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M. E. BECKER

2,364,339

MULTIPLE KNIFE

Filed May 27, 1943

FIG. 1.

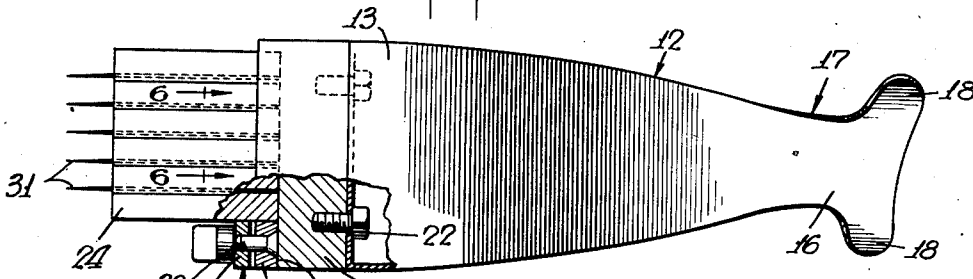


FIG. 2.

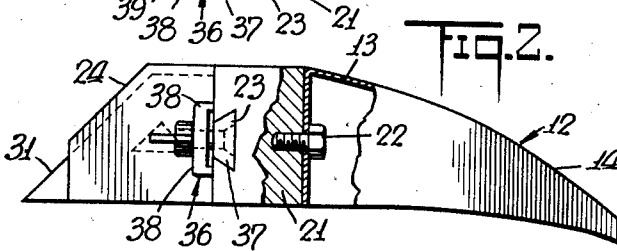


FIG. 3.

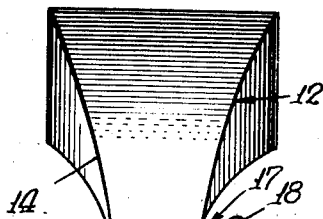


FIG. 4.

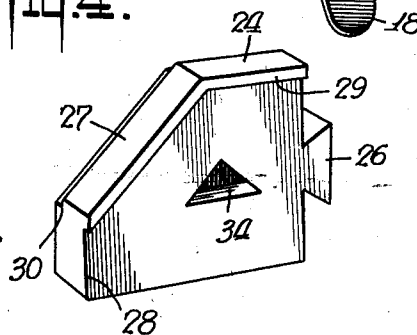


FIG. 3a.

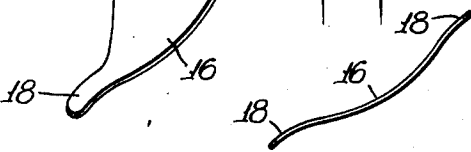


FIG. 6.

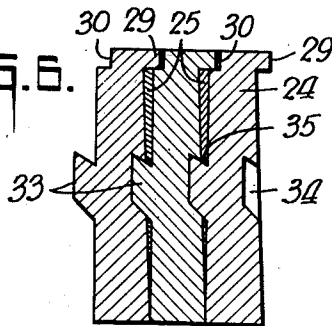
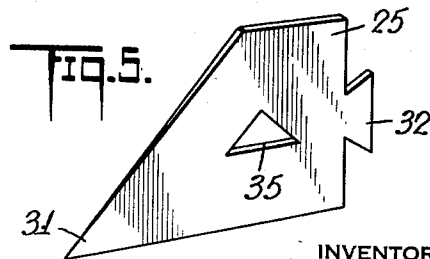


FIG. 5.



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MULTIPLE KNIFE

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Application May 27, 1943, Serial No. 488,705

10 Claims. (Cl. 30—304)

The present invention relates to multiple bladed knives and more particularly to a knife for simultaneously making a plurality of cuts in material wherein the coating or the like on one side of the material may not be damaged.

The invention is described in connection with a knife especially adapted for use in the fur trades, but the application of the principles thereof to other trades and uses will be readily understood.

In the fur trades, in preparing the pelts for use in coats and other garments and for other purposes, the pelt is cut into a large number of narrow strips which are afterwards sewn together to obtain the pattern desired, and to obtain other effects. Such work is done by hand and must be done very skillfully because the skin is slit in strips from the inside of the pelt, but the fur on the outside thereof must not be damaged, especially with fine furs. Each slit now is made individually while holding the pelt with one hand so that it is suspended or raised off the work table, and notwithstanding the skill of the worker the strips are irregular in shape and size. Furthermore, a great deal of time is consumed in these operations, and since such workers are highly paid, skilled help, a substantial part of the cost of a garment, for example, is represented by this labor item.

It is one object of this invention to provide a knife which will make simultaneously a plurality of equidistant cuts or slits.

It is another object of this invention to provide a multiple bladed knife in which the depth of the cuts made thereby is regulated.

It is another object of this invention to provide a multiple bladed knife in which the spacings between the blades may be changed readily to suit varying conditions.

It is a further object of this invention to provide a construction of multiple bladed knife in which knives and spacers are interfitted and interlocked so that no vibration of the knife blades is permitted.

