Aug. 5, 1924. 1,504,155

H. O. SMITH

CLIPPER

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Fig. 1.

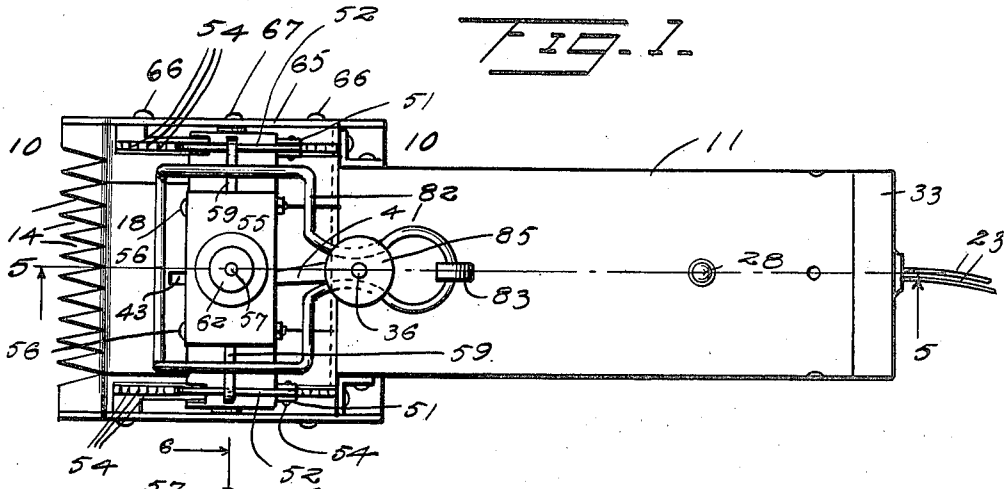


Fig. 2.

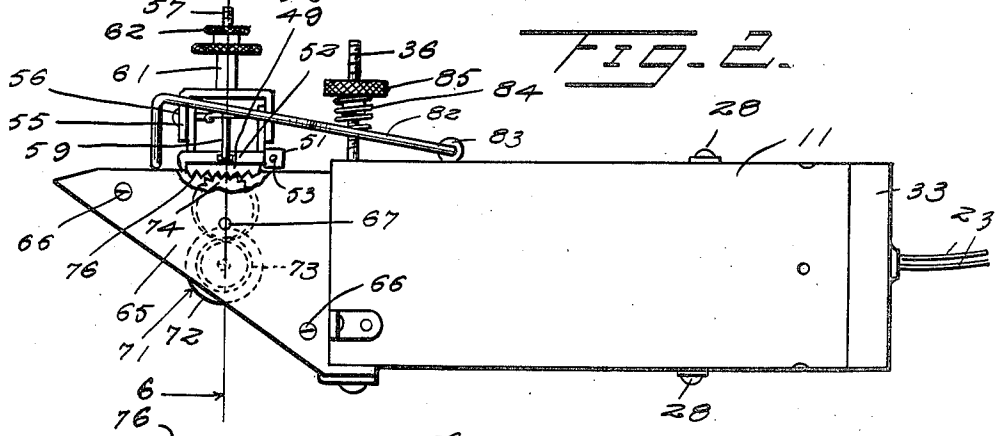
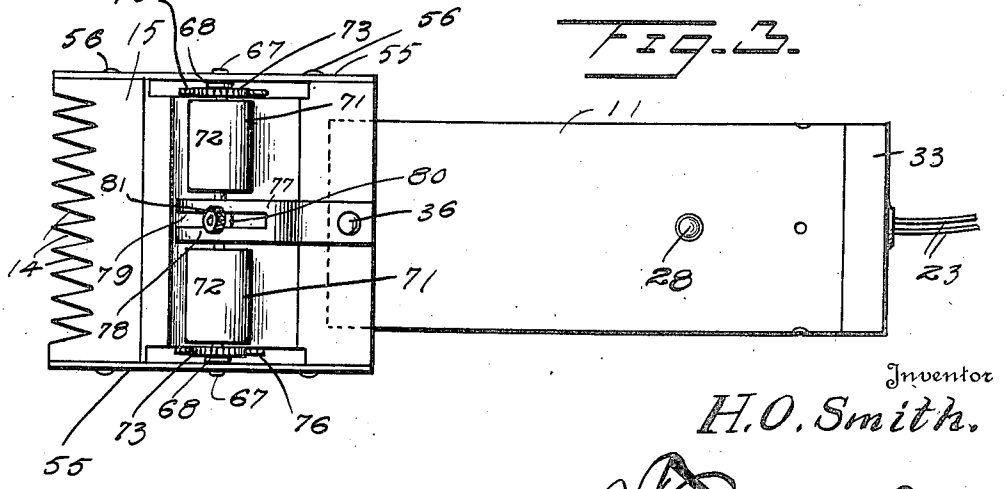


Fig. 3.



