

[54] **MECHANICAL KNIFE WITH HOLDING MEANS**

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[51] Int. Cl. B26b 7/00

[58] Field of Search 30/124, 166, 272, 30/283, 286, 289, 293, 304, 136, 371, 372, 373; 146/216; 143/68 E, 68 R, 163

[56] **References Cited**

UNITED STATES PATENTS

2,455,655	12/1948	Carroll	30/272 X
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FOREIGN PATENTS OR APPLICATIONS

642,219	8/1950	Great Britain	30/286
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[57] **ABSTRACT**

A stabilizing and guiding attachment for an electric knife has a pair of members extending longitudinally along and flanking the knife blade. A holding element, which clamps to the knife body, is attached to these members by means of a spring-biased hinge or a resiliently flexible ligature so that the two members can deflect jointly upwardly away from the cutting edge of the blade and thus in the direction opposite the direction in which the blade is passed through the article to be severed. The members are formed at their ends remote from the knife body with teeth engageable with an object to be cut so that, as the knife blade is brought into engagement with the object, the teeth first engage the object and then bear on it to immobilize this object and stabilize it during cutting. The members can constitute the sides of a U-section channel or they can be separate strips transversely joined at several locations so that both sides of the cutting kerf are engaged.

5 Claims, 7 Drawing Figures

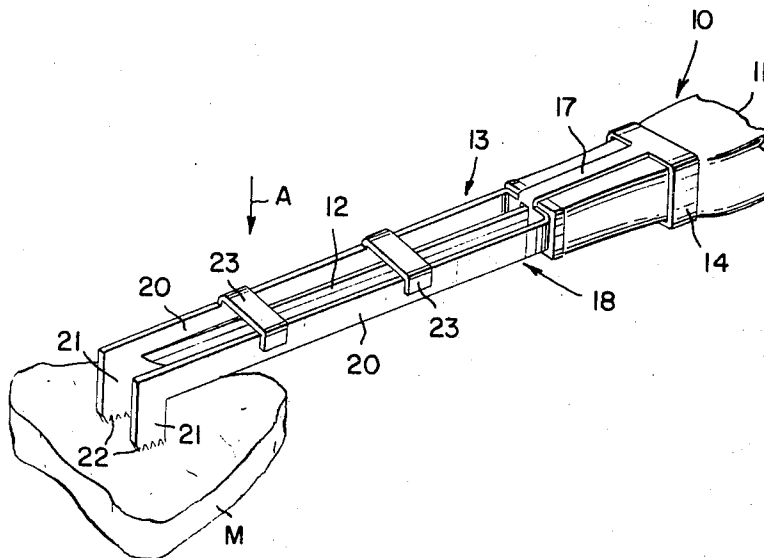


FIG. 2

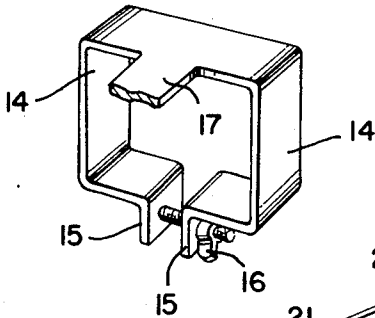


FIG. 1

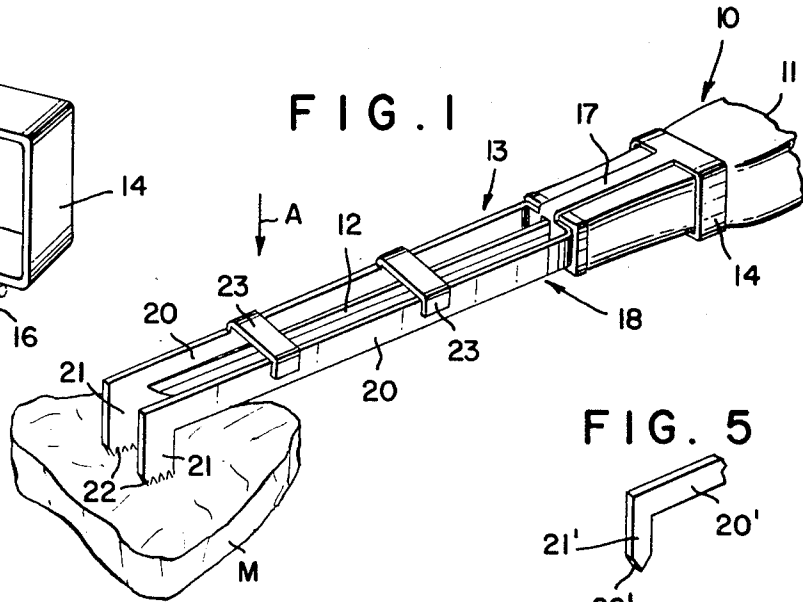


FIG. 5

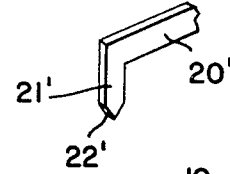


FIG. 3

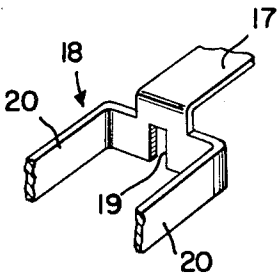


FIG. 4

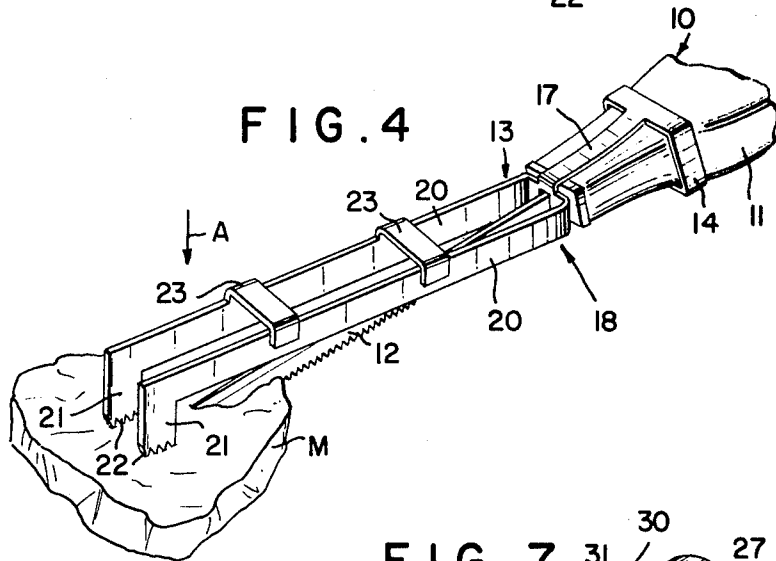


FIG. 6

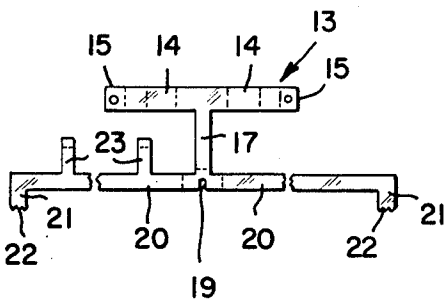
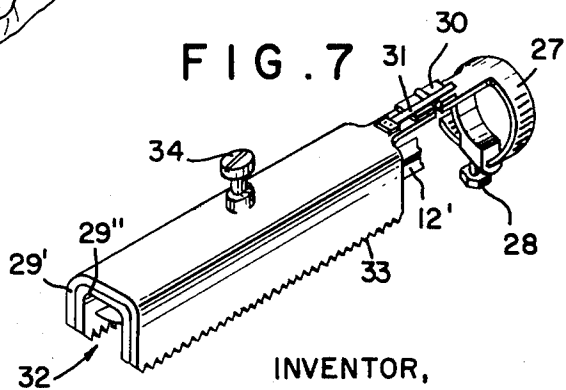


FIG. 7



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MECHANICAL KNIFE WITH HOLDING MEANS

FIELD OF THE INVENTION

The present invention relates to a guide usable with a cutting device having a longitudinally displaceable blade. More particularly, this invention concerns an attachment for an electric knife or the like permitting one-handed use of this tool.

BACKGROUND OF THE INVENTION

An electric knife usually consists of a motor unit on which is mounted an elongated longitudinally reciprocal blade or two or more counterreciprocating blades. Such knives are discussed in U.S. Pat. Nos. 3,234,649; 3,367,026; 3,417,469; and 3,418,713 and are highly convenient, permitting simple and effortless cutting of such often hard-to-carve items as turkeys, roasts, and even bread.

