June 30, 1964 J. A. STACHON 3,138,870

VACUUM OPERATED HAIR CLIPPER

Filed March 26, 1962

Fig. 1.

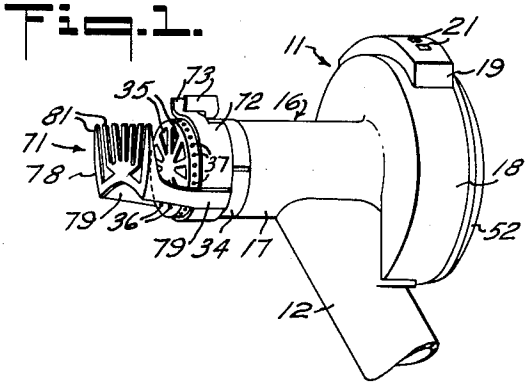


Fig. 7.

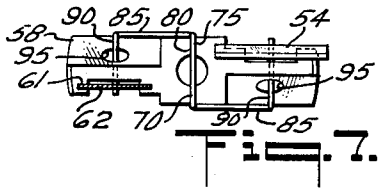


Fig. 8.

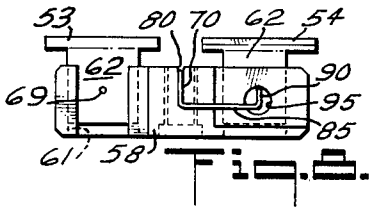


Fig. 2.

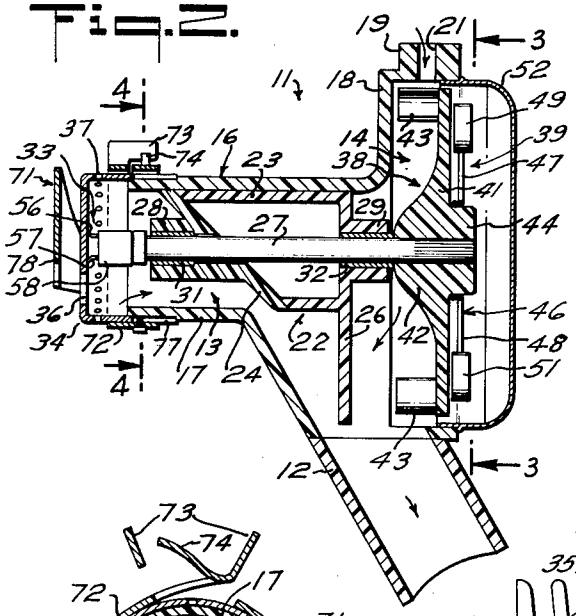


Fig. 3.

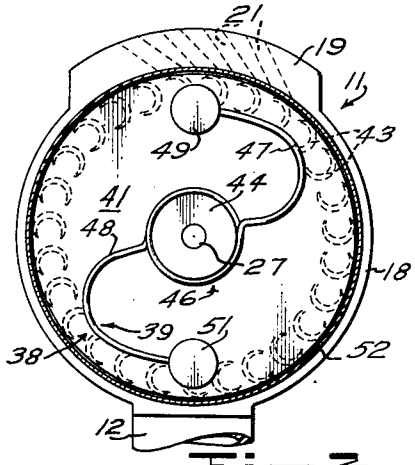


Fig. 4.

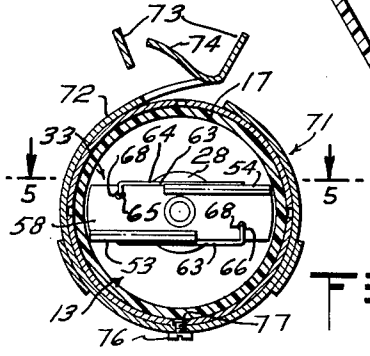


Fig. 6.

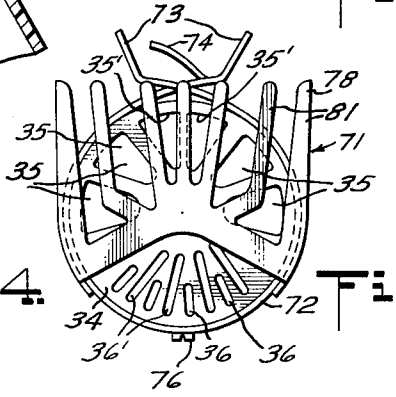
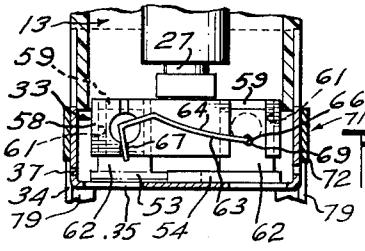


Fig. 5.