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Fig. 4.

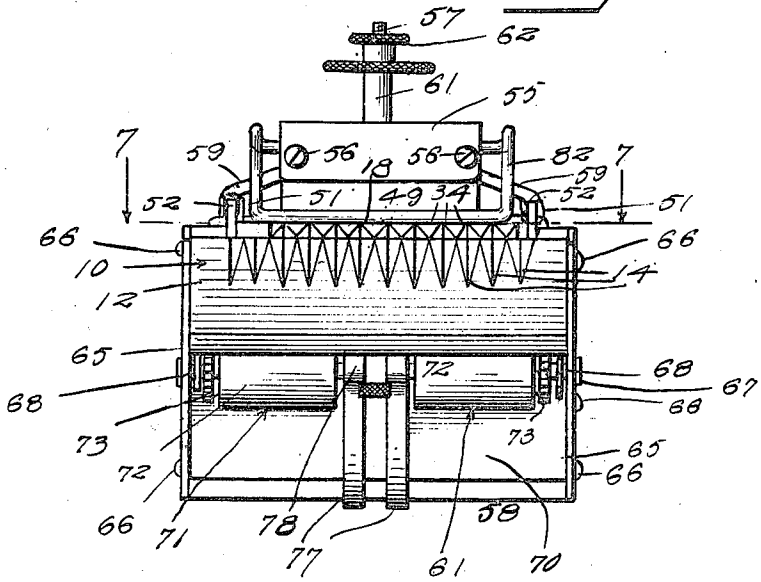
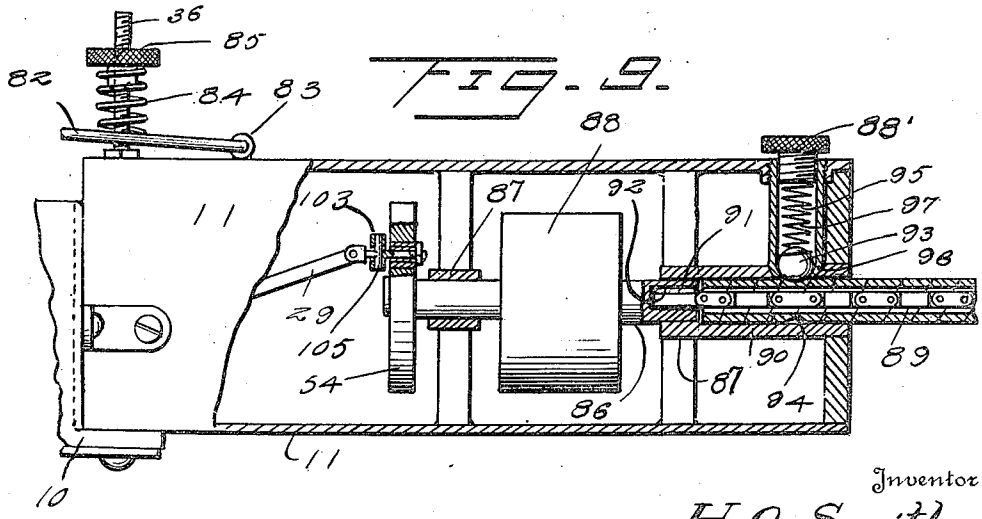


Fig. 9.



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Aug. 5, 1924. 1,504,155

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CLIPPER

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FIG. 5.

