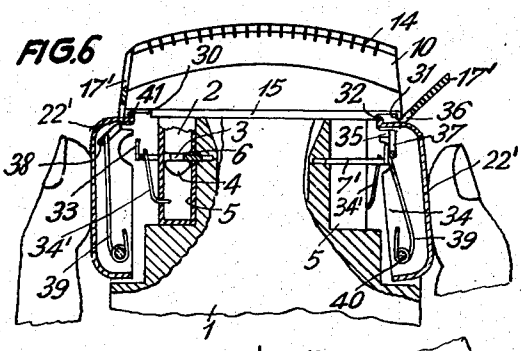


FIG.8

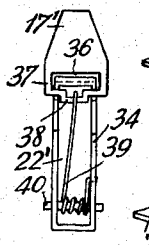


FIG.9

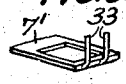


FIG.12

FIG.7

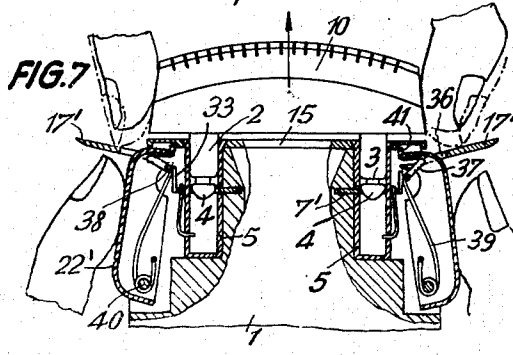


FIG.10

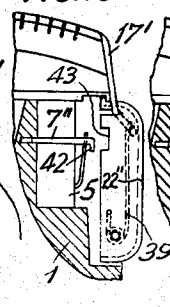
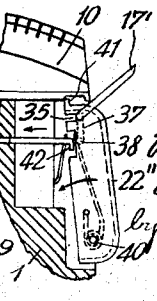


FIG.11



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UNITED STATES PATENT OFFICE

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DRY-SHAVING APPARATUS

Victor Kobler and Werner Kobler,
Zurich, Switzerland

Application March 27, 1944, Serial No. 528,263
In Switzerland February 23, 1943

12 Claims. (Cl. 30—41)

With dry shaving apparatus having hollow tubular outer cutters it is known to close the two lateral openings of the shearing head by means of flaps, for the purpose of preventing the hair cuttings accumulating during the shaving in the interior of the shearing head from being ejected, whereby the garment of the person using the shaving apparatus may be soiled. Hitherto such flaps impaired the handling of the apparatus and were hindersome in cleaning the shaver even if the shearing head could be separated from the handle as well as if during the shaving it was desired now and then to blow the hair cuttings out of the shearing head.

The object of the present invention is to eliminate these drawbacks.

The dry shaving apparatus, according to the present invention, which is provided with an oblong hollow outer cutter secured to a handle and with pivotally displaceable flaps for closing the lateral openings of the shearing head as well as with an inner cutter which is arranged in the outer cutter and is longitudinally reciprocable, is distinguished in that the closure flaps are associated with means which permit of opening and closing the closure flaps in an easy manner with one hand only by the person using the apparatus. This means is, advantageously, so arranged that with the same fingers as used for actuating said means also the fastening device for the shearing head can be controlled or that said means cooperates with the shearing head fastening device directly in order to either open by the same finger movements only the closure flaps as desired or by slight additional movements of the fingers open the shearing head fastening device at the same time, for the purpose of removing the shearing head from the handle.

Several embodiments of the invention are illustrated in the accompanying drawing by way of example only, in which

Fig. 1 shows a partial elevation of the dry shaving apparatus inclusive of the shearing head as seen from the side of the apparatus;

Fig. 2 shows a cross section of the shearing head;

Fig. 3 shows a cross section of the shearing head closure on the line III—III in Fig. 1;

Fig. 4 exemplifies another embodiment in a perspective view of the upper part of the dry shaving apparatus inclusive of the shearing head;

Fig. 5 shows a partial elevation of a further embodiment;

Fig. 6 shows a sectional elevation of still another embodiment;

Fig. 7 is an elevation similar to Fig. 6 with the flaps and pivotal finger pieces in position for removing the shearing head;

Fig. 8 is an interior view of a pivotal finger piece and the associated closure flap;

Fig. 9 is a perspective view of a latch of the shearing head fastening device;

Figs. 10 and 11 illustrate a still further embodiment in two similar sectional elevational views with parts in two different operating positions, and

Fig. 12 is a perspective view of a latch for the shearing head fastening device.

