A. F. SETHER.

SURGEON'S NEEDLE HOLDER.

APPLICATION FILED JULY 2., 1908.

905,007. Patented Nov. 24, 1908.

Fig. 1.

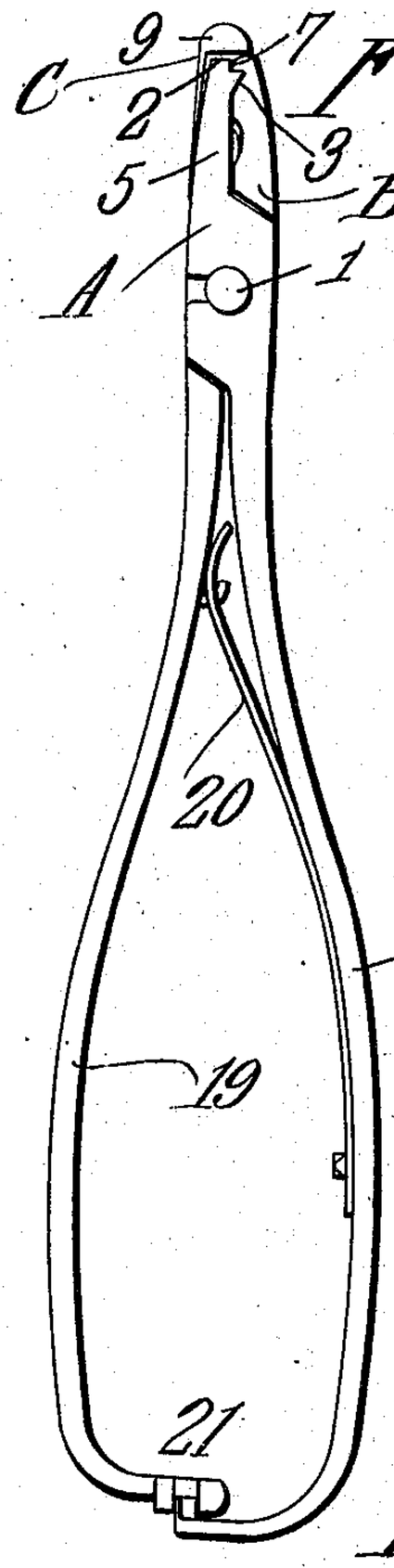


Fig. 2.

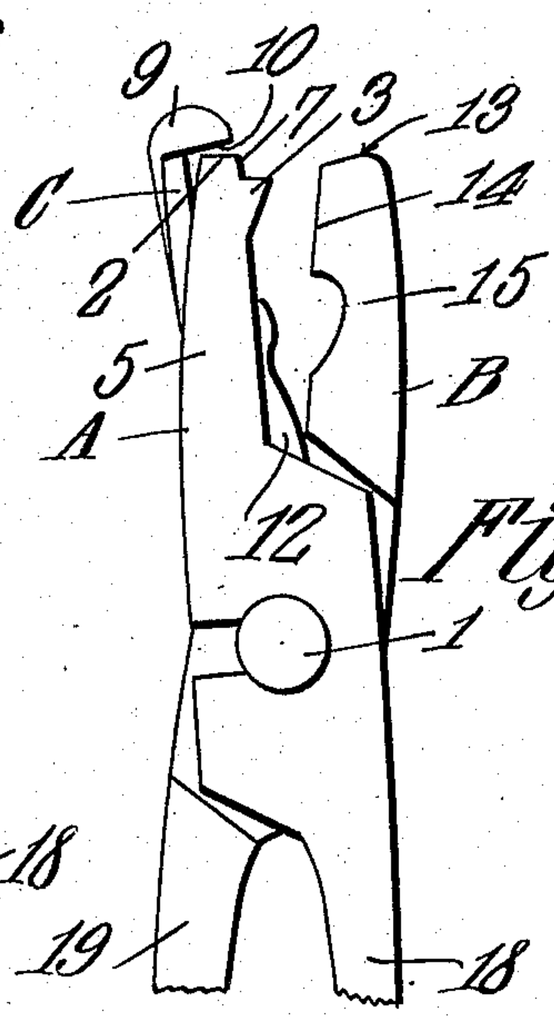


Fig. 3.

