(No Model.)

O. A. HOELLER.

SURGICAL NEEDLE HOLDER.

No. 453,698. Patented June 9, 1891.

FIG. 1.

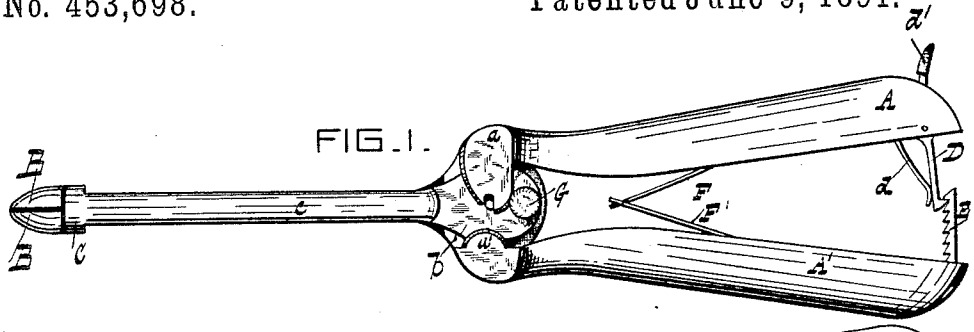


FIG. 2.

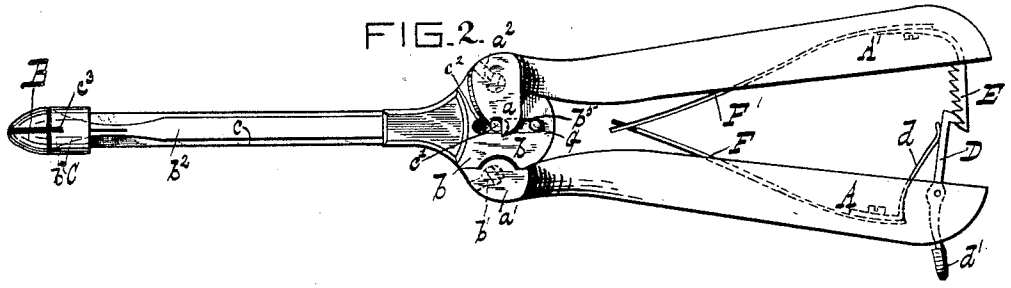


FIG. 3.

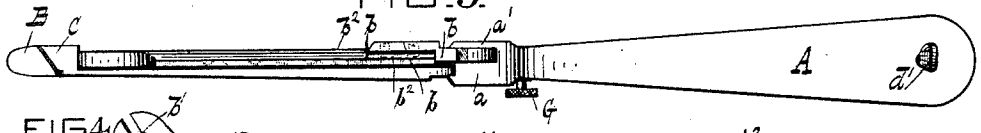


FIG. 4.

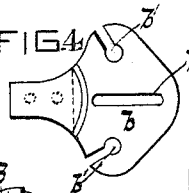


FIG. 11.

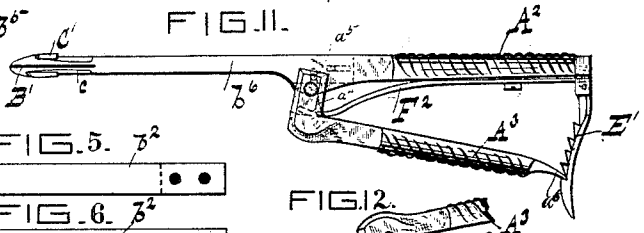


FIG. 5.

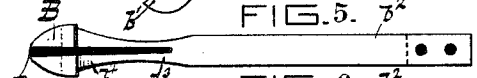


FIG. 6.



FIG. 12.

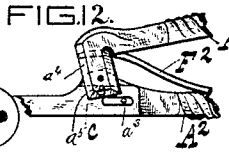


FIG. 7.

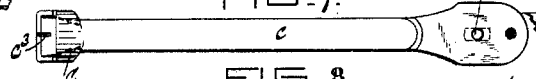


FIG. 8.

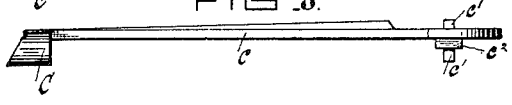


FIG. 9.

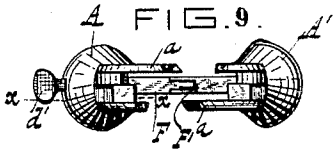


FIG. 10.



