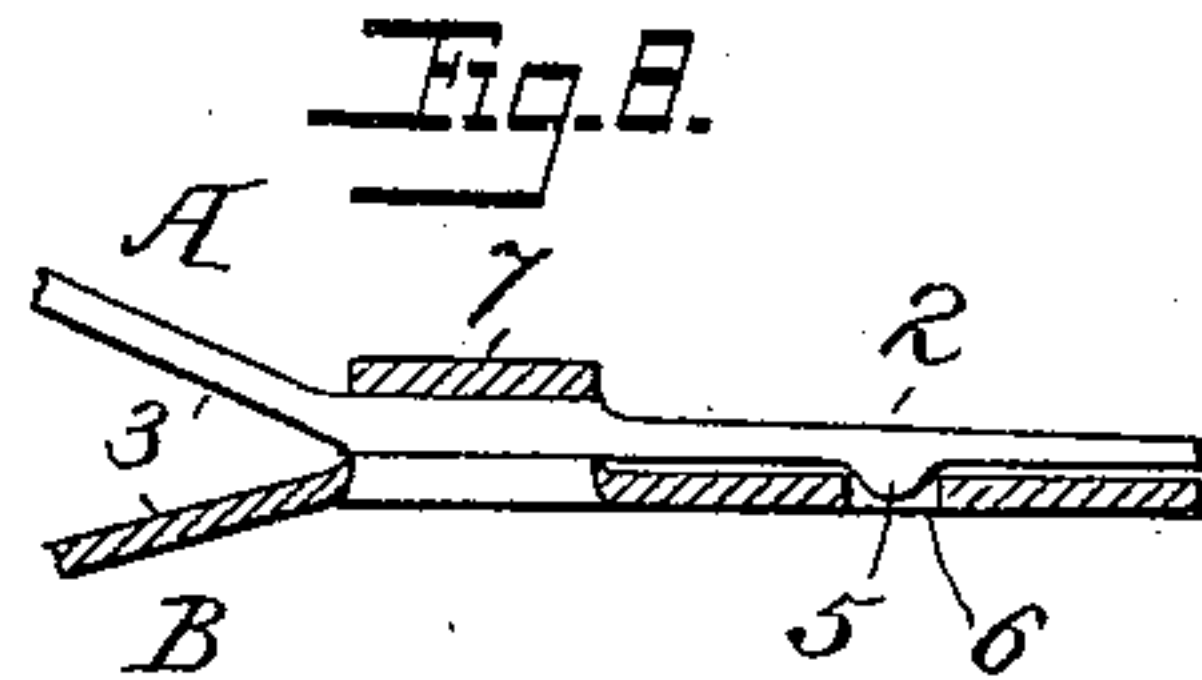
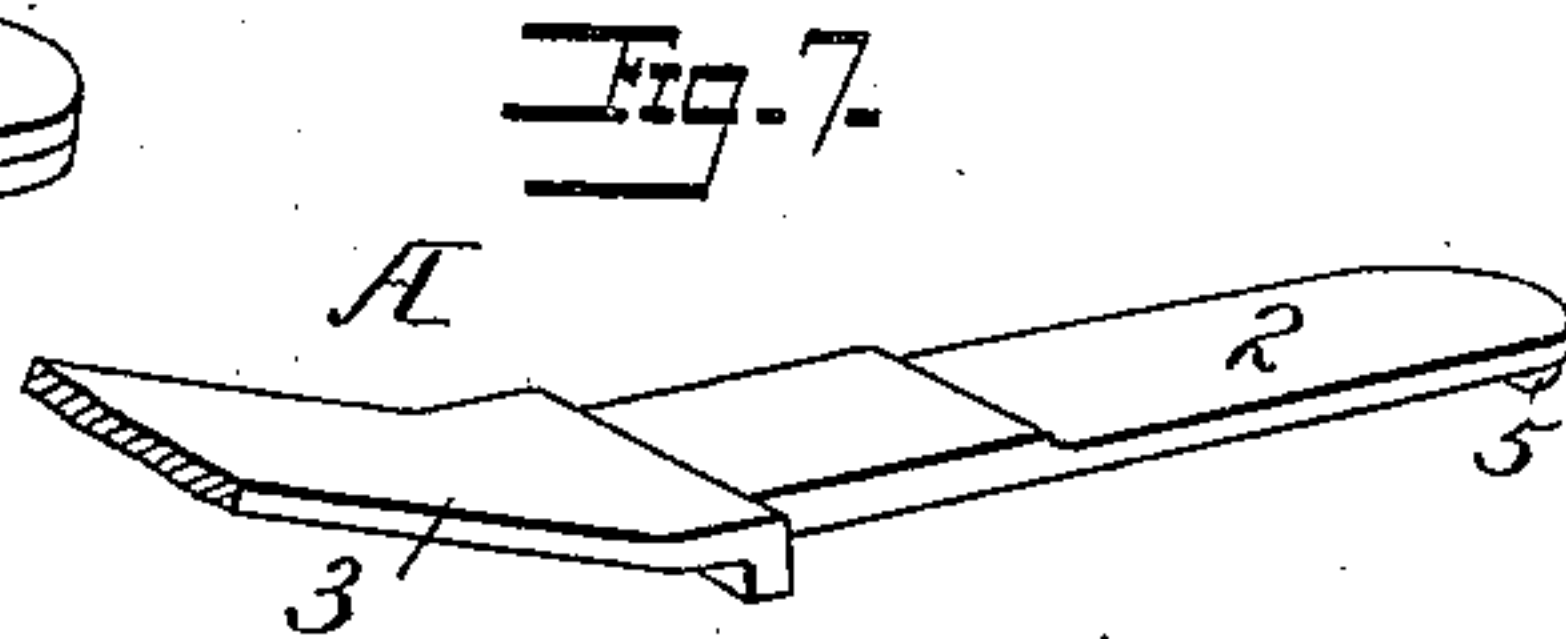
