March 20, 1934. R. CASTROVIEJO 1,951,393

SURGICAL KNIFE

Filed Feb. 26, 1932

Fig. 1.

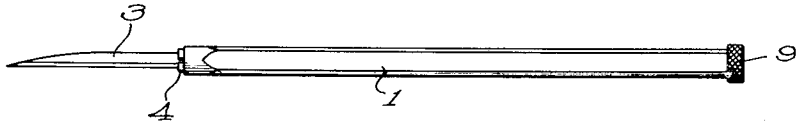


Fig. 2.

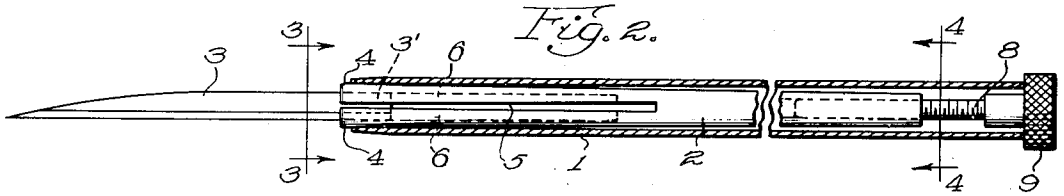


Fig. 3.

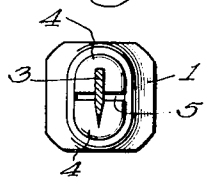


Fig. 4.

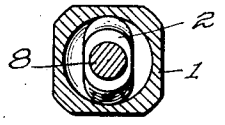


Fig. 5.

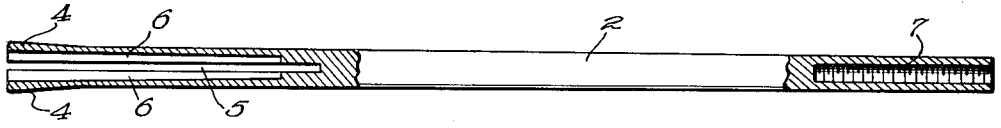


Fig. 6.

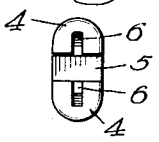
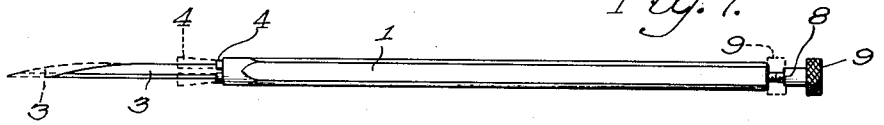


Fig. 7.



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UNITED STATES PATENT OFFICE

1,951,393

SURGICAL KNIFE

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Application February 26, 1932, Serial No. 595,317

3 Claims. (Cl. 30—9)

This invention relates to surgical instruments and more particularly to knives and to means for securing the blade in the handle.

The main objects of this invention are to provide an improved surgical knife adapted for ready interchange of blades; to provide a quick acting positive clamp for the blade to provide for the ready disassemblage of all parts for cleaning and sterilization; and to provide a simplified knife such as described of light, strong and inexpensive material.

An illustrative embodiment of this invention is shown in the accompanying drawing, in which:

Fig. 1 is a side view of a surgical knife embodying the present invention.

Fig. 2 is mainly a longitudinal sectional view of the knife and includes a side elevation of the blade-clamping means with the blade in locked position, parts being broken away.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 2.

Fig. 5 is a side view of the clamping means or chuck shown partly in section.

Fig. 6 is an elevation of the slotted end of the chuck.

Fig. 7 is a side view of the knife with the thumb screw turned outwardly to release the blade and with the chuck still in operative position; and the dotted outline shows the position of the chuck after the thumb screw has been thrust inwardly and the flanged portion of the chuck thereby projected outwardly.

In surgical work it has been necessary and customary heretofore to have the complete surgical knife sent out for sharpening after it has been in use and has become dull. My invention obviates this necessity by providing a surgical knife in which the blade is readily removed and a new one inserted.