A disadvantage shared by all such knives, however, is that the object being cut must be firmly stabilized or held immediately adjacent the region being cut. A carving fork or the like must be thrust into the object, or a similar tool, e.g. a clamp or fork secured to a bracket of a cutting board, must somehow engage the article near the blade for a clean cut. This creates, however, a further hazard in that the blades may be ruined or at least partially dulled on the second utensil being used. Thus it is necessary to plant the carving fork as near the cut as possible for best stabilization, while care must be taken not to hit this tool with the knife blade. Also the manipulation of a second tool is difficult if not impossible for individuals having the use of only one hand.

OBJECTS OF THE INVENTION

It is, therefore, an object of the present invention to provide an improved cutting arrangement of the above-described type for an electric knife.

Another object is the provision of an attachment for a conventional electric carving knife which serves to anchor the object being cut firmly while presenting no hazard to the blade of this knife.

SUMMARY OF THE INVENTION

The above objects are obtained by a guide for a cutting device of the character described, the guide having a mounting element attachable to the device proximal the blade and an elongated member extending longitudinally from the mounting element and having at its end remote the cutting device an end engageable with the object to be cut by the blade. Means are provided between the element and the member for enabling transverse deflection of the member relative to the element so that the blade can pass through the object being cut while the end of the member bears continuously on its surface and this lags behind the blade. While a linear deflection is possible, according to the invention, I prefer to enable only an arcuate deflection so that the guide has an effective pivot close to the junction of the blade means with the handle or motor support.

Such an arrangement insures that the object being cut will be retained immediately adjacent, and on both sides of, the blade and the kerf thereof. This stabilization is automatic since, as the blade is brought into engagement with the meat, bread, or the like, the end of the member first comes to rest on the object to stabilize

it and then deflects to allow the cutting edge of the blade to engage the object's surface and sweep there-through.

According to other features of the present invention a pair of such members is provided flanking the blade and interconnected for rigidity. Their ends are also interconnected and provided with at least one tooth adapted to penetrate into and hold the meat. The members thus constitute a channel opening in the same direction as that to which the cutting edge is turned.

The means between the element and member can be a spring-biased hinge (with a well-defined pivot) or simply a resiliently bendable ligature (with a less well-defined pivotal region), between these two parts according to further features of this invention.

DESCRIPTION OF THE DRAWING

The above and other objects, features, and advantages will become apparent from the following description, reference being made to the accompanying drawing in which:

FIG. 1 is a perspective view showing the guide and holding attachment according to the present invention;

FIGS. 2 and 3 are perspective detail views of the attachment shown in FIG. 1;

FIG. 4 is a view similar to FIG. 1 showing the attachment partially deflected, as is the case when cutting;

FIG. 5 shows a detail of an alternative design of the holding-member end;

FIG. 6 shows how the attachment of FIG. 1 may be made; and

FIG. 7 shows an alternate embodiment of the present invention.

SPECIFIC DESCRIPTION

FIGS. 1 and 4 show an electric carving knife 10 having a body 11 housing a drive motor 11' and an elongated two-part blade 12 extending therefrom. Such a knife can be electrically powered either by built-in, usually rechargeable, batteries or simply by line current.

The attachment 13 is provided with a holding element comprising a pair of arms 14 which embrace the body 11 of the knife 10 and which have lower parallel ends 15 adapted to be interconnected by a thumbscrew 16. These arms 14 thus constitute the holding element which tightly secures the attachment 13 to the knife 10.

Extending longitudinally from the arms 14 is a ligature 17, which terminates in a crosspiece 18 formed with a notch 19 through which the blade 12 passes. The whole attachment 13 may be made of resilient materials such as metals or polymers with stainless steel preferred so that the ligature 17 can bend resiliently. Depending upon the weight of the electric knife, the type of object to be cut and the degree to which anchorage of the object is desirable, the ligature or any spring serving as such can have a greater or lesser stiffness.