The numeral 1 designates the handle of the dry shaving apparatus to which is secured by means of bolts 2 an oblong hollow outer cutter through the intermediary of a fastening device. Two such bolts each having a groove 3 and a convexed end 4 are arranged in the shearing head in symmetrical relation thereto. This device includes fastening sleeves 5 each carrying a recess 6 and an associated latch 7 the outer end of which is bent over so as to form a control button 8 which buttons project out of the handle on the narrower sides thereof. The latches 7 surround the fastening sleeves 5 (Fig. 3) by engaging in the recesses 6 thereof and are pressed outward by the action of compression springs 9. In putting the shearing head in place the convexed ends 4 of the bolts 2 push the latches 7 inwardly until these enter into the grooves 3 in the bolts 2 by snap action, thereby locking the shearing head in position. By exerting pressure on the latches 8 the fastening device is released again so as to permit of removing the shearing head from the handle.

The outer cutter is composed of a shell 10 and a bottom piece 11. These two parts form together a tubular oblong body which is open at both of its ends. In the interior of said body is guided in a groove 11' in the bottom piece 11 an inner cutter 12 having a headed top 13. The outer cutter is provided with gaps 14 between the cutting teeth in a manner known per se. The same applies to the headed top member of the inner cutter. This top bears by means of its cutting end face against the inner cutting end face of the outer cutter under spring pressure an exact fit.

The inner cutter is reciprocated by means of a motor actuated part of a driving arrangement situated in the interior of the handle, whereby the cutting operation is effected in a manner

known per se. This arrangement is not shown in the drawing for the purpose of simplifying the illustration. The outer surface of the outer cutter and the headed top of the inner cutter are arcuately convex as regards the longitudinal direction and have a V-shaped transverse cross section. The inner cutter oscillates in an arc described about a centre C.

On the handle 1 a cover plate 15 is arranged which is provided with hinges 16 that are positioned at the narrower sides of the handle in symmetrical relation to each other. With each of these hinges flaps 17 are connected for pivoting movement thereabout, which flaps in their normal position shut in the inner cutter at both narrower handle sides by action of springs 18 for allowing this cutter to function as a hair catch so that the hair cuttings are retained in the interior of the handle.

The flaps 17 are provided with lever arms 19 that are provided with pivots at 20. Stirrup shaped finger pieces 22 are held at one end by these pivots and at the other end in grooves 21 in the handle. These finger pieces are so positioned that each of them can be controlled by a different finger of the hand holding the apparatus, for example, the forefinger 23 and the thumb 24. The finger pieces are pushed outward by the springs 18 so as to act upon the lever arms 19 of the flaps 17 by means of the pivots 20 and thereby to retain the flaps in closing position. The finger pieces are situated beyond the control buttons 8.

If the finger piece is urged in the direction toward the handle the flaps 17 are opened, whereupon the hair cuttings that have been retained so as to accumulate in the interior of the shearing head may be removed therefrom, for example, by blowing them out. The simple readily made movement with fingers of the same hand as holding the apparatus enables the cuttings to be blown out of the shearing head several times during the shaving, which tends to lengthen the life and to promote the cutting capacity of the apparatus.

In depressing the finger piece 22 the pivoting of the flaps 17 is first limited by said piece 22 bearing on the control buttons 8 of the latches 7, that is, by the counter pressure of the latch springs 9. In this position of the flaps 7 these are opened already to such an extent that the hair cuttings can then be blown out of the shearing head. When it is desired to remove the shearing head from the handle or to put the head in place on the handle this initial movement, that is, the pivoting movement of the flaps 17 permits of grasping the shearing head with the other hand at both ends thereof by which means the inner cutter is prevented from dropping off during this manipulation. If then the two finger pieces are pushed inward in opposition to the latch springs 9, the latches 7 are displaced inwardly whereby the fastening device is released as previously described.

The embodiment shown in Fig. 4 differs from the preceding embodiment by being devoid of a finger piece for joint actuation of the flaps 17 and the latch control buttons 8. The lever arm 19 which by action of a spring 18' is forced outwardly has such a length as to permit of being actuated for pivotally displacing the flaps 17 by the respective fingers directly. Such an arm is positioned on both sides so close by the latches 8 that joint control of the two latches is possible with corresponding finger parts.