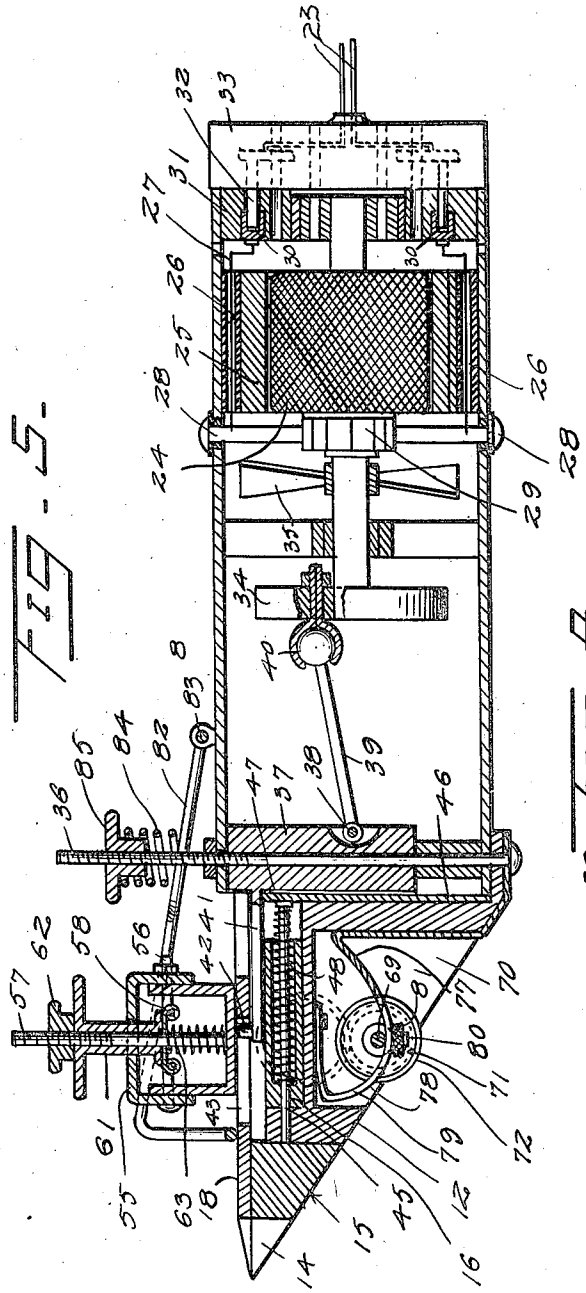


FIG. 10.

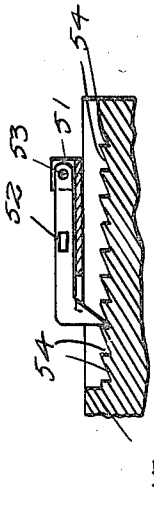
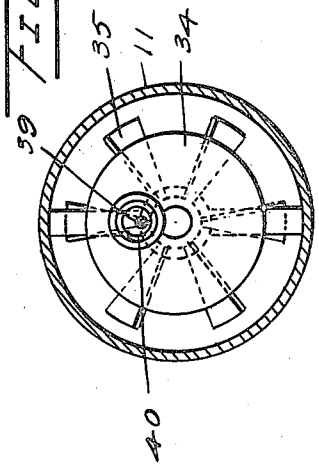


FIG. 8.



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By [signature] Attorney

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CLIPPER

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FIG. 6.

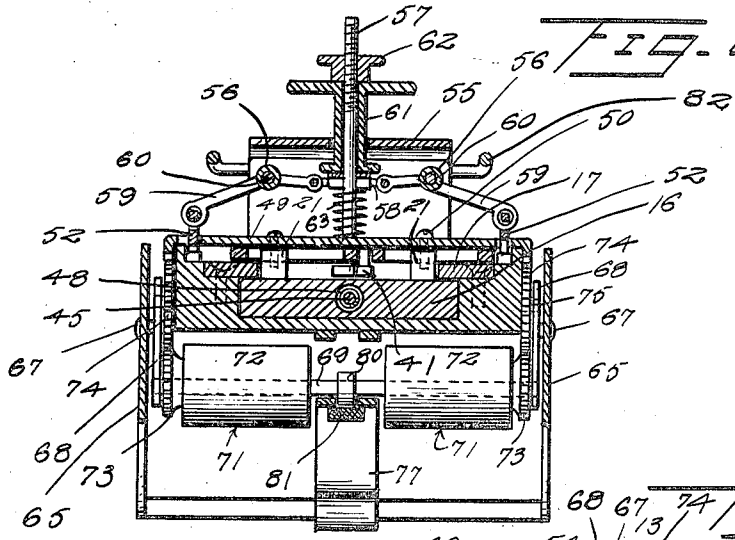


FIG. 7.

