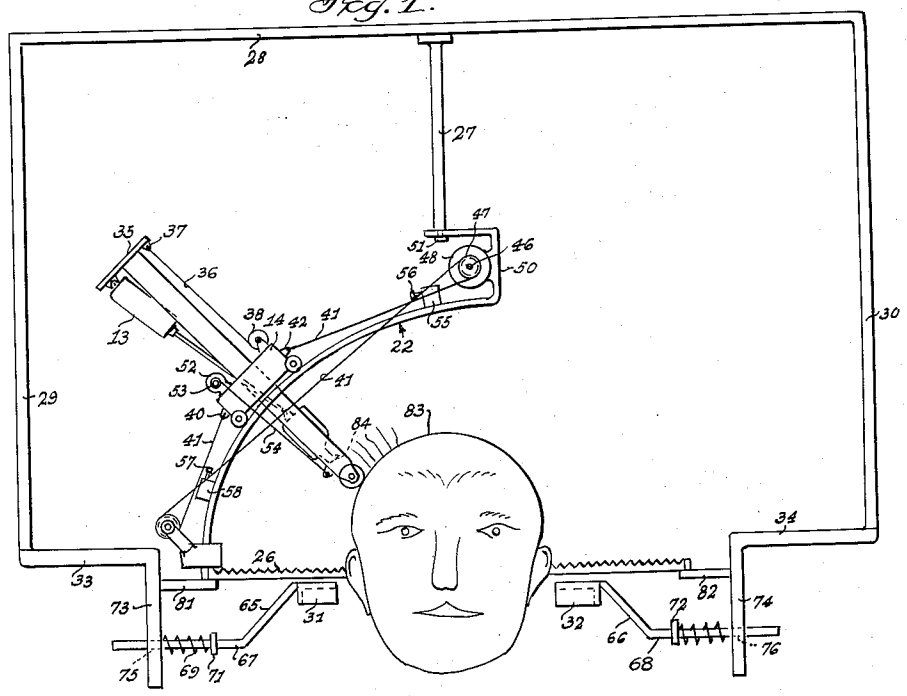
Feb. 21, 1961 H. B. MORGAN 2,972,351

HAIR CUTTING MACHINE

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Fig. 1.



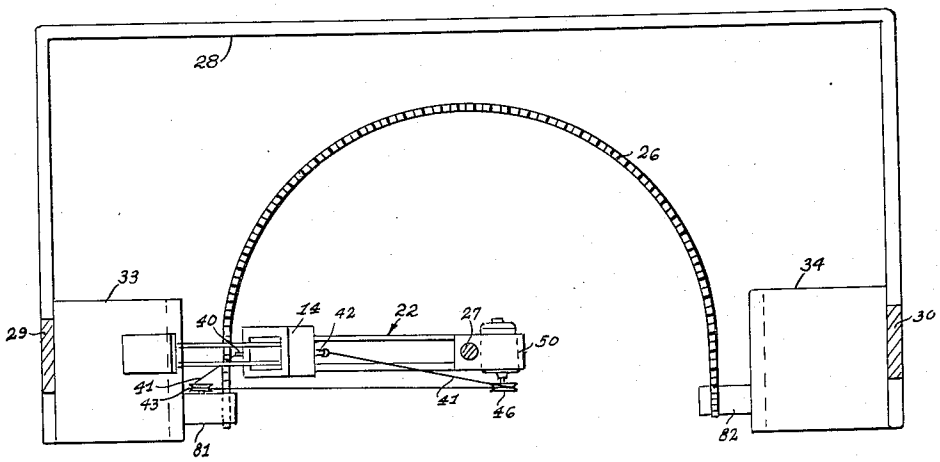


Fig. 2.