It is a still further object of this invention to provide a specially constructed holder for a multiple bladed knife which conforms to the shape of a portion of the hand so that the knife is held firmly at all times, even at various angles, and the fingers are free to move normally so that one or more may be applied to exert the gentle pressure needed in using the knife in the same manner as a knife having a single blade.

It is an even further object of this invention to provide a holder which conforms to the shape of

the hand in the position of use, and which may have attached thereto and detached therefrom blocks of varying sizes each holding one or more cutting blades.

Other and further objects of this invention will be apparent from this specification taken in conjunction with the accompanying drawing, in which—

Figure 1 is a side elevation, Fig. 2 is a top plan view and Fig. 3 is an end elevation, respectively, of a multiple bladed knife constructed according to this invention. Fig. 3A is a detail in end view of the tail of the holder showing the shape thereof.

Fig. 4 is a perspective view of one of the spacing blocks.

Fig. 5 is a perspective view of one of the cutting blades.

Fig. 6 is a vertical section of two of the spacing blocks, the view being taken on the line 6—6 of Fig. 2.

Referring to the drawing, the holder 12 may be of special shape and construction. The forward portion 13 of the holder may be hollow and of a width such that it can be clasped comfortably between the thumb and second finger of the hand with the first finger resting on top thereof. The holder also has its greatest height near the forward end 13, with the top curving downwardly and rearwardly, as indicated at 14, until it joins the bottom line of the holder, as at 15; and the holder continues rearwardly of this point as a thin, flat blade or tail 16. In addition, the sides of this forward portion 13 taper from the front and into the tail 16, as seen in Fig. 2.

The tail is given a twist on the longitudinal axis of the holder, as seen in Fig. 3, so as to present a flattened, substantially vertical surface 17 in position to lie against the metacarpus of the hand adjacent the adductor of the index finger. The outer end of the tail flares outwardly to form a pair of fins 18 which are arranged to engage the rear of the hand of the user to restrain the holder from slipping forwardly in the grip.

Attached to the forward end of the holder 12 is a block 21 which serves as a carrier for the blade assembly. The block is removably attached to the holder 12, as by a pair of stud bolts 22, so that blocks of different sizes may be used on the same holder. The face of the block has a dovetail mortise 23 thereacross, this mortise opening at one side of the block but being closed at the other side of the block. The block 21 carries a plurality of interfitting spacers 24 and cutting

blades 25, each of which is of special construction, illustrated respectively in Figs. 4-6.

Each of the spacers 24 has a dovetail 26 on the rear thereof arranged to fit the mortise 23 of the block 21. The bottom edge of each spacer is straight, and the top edge is parallel therewith in the rear portion of the spacer, but the forward portion 27 thereof tapers downwardly so that at the front edge 28 the spacer is considerably shorter than at the rear thereof. At one side, along its upper edge, including the tapered forward portion 27, the spacer has a lateral flange 29. Each spacer has a groove 30 along its top edges on the opposite side from the flange 29, and each groove is arranged to receive the flange of the next adjacent spacer.

Each blade 25 has a contour similar to the spacers 24, except that the forward tapered portion of each blade is enlarged by continuing the same outwardly in a point 31 which projects beyond the forward edges 28 of the spacers. These blades are tapered from top to bottom to a very keen bottom cutting edge, if desired, and in any event so that the protruding point 31 is well sharpened. Each blade 25 may have a dovetail 32 at the rear thereof to fit the mortise 23 of block 21, and each blade is arranged to fit beneath the flange 29 of one of the adjacent spacers 24, and to be compressed between the spacers as seen in Fig. 6.

If desired, the spacers may have complementary projections 33 and sockets 34 on opposite sides of each spacer, which are here illustrated as having the shape of a triangle and as being centrally located on the sides of the spacers. The blades 25 have a mating hole 35 therein which fits over the projection 33 of the adjacent spacer as the spacers and blades are assembled together.

In the assembly of the multiple bladed knife, the end spacers 24 may have plain outer surfaces. The assembly is alternately a spacer 24 and a blade 25 fitting under the flange 29 of that spacer, until the desired number of knives are assembled for the particular use, followed by an end spacer, and finally a clamping block assembly 36. Each of these elements fits securely in the carrier 21 due to the dovetail construction. The clamping block assembly 36 comprises a pair of separate blocks 37 and 38, one of which fits the dovetail mortise, and a screw 39 engaging therein to clamp the blocks together in whatever position is necessary to properly assemble and interfit the spacers and blades into one compact unit.

In the described assembly the dovetail arrangement and the overlying flanges 29 keep the blades from coming out of the assembly while the knife is in use. Having the spacers cover all of the blades except for the protruding points 31 prevents any vibrational movements of the blades, for all practical purposes. If desired, in this connection, the sides of the spacers may be tapered to coincide with the taper of the blades.

Furthermore, by the illustrated arrangement of the spacers with respect to the protruding blade points, the operator has a guide in the use of the knife so that the blades do not penetrate far enough to damage the fur on the face of the pelt as the same is cut from the rear thereof. The arrangement also is such that the operator can readily, at all times, view the work both for the start of the cut, and for the continuance thereof, as is done with the old single bladed knife.