Witnesses
Frank S. Davis
David S. Oliver

Inventor
Otto A. Hoeller
By his Attorney
Geo. J. Murray

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

OTTO A. HOELLER, OF CINCINNATI, OHIO.

SURGICAL-NEEDLE HOLDER.

SPECIFICATION forming part of Letters Patent No. 453,698, dated June 9, 1891.

Application filed April 25, 1891. Serial No. 390,366. (No model.)

To all whom it may concern:

Be it known that I, OTTO A. HOELLER, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Surgical-Needle Holders, of which the following is a specification.

The object of my invention is to provide an improved holder for surgical needles, whereby the various forms of surgical needles may be grasped and held firmly in any position desired for the insertion of the needle and again grasped in any position for the purpose of drawing it through to make the stitch.

Its object is also to provide a symmetrical arrangement of the handles to give the operator greater control of the instrument. Another object is to strengthen the grasping-jaws and means for closing them, while diminishing the size of the jaws, so that the operator may dexterously use the instrument.

With these objects objects in view my invention consists in the peculiar combination and arrangement of parts illustrated in the accompanying drawings, in connection with which the invention will be first fully described, and then particularly referred to, and pointed out in the claims.

Referring to the drawings, in which like parts are indicated by similar reference-letters wherever they occur throughout the various views, Figure 1 is a side elevation of my preferred form of instrument. Fig. 2 is a similar view of its opposite side. Fig. 3 is an edge elevation of the same. Fig. 4 is a plan view of the separable rear extension of the shank of the grasping-jaws. Fig. 5 is a similar view of the jaw member. Fig. 6 is an edge elevation of the same. Fig. 7 is a plan view of the sliding jaw-closing member. Fig. 8 is an edge elevation of the same. Fig. 9 is an end elevation of the handles with the needle-holding members and their parts removed. Fig. 10 is a detail view in longitudinal section through line $x\,x$, Fig. 9, of the inner end of one of the handles. Fig. 11 is a side elevation upon a diminished scale of a modified form of my holder. Fig. 12 is a detail view of the same looking upon the opposite side.

Referring to the parts by reference-letters, A A′ are the operating-handles. The hand grasping portion of these are, for lightness, hollow half-shells. The halves A A′ are alike, except the longitudinal grooves through the necks for the reception of the rear end of the shank of the grasping-jaws B, the groove in the part A being cut alongside of the angle-lug a, while the groove in the part A′ is cut upon the opposite side and alongside of the end a'. The slot in each case has a flattened pivot-pin a^2 crossing it, which serves as the pivot upon which the handles A A′ turn. The bearings for these pins are perforations b' in the shank-piece b. Slots are cut from the edges of the piece b to admit the flattened pins into the perforations b' when the handles are extended. When the handles are closed in operative position, as shown, they are pivotally locked to the jaw-shank. The parts are thus detachably connected together, so that they may be taken apart for cleansing and readily replaced for use.

The grasping-jaw parts (shown in Figs. 1 to 6, inclusive) are made in two parts detachably connected together. These consist of the shank b^2, the forward end of which is enlarged, and the grasping-jaws B, formed by slotting the head and shank back through the diminished portion b^3 and the rear extension b. This extension-piece has two pins projecting from one side to enter perforations in the end of the shank b^2. When the parts b and b^2 are so united, they form practically one piece.

The sliding piece, Figs. 7 and 8, which by its forward movement closes the jaws B and by its backward movement releases them, and which itself, in connection with the jaws B, form grasping-jaws, will now be described. This piece consists of a shank c, which has formed integral with it at its forward end the clamping-collar C. The inner side walls of this collar are inclined, as indicated by dotted line, Fig. 2, counter to the inclined edges b^4 of the slotted portions of the shank b^2, so that when it is forced in direction of the jaws B, as hereinafter described, it will close the jaws and hold them firmly in the closed position. The rear flattened portion of the shank c is provided with a stud c', which extends through it to enter slots or notches in the lugs a of the handles A A′. The pin c' has also a flattened portion c^2, which enters and traverses a longitudinal slot b^5 in the shank b of the jaw-

piece. The forward end of the yoke or collar C is inclined to form, with the projecting inner enlarged portions of the jaws B, clamping-jaws, so that the needle may be clamped between the end of the collar C and the projecting ends of the jaws B in any desired position. The front of the collar C is also notched at c^3 in line with the opening between the jaws B to allow greater latitude of adjustment for the Hackedorn needle and other surgical needles.

