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T. C. MURPHY

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SCISSORS BLADES

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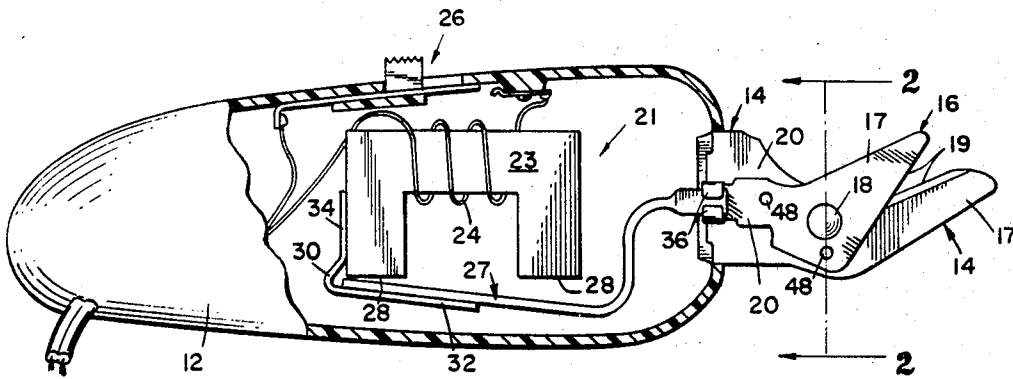


Fig. 1

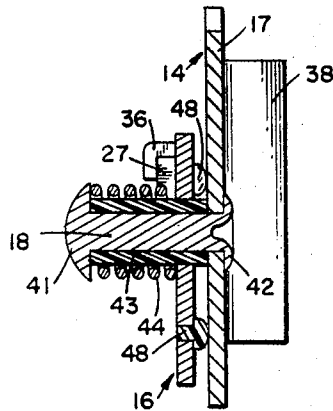


Fig. 2

INVENTOR
TIMOTHY C. MURPHY

BY

Tracy & Associates

ATTORNEYS

1

2

3,474,534

SCISSORS BLADES

Timothy C. Murphy, Columbus, Ind., assignor to Arvin Industries, Inc., Columbus, Ind., a corporation of Indiana

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2 Claims

ABSTRACT OF THE DISCLOSURE

Improved scissors blades, particularly for use in electric scissors. The blades, which are spring biased together, have an anti-friction bearing at their pivotal connection and a pair of anti-friction buttons are attached to one blade to ride against the other. The buttons hold the blades away from each other at points generally behind the spring biased pivotal connection, thereby urging their cutting edges together while acting in combination with the bearing to provide low friction bearing surfaces between the blades.

BACKGROUND OF THE INVENTION

Electric scissors blades are normally much shorter than the blades on hand operated scissors, and consequently, they require a greater number of strokes to cut a given length of material. This characteristic, together with the speed at which the blades operate, causes a great deal of friction between the blades which decreases both their cutting power and useful life. It is an object of this invention to provide an improved construction for electric scissors blades by reducing the coefficient of friction between their contacting surfaces and increasing their useful life.

SUMMARY OF THE INVENTION

In accordance with one form of the invention, there is provided an electric scissors comprising a housing having an electro-magnetic actuating device mounted therein. A fixed blade is attached to the housing, and a movable blade connected to the actuating device for movement thereby is pivotally connected to the fixed blade to form a scissors.

The blades are connected together by a pivot pin carrying a spring to bias the movable blade toward the fixed blade. A plastic bearing is mounted on the pivot pin with the movable blade carried thereon to minimize frictional losses. At least one plastic button is mounted on one of the blades rearwardly of the pivot pin and engages the other blade to act in combination with the spring for urging the blade cutting edges into an abutting relationship. Thus, the only metal-to-metal contacting surfaces between the blades are at their cutting edges. This construction minimizes the friction between the blades and thereby extends the useful life of said blades.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings illustrate the invention. In such drawings:

FIG. 1 is a side elevation of an electric scissors embodying the invention, with portions thereof being broken away;

FIG. 2 is an enlarged sectional view taken along lines 2—2 of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in FIG. 1, an electric scissors is provided with a housing 12 to which is attached a fixed scissors blade 14. A movable blade 16 is pivotally connected to

the fixed blade by a transverse pivot pin 18 normal to the planes of the blades. Each blade has a front portion 17, disposed forwardly of pin 18 and provided with a cutting edge 19, and a rear portion 20, disposed rearwardly of said pin.

