

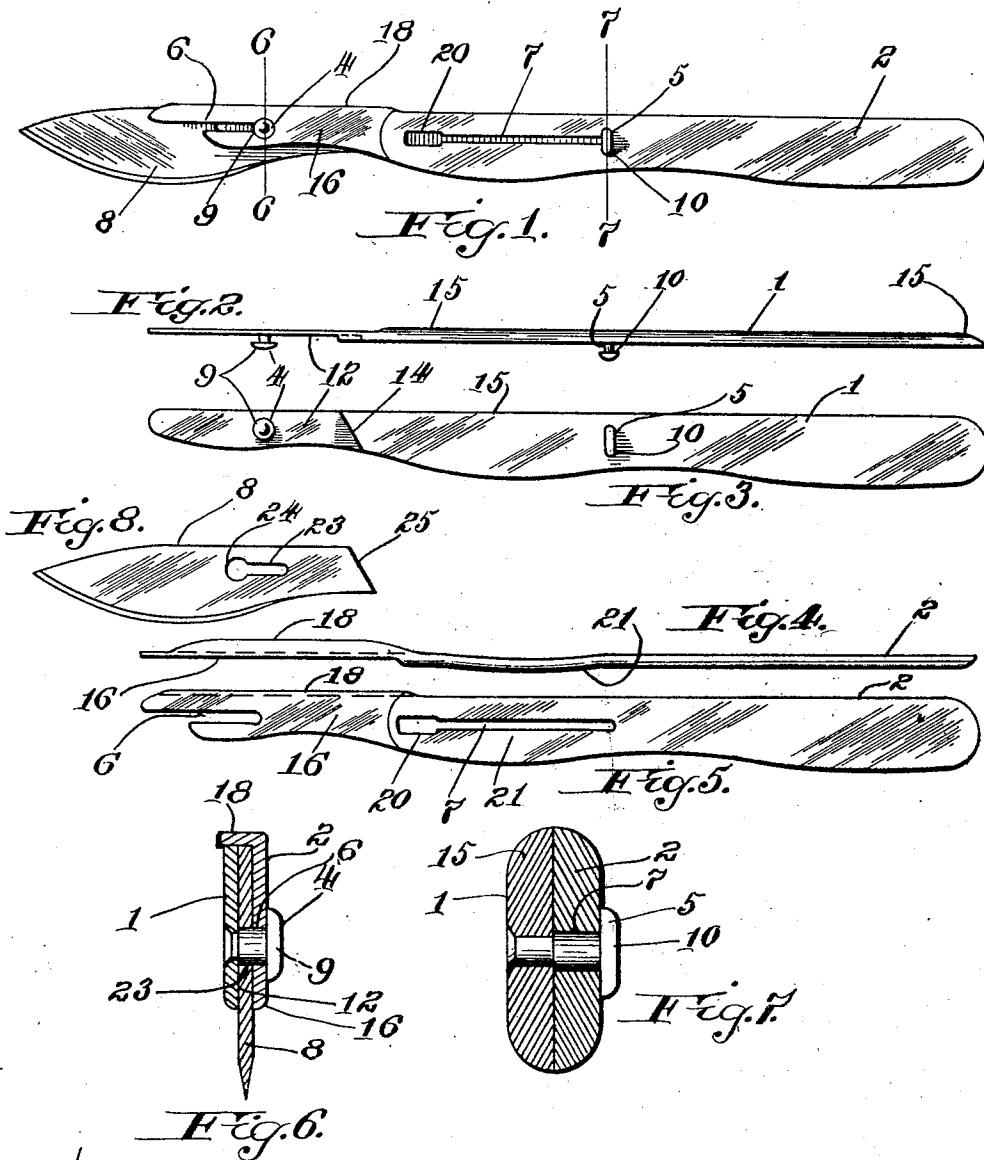
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SEPARABLE BLADE KNIFE

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SEPARABLE-BLADE KNIFE.