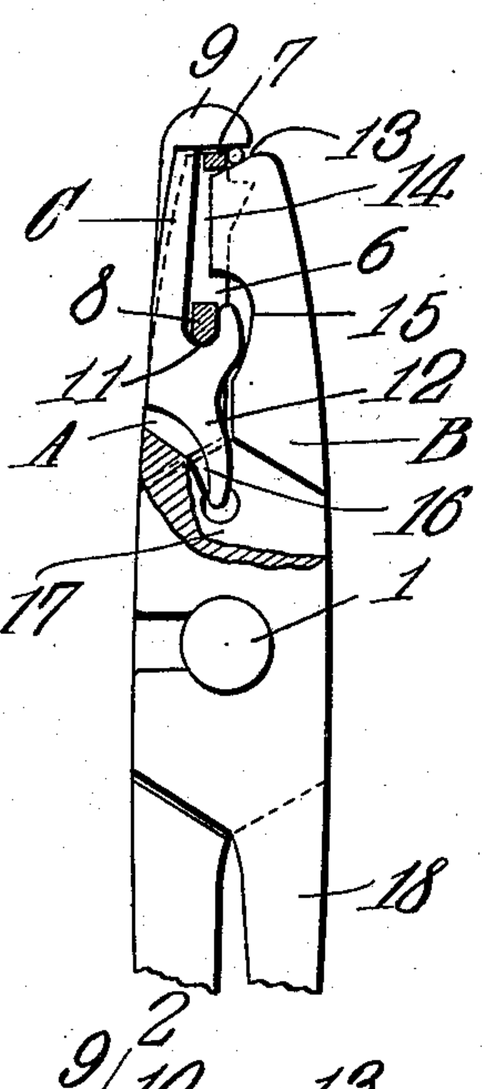


Fig. 4.