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3,138,870

VACUUM OPERATED HAIR CLIPPER

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This invention relates to powered clippers of the class operated by attachment to a vacuum cleaner or other air pump, and is particularly directed to certain improvements in air driven clippers productive of greater versatility and increased performance therein.

Various air driven clippers for the cutting and trimming of hair are well known. These clippers have generally included a turbine mechanism mounted within a ducted housing adapted for attachment to a vacuum cleaner or other vacuum source. The turbine is turned by the air flow through the housing and is connected to a cutting mechanism to operate the same. The housing is appropriately arranged to admit strands of hair to be cut to the cutting mechanism as well as to neatly discharge the hair cut thereby to the vacuum cleaner.

One particularly advantageous air driven hair clipper of the above described class is disclosed in detail in my prior U.S. Letters Patent No. 2,980,994. In this clipper substantial advantages are gained by a construction which employs a housing wherein the main air passage for attachment to the vacuum source is fiburcated to form two separate converging air intake passages. The cutting mechanism is mounted at the end of one intake passage while the turbine mechanism is mounted within the other. As a consequence of this arrangement the hair clippings are drawn directly to the vacuum outlet without interfering with the turbine mechanism.

In air powered hair clippers of the split duct variety outlined above further advantages in use result where provision is made in the turbine mechanism to produce substantially constant speed cutter rotation and the cutter is arranged to produce a shearing or slicing cut instead of a straight cut. The versatility of the device may also be enhanced where an adjustable cutting guide is included to regulate the entry of strands of hair to the cutter. Such improvements may of course be advantageously incorporated in other air powered clippers such as those having a single air intake duct.

It is accordingly an object of the present invention to provide an improved air powered hair clipper having substantially constant speed cutter rotation.

Another object of the invention is the provision of an air powered hair clipper having an improved cutting head for producing a shearing cut on hair introduced thereto.

Yet another object of the invention is the provision of an air powered hair clipper of the class described which features an improved cutter blade mounting arrangement which is relatively sturdy and yet facilitates the ready removal and replacement of blades.

It is still another object of the invention to provide an improved air powered hair clipper having a constant speed centrifugal governor of unique design in the turbine drive mechanism thereof.

It is a further object of the invention to provide an air powered hair clipper of the class described having an adjustable hair guide means for regulating the depth of cut of hair to a predetermined uniform amount whereby the clipping of hair in the so-called "butch," "flat-top," and haircut styles requiring uniformity of hair length is facilitated.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is

to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

FIGURE 1 is a perspective view of a preferred embodiment of an improved air powered hair clipper in accordance with the present invention.

FIGURE 2 is a cross sectional view of a central longitudinal vertical plane through the embodiment of FIGURE 1.

FIGURE 3 is a sectional view taken at line 3—3 of FIGURE 2.

FIGURE 4 is a sectional view taken at line 4—4 of FIGURE 2.

FIGURE 5 is a sectional view taken at line 5—5 of FIGURE 4.

FIGURE 6 is an enlarged front end view of the hair clipper, illustrating particularly the hair guide means thereof.

FIGURE 7 is a front elevational view of a modified form of cutter mechanism.

FIGURE 8 is a side elevational view of the cutter mechanism of FIGURE 7.

The invention as illustrated in the accompanying drawing and hereinafter described is specifically applied to an air powered hair clipper of the type having a bifurcated air duct with the cutter mechanism in one of the resultant air intake passages and the turbine driving mechanism in the other. It is to be understood, however, that the invention is equally applicable to other types of air powered clippers such as those which have a single air intake passage.

Considering now the invention in detail as embodied in the specific form of improved hair clipper illustrated in the drawing, 11 designates a ducted housing having a first tubular section 12 which serves as the outlet duct of the unit. Tubular section 12 is adapted for attachment to the hose of a standard vacuum cleaner or for other communicable connection to an equivalent air pump. The forward end of tubular section 12 is arranged for bifurcate communication with a pair of air intake passages 13, 14. More specifically, in the preferred structure, tubular section 12 is communicably coupled to the central region of a second tubular section 16 with the latter preferably inclined with respect to the former such that the forward end 17 of section 16 forms an oblique angle with respect to section 12. The forward end 17 defines intake passage 13.