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To all whom it may concern:

Be it known that I, GUSTAV GOLDMAN, a citizen of the United States of America, residing in the city of Baltimore, State of Maryland, have invented certain new and useful Improvements in Separable-Blade Knives, of which the following is a specification.

The invention relates to a knife having a removable and interchangeable blade somewhat in the nature of the removable and interchangeable safety razor blades now in general use, which blades are made at a comparatively small cost of thin sheet steel which takes a high temper and makes it possible by comparatively frequent change of the blades to maintain a cutting edge of maximum keenness dispensing with the necessity for honing or sharpening, and at the same time incurring but a small expense on this account.

In fact, the convenience and small cost of production of the blades from sheet metal as outlined, taken in connection with the fact that the removable blade feature makes it possible to use a handle which may be of comparatively cheap construction of non-corrosive metal, would thus make it possible to produce the entire outfit, including a set of blades and a handle, at less expense than the cost of a knife with a blade of corresponding hardness which will take a similar cutting edge and which is permanently attached.

While the features of the invention are capable of general application to knives for different purposes, the construction described and shown has been devised with particular reference to its use as a surgeon's knife. The fact is known to the inventor that other surgeon's knives with the detachable blade of thin sheet metal are in use, but while these knives are effective for use in surgical work under certain circumstances, they have certain defects which are generally recognized by surgeons who are familiar with their use.

One of these defects is due to the fact that the handle, being of a single piece without movable parts, the attachment of the blade is accomplished by bending it and snapping it into position, which operation is dangerous and difficult on account of the extremely keen edge of the blade, contact

with which can only be avoided by the exercise of considerable skill in the operation of attaching and detaching the blade.

Another difficulty is due to the fact that in the more delicate surgical operations, complete and exact control of the knife being necessary, it is customary in holding the knife to place the forefinger on the back of the blade by which means exact control can be maintained and considerable pressure can be exerted.

The knife of this general type which is known to the surgical profession can hardly be used in operations in which it is necessary to control the knife in this manner, as the extreme thinness of the sheet metal blades affords no convenient point of engagement for the finger on the back edge of the blade as outlined.

In the present instance the handle is made in two separable parts or members, each part being integral, and the blade is held between these two parts or members of the handle, which are locked together by a combination of slots and stationary studs or in other suitable and convenient manner, one part of the handle having an extension over the back of the blade which serves as a point of support and engagement for the forefinger and may lock the blade against rotation in the plane of the cutting edge.

In the accompanying drawing I have illustrated a surgeon's knife embodying the features of my invention in the preferred form.

In the drawings—

Figure 1 is a side elevation of the knife and blade completely assembled.

Figure 2 is a plan of the part or member of the handle on the right when in use or remote from the observer in Figure 1, the members being separated.

Figure 3 is an elevation of the member of the handle shown in Figure 2, the two sides being separated and the view being taken from the inside or the side next to the blade.

Figure 4 is a plan view of the member of the handle nearest to the observer in Figure 1, i. e., the member on the left when the knife is in use.

Figure 5 is an elevation of the same corresponding to the view of the knife in Figure 1.

Figure 6 is a transverse section through the handle including both parts thereof and the blade, the same being taken on the line 6, 6 of Figure 1 and on an enlarged scale.

5 Figure 7 is a section through the handle assembled, on the line 7, 7 of Figure 1, on an enlarged scale, and

Figure 8 is a side view of the blade removed.

10 The knife, as shown, consists of two handle members 1 and 2 on the right and left extending longitudinally of the handle, and means in the form of studs 4 and 5 and slots 6 and 7 for holding the handle members together and a blade 8 between the forward end portions of the handle members. The blade is similar except as to shape to the safety razor blades now in general use, and is intended to be sold in sets or packages in accordance with a practice similar to that of selling safety razor blades. These blades as aforesaid are made of thin sheet steel which takes a very high temper and therefore a very sharp edge, and are produced at 25 an extremely small cost in view of the efficiency of the cutting edge, and the ease and convenience with which such cutting edge can be maintained in good condition by replacing the blades which would be obtainable wherever the knives are sold.