It is apparent that by the described arrangements, any number of blades may be assembled

in a carrier, and by using spacers of different widths, the blades can be spaced apart any desired distance; and where desirable longer or shorter carriers 21 may be mounted on the holder 12.

For the purposes of the illustrated example of one form of this invention, the projecting portion of the blade need be only approximately three-eighths of one inch, with a total length of blade of approximately one and one-half inches, and an over-all height of three-fourths of an inch. The width of the spacers will vary depending upon what is being worked upon, and this will in turn govern the size of the carrier block.

It is apparent that other modifications can be made in the construction without departing from the spirit and scope of this invention.

What is claimed as the invention is:

20 1. A multiple bladed knife comprising a holder, a carrier fastened thereto, a plurality of spacers removably mounted upon said carrier, said spacers having interfitting projections and sockets respectively on the opposite sides of each spacer, a plurality of demountable cutting blades interfitting with the projections on said spacers, the spacers covering substantially all of the area of the blades except for a cutting edge thereof, and means for clamping the spacers and blades together.

30 2. A multiple bladed knife comprising a holder, a carrier fastened thereto, the face of the carrier having a dovetail mortise therein, a plurality of spacers each having at the rear thereof a dovetail fitting said mortise, a flange along the upper edge on one side of each spacer, a plurality of cutting blades fitting between said spacers beneath the flanges thereof respectively, each blade having at the rear thereof a dovetail fitting said mortise, and substantially only the forward portion of the blade projecting outside said spacers, and means for clamping the blades and spacers together.

45 3. A multiple bladed knife comprising a holder, a carrier fastened thereto, the face of the carrier having a dovetail mortise therein, a plurality of spacers each having at the rear thereof a dovetail fitting said mortise, a flange along the upper edge on one side of each spacer, interfitting projections and sockets respectively on the opposite sides of each spacer, a plurality of cutting blades having openings therein to interfit upon the projections on said spacers, the blades being located beneath the flanges of the spacers respectively, each blade having at the rear thereof a dovetail fitting said mortise, with substantially only the forward portion of the blade projecting outside said spacers, and means for clamping the blades and spacers together.

60 4. A cutting knife comprising a holder, a carrier fastened thereto, the face of the carrier having a dovetail mortise therein, a spacer having a dovetail at the rear thereof and fitting said mortise, a flange along the upper edge of the spacer at one side thereof, a blade fitting beneath the flange and having substantially only a cutting edge projecting beyond the spacer, and means for clamping the spacer and blade together.

70 5. A cutting knife comprising a holder, a carrier fastened thereto, the face of the carrier having a dovetail mortise therein, a pair of spacers each having a dovetail at the rear thereof and fitting said mortise, a flange along the upper edge at one side of one of the spacers, a blade fitting

beneath the flange and having substantially only a cutting edge projecting beyond the spacers, and means for clamping the spacers and blade together.

6. A cutting knife comprising a holder, a carrier fastened thereto, the face of the carrier having a dovetail mortise therein, a pair of spacers each having a dovetail at the rear thereof and fitting said mortise, a projection on the side of one of the spacers and a complementary socket on the side of the other spacer, a flange along the upper edge of one of the spacers and located therebetween, a blade having an opening therein interfitting with said projection and located beneath said flange, the blade having substantially only a cutting edge projecting beyond the spacers, and means for clamping the spacers and blade together.

7. A cutting knife comprising a holder, a carrier fastened thereto, the face of the carrier having a dovetail mortise therein, a blade having a dovetail at the rear thereof fitting said mortise, the forward portion of the blade being tapered forwardly and downwardly to a cutting edge and point, and a guard secured to the carrier and substantially preventing vibration of said blade.

8. A multiple bladed knife comprising a holder to fit the hand and having a forward portion which tapers rearwardly and inwardly and terminates in a flat tail, the tail being twisted upon its axis to present a flat substantially vertical surface

and the outer end of the tail being flared outwardly, and a plurality of cutting blades mounted at the forward end of said holder.

9. A multiple bladed knife comprising a holder to be manipulated by the fingers, a carrier fastened thereto, a plurality of spaced apart, thin, cutting blades removably mounted upon said carrier and having sharpened cutting edges and points at the outer free ends thereof, and a plurality of spacers between said blades and arranged to engage and cover substantially all of the area of the blades except for the sharpened points thereof so as to protect the blades against lateral vibrations, said spacers also having portions overlying the blades to resist vertical thrust thereon during use of the knife.

10. A multiple bladed knife comprising a holder to be manipulated by the fingers, a carrier fastened thereto, a plurality of demountable thin, cutting blades, a plurality of spacers, the spacers and blades being of a size and shape that the spacers cover substantially all of the area of the blades except for a protruding cutting portion thereof so as to protect the blades against lateral vibrations, key means for removably mounting the blades and spacers upon and positioning the same with respect to the holder, and means for resisting vertical thrust upon the blades during use of the knife and for clamping the spacers and blades together.

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