The rearward end of tubular section 16 in the present instance is formed with an enlarged diameter cylindrical chamber portion 18 which communicably intersects tubular section 12 on the opposite side thereof from forward end 17. The chamber portion 18 is formed with a raised intake manifold section 19 extending around a part of the chamber circumference. A plurality of intake ducts 21 extend through the manifold section 19 with the ducts being preferably inclined at substantially the same angles to tangents through the chamber periphery at the respective points of intersection of the ducts therewith. The ducts 21 and interior of chamber portion 18 define air intake passage 14.

To prevent turbulence in the air flow at the central portion of housing 11 where the forward end 17 of tubular section 16 and chamber portion 18 communicably intersects tubular section 12, viz., in the region where passages 13, 14 converge into section 12, a baffle assembly 22 is mounted within tubular section 16. The baffle assembly includes a generally cylindrical body 23 which is concentrically secured within section 16 in the region thereof opposite its intersection with section 12. The body 23 is thus interposed between the forward end 17

of section 16 and the chamber portion 18. The forward end face 24 of the body 23 is preferably inclined from a location overlying the inner confines of section 12 to a location within the forward end 17. End face 24 thus serves as a baffle for smoothly channeling air entering the forward end intake passage 13 towards tubular section 12. The rearward end face of the baffle assembly body 23 is formed with a radially outwardly projecting baffle 26 which extends into the interior of tubular section 12 and is conformed to the inner periphery of chamber portion 18 in its region of intersection with tubular section 12. The baffle 26 thus partitions the interior of tubular section 12 between the forward end 17 and chamber portion 18 of tubular section 16. The baffle channels entering air streams from intake passages 13, 14 into the tubular section 12 without turbulence.

It will be noted that baffle assembly 22 also serves to mount a drive rod 27 on the axis of section 16. More particularly, the forward and rearward end faces of baffle assembly body 23 are preferably formed with central bosses 28, 29 coaxially within which cylindrical bushings 31, 32 are mounted. The rod 27 extends through the body and is journalled within the bushings 31, 32.

The forward end of the rod 27 is secured to a cutter mechanism 33 disposed within the forward end 17 of tubular section 16. The forward end 17 is substantially closed as by means of a cap 34 provided with a number of openings 35, and slots 36 in the end wall of the cap arranged in a manner subsequently described to admit hair to the cutter mechanism 33 in a highly advantageous manner. In addition, the cylindrical wall portion of the cap is preferably provided with a plurality of circumferentially spaced perforations 37 to facilitate increased air flow into the forward end 17 of section 16 whereby hair accumulation on the cutter mechanism is materially minimized.

To facilitate driven rotation of the cutter mechanism 33, an air turbine structure 38 is concentrically disposed within the chamber portion 18 of section 16 and secured to the rearward end of drive rod 27. Air sucked into the chamber through ducts 21 when the tubular section 12 is attached to a vacuum cleaner or other air pump effects rotation of the turbine structure 38. The turbine rotation in turn drives the cutter mechanism 33 which cuts hair introduced thereto through the openings and slots in cap 34. The cut hair is entrained on the stream of air sucked through the forward end of tubular section 16 and is conveyed thereby through tubular section 12 for neat disposal in the vacuum cleaner.

It will thus be appreciated that the air powered hair clipper structure described to this point is generically similar to that disclosed in my prior Patent No. 2,980,994. More explicitly, although various departures are made from the previous embodiment in the specific structure of the housing 11, the housing still defines a pair of air intake passages converging in a common outlet passage adapted for communication with a vacuum cleaner or the like. The cutter mechanism is disposed in one intake passage and the turbine structure is in the other to produce the advantageous result of isolating the turbine from the cut hair and thereby preventing clogging. Air powered clippers of this generic class as well as of other types may be improved in their performance and ease of manipulation in effecting a hair cutting operation where provision is made for rotation of the cutter mechanism at constant speed and the cutter mechanism is arranged to produce a shearing or slicing cut instead of a straight cut. A more readily controlled hair cutting operation and hair cut of increased quality are then easily attained. The cutting operation may be further improved where means are provided to uniformly guide strands of hair into contact with the cutter mechanism, such means also serving to prevent folds of skin from entering the openings 35 and slots 36 in the end cap 34 and contacting the cutter mechanism.