The blade 16 is swung about pin 18 by a conventional electro-magnetic actuator 21 mounted within the housing. As shown, the actuator comprises a C-shaped magnetizable core 23 wound with a coil of wire 24. The ends of the coil are adapted for connection to a potential source (not shown) through a switch 26. An armature 27 comprising a highly permeable metal bar is disposed in spaced relation adjacent the pole faces 28 of the C-core 23 and is held in that position, when the actuator is de-energized, by an L-shaped spring 30 having one leg 32 attached to the armature and its other leg 34 attached to the C-core 23. When the electro-magnet is energized, as by closing the switch 26, the armature 27 is drawn toward the pole faces 28, and as the coil current changes direction the spring 30 pulls the armature away from the pole faces. The blade 16 projects through an opening in the housing and is provided at its rearward end with a pair of tabs 36 connected to the end of the armature remote from the spring 30. Thus, the movement of the armature is transmitted to the blade 16 causing it to swing about the axis of pin 18 to provide the desired cutting action.

The improvement of this invention lies in the construction of the blade assembly. As shown in FIG. 2, the blade 14 has a laterally projecting flange 38 on its rear portion 17 which may be received in a socket in the housing 12 to facilitate mounting said blade on the housing. As described above, the blade 16 is connected to the armature 27 and pivotally connected to the fixed blade by means of the pin 18. The pin 18, which extends through both blades, has a head 41 at one of its ends in spaced relation to the blade 16 and has its opposite end peaned over against blade 14, as at 42. A bushing or sleeve bearing 43 formed from an anti-friction plastic material, such as nylon, Teflon, or the like, is mounted on the pin 18. As shown in FIG. 2, the bearing 43 is interposed between the blade 14 and head 41 with the blade 16 carried thereon. A spring 44 is disposed around the bearing 43 with one of its ends bearing against the head 41 and its opposite end bearing against blade 16 urging said blade toward blade 14.

In order to force the cutting edges 19 of the blades into an abutting relation at their intersection, a pair of anti-friction buttons 48 are mounted on the blade 16 in radially and angularly spaced relation to pin 18 rearwardly thereof. Said buttons, which are conveniently formed from the same material as the bearing 43, project outwardly from blade 16 to ride against blade 14. The buttons provide an equilibrium to the blade structure such that there is no stress put on the armature 27 except the resistance to pivotal movement. This resistance to pivotal movement is minimal, however, since there are only four movable contacting surfaces in the blade assembly and only the cutting edges 19 are in metal-to-metal contact. The remaining three surfaces, that is the abutting surfaces of blades 16 and bearing 43, and the two buttons 48 and blade 14 abutting surfaces are plastic to metal bearing surfaces.

I claim:

1. An electric scissors, comprising a housing, electrically operated actuator means mounted in said housing, a first blade fixedly mounted on said housing, a pin mounted on said first blade, a second blade swingably supported on said pin and connected to said actuator means for movement with respect to said first blade, said blades having cooperative cutting edges disposed forwardly of said pin, biasing means urging the cutting edge of said

3

second blade toward the cutting edge of said first blade, an antifriction bearing mounted on said pin and journaled in said second blade, and at least one plastic anti-friction member mounted on one of said blades rearwardly of said pin and engaging the other blade to hold said blades in spaced relation except for their cutting edges.

2. An electric scissors, comprising a housing, electrically operated actuator means mounted in said housing, a first blade fixedly mounted on said housing, a pin mounted on said first blade, a second blade swingably supported on said pin and connected to said actuator means for movement with respect to said first blade, said blades having cooperative cutting edges disposed forwardly of said pin, biasing means urging the cutting edge of said second blade toward the cutting edge of said first blade, a plastic anti-friction bearing mounted on said pin and journaled in said second blade, and a plurality of plastic anti-friction buttons mounted on one of said blades and projecting outwardly therefrom to engage the other blade rearwardly of said pin to hold said blades in spaced rela-

4

tion to each other except for their cutting edges, said buttons being radially and angularly spaced on said one blade with respect to said pin.

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15 ROBERT C. RIORDON, Primary Examiner

J. C. PETERS, Assistant Examiner

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