From crosspiece 18 there extend arms 20 which lie in a plane parallel to that of the blade, and orthogonal to the plane of the ligature 17 and to the plane of the crosspiece 18. These arms 20, each terminate in a downwardly directed extension 21 formed with teeth 22 adapted to engage into a piece of meat or the like, shown here at M, intended to be cut. FIG. 5 shows how an arm 20' can have a transverse coplaner extension 21' formed with a single tooth 22'. The two arms 20 are preferably interconnected by webs 23 formed on one

of the arms and attached, for example by welding, to the other arm, it also being possible to make the arms 20 from a single piece of metal with integral webs 23.

In FIG. 6 the attachment of FIG. 1 is shown after it has been stamped out of a sheet of stainless steel and before it has been bent into its finished shape.

In use, the knife blade 12 is brought (in the direction indicated by arrow A) into engagement with the piece of meat M. FIG. 1 shows how the teeth 22 first come into contact with the meat M, stabilizing it. Thereafter the two arms 20 deflect upwardly, the attachment 13 bending at the ligature 17, so that these teeth 22 are continuously held in engagement with both sides of the knife in the meat while the blade 12 cuts through it. It is not necessary to stabilize the meat M otherwise, so that one-handed carving is possible.

FIG. 7 illustrates an alternative adjustable embodiment of the present invention. Here the holding element is constituted by a clamp-type arrangement 27 tightenable by a screw 28. Clamp 27 is connected to a pair of telescoped U-section pieces of channel 29' and 29'' by means of a hinge 30 over which lies a leaf spring 31, fastened on both sides to urge the two parts 27 and 29' into the illustrated position. A thumbscrew 34 serves to longitudinally fix the two channels 29' and 29'' to allow adjustment of the length of the attachment.

The member 29'' may be closed at its front end 32 and along with the channel 29' is formed along the full length of both of its longitudinal edges with teeth 33. The blade 12' normally lies above the plane defined by the two rows of teeth 33, only being exposed when the gripping member is pivoted upwardly about the hinge 30 against the spring 31.

The two illustrated embodiments — that of FIGS. 1 - 4 and 6 and that of FIG. 7 — are used in the same manner. It is important that the teeth lie below the cutting edge of the blade and project therebeyond at least just prior to the cut, and that the entire stabilizing member formed by arms 20 or U-members 29' and 29'' be deflectable away from this blade cutting edge.

The attachment shown in FIG. 7 is advantageously made of a synthetic resin which is resistant to heat or of a stainless steel so that it may be washed without damage.

It must also be pointed out that while each of the embodiments of my invention illustrated above is shown as an attachment for a standard electric knife within the scope of my invention is an electric knife with an integral portion including engaging means and the flexing means that would permit the operation of the knife by persons able to use only one hand.

What is claimed is:

1. A retaining unit for a mechanical knife having a handle and an elongated knife blade extending longitudinally from said handle and longitudinally reciprocable relatively thereto, said unit comprising:

a mounting member detachably engagable with said handle at said end thereof;

a pair of flat elongated members flanking said blade and generally parallel thereto extending at least along the entire length of said blade while being flexibly connected to said mounting member; and teeth formed on edges of said elongated members at least in a region thereof remote from said mounting member for engagement with an object to be cut by said blade, said elongated members being deflected from a normal position laterally concealing said blade, upon cutting engagement of said blade with said object.

2. The retaining unit defined in claim 1, further comprising a resiliently deflectable ligature extending longitudinally between said elongated members and said mounting members.

3. The retaining unit defined in claim 2 wherein said members and said ligature are all formed unitarily from a single piece of sheet material.

4. The retaining unit defined in claim 3 wherein said mounting member is a ring adapted to surround said end of said handle.

5. A cutting instrument comprising an elongated handle having an end and receiving a motor; a blade extending longitudinally from said handle and having a cutting edge, said blade being coupled with said motor within said handle and longitudinal reciprocation relative to said handle; and a retaining unit for holding an object to be cut by said blade, said retaining unit including a mounting member on said handle at said end thereof, a pair of elongated members flanking said blade along opposite sides thereof over substantially the full length of said blade and laterally concealing said blade in an undeflected position of said elongated members, said elongated members being generally flat and parallel to one another and to said blade, a ligature flexibly connecting said mounting member to said elongated member at ends thereof proximal to said housing for enabling deflection of said elongated members substantially in the planes thereof, and teeth formed on edges of said elongated members at least at ends thereof remote from said handle for engagement with an object to be cut by said blade, thereby retaining said object on opposite sides of the blade as the blade is passed into said object.

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