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Fig. 3

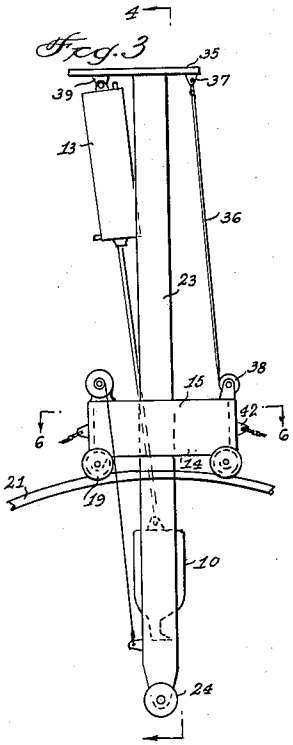


Fig. 4

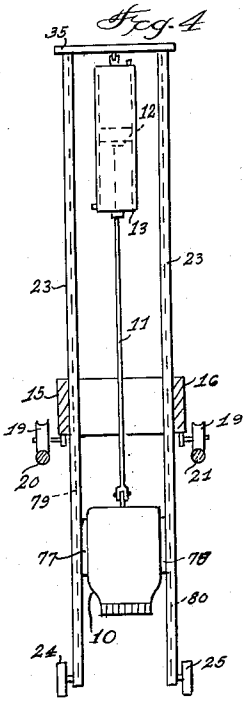
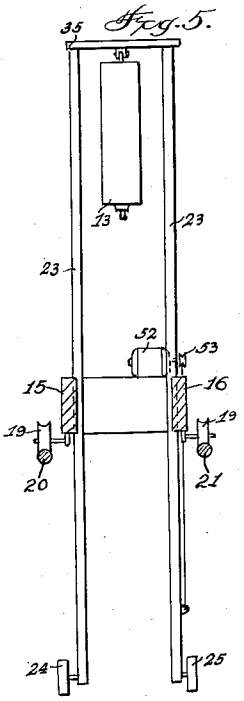


Fig. 5.



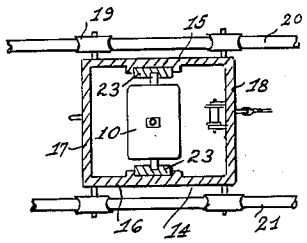


Fig. 6.

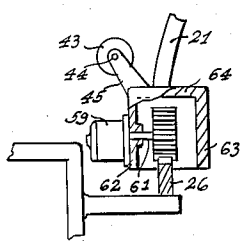


Fig. 7.

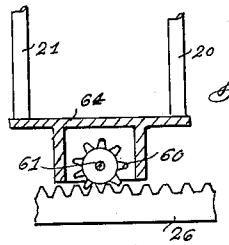


Fig. 8.

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United States Patent Office 2,972,351 Patented Feb. 21, 1961

2,972,351

HAIR CUTTING MACHINE

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Filed Jan. 23, 1959, Ser. No. 788,530

4 Claims. (Cl. 132—45)

This invention relates to hair clippers or cutting machines wherein a head is positioned in a frame and hair clippers, which are mounted to travel on an arcuate track, are positioned to reciprocate from the center to edges of hair on the head as the track is actuated to travel around the head, and wherein the center of a head in the frame is brought into registering relation with the center about which the track travels by caps positioned over the ears of the head.

The purpose of this invention is to provide means for mounting hair clippers whereby the clippers travel back and forth and around a head for cutting hair on the head.

Various types of hair cutting machines have been provided, however, it has been found difficult to operate machines for this use without cutting all of the hair the same length and without pulling the hair as the clippers stop and start back in the return movement. With this thought in mind this invention contemplates a hair cutting machine wherein clippers are adjustably mounted on a traveling arcuate track whereby the position of the track may be adjusted so that the hair may be long at the top of the head and short on the sides and wherein cutting elements of the clippers continue to operate as the clippers stop and start back in a return movement.

The object of this invention is, therefore, to provide a hair cutting machine in which the cutting elements are adjustable so that hair may be cut to any length desired.

Another object of the invention is to provide a hair cutting machine in which the length of the hair may be tapered from the top to the sides, or as desired.

A further object of the invention is to provide a hair cutting machine having hair clippers mounted to travel on a traveling track in which the device is centered in relation to a head by caps positioned over the ears of the head.

A still further object of the invention is to provide an automatic hair cutting machine which is of a simple and economical construction.

With these and other objects and advantages in view the invention embodies a frame having a centrally positioned post depending from the upper portion with inwardly extended arms at the sides in which ear caps are carried for centering the frame on a head and with a hair clipper adjustably mounted in a frame positioned to travel on an arcuate track pivotally mounted on the depending post in the center of the frame whereby in the operation of the device the clipper reciprocates from the center to outer portions of the frame traveling on the arcuate track and cutting hair of a head positioned between the inwardly extended arms and ear caps.

Other features and advantages of the invention will appear from the following description taken in connection with the drawings, wherein:

Figure 1 is a front elevational view of the improved hair cutting machine showing a hair clipper carried by an arcuate track and positioned to cut hair of a head therein.

Figure 2 is a plan view of the machine showing a substantially semi-circular rail upon which the lower end of the track is positioned, the post for supporting the upper end of the track being shown in section.

Figure 3 is a side elevational view showing a clipper carrying frame mounted on a carriage designed to travel on an arcuate track of the machine, the parts being shown on an enlarged scale.

