

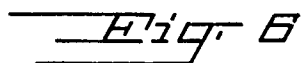
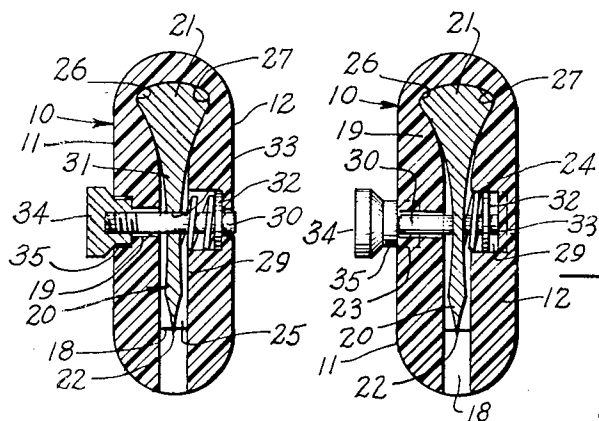
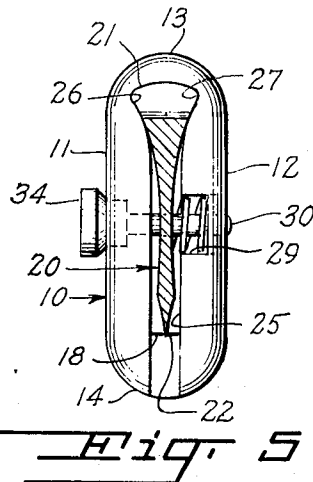
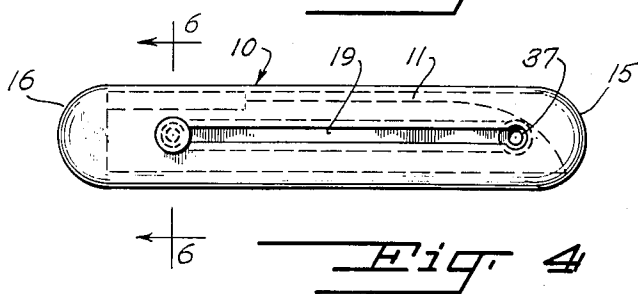
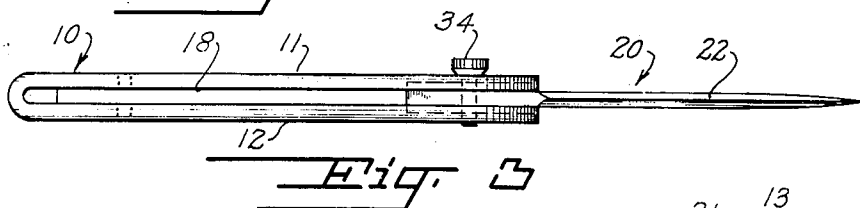
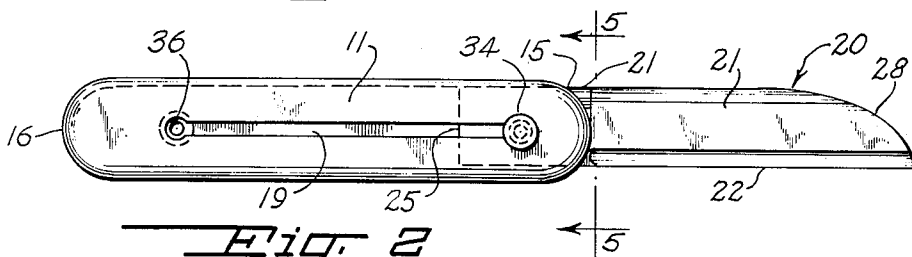
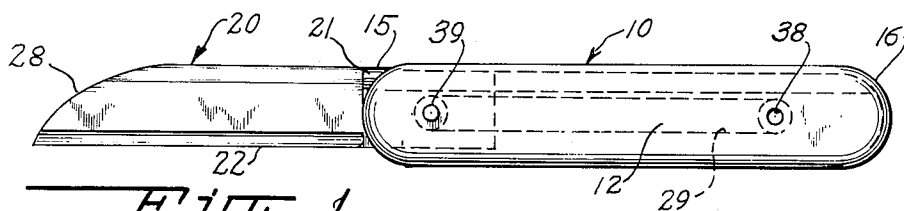
Feb. 21, 1956

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2,735,176

VETERINARY SURGICAL KNIFE

Filed May 22, 1953



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2,735,176

VETERINARY SURGICAL KNIFE

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Application May 22, 1953, Serial No. 356,672

2 Claims. (Cl. 30—162)

This invention relates to veterinary surgical knives and more particularly to a surgical knife including a handle and a blade which can be retracted into and projected outwardly of the handle and releasably locked in either its retracted or projected position relative to the handle.

