

A. C. SCHEITHE.
HAIR CUTTING TOOL.
APPLICATION FILED MAR. 2, 1914.

1,251,925.

Patented Jan. 1, 1918.

Fig. 1

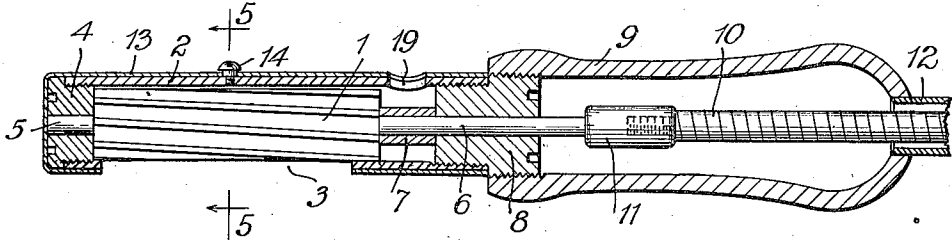


Fig. 2

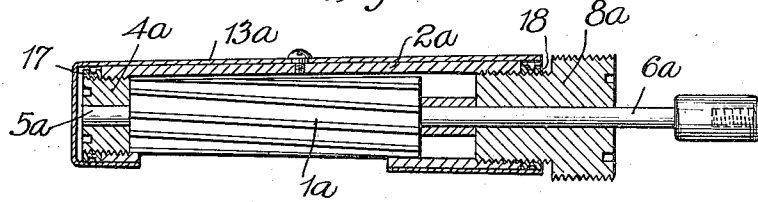


Fig. 3



Fig. 4



Fig. 6

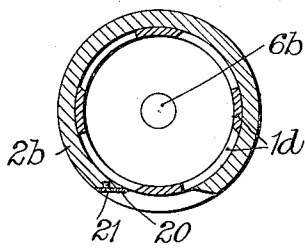
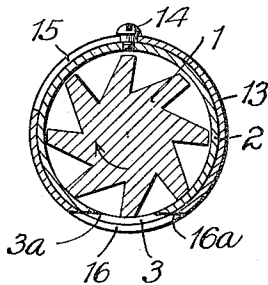


Fig. 5



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HAIR-CUTTING TOOL.

1,251,925.

Specification of Letters Patent.

Patented Jan. 1, 1918.

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To all whom it may concern:

Be it known that I, ARTHUR C. SCHEITHE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hair-Cutting Tools, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to an improved device for cutting hair and shaving, by which these operations may be performed more rapidly and effectively than by means of shears and razors. My device consists of a cutting element contained in a suitable housing, together with means for imparting motion to the cutting element so that it will operate preferably at a high rate of speed to cut hair brought into contact with it. The whole mechanism is preferably constructed of such a size that it may be readily handled and moved over the head or face to engage the hair as desired. It is preferable to drive the device by means of an electric motor through a flexible shaft, although any other form of motive power may be employed and equivalent connection may be used for connecting the motive power with the device. It will also be understood that this device may be used in any connection in which it is desired to cut or trim hair and that it is adapted for shearing or cutting the hair from animals, such as horses or dogs.

The several drawings illustrating my invention are as follows:

Figure 1 shows in longitudinal sectional view one form of my device completely assembled.

Fig. 2 shows in a view similar to Fig. 1 a modified construction of my device.

Figs. 3 and 4 show detail views of cutters for use in the constructions shown in Figs. 1 and 2, respectively, the cutters in Figs. 3 and 4 having straight teeth instead of helical teeth, as shown in Figs. 1 and 2.

Fig. 5 is a sectional view of the parts shown in Fig. 1, taken along the line 5-5.

Fig. 6 shows in a view similar to Fig. 5 a modified construction in which a removable knife is employed to constitute the cutting edge carried by the shell or housing.

Similar numerals refer to similar parts throughout the several views.