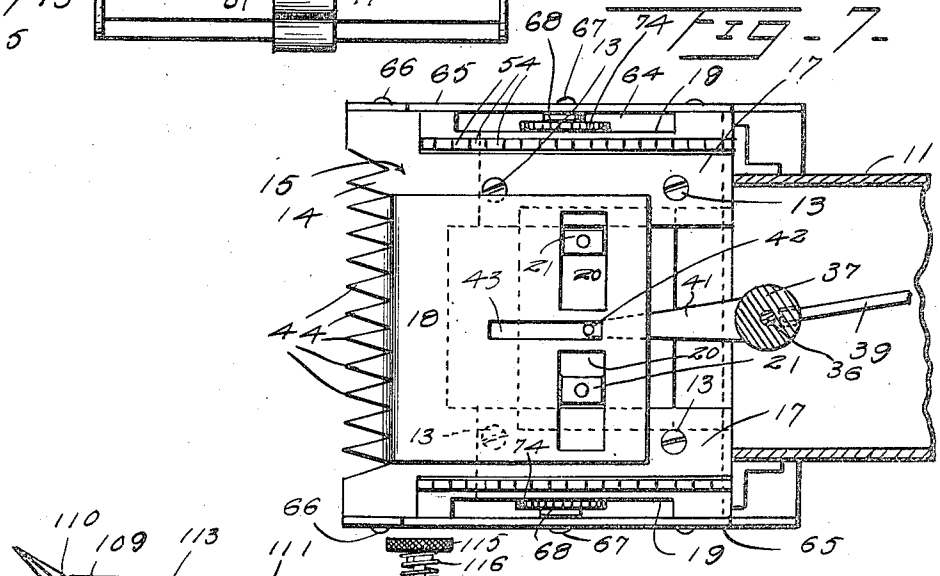
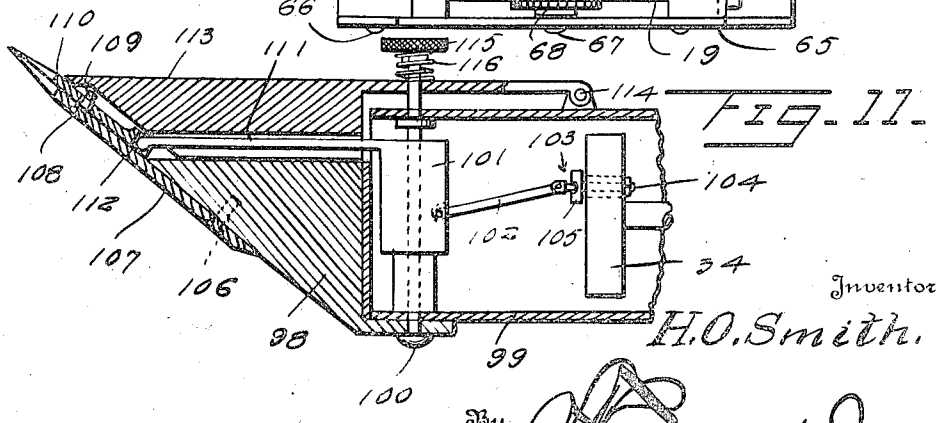


FIG. 11.



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Patented Aug. 5, 1924. 1,504,155

UNITED STATES PATENT OFFICE.

HARRY O. SMITH, OF LOS ANGELES, CALIFORNIA.

CLIPPER.

Application filed May 1, 1923. Serial No. 635,917.

To all whom it may concern:

Be it known that I, HARRY O. SMITH, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Clippers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a clipper primarily adapted for barber's use.

One object is to provide a clipper operable upwardly to cut hair at the lower edge to give an upward and outward taper and particularly a clipper which may fulcrum on the head to attain this result or otherwise cut hair at different lengths.

It is further aimed to provide a construction in which the hair may be cut to a uniform length and which may be adjusted to vary or control the different lengths of cut.

Another object is to provide a construction having tractive means to engage the head and a cutter whose position varies automatically with that of said means to control the taper cut referred to.

A fourth object is to provide a construction in which said tractive means is movable into and out of utile position to the end that the clipper may normally function as an ordinary clipper.

A further object is to provide a clipper having novel means to lock the top plate or movable cutter blade in different adjusted positions so as to cut hair to different lengths.

A still further object is to provide a clipper in which the motor is located in the handle in order to eliminate the stiff drive cable or the equivalent normally extending from the handle.

A novel tensioning means for the cutter or top plate is also a feature of the invention.

Various additional objects and advantages will become apparent and be pointed out from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:—

Figure 1 is a plan view of the clipper;

Figure 2 is a side elevation;

Figure 3 is a bottom view;

Figure 4 is an end elevation looking toward the cutter;

Figure 5 is a substantially central longitudinal sectional view on the line 5—5 of Figure 1;

Figure 6 is a transverse sectional view taken on the line 6—6 of Figure 2 and substantially centrally of the cutter;

Figure 7 is a horizontal sectional view taken on the line 7—7 of Figure 4 and particularly showing the locking means in plan;

Figure 8 is a detail sectional view on the line 8—8 of Figure 5;

Figure 9 is a substantially central longitudinal sectional view through a modified form;

Figure 10 is a detail sectional view on the line 10—10 of Figure 1, and

Figure 11 is a substantially central longitudinal sectional view through a modified form showing the use of the standard type of stationary cutter blade.