The present device comprises a hollow handle having therein a longitudinally slidable blade clamping member or chuck, one end of which is flared in the plane of the blade and is longitudinally slotted, both across the plane to provide resilient jaws and in said plane to provide receiving grooves for the shank of the blade. The opposite end of the chuck is drilled and tapped to receive a thumb screw as will be more fully described.

The flared portion of the chuck will wedgingly engage against the interior of the handle when the screw is tightened, thereby forcibly occluding the jaws of the chuck and causing them to grip the shank of the blade edgewise and hold the latter in locked position.

Referring more in detail to the drawing, the surgical knife comprises a hollow metallic handle 1 preferably made of nickel or aluminum, a chuck 2 preferably made of rustless steel, and a blade 3.

The chuck 2 is provided with two jaws 4 separated by a slot 5, and each jaw is provided with a slot or groove 6 to receive an edge of the blade shank 3'. The opposite end of the chuck is drilled and tapped as at 7 to receive the thumb screw 8. The head 9 of the thumb screw is of larger diameter than the handle 1 so as to seat thereon when the chuck is set by tightening the screw.

To remove the blade the screw 8 is turned outwardly as shown in the full lines in Fig. 7. The screw is then thrust inwardly toward the handle, thereby forcing the chuck forwardly and into the position shown in dotted outline in Fig. 7. This forward movement of the chuck releases the jaws and permits them to spring open to their normal position, as shown in Fig. 5, thereby releasing the blade which may now be freely removed. The various parts of the knife may then be disassembled and sterilized.

To reassemble the knife, the chuck is inserted into the handle at the forward end of the latter and the thumb screw is started in the threaded portion of the chuck. A new or sharpened blade is then inserted in the jaws of the chuck and the thumb screw is then tightened. The tightening movement tends to draw the chuck wedgingly into the handle, causing the jaws to set tightly on the blade when they contact with the inner portion of the handle.

The head of the screw being of larger diameter than the handle, abuts against the latter, as shown in Fig. 2. The knife is now ready for use.

It will be apparent from the above that new or sharpened blades may easily and instantly be inserted to replace the old ones at a moment's notice; and this sometimes becomes necessary in surgical work. If desired the chuck may be released abruptly by a blow on the screw head 9, whenever the latter has been backed away from the end of the handle 1.

It is to be understood that some of the details set forth may be altered or omitted without departing from the spirit of the invention as defined by the following claims.

I claim:

1. A surgical knife comprising a handle, a longitudinally movable wedging chuck in said han-

dle, a clamp having resilient jaws on one end of said chuck, a removable blade positioned in said clamp and gripped edgewise by said jaws, the opposite end of said chuck being internally threaded, and a thumb screw engaging the threaded end of said chuck for operating said clamp, said screw having a head larger than said handle for abutting against the end of said handle when said screw is tightened.

2. A surgical instrument comprising a longitudinally apertured handle and an oblong chuck mounted for longitudinal movement in said handle, said chuck being longitudinally slotted at one end to provide a pair of jaws and said jaws being interiorly grooved lengthwise to receive the shank edges of a removable blade, said chuck also having manually operative handle engaging means for urging it lengthwise in said handle, and said chuck being outwardly flared at the jaw end for occlusive wedging of the jaws in said handle by operation of said means.

3. A surgical instrument comprising a longitudinally apertured unitary handle, an oblong chuck mounted slidably and non-rotatably in the handle aperture, a removable blade projecting from one end of said handle and having a shank set in one end of said chuck and a thumb screw disposed in and with its head bearing normally against the opposite end of said handle, the shaft of said screw fitting freely in said handle and engaging the proximate end of said chuck which is longitudinally bored and threaded therefor, said chuck being longitudinally slotted at the blade receiving end to provide jaws which are grooved to receive the edges of the blade shank, said jaws being endwardly flared externally to induce occlusive setting thereof on the blade when the chuck is retracted by said screw.

RAMON CASTROVIEJO.