As shown in Fig. 1, my device consists of a rotary cylindrical cutter 1 mounted in a

tubular shell 2. A slot 3 is cut in one side of the shell and extends longitudinally of said shell throughout the greater part of the length of the cutter 1. The ends of the shell are counterbored and threaded internally slightly eccentrically of the bore of the shell, the center line of these counterbores and threaded surfaces being somewhat nearer to the surface of the shell adjacent to the slot 3 than to the opposite surface of the shell. The outer end of the shell 2 is provided with a threaded plug 4 fitting the internal threads in the end of the shell, and this plug is bored centrally to form a bearing for the shaft 5 extending from the outer end of the cutter 1. The other end of the cutter 1 is provided with a shaft 6, extending through a sleeve 7 and supported in a central bearing formed in a threaded plug 8 made to fit the internal threads in the right-hand end of the shell 2. The plug 8 is provided with a shoulder, as indicated, and additional threads for receiving the internally threaded handle 9, within which the shaft 6 is connected to a flexible shaft 10 by means of a coupling 11. The rear end of the handle 9 has secured to it a flexible sheath 12, within which the rotary flexible shaft 10 extends to the source of motive power.

The cutter 1, as shown in Figs. 1 and 5, is provided with a plurality of helical teeth extending longitudinally along the outer surface of the cutter, and these teeth are ground on their outer faces so as to just fit the inner surfaces of the shell adjacent to the slot 3, and the adjustment of the parts is made so that the edge 3^a of the slot 3 is the edge against which the teeth of the cutter engage to cut the hair, so that the relation between the edges of the teeth and this cutting edge may be a shearing relation to get the best results. Both the cutter and the shell are preferably of hardened steel so that the wear on the parts is reduced to a minimum, and the shell is preferably made slightly softer than the cutter, so that the wear will come upon the cutting edge 3^a rather than upon the cutter and, when this occurs, the cutting edge 3^a may be sharpened by grinding it back slightly until the dulled edge is ground away.

The device may be employed, as above described, by making the slot 3 of such a width and length as will meet most operating conditions. In order that the device may be adjustable to meet any and all conditions,

however, it is sometimes desirable to provide the shell 2 with an external shield 13 secured in any desired angular position upon the shell by means of a set screw 14 which extends through a circumferential slot 15 in the shield to permit adjusting the shield as desired. The shield has formed in it a longitudinal slot 16, which substantially registers with the outer portion of the slot 3 when the shield is in its position to give the maximum opening to the slot 3. When, however, it is desired to operate the device with a smaller slot, the shield 13 is rotated until the edge 16^a is brought over the slot 3 to a desired amount, thus leaving any desired width between the cutting edge 3^a and the edge 16^a, which thus determines the effective width of the slot. The set screw 14 may either clamp the shield 13 in any desired angular adjustment, or by constructing it with a shoulder, as indicated, it may merely serve to hold the shield from longitudinal displacement upon the shell 2 without interfering with its angular motion so that, without turning the set screw, the shield may be rotated angularly upon the shield, being held in any desired angular position by the spring of the material of which the shield is made. It is preferable to provide a hole 19 through the shell and shield opposite the sleeve 7 to facilitate cleaning out the shell if, for any reason, it becomes clogged. This opening also provides an exit for short hairs which may have been cut off and accumulate in the shell, although it is found in practice that the cut hairs are blown from the device by the action of the cutter 1 and accumulate on the outside of the shell adjacent to the edge of the slot 3 opposite to the cutting edge.

To facilitate sharpening the cutter and securing the proper working condition after the cutter has been sharpened, a modified construction, as shown in Fig. 2, may be employed, in which the shell 2^a, the shield 13^a and the cutter 1^a are formed in a manner similar to that described above with the exception that all of these parts are tapered, that is, of larger diameter at the right-hand end than at the left-hand end. In this construction, the shaft 5^a, at the left-hand end of the cutter is rotatably supported in a threaded plug 4^a, similar to the plug 4, the only difference being that the threaded portion of the plug is somewhat longer and has thereon a threaded lock nut 17, which may be screwed tightly against the end of the shell 2^a by means of a suitable spanner wrench. The shaft 6^a is rotatably supported by a threaded plug 8^a, similar to the plug 8, with the exception that its smaller threaded portion is of longer extent than that shown for the plug 8, and upon this portion a threaded lock nut 18 is disposed, which may be turned into clamping engagement with