Like reference characters designate like or similar parts in the different views.

Referring specifically to the drawings, a block or head is provided at 10 from which a handle 11 projects rearwardly. The head 10 at the hair engaging portion longitudinally of the clipper is preferably triangular as shown so that its under or head-engaging surface will be inclined as at 12. Detachably secured to the head 10 by screws or other fastening means 13 is the stationary cutter blade 15 having a plurality of slits or incisions to provide the hair-separating fingers 14.

Slidable within the head 10 and longitudinally thereof is a cutter plate positioning block 16. The ends of block 16 are overlapped by the arms 17 forming the attaching portion of the stationary blade 15. The upper surface of the head 10 with the stationary cutter blade 15 in place is preferably substantially plane and a cutter blade 18 is slidable on said plane surface both longitudinally and laterally of the clipper in both directions. The head 10 at each side is raised above said plane surface at portions 19.

Cutter 18 has slots 20 therethrough into which extensions or bosses 21, integral with the block 16 extend. Said slots 20 are enlarged with respect to the bosses so as to permit the cutter 18 to move laterally over the head. Cutter 18 is adapted to be later-

ally reciprocated in any approved manner. To this end an electric motor 22 is located within the handle and feed wires 23 lead thereto from any suitable source. The motor 22 comprises the armature 24 and field 25 which latter is insulated from the casing or handle 11 by suitable electric insulating material 26 through which feed wires 27 extend to the brushes 28 insulated from the handle as shown and having contact with the commutator 29. The feed wires 27 are permanently secured to the sockets 30 embedded in the block of insulating material 31 and the feed wires 23 are permanently secured to studs 32 embedded in the block of insulating material 33. The studs 32 and sockets 30 provide a quick detachable electric connection and obviate the necessity for the employment of feed wires 23 of great length.

Particular attention is called to the fact that by having the motor located within the handle 11, the use of an ordinary flexible shaft or other relatively stiff means at the free end of the handle is avoided. The feed wires 23 may be ordinary flexible electric wire or cord. The motor is adapted to rotate a drive wheel 34 from an axis longitudinally of the handle.

A fan wheel 35 is associated to turn with the drive wheel 34 so that air will be educed from the handle toward the head and serve to dislodge hair after the cutting thereof. A bolt or rod 36 is disposed radially of the handle 11 at its forward end in an upright position. A block 37 is journaled on the bolt 36 and a horizontal pin 38 connects a drive rod 39 thereto. The drive rod 39 has a ball and socket or swivel connection at 40 with the wheel 34. As a result, the drive wheel 34 will so move the rod 39 as to oscillate the block 37. A crank 41 extends forwardly from the block 37 and has an upstanding lug 42 as at forward end which is disposed within an elongated slot 43 of the cutter 18.

The cutter plate 18 may be of any suitable shape but preferably has spaced forwardly projecting fingers or teeth 44 suitably sharpened at their side edges so that as the cutter plate reciprocates laterally over the fingers 14, such plate will cut the hair extending above the fingers 14.

One of the principal features of my invention is to provide means whereby the same may be set to cut the hair at different lengths. To this end, the block 16 slides on a pin 45 which at its rear end abuts a plate 46. At said end, pin 45 has a head 47 which is surrounded by an expansive coil spring 48 which engages head 47 at one end and the block 16 at the other end. Thus the spring 48 urges the block 16 forwardly and also the cutter 18 forwardly as it is connected to the block through the medium of the bosses 21.

Suitable means is provided to maintain the block 16 and cutter 18 at different positions away from the free end of the fingers 14 and against the tension of the spring 48 so that the fingers 14 may extend into the hair to different degrees to regulate the length of cut thereof.