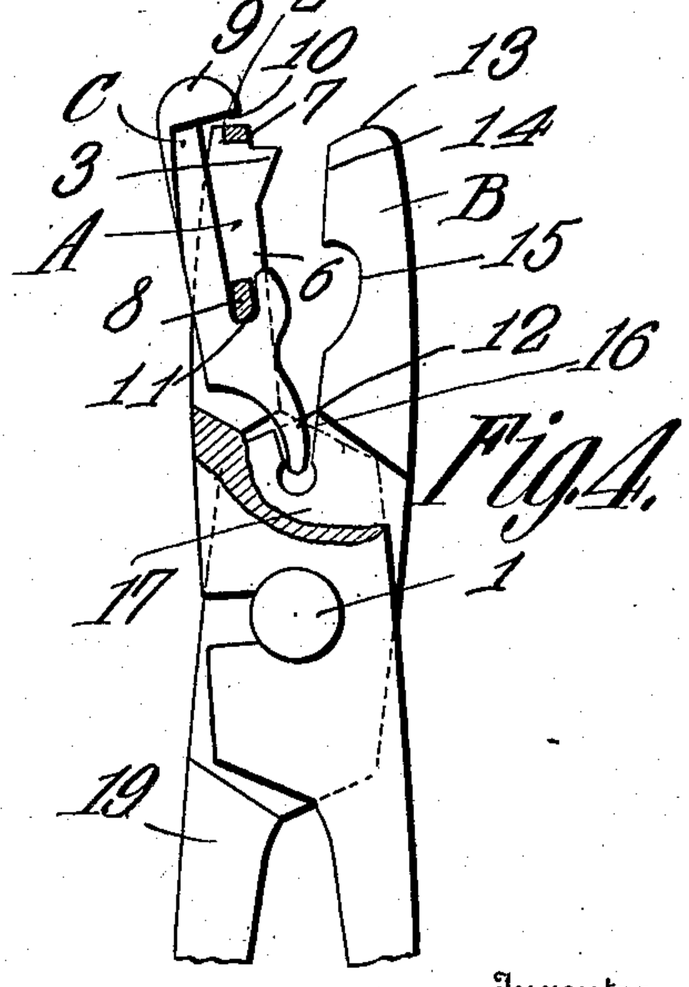
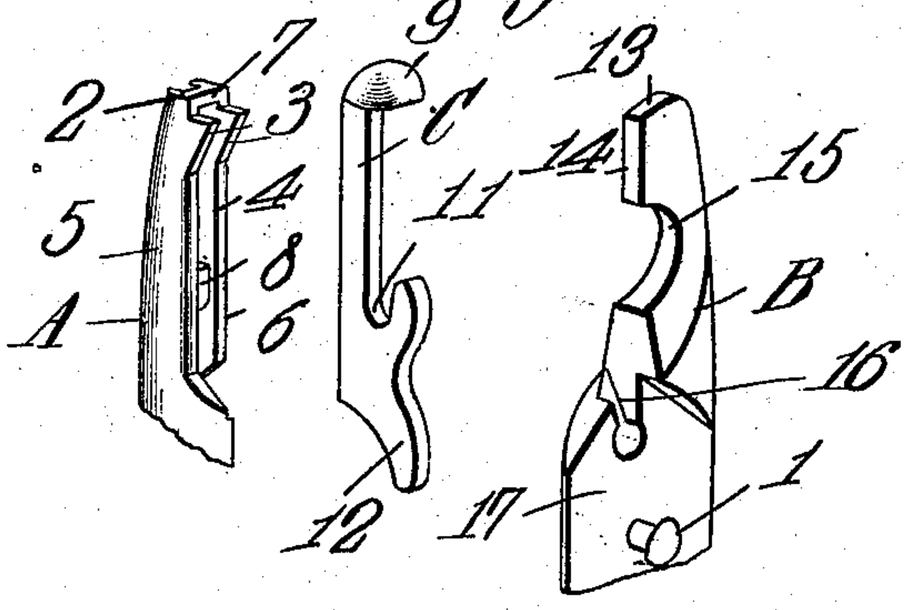


Fig. 5.



Witnesses

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SURGEON'S-NEEDLE HOLDER.

No. 905,007. Specification of Letters Patent. Patented Nov. 24, 1908.

Application filed July 2, 1908. Serial No. 441,534.

To all whom it may concern:

Be it known that I, ALVIN F. SETHER, M. D., a citizen of the United States, residing at Glendale, in the county of Douglas and State of Oregon, have invented a new and useful Surgeon's-Needle Holder, of which the following is a specification.

This invention relates to surgical needle holders; and has for its object to provide a simple, strong and efficient instrument adapted to hold with great security and firmness needles of various shapes and sizes. To this end the parts of the instrument are so designed and arranged that the tip, usually found on needle holders is caused to recede when the instrument is opened to receive a needle thereby leaving clear and unobstructed the lip on which the needle is placed, and when the instrument is closed to grasp the needle, the tip is moved inwardly over the lip so that its under surface shall form one of the three bearing surfaces by which the needle is clamped, the other two bearing surfaces being the jaws of the holder.

Another advantage derived from making the tip movable is the ease, convenience and rapidity with which a needle can be grasped for withdrawing it from the tissues after a partial passage therethrough, a convenience highly appreciated where deep seated sutures are to be closed and the working space is limited.

A further advantage possessed by this instrument resided in the small number of parts, their strength commensurate with their size and the ease with which the parts may be wholly separated and rendered aseptic by any of the well known methods in use.

With these and other objects in view the invention consists of the novel construction, combination and arrangement of parts hereinafter described and claimed, and illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of the needle holder in closed position; Fig. 2 a like view of the upper part in open position, enlarged; Figs. 3 and 4 are views similar to Fig. 2 but with a part broken away in each view illustrating respectively the open and closed position of the jaws; and Fig. 5 is a perspective view of the several parts of the jaws detached and separated one from another.