To the foregoing ends the present invention provides turbine structure which includes a governor, and a cutting mechanism having an improved blade arrangement in an air powered hair clipper as well as incorporating a hair guide therein for uniformly adjusting the lengths of the strands of hair remaining on the user's head after cutting.

In accordance with the present invention, as embodied in the specific hair clipper described hereinbefore, the turbine structure 38 includes a governor 39 for regulating the rotary speed of the turbine to a substantially constant value irrespective of changes in the load thereon and in the flow of the driving air stream. More explicitly, the turbine structure 38 includes a solid circular hub 41 concentrically disposed within chamber portion 18 of tubular section 16 and coaxially secured to drive rod 27. Hub 41 preferably includes a bulged portion 42 which is smoothly curved longitudinally forward from the central region of the hub forward face into abutment with the boss 29 of the baffle assembly 22. A plurality of trough-like vanes 43 of substantially crescent shaped cross section project from the forward face of hub 41 at circumferentially spaced points adjacent its periphery. The vanes are oriented such that their troughs, when positioned adjacent the intake manifold 19, are in receiving relation to the ducts 21. The air entering the ducts is swirled through the interior of chamber 18, and about the bulged portion 42 of the hub enroute to tubular section 12 in a circumferential direction commensurate with impingement of the air upon the vane troughs and rotation of the turbine.

Hub 41, in addition, preferably is formed with a central boss 44 on its rearward face. Such boss facilitates mounting of the governor 39. More particularly the governor preferably includes a coil spring 46 concentrically secured about boss 44. The opposite ends of the spring extend from the boss and are each bent in a substantially J-shaped configuration to define opposed resilient arcuate arms 47, 48 projecting outward from the boss. The tips of the arms 47, 48 are secured to bearing discs 49, 51 which are centrifugally urged outward with forces that vary in direct relation to the rotational velocity of the hub. The governor is completed by a cupped cylindrical drum 52 which is coaxially secured in closing relation to the chamber portion 18 of tubular section 16. The circumferential wall of the drum extends a sufficient distance into the chamber interior to be engageable with the bearing discs 49, 51. Thus when the turbine hub attempts to increase in rotational speed, the bearing discs are urged outward into engagement with the drum periphery with a proportionately increased force. An increased braking action or drag is thus imparted to the hub which counters its tendency to rotate faster. Conversely any decrease in the rotational velocity of the hub proportionately reduces the bearing force of the discs against the drum and thereby correspondingly reduces the drag, in turn effecting an increase in speed. It will be thus appreciated that the over-all effect of the governor is to continuously regulate the turbine rotation and therefore the cutter mechanism rotation towards a constant velocity irrespective of fluctuations in load and driving air flow.

The cutting mechanism 33 as provided in accordance with the present invention will be seen to include a pair of cutting blades 53, 54 mounted in a unique manner to produce a shearing or slicing cutting action. To this end the blades are of generally rectangular form and mounted at the forward end of shaft 27. The blades are disposed in partially overlapping relation to each other and in spaced parallelism to a radial plane through the shaft and medially therebetween. The forward portions of the blades 53, 54 are respectively oppositely inclined away from the medial radial plane as indicated at 56, 57 to define cutting edges closely adjacent the inner wall of the perforate end cap 34.

To facilitate mounting of the blades in the foregoing relationship an elongated rectangular mounting head 58

is transversely centrally secured to the end of shaft **27**. The head is provided with a groove **59** in each of its top and bottom faces, which grooves are respectively slightly inwardly spaced from the opposite end faces of the head. The grooves **59** each terminate in a slot **61** of greater width than the groove, the slot thus defining undercuts on opposite sides of the grooves. The slots **61** receive shanks **62** which integrally extend from the rectangular portions of the blades **53**, **54**. With the blade shanks inserted into the slots, it will be appreciated that the blades are positioned in the relationship described hereinbefore.