A bracket 49 extends over the cutter 18 and bosses 21 and may be fastened to the latter by means of set screws 50. Bracket 49 has ears 51 integral therewith to which pawls 52 are pivoted by horizontal pins 53. Said pawls at their free ends are adapted to engage teeth 54 provided on the head 10 in order to hold the cutter 18 and block 16 against the tension of the spring 48, in the adjusted positions of the cutter. Bracket 49 may have a cover 55 removably fastened thereto by bolts or the like at 56. A vertical bolt 57 rises from the bracket 49 and through the cover 55 and has a follower 58 loosely slidable along the same. Levers 59 are pivoted to the follower 58 and to the pawls 52 and have enlarged eyes 60 through which the bolts 56 pass and on which bolts said levers fulcrum. A depressible sleeve or operating member 61 is slidable along bolt 57 having its lower end in engagement with the follower 58 and its upper end disposed exteriorly of the bracket and engaged by a nut 62 threaded on the bolt 57. An expansive coil spring 63 surrounds bolt 57 and at one end engages bracket 49 and at its upper end engages the lower surface of the follower 58. With the parts properly adjusted, the spring 63 by its urging the follower 58 upwardly to the extent permitted by the operating member 61 and nut 62, maintains the pawls 52 in engagement with the proper teeth 54. When quick detachment of said teeth is desired, the sleeve 61 is depressed in order to slide the follower 58 against the tension of spring 63, accordingly tilting levers 59 and raising and disengaging pawls 52 from the teeth 54. When it is desired that such disengagement of the pawls from the teeth should be permanent, the nut 62 is screwed downwardly against the operating member 61 to such an extent that it cannot move upwardly sufficient to enable the pawls to fall into engagement with teeth 54. The presence of this mechanism to lock the cutter plate 18 in adjusted position does not interfere with the use of the cutter plate in its normal position similar to an ordinary clipper.

A very important feature of the present invention is the provision of means whereby the operator may control the depth of cut at the edges of the hair and particularly may give the line of cut an upward and outward taper at such edges. To this end,

each side of the head 10 may be recessed or cut away as at 64 and the head have cover plates 65 disposed across the same and removably secured in place as by set screws 66 passing through the same and into the head. Located in each recess 64 and pivoted to the plates 65 as at 67 are arms 68. Carried by said arms and journaled therein at their lower ends is a shaft 69 which is disposed in a recess 70 in the inclined surface 12 of the head 10. Journaled on the shaft 69 are a plurality of rollers 71 which preferably have peripheries of rubber at 72 in order that they may have tractive effect on the head of the person whose hair is being cut so as to rotate the rollers 71. Turnable with the rollers 71 is a gear wheel or pinion 73. Pinion 73 drives a pinion 74 which is journaled on a pin 75 extending from the arms 68. The upper pinion 74 meshes with rack or gear teeth 76 provided on downwardly extending wings 77 integral with the bracket 49 and disposed in the recesses 70. With the upper pinion 74 in engagement with the teeth 76 and the rollers 71 engaging the head of the person, such rollers will be rotated as the clipper is pushed over the head so as to thereby control the position of the cutter plate 18. As will be understood, forward pushing movement of the clipper will cause retraction of the cutter 18 against the tension of the spring 48 and that the cutter may be restored to normal position or toward normal position by the expansion of spring 48 when the rollers are rotated in the reverse way.

It will be realized that when the feature last referred to is not desired, as in the ordinary clipping of the hair, the upper pinion 74 may be disengaged from the rack teeth 76 by swinging the arms 68 on their pivots so that the upper pinion 74 will move rearwardly and de-mesh with respect to the gear teeth 76.

A guide and securing strip for shaft 69 is provided at 77. The forward end of said strip is returned and fits against a wall of the recess 70. The strip 77 also has an arcuate portion 78 provided with an elongated slot 79 through which a bolt 80 passes and which extends rigidly from the shaft 69. A nut 81 is threaded on said bolt 80. It will be realized therefore that with the nut 81 loosened, that the same and bolt 80 serve as a manipulating handle to swing the plates and associated parts so that the pinion 74 will engage and disengage the teeth 76. The nut 81 may be tightened to bind against the strip 77 and thus maintain such parts either in a utile or in an inutile position. Attention is called to the fact that in the inutile position of the rollers 71 that they are completely disposed within the recess 70 so as not to offer obstruction to passage of the clipper over the head in normal use thereof.

A presser frame 82 is pivoted to a lug 83 on the handle 11. This frame may be made of a bar or rod of metal and at its forward portion directly engage the upper surface of the cutter 18 with which it coacts. The bolt 36 extends through the frame and an expansive coil spring 84 surrounds said bolt 36 and rests on the frame. A nut 85 is threaded on bolt 36 and engages said spring 84 so as to vary its tension and accordingly vary the tension at which the frame 82 engages the cutter 18. As the frame 82 is pivoted, the same may be readily swung from across the operating parts when the nut 85 and spring 84 are removed, and it is necessary or desirable to inspect the operating parts.

