To all whom it may concern:

Be it known that I, John Holtzman, a citizen of the United States, and resident of the borough of Manhattan, city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in a Hair-Cutter Device, of which the following is a specification.

This invention relates to a hair cutter device.

Its object is the production of such a device, in which the cutting element thereof can be easily reversed in direction, and over which a draft of air is produced during its operation. A second object is the production of a hair cutter device that can be operated by a power driven shaft. A third object of the invention is to provide means, whereby the driving mechanism thereof is protected from coming into contact with the hair that has been cut.

The device is also applicable to shear wool and various other materials.

In the accompanying drawings Fig. 1 represents a top plan view of an exemplification of the improved hair cutter; Fig. 2 shows a section of Fig. 1 on the line 2, 2 and Fig. 3 indicates a plan view of some details.

The hair cutter comprises a housing indicated in its entirety by the letter A. The housing comprises the cylindrical shell 20 open at its top and bottom ends, and divided by the partition 21 into the upper chamber 22 and the lower chamber 23. A journal bearing 24 is formed with the partition 21. The shell is enlarged in thickness at its upper end 25 and has formed therein the journal bearings 26 and 27. A recess 28 is formed in the lower edge of the shell 20. A cover 30 is detachably fastened to the top face of the shell 20, by means of the screws 31. A plurality of inlet openings 32 and a plurality of outlet openings 33 are formed in the shell 20. A flange 34 is formed with the lower end of the shell 20.

A cylindrical cup shaped shell 35 is formed with the shell 20, and has formed therewith at its open end the flange 36, to which is detachably fastened the cover 37 by means of the screws 38. A plurality of inlet openings 39 are formed in the cover 37. A journal bearing 40 and an interiorly threaded flange 41 are formed with the cover 37. The shell 35 with its cover 37 forms a chamber 42. The said inlet and outlet openings cause the air to flow in streams through the shell 23.

A guard plate or comb is indicated in the entirety by the letter B, and comprises the plate 50 which has formed therewith the comb teeth 51. The comb 52 is detachably fastened to the flange 34 by means of screws 53.

A rotatable cutter blade is indicated in its entirety by the letter C, and comprises the central disc 53 with the boss 54 and the triangular shaped teeth 55 with the oppositely positioned cutting faces 56 and 57. A spindle 58 extends up from the boss 54 and is fastened thereto by means of the pin 59. The spindle 58 is journaled in the boss 24 and has fastened to its upper end the bevel gear 60. A helical spring 61 extends around the spindle 58 and bears between the lower face of the boss 24 and the upper face of the boss 54, to flexibly force the cutter blade C into proper contact with the comb B. A portion of the cutter blade C extends through the recess 62 of the shell 20. The spring 61 may be omitted and the cutter blade C magnetized to adhere to the guard plate B.

A handle is indicated in its entirety by the letter D and comprises the sleeve 65, with the exteriorly threaded end 66 and the interiorly threaded end 67. The threaded end 66 is screwed into threaded flange 41. An exteriorly threaded bushing 68 with the flange 69 is engaged in the threaded end 67.

A rotatable shaft 70 with the elongated opening 71 is slidable supported in the journal bearings 26, 27, 40 and in the bushing 68. Bevel pinions 73 and 74 are fastened to one end of the shaft 70, and its other end has connected thereto the flexible shaft 75. A propeller wheel is indicated in its entirety by the letter E and comprises the hub 76 from which extend the blades 77. A pin 78 extends through the elongated opening 71 of the shaft 70 and its ends are fastened to the hub 76 of the said propeller wheel. A handle 82 is supported on the sleeve 65 and its ends bear between the flange 41 and the flange 69 of the bushing 68. A bushing 85 extends through the handle 82 and is threaded into the sleeve 65.
screw 86 is in threaded engagement with the bushing 85. Collars 87, 88 and 89 are fastened to the shaft 70, and the end of the screw projects into the space between a pair of said collars.