The handle A is provided near its rear end with a pivoted spring-pressed pawl D, the detent of which is arranged to engage the teeth of a rack-bar E, which is rigidly secured within the hollow end of the handle A.

The handles A A′ have each secured within them springs F F′, the tension of which is exerted to force the handles apart when the pawl D is released from the rack E. One of these springs is notched at its free end, and the opposite one is tenoned to enter the notch to lock the springs together and compel them to act in unison. The pawl D is pressed by a spring d to hold it in engagement with the teeth of the rack until released by pressing against its projecting end d'. To couple the parts together for use, the shank b^2 is passed through the collar C from the front. The piece b, Fig. 4, is then placed upon it with its pins (shown in dotted line, Fig. 4,) in the perforations in the rear end of the shank, and the flattened portion c^2 of the stud c within the slot b^5 in the piece b. The handles A A′ are now placed in position by passing their pins a^2 into the slots b' of the piece b, the notches in the lugs a engaging the studs c'.

To place the handles in position or detach them, they must be held at nearly a right angle to the shank in order to allow the flattened sides of the pivot-pins a' to pass through the slots leading to the perforations b'. After the handles are placed in position and brought together, as seen in Figs. 1 and 2, a screw G is inserted through the end of the shank c, which projects into the slot b^5 in the shank of the jaw-piece. This prevents the handles from being opened far enough to permit their disengagement while the screw is in place.

The purpose of making the jaw-shank in two parts b b^2 is to separate it from the jaw-closing part C c; but if the box or collar C be made with an open side, as shown at C′, Fig. 11, the shank may be made in a single piece; but the closed box C is much stronger and admits of the end of the instrument being made lighter, so that the operator can see better what he is doing.

In the form shown in Figs. 11 and 12 the handle A^2, jaws B′, and shank b^6 are made in a single piece. The shank c of jaw-closing member C′ is longitudinally slotted to receive a guide-pin a^3, which is secured in the handle A^2, and its edge is notched to engage a pin a^5, which projects from the angle-lug a^4 of the handle A^3. The rack E′ in this case is pivoted in the end of the handle. Its cam-shaped end rests upon a spring F^2, which is secured to the handle A^2. The pressure of this spring presses the rack in the direction of the end a^6 of the handle A^3, which is shaped to engage the teeth of the rack. The forward end of spring F^2 bears against the inner edge of the handle A^3 and spreads the handles apart when the rack E′ is disengaged from the end of the handle A^3.

I have shown and described what I believe to be the best form of embodying my invention; but I would have it understood that I do not limit myself to the precise details shown, as it is obvious to those skilled in the art to which my invention relates that many mere mechanical changes may be made without departing from the spirit and scope of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a needle-holder, the combination of the stem b^2, having one end enlarged and longitudinally slotted to form the clamping-jaws B, and the handle pivoted upon the opposite end of said stem and having notched angle-lugs, the stem c, having collar C at its forward end to close the jaws B and its forward end shaped to form transverse jaws in connection with the projecting base of the jaws B and having transverse pin c' at the opposite end to enter the notches in the angle-lugs a of the handles, whereby the stem c, with its collar, is moved longitudinally to close the jaws when the handles are brought together and release them when the handles are separated, substantially as shown and described.

2. The combination of the fixed stem having enlarged head slotted to form grasping-jaws B, the handles A A′, pivoted upon said stem and having notched angle-lugs a, the stem c, having jaw-closing collar C, studs c' to engage the notches in the handle-lugs a, the springs F F′ to force the handles apart, the rack E, and spring-pressed pawl D to lock the handles together, substantially as hereinbefore set forth.

3. The combination, in a needle-holder, of the jaws B B′, stem b^2, integral therewith, the stem extension-piece b, having perforations b' and slotted at b^5, the stem c, having collar C to receive stem b^2 and stud c', the handles A A′, having transverse flattened pins a^2 to enter the perforations b' in piece b, notched angle-lugs a to engage the stud c' of sliding piece c C, the springs F F′, secured to the handles and interlocked at their ends, the fixed rack E on one handle, the spring-pressed pawl D, pivoted on the other handle, and the screw G to limit the outward movement of handles and prevent the accidental displacement of the parts, substantially as shown and described.

OTTO A. HOELLER.

Witnesses:
H. S. HOELLER,
GEO. J. MURRAY.