It is among the objects of the invention to provide an improved veterinary surgical knife which is particularly adapted for the operation of castrating swine, although it may be used for other purposes; which can be honed and strapped to a razor edge and easily maintained in a sharp and clean condition; which includes a hollow ground blade of surgical steel and a hollow handle into which the blade can be fully retracted for protection while the knife is not in use and from which the edged portion of the blade can be projected for use with the blade disposed substantially in longitudinal alignment with the handle; which has its handle so shaped interiorly that the blade is firmly guided and supported in the handle and the handle does not at any time contact the edge portion of the blade; which includes means releasably locking the blade in either its retracted or its projected position relative to the handle; and which is simple and durable in construction, economical to manufacture, and effective and efficient in use.

Other objects and advantages will become apparent from a consideration of the following description and appended claims in conjunction with the accompanying drawing, wherein:

Figure 1 is a side elevational view of a surgical knife illustrative of the invention with the knife in open position with the blade extended from the handle;

Figure 2 is a side elevational view of the opposite side of the knife from that illustrated in Figure 1;

Figure 3 is a bottom plan view of the knife as illustrated in Figures 1 and 2;

Figure 4 is a side elevational view of the knife in closed position with the blade retracted into the handle;

Figure 5 is a transverse cross sectional view on an enlarged scale on the line 5—5 of Figure 2;

Figure 6 is a transverse cross sectional view on an enlarged scale on the line 6—6 of Figure 4; and

Figure 7 is a transverse cross sectional view similar to Figure 6 but with the knife in partly open condition.

With continued reference to the drawing, the knife comprises an elongated handle 10 formed of a suitable material, such as a synthetic resin plastic and having flat sides 11 and 12 disposed in spaced and substantially parallel relationship to each other, substantially semi-cylindrical edge portions 13 and 14 and rounded end portions 15 and 16. The handle has a bore 18 of substantially rectangular cross sectional shape extending therethrough from one end to the other with the major dimension of the cross sectional shape of the bore extending in the direction of the width of the handle and the handle has in the side 11 thereof a closed slot 19 extending longitudinally of the handle from a location adjacent one end to a location adjacent the opposite end of the handle.

The knife also includes a blade, generally indicated at

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20, formed of a suitable material, such as surgical steel, and having a width and length less than the width and length of the handle 10. The blade is of substantially triangular shape in cross section, having a thickened back edge 21, a cutting edge 22 spaced from and substantially parallel to the back edge 21 and hollow ground sides 23 and 24. At one end thereof the blade has a tang portion 25 of substantially the same cross sectional shape and size as the bore 18 in the handle and this tang portion of the blade is slidable in the handle bore and is provided with a transversely extending aperture disposed substantially centrally thereof.

The handle is provided interiorly thereof with longitudinally extending grooves 26 and 27 disposed along one edge of the bore 18 and at respectively opposite sides of the bore which grooves slidably receive the corresponding side portions of the thickened back edge 21 of the blade to firmly support the blade in the handle, the side portions of the back edge of the blade being extended along the tang 25 to provide ridges extending substantially the entire length of the blade except for a rounded-off outer end portion of the blade, as indicated at 28.

The side of the handle opposite that in which the slot 19 is provided has a groove or slot 29 extending longitudinally thereof in registry with the slot 19 and opening into the bore 18 of the handle. A pin 30 extends through the slot 19 in the handle and the aperture 31 in the tang portion 25 of the blade and is externally screw threaded at the end thereof disposed in the slot 19. An abutment washer 32 is secured on the pin near the opposite end thereof and disposed in the groove 29 and a compression spring 33 surrounds the pin between the abutment washer 32 and the adjacent side of the blade tang 25. A knob 34 is threaded onto the screw threaded end of the pin 30 and is provided with a shoulder 35 of reduced diameter disposed at the end thereof adjacent the blade tang and having a diameter greater than the width of the slot 19.