Similar reference characters are used for the same parts in all the figures.

The needle holder of the present invention comprises two clamping jaws or members A and B separably pivoted together at 1 in well known manner. The member A is made narrow, flattened at its forward end 2 and provided on its inner face a short distance within the end with projecting lips 3 also flat on their forward sides and preferably beveled towards the jaw A. The lips 3 project but slightly, sufficient only to form stops or rests for the needle. A central slot 4 is formed transversely through the outer end of the member A and divides it into two cheek plates 5 and 6, see Fig. 5, connected by a bridge piece 7 at their forward ends and a like bridge piece 8 in rear of the lips 3, the latter projecting one from each cheek plate.

A supplemental clamping member C arranged to coöperate with the members A and B is seated within the slot 4 and carries at its forward end a substantially hemispherical tip 9 adapted to cover and extend inwardly over the forward end 2 of the jaw or member A and over the lips 3. The tip 9 projects inwardly from the body of the member C and has a flat under face which forms a bearing surface for the needle. A suitable distance below the tip 9, the member C is widened for the formation therein of a notch 11 opening towards the tip so as to engage the under side of the bridge piece 7 and rock thereon. A downwardly and inwardly projecting curved finger 12 forms the lower terminal of the member C, the use of which finger will be described later.

The member B is of substantially the same length as member A but wider at its forward end 13 which is downwardly inclined from without inwardly. The extra width is produced by an inward projection 14 adapted to enter the slot 4 between the bridge pieces 7 and 8 and the lips 3 when the instrument is in closed position. The member B is cut out at 15 just below the projection 14 for the widened part of the member C to enter when the needle holder is closed.

A notch 16 is formed in the member B at the upper and widened part 17 thereof where the member A crosses the member B at the pivotal point, into which notch the finger 12 on the member C is seated when the parts are assembled, for the purpose of rocking said member when the members A and B are opened and closed. In open position of the needle holder the tip 9 on the member C is moved back of the inner face of the mem-

ber A and the lip 3 thereon; but, when the members A and B are brought together to grasp a needle, the finger 12 on the member C is moved by the member B towards the member A thus causing the tip 9 to advance over the end of the members A and B and the lip 3.

The jaws or members A and B are provided with handles 18 and 19 respectively, a spring 20 for normally holding the members in open position, and with an interlocking catch 21 on the ends of the handles to hold said members closed on the needle. These parts of the needle holder are common in the art and require no further description.

To insert a needle in the needle holder, open the holder as in Figs. 2 and 4 and hold it upright as shown in said figures with tip 9 retracted and the lips 3 entirely exposed. If a needle, of any size or shape, be placed on said lips and the handles compressed, the jaws or members A and B will approach each other, rocking the member C to bring the tip 9 over the lips 3. When the member B reaches the lips 3, its inclined end 13 strikes the needle and raises it into contact with the under face 10 of the tip 9 and the inner face of the member A and the bridge 7, see Fig. 3. Continuing the movement of the handles, which are resilient, until the parts of the catch at the ends thereof are locked, great pressure is brought to bear on the needle by the three surfaces forming a crude triangle, which are in contact with it. When large needles are used it is obvious that the clamping surfaces will not approach so close to each other as with needles of lesser diameter, but they will be held with a greater force as the interlocking ends of the handles will be at a greater distance from each other.

After inserting a needle in the suture as far as possible, it is only necessary to disconnect the interlocking clamp in the usual manner and let the spring 20 open the jaws or members A and B. This movement of the jaws will carry the tip 9 from beneath, or free of the needle and wholly disconnect the holder from the needle, so that it may be withdrawn quickly without extra effort usual on the part of the operator to separate the hooked end of a fixed tip needle holder from the needle and from surrounding tissues. In the stationary tip instruments the inner end must be moved bodily in order to release the needle. This is often impossible in numerous cases well known to surgeons. A needle is quickly and easily picked up after partial insertion by inserting the holder until the lips 3 rest on the needle and then close the jaws or members, this movement will force the needle into accurate position in the end of the holder.