Figure 4 is a front elevational view showing the clipper mounting frame illustrated in Figure 3, the side bars of the carriage being shown in section and the hair clipper being shown in the frame with the clipper slidably held by side rails and supported from a hydraulic cylinder by a rod.

Figure 5 is a view similar to that shown in Figure 4 with the clipper and mounting means thereof omitted and with a small motor provided in the intermediate part of the frame for actuating cables to move the hair clipper mounting frame.

Figure 6 is a sectional plan taken on line 6—6 of Figure 3 showing the carriage upon which the hair clipper frame is positioned.

Figure 7 is a section through a mounting of the lower end of the arcuate track with the motor actuated pinion therein for carrying the arcuate track around the rail of the frame.

Figure 8 is a side elevational view showing the combination of the pinion and rail shown in Figure 7.

Referring now to the drawings wherein like reference characters denote corresponding parts the improved hair clipping machine of this invention includes a hair clipper 10 suspended by a rod 11 from a piston 12 in a cylinder 13, a carriage 14 having side bars 15 and 16, end bars 17 and 18 and wheels 19, the wheels being positioned on rails 20 and 21 of a track 22, vertically disposed side bars 23 mounted on the side bars 15 and 16 of the carriage and having rollers 24 and 25 on the lower ends, a substantially semi-circular horizontally disposed rail 26 on which the lower end of the track 22 is mounted, a post 27 for supporting the upper end of the track and a frame having an upper bar 28 and end bars 29 and 30 with ear caps 31 and 32 supported by inwardly extended arms 33 and 34 on the lower ends of the end bars 29 and 30.

Upper ends of the bars 23 are connected by a plate 35 and, as shown in Figure 3 a cable 36 extends from an eye 37 on one end of the plate 35 and to a spring 38 on the carriage 14 which maintains tension on the clipper 10 whereby the rollers 24 and 25 engage the head with constant pressure. One end of the carriage 14 is provided with an eye 40 to which one end of a cable 41 is attached and the opposite end is provided with an eye 42 to which the opposite end of the cable is secured. From the eye 40 the cable extends around a pulley 43 on a pin 44 of a bracket 45 upon the upper surface of which lower ends of the rails 20 and 21 of the track 22 are secured, as shown in Figure 7 and from the pulley 43 the cable 41 extends to a pulley 46 on a motor shaft 47 of a motor 48 mounted in a bracket 50 at the upper end of the track 22 and, as illustrated in Figure 1 the bracket 50 is pivotally connected to the lower end of the post 27 by a pin 51. From the pulley 46 the cable 41 extends back to the eye 42 on the end of the carriage 14. The carriage 14 is also provided with a motor 52 having a pulley 53 thereon and a cable 54 extends from the pulley 53 to the clipper mounting whereby the clipper is drawn away from the head as the clipper frame and carriage 14 reach upper and lower ends of the track 22.

The upper end of the track is provided with a switch 55 having a button 56 thereon, the button being positioned to be engaged by the end of the carriage 14 as the carriage reaches the upper movement whereby the circuit is broken to the motor 48 causing the motor to reverse whereby the clipping assembly starts back or travels downwardly on the track 22 until the opposite end of the carriage reaches a similar button 57 of a reversing switch 58 at the lower end of the track.

The operation of the switches 55 and 58 completes circuits to a motor 59 which rotates a pinion 60 on a shaft 61 extended from the motor causing the lower end of the track 22 to advance on the semi-circular bar 26 a distance equal to or slightly less than the width of the cutting element.

By this means the carriage 14 with the cutting element travels upwardly and downwardly over the surface of the arcuate track 22 as the track travels around the head, the upper end being pivotally mounted on the post 27 and the lower end traveling around the track with the pinion 60 meshing with the teeth of the semi-circular bar or rail 26. The shaft 61 is rotatably mounted in a wall 62 of a cage positioned over the pinion 60, the cage having an inner wall 63 and a cover 64. The lower ends of the rails 20 and 21 are secured to the cover or upper panel 64 of the cage.

The ear caps 31 and 32 are carried on the upper ends of upwardly inclined sections 65 and 66 of arms 67 and 68 with springs 69 and 70 on the arms positioned between collars 71 and 72 and depending ends 73 and 74 of the arms 33 and 34. The arms 67 and 68 are slidably mounted in openings 75 and 76 in the ends or sections 73 and 74. The ear caps 31 and 32 are substantially semi-circular in cross section and these caps are positioned to extend over and cover the ears as shown. With a head positioned between the arms 33 and 34 the head will be centered by tension of the springs 69 and 70.