A further possible modification might consist in making the lever arms 19 of the finger pieces 17 in such lengths that in depressing said arms these can bear against the latch control buttons 8 directly.

Fig. 5 shows a further modification which, instead of flaps 17, as shown in Figs. 1 or 4, has arranged at both narrow sides of the shearing head a sliding latch 25 which is retained in a guide 26 of the cover plate 15. The latches 25 are provided with lobes 27 having oblique faces 28. In the position of the control latches as shown the respective shearing head opening is closed. If then the latch is pushed downwardly into the dotted line position as indicated by the arrow, first the respective shearing head opening is uncovered. In further displacing the control latch the oblique face 28 on the lobe 27 forces the control head 8 on the latch 7 inwardly whereby the shearing head locking device is released.

In a fifth embodiment as shown in Figs. 6 to 9, means are provided by control of which the flaps are moved into an open position appropriate for removing the hair cuttings without the possibility of influencing the shearing head fastening device, this influencing being feasible in another position of the flaps. To this end the pivotal closure flaps are advantageously mounted for rotation in the pivotal finger pieces for controlling the same, in which way the manufacture of the control means for the closure flaps is simplified and cheapened.

Advantageously, the mounting of the control means is so carried into effect that in slots which have inner open ends and are arranged in the side walls of trough shaped pivotal finger pieces a bent off lower part of the closure flap is inserted. The outer cutter 10, the gaps 14 between the cutting teeth, the connecting bolts 2 inclusive of the grooves 3 and the convexed ends 4 thereof, the fastening sleeves 5 inclusive of the recesses 6 thereof, and the instant inner cutter which is however not shown in the drawing are of the same construction as in the preceding embodiments.

The cover plate 15 of the handle 1 is provided at its longitudinal ends with apertures 30 which constitute two stop shoulders 31 and 32. The latches or slides 7 cooperating with the grooves 3 have two terminal upstanding projections 33 and are forced outwardly by coiled wire springs 34'. The pivotal closure flaps 17' are rotatably mounted in the finger pieces 22' for their control. Said pieces are of trough like form.

In the side walls 34 of the troughs forming the finger pieces slots 35 with inner open ends are provided in each of which engages a bent off portion 37 refining a recess 36 in the respective closure flap 17'. The median part 38 of the bent off portion 37 is acted upon by a torsion spring 39 which surrounds the pivot 40 of the finger piece 22'. The other end of the torsion spring is secured to one of the side walls 34. By means of the pivot 40 the finger piece 22' is mounted in the handle 1. By action of the spring 39 the closure flap 17' is forced towards the open end of the inner cutter 10 whilst the finger piece 22' is forced outwardly until its nose 41 firmly bears against the stop shoulder 31 on the cover plate 15. On the left hand side of Fig. 6 the closure flap 17' and the finger piece 22' are shown in positions in which the hollow space of the inner cutter 10 is closed.

If it is desired to open the closure flaps 17' for removing the hair cuttings the pivotal finger

piece 22' is forced into the position shown on the right hand side of Fig. 6 in which the nose 41 bears against the stop shoulder 32. By this means the closure flap 17' is pressed against the outer edge of the cover plate 15 and is pivotally displaced into an inclined position. If it is required to remove the shearing head the two closure flaps 17' are further turned by the thumb and one of the other fingers of the other hand into the position shown in Fig. 7. Due to this movement the part 38 of the pivotal flap 17' hits the projections 33, thereby displacing the slide 7' inwardly against the action of the spring 34' so that the slide disengages from the groove 3 and the shearing head can be removed from the handle 1 with the same fingers that have completed the turning movement of the closure flaps 17' (Fig. 7).

The embodiment shown in Figs. 10 to 12 differs from that precedingly described only in regard to certain details. The slide 7'' is provided with a depending ledge 42 instead of projections 33 and the side walls of the pivotal finger piece 17' are provided with recesses 43 into which the ledge 42 engages when the pivotal finger piece is forced inwardly into the position shown in Fig. 11 for the purpose of opening the closure flap 17'. Fig. 10 shows the closure flap 17' in closed position. If it is desired to remove the shearing head the closure flaps 17' are further pivotally displaced as in the preceding embodiment. By this means the spring 39 being pushed inward by the part 38 of the flap 17' cooperates with the ledge 42 so as to displace the slide 7'' inwardly.