A modified form is shown in Figure 9 relating principally to the drive for rotatable wheel 34. Said wheel is keyed to a drive shaft 86 journaled in bearings 87 disposed within handle 11. A fly wheel 88 may be carried by shaft 86. A flexible drive shaft 89 is employed preferably driven by an electric motor at a distance from the clipper. A socket 90 on handle 11 detachably receives one end of shaft 89 and the latter is coupled to shaft 86 by an attaching lug 91 on shaft 89 removably entering a slot 92 in the shaft 86. Accidental detachment of shaft 89 from socket 90 is prevented by a ball 93 entering a groove 94 in shaft 89. Ball 93 is contained in a tube 95 on handle 11 and cannot become downwardly displaced as the lower end of said tube is constricted at 96. An expansive spring 97 in the tube coacts with ball 93. A nut 88′ engages spring 97 and closes tube 95. The clipper in advance of wheel 34 in this modified form is the same as the construction first described.

In the modified form of my invention shown in Figure 11 a solid head 98 generally triangular in outline is connected to a handle 99 through the medium of a bolt 100 on which is mounted for osculating movement a block 101 connected to a drive rod 102 which in turn is connected by a swivel joint 103 to a drive wheel 34. The swivel joint 103 comprises the horizontal pivot 104 and the vertical pivot 105 and is of the same construction as the joint shown in the form of my invention illustrated in Figure 9. Secured to the forward inclined face of the head 98 by fasteners 106 is a stationary cutter blade or plate 107, the same being of standard construction and having upstanding lugs 108 extending through horizontal slots 109 in the movable cutter plate 110. The connection between the block 101 and the movable cutter plate or blade 110 is made by the rod 111 which

is shown as being integral with the oscillating block 101 and which enters a notch 112 in the movable blade. The bolt 100 passes through a presser member 113 pivoted at 114 and which bears on the movable cutter blade to hold the same against the stationary cutter member. A nut 115 is mounted on the outer end of the bolt 100 and a coil spring 116 is interposed between the nut and presser member 113 for a purpose already described.

While I have shown and described the preferred embodiments of my invention it is to be understood that changes in the details of construction and arrangement of parts may be resorted to provided they fall within the scope of what is claimed.

Having thus described the invention, what I claim is:

1. In a clipper, a head, a stationary cutter blade secured to said head, a cutter plate to coact with said cutter blade, and means having tractive action on the surface traversed to adjust the position of said cutter plate relatively to the penetrating end of the stationary cutter blade.

2. In a clipper, a head, a stationary cutter blade carried by the head and adapted to enter the hair, a cutter plate to coact with said cutter blade, and means to adjust the position of said cutter plate relatively to the penetrating end of the cutter blade, by tractive action on the surface traversed.

3. In a clipper, a head having a substantially wedge shaped attachment to enter the hair, a cutter plate to coact with said attachment to cut the hair, and means located in the rear of said head engageable with the surface traversed to move said cutter plate relatively to the penetrating end of the attachment to vary the length of the cut.

4. In a clipper, a head having a cutter blade to enter the hair, a cutter plate on said head to coact with said cutter blade, a roller rotatable by tractive action on the surface traversed, and means operable by said roller to vary the position of said cutter plate relative to the penetrating end of the cutter blade.

5. In a clipper, a head having an attachment to enter the hair, a cutter plate to coact with the attachment, means to move said cutter plate relative to the penetrating end of the attachment, a movable element carrying said means whereby the latter may be engaged or disengaged with the cutter, and tractive means for engagement with the surface traversed to operate the said means.

6. A clipper having a head carrying an attachment to enter the hair, a cutter plate to coact with said attachment, said head having recesses, arms movable in said recesses, gearing carried by said arms, means providing teeth on said cutter for engagement with and disengagement from said gearing, and tractive means to engage the surface traversed rotatably mounted by said arms.

7. A clipper having a head provided with an attachment to enter the hair, a cutter plate to coact with said attachment, said head having recesses, arms movable in said recesses, gearing carried by said arms, means providing teeth on said cutter for engagement with and disengagement from said gearing, tractive means to engage the surface traversed rotatably mounted by said arms, a shaft for said tractive means, a guide strip on said head, and means to fasten said shaft to said strip.

8. In a clipper, a head, an attachment adapted to enter the hair and detachably secured to said head, a cutter plate to coact with said attachment, tractive means to engage the surface traversed to move said cutter rearwardly with respect to the head, said means being disengageable from the cutter, and said means in the latter position being located substantially within the head.