the right-hand end of the shell 2^a by means of a suitable spanner wrench. The threaded plugs 4^a and 8^a may be adjusted in the shell 2^a by means of suitable wrenches, preferably of the spanner type, having pins for engaging the holes formed in the outer ends of said plugs. As a result of the construction described, when the cutter 1^a has become worn and upon being sharpened is found to be somewhat too small to properly engage the cutting edge of the shell 2^a, the lock nut 17 is loosened and the threaded plug 4^a is withdrawn somewhat from the shell 2^a, after which the lock nut 18 is loosened and the threaded plug 8^a is turned into the shell a sufficient amount to move the cutter 1^a longitudinally to a position such that the cutting edges of the teeth are again brought into proper relation to the cutting edge on the shell.

While it is preferable to have the cutters 1 and 1^a made with helical teeth, as shown in Figs. 1 and 2, to secure the advantages of a shearing cut, it is not necessary that they shall be constructed in this manner, but, if preferred, they may be constructed with straight longitudinal teeth, as shown for the cutters 1^b and 1^c in Figs. 3 and 4. In constructing the cutters with helical teeth, it is not necessary that the helices shall have any particular pitch, for it will at once appear to those skilled in the art that many different pitches may be employed which will effectively cut the hairs, the only requirement being that the pitch shall not be so small that cutting engagement between the cutter and shell is not secured.

In the modified construction shown in Fig. 6, a removable knife 20 is secured to the edge of the slot of the housing or shell 2^b by means of screws 21, so that its cutting edge projects slightly inside of the shell into engagement with the cutting edges of the cutter 1^d. With this construction, the cutter may be mounted concentrically in the shell or housing. In Fig. 6, the cutter is shown as of tubular conformation, the cutting edges being formed by making helical slots through the wall of said tubular cutter. With this arrangement, the cutter may be made a sliding fit inside of the shell or housing so as to receive the major portion of its support therefrom and a single bearing is required adjacent to the connection from the shaft 6^b to the driving means. It is to be understood that the removable knife may be employed with the construction shown either in Fig. 1 or Fig. 2, in which event it is desirable to mount the cutters so that their only points of engagement are with the cutting edge of the adjustable knife. It will be understood that with any form of my device, the slot formed in the shell or housing for receiving the hair to be cut need not extend exactly parallel with the axis of the shell,

but that, on the other hand, it may have any other desired direction, the only requirement being that it shall have such a relation to the cutting edge or edges of the movable member as to shear the hair which is inserted through the slot in the shell or housing.

In carrying out my invention, it is immaterial in what manner the rotary motion of the cutter relatively to the cutting edge of the shell is secured, the principal requirement being that the cutting edge of the cutter shall pass in shearing relation over the cutting edge of the shell and thus my invention will be realized by the use of any form of motive power that will impart such a rotary motion to the cutter, regardless of whether the motion is one of continuous rotation or not.

It will be understood that I do not limit myself to any exact proportions or relations of parts in carrying out my invention, but that these and the dimensions of the device may be taken at such values as will secure the best results in practice. It will further be understood that, by constructing the device with a thin shell and a comparatively narrow slot, the device may be used for shaving the face, as well as for cutting hair.

It will be understood that I do not limit myself in carrying out my invention to the particular constructions shown and described, as I may employ any equivalents

without departing from the spirit of my invention.

What I claim is:

1. In a shearing tool, the combination of a tapered cutter, a housing for said cutter, bearings in the ends of said housing for rotatably supporting said cutter, and means for holding the bearings in desired positions longitudinally in said housing to determine the relation of the cutter relatively to the housing, said housing having a slot therethrough for receiving the hair to be cut.

2. In a shearing tool, the combination of a tapered cutter, a housing for said cutter, bearings in the ends of said housing for rotatably supporting said cutter, and lock nuts for clamping the bearings in any desired positions longitudinally of the housing to determine the relation of the cutter relatively to the housing, said housing having a slot therethrough for receiving the hair to be cut, one of the edges of said slot constituting a cutting edge coöperating with the cutting edges of said cutter.

In witness whereof, I hereunto subscribe my name this 27th day of February, A. D., 1914.

ARTHUR C. SCHEITHE.

Witnesses:

ALBERT C. BELL,
LESLIE W. FRICKE.