In order to releasably lock the blades to the head **58**, a pair of springs **63** may be secured between the head and the respective blades as shown in FIGURES 4 and 5. More specifically, the springs are each in the form of a resilient wire clip with a central section **64**, an end section **66** turned at right angles to the central section, and an end section **67** turned relative to the central section in a plane at right angles to end section **66** to terminate in a reentrant end hook **65**. The hooks **65** are received in bores **68** extending through the front and rear faces of the head. The end sections **66** then extend through the groove in the top and bottom head faces and are received in bores **69** in the underlying blade shanks **62** while the central sections **64** of the respective springs rest against the top and bottom faces. The springs thus retain the blades in securance with the head. However, when it is desired to remove the blades it is only necessary to resiliently snap the spring end sections **66** from the shank bores **69** and withdraw the blade shanks from the slots **61**.

Alternatively, the blades **53**, **54** may be releasably locked to the head **58** by a single spring **70** in the manner depicted in FIGURES 7 and 8. As shown therein, the spring **70** includes a U-shaped central section **75**, the web of which is received in a groove **80** centrally transverse of the front face of the head. Oppositely directed end sections **85** extend from the ends of the legs of the central section along the top and bottom faces of the head. The end sections **85** terminate in inwardly turned hooks **90** which freely extend through enlarged bores **95** respectively through the top and bottom faces of the head at positions terminating in the slots **61**. The tips of the hooks are in turn received by the bores **69** in the blade shanks **62**.

The air powered hair clipper, as mentioned hereinbefore in accordance with the present invention additionally includes a hair guide, which guide is depicted by the numeral **71** and is arranged to cooperate with the uniquely arrayed openings **35**, and slots **36** in end cap **34** in producing a highly advantageous uniform shearing cut of the hair. Considering first the cap openings **35**, as may be best seen in FIGURE 6, these openings are of substantially sectorial configuration and occupy the major end surface area of the cap, e.g., an area encompassed by an angle of the order of 250°. Moreover, the two openings **35'** disposed medially of the array of circumferentially spaced openings are smaller in circumferential extent than the pairs of openings **35** on the opposite sides thereof. By virtue of this arrangement hair entering the medial openings **35'** in a comparatively more direct manner than hair entering the side openings is prevented from doubling over as it would otherwise tend to do. Hair entering the medial openings **35'** hence tends to be cut to substantially the same length as hair entering the other openings.

The slots **36** encompassed by the remaining end surface area of the cap are provided as narrow slots of alternatively relatively long and short lengths respectively. It is particularly important to note that the long slots **36'** are substantially radially oriented. The short slots **36**, however, are inclined from the radii by angles of preferably substantially 15°. Such arrangement of the slots as well as the offset mounting of the blades **53**, **54** from a radial plane through the drive shaft **27** produce a gradual shearing cut of the entering hair. More particularly, the blades pass over the slots gradually rather than the entire blade passing a slot all at one time. Aside from the shearing or scissors cutting action produced, the arrangement is also effective in reducing noise.

Considering now the hair guide **71** in greater detail, same preferably includes a spring clamp **72** which is adapted to cup the cylindrical portion of cap **34** at the forward end **17** of tubular section **16**. The opposite ends of the clamp are provided with interlocking tabs **73** which may be forced together to enlarge the clamp and release same from clamping engagement with the cap. One of the tabs includes a projecting stop **74** which is engageable with the other tab upon forcing of the tabs together whereby only limited enlargement of the clamp is possible. A set screw **76** extending radially through the clamp in threadable engagement therewith is then preferably employed as an indexing detent. The screw is engageable with a longitudinal groove **77** in the cylindrical periphery of the cap. The groove terminates short of the end face of the cap and is of a width greater than the diameter of the tip of the screw. When the clamp engages the cap and the screw is advanced into engagement with the groove the clamp cannot be removed from the cap even when limitedly loosened by manipulation of the tabs. The clamp may, however, be moved longitudinally of the cap and to some extent circumferentially within the confines of the groove to facilitate appropriate adjustment of the position of guide upon the cap. When the screw is fully retracted from engagement with the groove, the clamp may be rotated relative to the cap to thus change the orientation of the guide relative to the openings **35**, and slots **36** therein.