30 The studs 4, 5, as shown, are seated in and rigidly secured to the righthand handle member or part 1, and extend to the left of the same as it is seen, with the knife pointing away from the observer. These studs are provided each with an enlarged head 9 on the stud 4 and 10 on the stud 5 of greater lateral area than the sections of the shanks of the stud and of greater dimensions than the width of the respective slots 6 and 7, the head 9 of the stud 4 being shown as circular, and the head 10 of the stud 5 being shown as elongated up and down or in a direction at right angles to the cutting edge of the knife. The stud 4 as shown is at the forward end of the handle member 1, and the stud member 5 near the center as to the length of the member, both being shown as also near the center as to the width or up and down dimension. This handle member 1 is provided on each side of the stud 4 and surrounding it with a flat blade engaging surface 12 which includes the entire forward portion of the handle member and terminates at the rear or righthand side as seen in Figure 3 in a downwardly and rearwardly inclined shoulder 14, the handle portion proper 15—15 of the handle member being thickened, and the blade engaging portion being comparatively thin. The other longitudinal member 2 of the handle is provided with a thin blade engaging and supporting portion 16 at the forward end. This is preferably of substantially the same length as the cor-

responding portion of the handle member 1. 65 It is further slotted at 6, preferably in the general direction of its length, the slot being shown as open at the forward end of the handle member to admit the stud 4, though the exact arrangement of the slot whereby 70 the stud member is admitted is immaterial, and it is further immaterial as to which of the handle members carries the stud and which is slotted. The handle engaging member is further provided with a laterally extending flange 18 at the top, and is slotted in the direction of its length near its central portion at 7 to admit and engage the stud 5 on the other handle member, the slot 7 being shown as enlarged at 20 at its forward end to admit the stud 5, and it is immaterial as to which of the handle members is thus slotted and which of them carries the stud 5, and as to the manner of admitting the stud to the slot and as to the nature 85 of the inter-engaging or inter-locking means.

I have also shown the handle member 2 as slightly sprung or bowed or offset at 21 along the slot 7, so as to provide a certain tension or resistance to the engagement of the handle member 2 with the stud 5, and prevent slipping and displacement of the parts.

The blade 8 is slotted as shown preferably longitudinally at 23, and the slot is shown as enlarged at the forward end at 24 to admit the stud 4, though the slot may within the scope of the invention be otherwise arranged for the purpose of admitting the stud. The blade is provided at the rear with a stop surface 25 which is shown as inclined to conform to the stop shoulder 14 on the handle member 1.

In assembling the knife, the stud 4 is passed through the enlarged portion 24 of the slot 23, the blade being most conveniently for this purpose placed at an angle to the handle member 1, the handle preferably being horizontal and the point of the blade being upward, and the blade is then thrust forward in the direction of its point, moving the stud to the rear of the slot in the blade, which is at the same time rotated, the point being moved downward until the stop surface 25 on the blade engages the stop shoulder 14 on the handle member 1. The handle member 2 is then placed on or over the handle member 1 most conveniently at an angle therewith, the slotted end 16 being turned upward, the other half being horizontal and the head 10 of the stud 5 is passed through the enlarged portion 20 of the slot 7. The handle member 2 is then rotated about the handle member 1, the slotted end being moved downward to the left until the slot 6 is in line with the stud 10, and the flange 18 which is properly spaced for this purpose relatively to the slot, 125