Still further modifications can be made without going beyond the scope of the invention. The mounting of the closure flaps for rotation in the pivotal finger pieces facilitates the appropriate closing effect of the pivotal flaps and is a prerequisite for bringing about substantial simplification with a view to quantity production.

Instead of being flat as shown the closure flaps may be slightly dished.

We claim:

1. In a dry shaving apparatus, the combination with a shearing head including an oblong hollow outer cutter secured to a handle and receiving an inner cutter in longitudinally reciprocable relation to the oblong hollow portion of said outer cutter, controllable closure flaps arranged on said shearing head at the sides of said handle adjacent to the longitudinal ends of said outer cutter, of control means associated with said closure flaps allowing of opening and closing said flaps conveniently with the same hand as used in shaving with the apparatus.

2. In a dry shaving apparatus, the combination with a shearing head including an oblong hollow outer cutter secured to a handle by releasable fastening means, and receiving an inner cutter in longitudinally reciprocable relation to the oblong hollow portion of said outer cutter, controllable closure flaps arranged on said shearing head at the sides of said handle adjacent to the longitudinal ends of said outer cutter, of control means associated with said closure flaps allowing of opening and closing said flaps conveniently with the same hand as used in shaving with the apparatus said flap control means being arranged on said flaps so close by said releasable fastening means as to permit of actuating both said means with the same finger of said hand.

3. In a dry shaving apparatus, the combination with a shearing head including an oblong hollow outer cutter secured to a handle by releasable fastening means and receiving an inner cutter in longitudinally reciprocable relation to the oblong hollow portion of said outer cutter, pivotal closure flaps arranged on said shearing head at the sides of said handle adjacent to the longitudinal ends of said outer cutter, of control means arranged on said closure flaps allowing of pivotally displacing said flaps conveniently with the same hand as used in shaving with the apparatus, and means for actuating said flap control means and said releasable fastening means in required sequence.

4. In a dry shaving apparatus, the combination with a shearing head including an oblong hollow outer cutter secured to a handle by releasable fastening means and receiving an inner cutter in longitudinally reciprocable relation to the oblong hollow portion of said outer cutter, pivotal closure flaps arranged on said shearing head at the sides of said handle adjacent to the longitudinal ends of said outer cutter, of control means arranged on said closure flaps allowing of pivotally displacing said flaps conveniently with the same hand as used in shaving with the apparatus, and means for positively actuating said flap control means and said releasable fastening means by a corresponding relative movement of said control means and said fastening means.

5. In a dry shaving apparatus, the combination with a shearing head including an oblong hollow outer cutter secured to a handle and receiving an inner cutter in longitudinally reciprocable relation to the oblong hollow portion of said outer cutter, controllable closure flaps arranged on said shearing head at the sides of said handle adjacent to the longitudinal ends of said outer cutter, of control means associated with said closure flaps, and finger operable means associated with said control means allowing of opening said flaps by slight pressure exertion on said finger operable means and of closing said flaps by releasing said finger pressure.

6. In a dry shaving apparatus, the combination with a shearing head including an oblong hollow outer cutter secured to a handle by releasable fastening means and receiving an inner cutter in longitudinally reciprocable relation to the oblong hollow portion of said outer cutter, said inner cutter defining a collecting space for hair cuttings interiorly of said shearing head, controllable closure flaps arranged on said shearing head at the sides of said handle adjacent to the longitudinal ends of said outer cutter, of control means for said releasing means associated with said closure flaps allowing of opening said flaps into position of removing said hair cuttings from said head and closing said flaps again, and means for preventing said flap control means from influencing said releasable fastening means while moving into said opening position, said fastening means being opened by further opening movement of said flaps.

7. In a dry shaving apparatus, the combination with a shearing head including an oblong hollow outer cutter secured to a handle by releasable fastening means and receiving an inner cutter in longitudinally reciprocable relation to the oblong hollow portion of said outer cutter, said inner cutter defining a collecting space for hair cuttings interiorly of said shearing head, controllable closure flaps arranged on said shearing head at the sides of said handle adjacent to the longitudinal ends of said outer cutter, of pivotal control finger pieces associated with said closure flaps allowing of opening said flaps into

position of removing said hair cuttings from said head and closing said flaps again, means for rotatably mounting said closure flaps in said finger pieces, and means for preventing said finger pieces from influencing said releasable fastening means while moving into said opening position, said fastening means being opened by further opening movement of said flaps.