The guide **71** further includes a tined guard plate **78** secured to the clamp as by means of a pair of longitudinally projecting integral arms **79**. The plate is arranged to overlie the portion of the end wall of cap **34** that includes the openings **35** while being non-obstructing to the slots **36**. When the guide is indexed by means of the set screw **76** and groove **77**, the tines **81** project substantially vertically upward across the face of the cap. It should be noted that the central ones of the tines are closely spaced compared to the next outwardly adjacent or intermediate tines on opposite sides of the central tines. The spacing between the intermediate and central tines is also preferably greater than the spacing between the outside and intermediate tines, which latter spacing is greater than that between the central tines. Such tine spacing variation is thus conformed to the variation in circumferential extent of the openings **35**. Moreover, the bases of the slots between the tines are such as to lie below the bases of the openings **35**. Hair guided between the tines is thus slanted slightly towards the openings **35** for the most effective cutting action.

It will be appreciated that the tined guard plate **78** in resting upon the user's scalp facilitates cutting of strands of hair to uniform length while preventing skin from contacting the cutting mechanism. The length of the hair remaining on the scalp is determined by the particular position at which the guide is locked along cap **34** by means of the clamp **72**. The guide may be fully retracted on the cap with the guard plate against the cap end face to facilitate clipping of sideburns, over the ears, nape of the neck, etc., in the establishment of the hairline. In such operations, the clipper is inclined at an angle relative to the scalp such that only the unguarded slots **36** are employed.

In the clipping of tapered areas from the hair line upwards to where the tapered area terminates, the guide is slightly extended to position the guard plate about 1/16" from the cap. Repeated passes in an upward direction are then conducted to produce the tapered clipping action.

With the guide further extended to whatever position desired, the cutting of the hair from the termination of the tapered areas and over the crown to corresponding desired height in the style of a "crew-cut," "butch," or the like is facilitated.

Finally, to facilitate trimming of long hair over a comb or to achieve the "flat top" effect, the guide is fully retracted and the clipper manipulated without inclination to the scalp.

There is thus provided by the present invention an improved air powered hair clipper. Important features of the invention reside in the improved cutter mechanism **33** and cap perforation arrangement and guide which facilitate clipping of hair with a shearing cutting action. In addition the governor **39** included in the driving turbine mechanism **38** facilitates turning of the cutter mechanism at substantially constant speed such that fluctuations in load and air driving force do not detrimentally influence the cutting action. Also the guide enables the hair to be cut to uniform length in a highly expeditious manner and with easy manipulation of the clipper.

What is claimed is:

1. A vacuum operated hair clipping device comprising a housing having an air passage therein adapted for communicable connection to an air pump, closure means at one end of said passage having hair inlet perforations therein, a cutter head mounted for rotation within said passage adjacent said closure means, a pair of substantially rectangular cutting blade members projecting axially from said head into closely spaced relation to said closure means, said members disposed in spaced parallelism to a radial plane medially therebetween through the rotational axis of said head, said blade members having forward cutting edge portions inclined from base portions normal to the head respectively in opposite directions away from said radial plane, and a turbine mounted for rotation within said passage and coupled in driving relation to said head.

2. A vacuum operated hair clipping device comprising a housing having a pair of air intake passages converging to a common outlet passage adapted for communicable connection to an air pump, a perforated closure wall extending across the end of one of said intake passages, a turbine mounted for rotation within the second of said intake passages, an elongated generally block shaped blade mounting head mounted for rotation about its central transverse axis coaxially within said first passage adjacent said closure wall, said head coupled to said turbine for rotation thereby, said head having a groove in one side face adjacent one end face and a groove in the opposite side face adjacent the opposite end face, said grooves respectively terminating in slots of increased width, a pair of substantially rectangular cutting blades having shanks respectively inserted into said slots, said blades being thereby disposed in parallel relationship to a radial plane through the rotational axis of said head and medially between the blades, said blades having cutting edges oppositely inclined away from said plane, and a pair of resilient clips respectively having one of their ends secured to said head and the other of their ends extending through said grooves and penetrating the shanks of the respective blades.