bears on the top edge of the handle member 1 or the top edge of the knife blade 8, when the handle member 2 is thrust forward in the direction of the length of the handle members and relatively to the handle member 1 and the blade, the stud 4 entering the slot 6 and engaging the rear end thereof, and the flange 18 extending over the top edge of the blade and preferably extending forwardly of the stud 4, so that the blade is locked against upward rotation. Further, as aforesaid, the handle member 2 is preferably bowed or bent or offset or otherwise raised, and given a springing effect adjacent the slot 7, causing the bowed or raised portion of the handle member 2 to engage beneath the head 10 of the stud 5, creating a frictional resistance, tending to prevent the handle members from being drawn apart in the use of the knife. Preferably the offset or raised portion 21 is a bit higher in front of the stud 5 in the assembled position of the parts, so as to give slightly added resistance to the tension of the parts to separate and slide relatively to each other. It will be apparent that as thus assembled the knife blade is rigidly held between the handle members which meet substantially in the plane of the blade, and that it cannot be loosened or removed by any stress to which it is apt to be subjected in use, and that while the blade is enclosed between the front ends of the handle members, these front ends support the blade, but are not of such a nature as to interfere with its use, and that the flange or extension 18 of the handle member 2 over the blade not only serves as a point of engagement for the forefinger of the operator, enabling him to press directly on the blade and to guide it with his finger, but may hold the blade against rotation relatively to the handle members.

I have thus described specifically and in detail a single embodiment of my invention in order that the nature and operation of the same may be clearly understood; however, the specific terms herein are used in a descriptive rather than in a limiting sense, the scope of the invention being defined in the claims.

What I claim and desire to secure by Letters Patent is:

1. A knife having a removable and interchangeable blade, a handle in two separable parts, the handle being divided in the direction of its length into said parts, one of said parts having a stud and an abutment to engage the rear end of the blade and the other having a longitudinal slot, the stud having an enlarged head of greater extent than the width of the slot and the slot being open at the end providing an entrance for admitting the stud to the slot, the blade having a substantially longitudinal

slot to engage said stud, which slot is provided with an entrance spaced forward from its rear end to admit the stud, the portion of the blade opposite the cutting edge being between the end portions of said handle members.

2. A knife having a removable and interchangeable blade, a handle in two separable parts, the handle being divided in the direction of the plane of the blade into said parts, one of said parts having a stud and an abutment to engage the end of the blade and the other having a cooperating longitudinal slot, the stud having an enlarged head of greater extent than the width of the slot, and an entrance at the end of the handle part for admitting the stud to the slot, the blade having a substantially longitudinal slot to engage said stud, which slot has an entrance for the stud at the end of the slot toward the point of the blade, and being between the end portions of said handle members which end portions extend along the blade opposite the cutting edge, and an additional longitudinally sliding engagement for holding the handle members together.

3. A knife having a removable and interchangeable blade, a handle in two separable parts, the handle being divided on a plane substantially parallel to the blade surface, one of said parts having a stud and the other having a longitudinal slot at the forward end of said part, the stud having an enlarged head of greater extent than the slot, the blade having a slot to engage said stud and being between the end portions of said handle, which end portions extend along the blade, one of said parts of the handle having a flange extending over the top of the blade.

4. A knife having a removable blade and a handle in two separable parts, one part having a slot in the forward end and the other part having a stud in its forward end to engage said slot, which slot is open at the forward end of the handle the stud having a head of greater extent than the slot, one of said handle members having a flange extending laterally therefrom near its top edge and adjacent said stud and slot in the assembled position of the knife, the blade being likewise slotted to admit the said stud and being held from rotation about the stud by the flange and other releasable means for holding the handle members in assembled position.

5. A surgical knife having two separable handle members, a separable pointed blade between said handle members, a finger rest integral with one of said handle members extending over the top of the blade substantially opposite the cutting edge, and means for locking the handle members in

assembled relation, the finger rest being spaced back from the point of the blade.

6. A blade for the separable blade operating knife described, the blade being pointed at one end and having a substantially longitudinal slot near the centre, and a rear end positioning surface the slot having an entrance portion spaced forward of the rear

end of the slot.

Signed by me at Baltimore, Maryland, 10 this 6th day of December, 1923.

GUSTAV GOLDMAN.

Witnesses:

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E. WEHMEYER.