The sides of the hair cutter or clipper housing 10 are provided with tongues 77 and 78 that extend into tracks 79 and 80, respectively on the inner surfaces of the side bars 23 of the clipper supporting frame and with fluid under pressure supplied to the ends of the hydraulic cylinder 13 the position of the clipper 10 is readily controlled.

The ends of the semi-circular bar 26 are supported by brackets 81 and 82 from the sections 73 and 74 of the supporting frame.

Operation

With the parts assembled as illustrated and described the frame is supported by conventional means and with a head 83 positioned between the ear caps 31 and 32 the center of the post 27 will be positioned above the center of the head and with the clipper or hair cutter 10 supported between the bars 23 the clipper assembly may travel upwardly and downwardly on the track 22 and with a static electrical magnet 84 carried in the lower part of the clipper frame hair will stand normal to the surface of the head to facilitate cutting.

The length of the hair is controlled by the distance of the clipper from the surface of the head and this may be controlled by the shape and position of the track 22, however, the device is also provided with a template by which the position of the piston in the cylinder 13 is controlled and with the template tapered, as an illustration, from a high point at the center to a point comparatively close to the surface of the head at the sides or over the ears the hair may be tapered at the sides as the piston in the cylinder 13 follows the template.

By using different templates the hair may be cut to different patterns thereby obtaining a crew cut, flat top, or, as stated before, the hair may be relatively short at the sides and long at the top.

As hereinbefore stated, the clipper is set at the lower end of the track and as the motor 48 is started the cable 41 draws the carriage with the clipper suspended therefrom upwardly until the carriage reaches the limit or stop switch 55, at which time the motor 48 is reversed and the carriage drawn downwardly on the track by the opposite end of the cable 41. In this operation with the limit switches 55 and 58 a circuit is completed to the motor 59 which rotates the pinion 60 so that the lower end of the track travels on the bar 26 a distance equal to the width of the cutting element whereby the track with the clipper thereon travels from a starting position at one side, around a head to a final position at the opposite side.

In this movement the rollers 24 and 25 travel on the surface of the head maintaining the clipping element a predetermined distance from the head.

It will be understood that modifications within the scope of the appended claims, may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

1. A hair cutting machine comprising a frame, head centering means extended inwardly from sides of the frame, a centrally disposed post depending from the upper end of the frame, a horizontally disposed substantially semi-circular bar mounted in the frame, a track positioned in the frame and adapted to travel around to the curvature of the head, means for pivotally mounting the upper end of the track on the lower end of the post, means for mounting the lower end of the track on the semi-circular bar with the track positioned to travel on the bar, means for actuating the track to travel on the bar, a hair cutting element, a carriage having rollers positioned to travel on the track, and means for mounting the hair cutting element on the carriage.

2. A hair cutting machine comprising a frame, head positioning elements extended inwardly from sides of the frame, a semi-circular bar having teeth in the upper edge mounted on the head centering elements, a post depending from the upper end of the frame, an arcuate track positioned with the upper end pivotally mounted on the post and the lower end positioned to travel on the semi-circular bar, a carriage mounted to travel on the track, means for actuating the carriage on the track, and a hair cutting element carried by the carriage and positioned to cut hair on a head between the centering elements extended inwardly from the sides of the frame.

3. In a hair cutting machine, the combination which comprises a vertically disposed frame having a post depending from the upper end and arms extended inwardly at the sides, head centering elements having ear caps on inner ends thereof carried by the arms extended inwardly from the sides of the frame for centering a head in relation to the post, a horizontally disposed semi-circular bar having teeth in the upper edge carried by the inwardly extended arms of the frame, an arcuate track positioned with the upper end connected to the post and the lower end mounted to travel on the semi-circular bar, means for pivotally connecting the upper end of the arcuate track to the post, a motor actuated pinion mounted on the track and positioned with the teeth of the pinion meshing with the teeth of the semi-circular bar, a carriage mounted to travel on the track, a vertically disposed frame extended through the carriage, rollers on the lower end of the vertically disposed frame and positioned to contact the surface of a head positioned between the ear caps, a hair clipper slidably mounted in the vertically disposed frame and positioned to cut hair on the head as the carriage travels on the track, a cable trained over pulleys on the track and actuated by a motor at the upper end of the track for operating the carriage, and a hydraulic cylinder mounted on the vertically disposed frame and connected to the hair clipper for controlling the distance of the hair clipper from the surface of the head.

4. A hair cutting machine as described in claim 3 and a static electrical element carried by the frame for drawing hair upwardly to facilitate cutting.

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