3. A vacuum operated hair clipping device comprising a housing having a pair of air intake passages converging to a common outlet passage adapted for communicable connection to an air pump, a perforated closure wall extending across the end of one of said intake passages, a turbine mounted for rotation within the second of said intake passages, an elongated generally block shaped blade mounting head mounted for rotation about its central transverse axis coaxially within said first passage adjacent said closure wall, said head coupled to said turbine, said head having a groove centrally transverse of its front face, said head having a groove in one side face adjacent one end face and a groove in the opposite side face adjacent the opposite end face, said grooves respectively terminating in slots of increased width, said head having bores extending through said side faces terminating in respective ones of said slots, a pair of substantially rectangular cutting blades having shanks respectively inserted into said slots, said blades being thereby disposed in parallel relationship to a radial plane through the rotational axis of said head and medially between the blades, said blades having cutting edges oppositely inclined away from said plane, and a spring including a U-shaped central section having the web thereof received by said groove in the front face of said head, said spring having end sections extending in opposite directions from the legs of said central section along the respective side faces of said head, said end sections terminating in inwardly turned hooks extending through said bores in the side faces of said head and respectively penetrating the shanks of said blades.

4. A vacuum operated hair clipping device comprising a housing having a pair of air intake passages converging to a common outlet passage adapted for communicable connection to an air pump, a cutter head mounted for rotation within the second one of said intake passages and coupled to said cutter mechanism, a perforated closure cap secured across the end of said first intake passage adjacent said cutter head, said closure cap having a longitudinal groove in its cylindrical wall terminating short of its end face, and a hair guide including a spring clamp releasably concentrically gripping the cylindrical wall of said cap, said clamp having interlocking tabs at its opposite ends, one of said tabs having a projecting stop engageable with the other of said tabs, a set screw extending radially through said clamp in threadable engagement therewith and having a tip engaging said groove, said tip having a lesser diameter than the width of said groove to enable rotational adjustment of said clamp relative to said cap, a tined guard plate disposed in parallel relation to the end face of said cap, and longitudinal arms securing said guard plate to said clamp.

5. A vacuum operated hair clipping device comprising a housing having a first tubular section communicating at a first end with the central portion of a second tubular section, the second end of said first tubular section adapted for connection to an air suction pump, a turbine mounted for rotation coaxially within a first end of said second tubular section, a cutter head mounted for rotation coaxially within the second end of said second tubular section and coupled to said turbine, a closure wall extending across the second end of said second tubular section adjacent said cutter head, said wall having a plurality of circumferentially spaced openings of substantially sectorial configuration occupying the major surface area thereof and a plurality of circumferentially spaced slots occupying the remaining minor surface area thereof, said openings including at least one medial opening of relatively lesser circumferential extent than the openings on opposite sides of said medial openings, said slots being of alternately long and short lengths with the long slots being radially oriented and the short slots being angularly offset from the radii, and a hair guide secured to said second tubular section, said guide including a tined guard plate in parallel spaced relation to said closure plate and longitudinally movable relative thereto, said guard plate overlying said openings while unobstructing said slots, and said tines of said guard plate including at least two central tines having their spacing being less than that between the central tines and adjacent intermediate tines, the spacing between the intermediate and adjacent outside tines being less than that between the central tines and intermediate tines and greater than that between the cenral tines.

6. A vacuum operated hair clipping device according to claim 5, further defined by said tines being separated by notches with the depth of the notches between said tines being such that the bases of said notches are disposed vertically lower than the bases of said openings.

7. A vacuum operated hair clipping device comprising a housing having an air passage therein adapted for communicable connection to an air pump, a turbine mounted for rotation within said passage, a cutter head journalled for rotation within said air passage and coupled to said turbine, a generally circular closure wall at one end

of said passage adjacent said cutter head, said closure wall having a plurality of circumferentially spaced openings of substantially sectorial configuration occupying the major surface area thereof, at least one of said openings disposed medially of said openings having a relatively lesser circumferential extent than the openings on opposite sides of the medial opening, a plurality of circumferentially spaced generally radially extending slots occupying the remaining minor surface area thereof, and a hair guide secured to said housing, said guide including a tined guard plate in parallel spaced relation to said closure wall and longitudinally movable relative thereto, said guard plate overlying said openings while unobstructing said slots, said slots being of alternately long and short lengths with the long slots being radially oriented and the short slots being angularly offset from the radii, and said tines of said guard plate including at least two central tines having their spacing being less than that between the central tines and adjacent intermediate tines, the spacing between the intermediate and adjacent outside tines being less than that between the

central tines and intermediate tines and greater than that between the central tines.

8. A vacuum operated hair clipping device according to claim 7, further defined by said tines being separated by notches with the depths of the notches between said tines being such that the bases of said notches are disposed vertically lower than the bases of said openings.

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