What is claimed is:—

1. A needle holder comprising a jaw member having an inclined end edge, a second jaw member pivoted to the first jaw member and provided with a needle supporting lip and with a bridge adjacent the lip and cooperating with the inclined edge of the first mentioned jaw member to hold a needle thereagainst, and a rocking member supported by the second mentioned jaw member and provided with a tip coöperating with the inclined edge of the first mentioned jaw member, the said first mentioned jaw member being provided with a seat between its pivot and its end.

2. A needle holder comprising a pair of hinged needle holding jaws or members, and a rocking member mounted on one jaw member and extending beyond the end thereof and operated by the other jaw member for clamping a needle between the three coacting members.

3. A needle holder comprising a pair of hinged needle holding jaw members one of which has a terminal side bearing face and the other an inclined terminal end bearing face combined with a rocking member operated by the jaw members and having an under bearing face said faces coacting to form a needle clamp.

4. A needle holder comprising a pair of crosshinged needle holding jaw members, and a rocking member independently movable by said jaw members and having an overhanging tip said tip adapted to swing over said jaw members and coact therewith to form a needle clamp.

5. A needle holder comprising a pair of needle holding jaw members, inwardly projecting lips on one of said members to form a needle support, and a rocking member removably supported and operated by said jaw members and having an overhanging tip on its outer end adapted to uncover said projecting lips when the needle holder is open and to swing over them and the end of the opposite jaw member when the holder is closed.

6. A needle holder comprising a pair of needle holding jaw members, inwardly projecting lips forming a needle support on one of said members below its outer end, an inclined end on the other jaw member to raise a needle above said lips, and a rocking member having an overhanging tip adapted to be brought over said lips and inclined end on the second jaw member to form a needle clamp between the tip, the inclined end and inner face of said jaw members.

7. A needle holder comprising a jaw member having a central longitudinal slot at its end dividing its grasping surface, a needle supporting lip below each part of said grasping surface and a bridge piece below and above said lip, a second jaw member pivoted to the first member and having a projection received in the said slot of the first men-

tioned member, the said second mentioned jaw member having a beveled grasping end arranged to pass beneath a needle upon the lip and raise it therefrom, and a rocking member supported and operated by the movement of the two jaw members and provided with a notch receiving the lower one of the bridges of the first mentioned jaw member for supporting thereon and provided with a projecting tip having a bearing surface adapted to coöperate with the similar surfaces of the two jaw members to clamp a needle, the said projecting tip being arranged to over-lie the before mentioned lip when the jaw members are closed and to swing back from such position when the members are opened.

8. A needle holder comprising clamping members having each a grasping surface at one end and operative means at the other, one of said clamping members having a needle support, and a third member operated by the movement of the other members and provided with an overhanging tip having a grasping surface, the three surfaces coöperating to clamp a needle.

9. A needle holder comprising clamping members having each a grasping surface on one end and operative means on the other, one of said members having a support for a needle below the grasping surface, the other member having an inclined end to raise the needle from said support, and a third member hinged to one of said clamping members and rocked on said hinge by the other clamping member when moved, said third member having an overhanging tip with an inner grasping surface the three surfaces arranged to coöperate and grasp a needle when said handles are closed.

10. A needle holder comprising a jaw member having a central longitudinal slot at its end dividing its grasping surface, a needle supporting lip below each part of said grasping surface and a bridge piece above and below said lips, combined with a second jaw member having a projection adapted to enter the aforesaid slot and a beveled grasping end arranged to pass beneath a needle and raise it from said lips, and a rocking member supported and operated by the movement of the other members and provided with a projecting tip having a bearing surface adapted to coöperate with similar surfaces on the jaw members to clamp a needle.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ALVIN F. SETHER.

Witnesses:
E. B. STEWART,
J. L. CAMPBELL.