To use the hair cutter, the flexible shaft 75 is rotated, by means not shown, which will thereby rotate the shaft 70. The bevel pinion 74 will rotate the bevel gear 60, which in turn rotates the spindle 58 with the cutter blade C. The guard plate or comb B is guided on the surface from which the hair, wool and the like is to be cut. The teeth 51 separating the air or wool into tufts so as to easily be cut by the teeth 55 of the cutter blade. During the rotation of the cutter blade, the propeller wheel E is also turned, and draws air through the inlet openings 39 into the chamber 42. From this latter the air is discharged through the openings 32 and enters the lower chamber 23 of the cylindrical shell 20. The air is discharged in drafts from the chamber 23 through the outlet openings 33. By this means the portions of the hair or wool that are cut are blown from the cutter, which enables the operator to note how the cutter is operating and assists in the easy and efficient operation of the cutter. It also keeps the guard plate B, cutter blade C, and other portions of the apparatus clean, by causing a flow of air into and through the same. With the parts positioned as indicated in the drawings the cutter blade C will rotate in the direction of the arrow F and the cutting faces 57 of the cutter blade performs the cutting.

When the cutting faces 57 become dull, the cutting faces 56 can be used to perform the cutting. To do this the screw 86 is unscrewed from the bushing 85 and the shaft 70 is moved a small distance in the direction of the arrow G, to bring the space between the collars 87 and 88 in line with the axis of the screw 86. The latter is then screwed in place to locate it between said collars. This will cause the bevel pinion 74 to recede from the bevel gear 60 and the bevel pinion 73 will mesh with the bevel gear 60. When rotation is now imparted to the shaft 70 the cutter blade C will rotate in a direction opposite to the arrow F, and the cutting faces 56 will perform the function of cutting. By this means the life of the cutter blade C is doubled.

It is to be understood that the present exemplification of the invention is to be taken as illustrative and not limiting.

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

1. In a cutter of the character described the combination of a shell having inlet and outlet openings, a comb secured to one end of the shell forming a chamber therewith, a rotatable cutter blade in said chamber bearing on the comb with a portion thereof projecting out of the chamber, a second shell adjacent to the first shell forming a second chamber, the second chamber having inlet openings, the inlet openings of the first chamber connecting it with the second chamber, and a rotatable propeller in the second chamber to produce a draft through both chambers and over the cutter blade projecting out of the first chamber.

2. In a cutter of the character described the combination of a shell divided into an upper chamber and a lower chamber having outlet openings, a comb secured to the lower chamber at the lower end of the shell, a rotatable cutter blade bearing on the comb partially extending through a recess of the shell, a second shell adjacent to the first shell, forming a third chamber, the third chamber connecting with the lower chamber by openings, a propeller in the third chamber, a spindle extending up from the cutter blade in the lower chamber and extending into the upper chamber, a rotating shaft extending through the third chamber and upper chamber, the shaft connected to the propeller wheel and means to rotate the spindle of the cutter blade in reverse direction with the shaft turning in one direction.

3. In a cutter of the character described the combination of a cutter blade, a spindle extending from the blade, a bevel gear fastened to the spindle, a shelf with outlet openings constituting a chamber for the cutter blade with a portion of the blade extending out of the chamber, a second shell formed with the first shell and forming a second chamber, the second chamber in connection with the first chamber by means of openings in the shell of the first chamber, a slideable and rotatable shaft with an elongated opening extending through the second chamber and over the first chamber, a pair of bevel pinions on the shaft, adapted one at a time to mesh with the said bevel gear on the spindle, a propeller wheel in second chamber supported on said shaft, a pin extending through the elongated opening of the shaft and fastened to the hub of the propeller wheel, a handle extending from the second shell and surrounding said shaft, three collars on the shaft in said handle and spaced apart, and a screw extending from the handle into the space between the middle collar and one of the other collars and also adapted to extend into the space between the middle collar and the other collar when the shaft has been placed in proper position.

4. In a cutter of the character described the combination of a shell, a comb secured to said shell, a movable cutter blade coacting with said comb, a second shell adjacent.
to the first shell and separated therefrom and having openings, a rotatable propeller in the second shell to produce a draft through said shell and around the cutter blade.

5. In a hair cutter device the combination of a shell having a plurality of inlet and outlet openings, a comb secured to said shell, a cutter blade coacting with the comb, means to actuate the cutter blade, means to produce streams of air through the shell to contact with the first means and said cutter blade to maintain the same clean.

Signed at the borough of Manhattan, city of New York, in the county of New York and State of New York, this 20th day of December A. D. 1921.

JOHN HOLTZMAN.