The side of the handle containing the slot 19 is provided with circular enlargements 36 and 37 disposed one at each end of the slot and having a diameter slightly greater than the diameter of the shoulder 35 of the knob 34 and the side of the handle containing the groove 29 is provided with apertures 38 and 39 disposed one at each end of the groove and of a diameter to receive the adjacent end of the pin 30.

The slot 19 and the groove 29 both have a length substantially equal to the length of the blade 20 so that the blade can be moved to its fully projected position, as illustrated in Figures 1 and 2, and to its fully retracted position, as illustrated in Figure 4, by moving the pin 30 longitudinally of the slot 19 from one end to the other of the slot. When the blade is in its fully projected position the shoulder 35 of the knob is received in the recess or enlargement 37 near the end of the handle from which the blade extends and the end of the pin 30 remote from the knob 34 is received in the aperture 39 in the opposite side of the handle. This arrangement firmly but releasably locks the blade in its extended position. When it is desired to retract the blade, the knob 34 is pulled outwardly compressing the spring 33 until the knob shoulder 35 is withdrawn with the enlargement 37 and the end of the pin remote from the knob is withdrawn from the aperture 39. The pin is then moved longitudinally of the handle to the opposite end of the slot and released whereupon the spring 33 expands and moves the knob shoulder 35 into the enlargement 36 at the corresponding end of the slot and the end of the pin 30 remote from the knob 34 into the aperture 38 thereby releasably locking the blade in its retracted position.

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The slot 29 is of a size and shape relative to the size and shape of the blade 20 such that the only portion of the blade contacting the handle is the thickened back edge portion of the blade and the cutting edge portion of the blade is maintained spaced from the inner surfaces of the handle at all times. The blade is easy to hone and strap to a razor edge and is fully protected from damage when retracted into the handle. Also, as this is a special knife having an edge too fine for heavy work such as that for which pocket knives are frequently used, the owner will not ordinarily use the knife for purposes other than surgical operations and the knife will be maintained in a clean and sharp condition for use when needed.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are, therefore, intended to be embraced therein.

What is claimed is:

1. In a knife, a hollow handle having side walls, a blade disposed in said handle, said blade having opposite sides slidably engaging said side walls, said side walls having inner and outer sides, one of said side walls having a longitudinal groove in its inner side and holes at the opposite ends of the groove opening through said one side wall, the other side wall having a longitudinal slot therethrough, a pin extending through the blade, said pin having a first end projecting outwardly through said slot and a second end engaged in said groove and engageable through said holes so as to hold said blade in an extended or retracted position within the hand, and means on said first end of the pin for engaging and disengaging the pin from said holes and moving the blade end-wise in the handle, said second end of the pin and said holes being smaller in diameter than said groove, a lateral flange on said pin inwardly of said second end of the pin, said

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flange being larger in diameter than said second end of the pin and being slidably engaged in said groove, said second end of the pin being arranged to slide against a portion of said groove in transit between said holes.

2. In a knife, a hollow handle having side walls, a blade disposed in said handle, said blade having opposite sides slidably engaging said side walls, said side walls having inner and outer sides, one of said side walls having a longitudinal groove in its inner side and holes at the opposite ends of the groove opening through said one side wall, the other side wall having a longitudinal slot therethrough, a pin extending through the blade, said pin having a first end projecting outwardly through said slot and a second end engaged in said groove and engageable through said holes so as to hold said blade in an extended or retracted position within the hand, and means on said first end of the pin for engaging and disengaging the pin from said holes and moving the blade end-wise in the handle, said second end of the pin and said holes being smaller in diameter than said groove, a lateral flange on said pin inwardly of said second end of the pin, said flange being larger in diameter than said second end of the pin and being slidably engaged in said groove, said second end of the pin being arranged to slide against a portion of said groove in transit between said holes, and a helical spring circumposed on said pin and compressed between said blade and said flange.

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