9. In a clipper, a head, means carried by said head to enter the hair, a cutter plate to coact with said means, said head having recesses, cover plates for said recesses, a bracket movable with said head having teeth located adjacent said recesses, bars pivoted by said cover plates and located within said recesses, gearing carried by said bars to engage and disengage said teeth, a shaft mounted by said bars, rollers rotatably mounted on said shaft and driving said gearing, a bolt extending from said shaft, a guide strip on said head having an elongated slot through which said bolt passes, and a nut threaded on said bolt and adapted to bind against said strip.

10. In a clipper having a head, a cutter blade carried by said head, a cutter plate to coact with said cutter blade, a spring to urge said cutter plate toward the active edge of the cutter blade, and means to secure said cutter plate in adjusted positions away from said edge and against the tension of said spring.

11. In a clipper, a head, a stationary cutter blade carried by said head, a cutter plate to coact with said stationary cutter blade, a spring to urge the cutter plate toward the active edge of the cutter blade, teeth on said head, and a pawl carried by said cutter to engage said teeth to retain the cutter in adjusted position against the tension of said spring.

12. In a clipper, a head, a stationary cutter blade carried by said head, a cutter plate to coact with said cutter head, a pawl on said cutter plate to coact with the head to secure the cutter plate in adjusted position, means for providing for permanent adjustment of said pawl, and means permitting quick adjustment of said pawl.

13. In a clipper, a head, a stationary cutter blade carried by said head, a cutter to coact with said cutter plate, a pawl carried by said cutter to engage the head to maintain the cutter in adjusted position, a rod, a follower movable along said rod, means to shift said pawl through movement of said follower, and means adjustable on said rod and in engagement with said follower to control the movement thereof.

14. In a clipper, a head, a stationary cutter blade carried by said head, a cutter plate to coact with said cutter blade, a pawl on the cutter plate to engage the head to secure the plate in adjusted position, a follower means, and a lever connected to said follower means and said pawl to control the position and movement of the latter.

15. In a clipper, a head, a stationary cutter blade secured to said head, a cutter plate to coact with said cutter blade, a bracket with said cutter plate, a pawl pivoted to said bracket and engageable with the head to maintain the cutter plate in adjusted position, a lever pivoted on said bracket, said lever being associated with said pawl, and a follower associated with said lever, and means to shift the follower.

16. In a clipper, a head, a stationary cutter blade mounted on said head, a cutter plate to coact with said cutter blade, a bracket movable with the cutter plate, a pawl pivoted to said bracket to engage the head to maintain the cutter in adjusted positions, a cover plate for said bracket, a connecting element for said plate and bracket, a lever connected to said pawl and pivoted to said element, a bolt extending from the bracket through the cover plate, a follower on said bolt in engagement with said lever, a spring to urge movement of the follower in one direction, a manipulating element for said follower slidable on said bolt, and a nut on said bolt in engagement with said manipulating element.

17. In a clipper, a head, a stationary cutter blade adjustably secured to said head, a cutter plate to coact with said cutter blade, said cutter plate being slidably adjustable away from the active edge of the cutter blade, spring means to urge the cutter plate toward said edge, a bracket movable with the cutter plate and having gear teeth, means engageable with said teeth to adjustably move the cutter, and means to operate the latter through tractive action with surface traversed.

18. In a clipper, a head, a stationary cutter blade carried by said head, a block slidable in said head having upstanding bosses, a cutter plate having recesses enlarged with respect to said bosses and receiving them, said cutter plate coacting with said stationary cutter blade, a bracket disposed over said cutter plate and removably secured to said bosses, means carried by said bracket to secure said cutter plate in adjusted positions, a rod on which said block slides in engagement with said first rod at one end, an expansive spring on the first rod urging movement of the block and cutter plate toward the active edge of the stationary cutter blade, a crank pivoted on the first rod and engaging the cutter plate, and means to oscillate the crank.

19. In a clipper, clipping means including a handle, a drive shaft within the handle for the clipping means, a sleeve adjacent one end of the drive shaft, a flexible drive shaft having a lug to engage the first mentioned drive shaft whereby the latter will be rotated, a sleeve adjustment at one end of the first mentioned drive shaft and into which said flexible shaft detachably extends, said flexible shaft having a groove, a tube on said handle, a ball in said tube to extend into said groove, an expansive spring within the tube urging said ball toward the groove, and a closure nut for said tube engaged by said spring.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY O. SMITH.

Witnesses:
JAS. SMART,
DUNCAN GARDNER.