8. In a dry shaving apparatus, the combination with a shearing head including an oblong hollow outer cutter secured to a handle by releasable fastening means and receiving an inner cutter in longitudinally reciprocable relation to the oblong hollow portion of said outer cutter, said inner cutter defining a collecting space for hair cuttings interiorly of said shearing head, controllable closure flaps arranged on said shearing head at the sides of said outer cutter, of pivotal control finger pieces associated with said closure flaps and having an inner portion fulcrumed to said handle, spring means for forcing said finger pieces outwardly relative to said handle for preventing said finger pieces from influencing said releasable fastening means while moving into said opening position, said fastening means being opened by further opening movement of said flaps.

9. In a dry shaving apparatus, the combination with a shearing head including an oblong hollow outer cutter secured to a handle by releasable fastening means and receiving an inner cutter in longitudinally reciprocable relation to the oblong hollow portion of said outer cutter, said inner cutter defining a collecting space for hair cuttings interiorly of said shearing head, controllable closure flaps arranged on said shearing head at the sides of said handle adjacent to the longitudinal ends of said outer cutter, of pivotal control finger pieces associated with said closure flaps and having an inner portion fulcrumed to said handle, stops cooperating with each of said finger pieces in the course of said pieces moving inwardly relative to said handle by which movement said flaps are opened as limited by said stops, a point of said inner portion of each finger piece beyond said fulcrum influencing said fastening means for releasing said fastening means, and spring means for forcing said finger pieces outwardly relative to said handle and said flaps into closing position.

10. In a dry shaving apparatus, the combination with a shearing head including an oblong hollow outer cutter secured to a handle by releasable fastening means and receiving an inner cutter in longitudinally reciprocable relation to the oblong hollow portion of said outer cutter, said inner cutter defining a collecting space for hair cuttings interiorly of said shearing head, controllable closure flaps arranged on said shearing head at the sides of said handle adjacent to the longitudinal ends of said outer cutter, of pivotal control finger pieces associated with said closure flaps and having an inner portion fulcrumed to said handle, stops cooperating with each of said finger pieces in the course of said pieces moving inwardly relative to said handle by which movement said flaps are opened as limited by said stops, a point of said inner portion of each finger piece beyond said fulcrum influencing said fastening means for releasing said fastening means, stops provided on said handle for limiting the movement of said finger pieces outwardly relative to said handle, and spring means for forcing said finger pieces outwardly relative to said handle and said flaps into closing position.

11. In a dry shaving apparatus, the combination with a shearing head including an oblong hollow outer cutter secured to a handle by releasable fastening means and receiving an inner cutter in longitudinally reciprocable relation to the oblong hollow portion of said outer cutter, said inner cutter defining a collecting space for hair cuttings interiorly of said shearing head, controllable closure flaps arranged on said shearing head at the sides of said handle adjacent to the longitudinal ends of said outer cutter, of pivotal trough like control finger pieces associated with said closure flaps fulcrumed to said handle and having slots with inner open ends in the trough side walls for mounting engagement with said flaps and being fulcrumed at an inner portion of said trough to said handle, spring means for forcing said finger pieces outwardly relative to said handle and said flaps into closing position, and means for preventing said finger pieces from influencing said releasable fastening means while moving into said opening position, said fastening means being opened by further opening movement of said flaps.

12. In a dry shaving apparatus, the combination with a shearing head including an oblong hollow outer cutter secured to handle by releasable fastening means and receiving an inner cutter in longitudinally reciprocable relation to the oblong hollow portion of said outer cutter, said inner cutter defining a collecting space for hair cuttings interiorly of said shearing head, controllable closure flaps each having a bent off portion provided with an aperture having a lower limiting face, said flaps being arranged on said shearing head at the sides of said handle adjacent to the longitudinal ends of said outer cutter, of pivotal control finger pieces arranged on said closure flaps with their pivot axis formed by said limiting face of said aperture and being adapted to move inwardly pivotally, and spring means engaging said limiting face for forcing said finger pieces outwardly relative to said handle and said flaps into closing position, said finger pieces engaging the releasable fastening means of the cutter means when moved inwardly to the full extent of their movement but being spaced from said fastening means so as not to engage the fastening means during the first part of their inward movements.

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