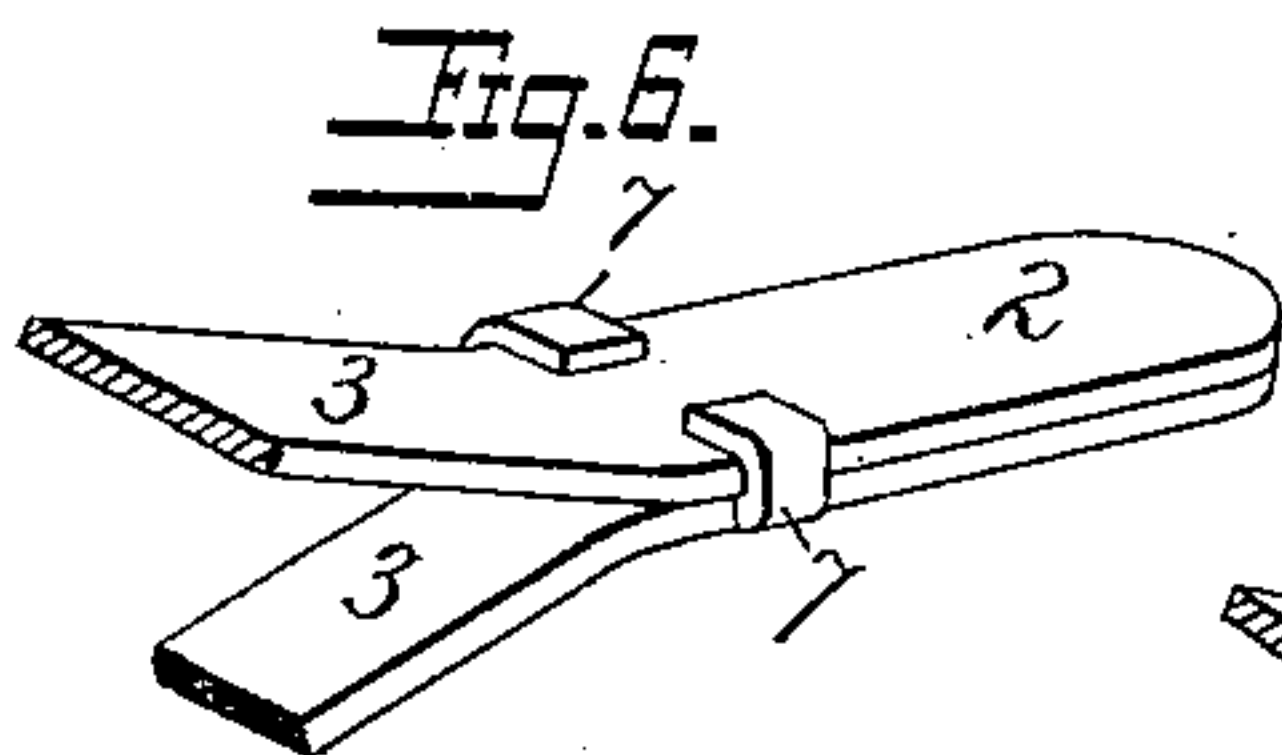
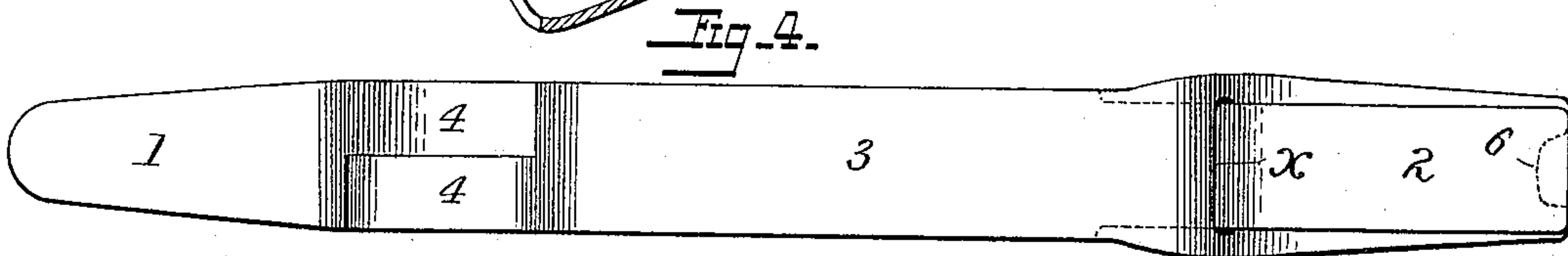
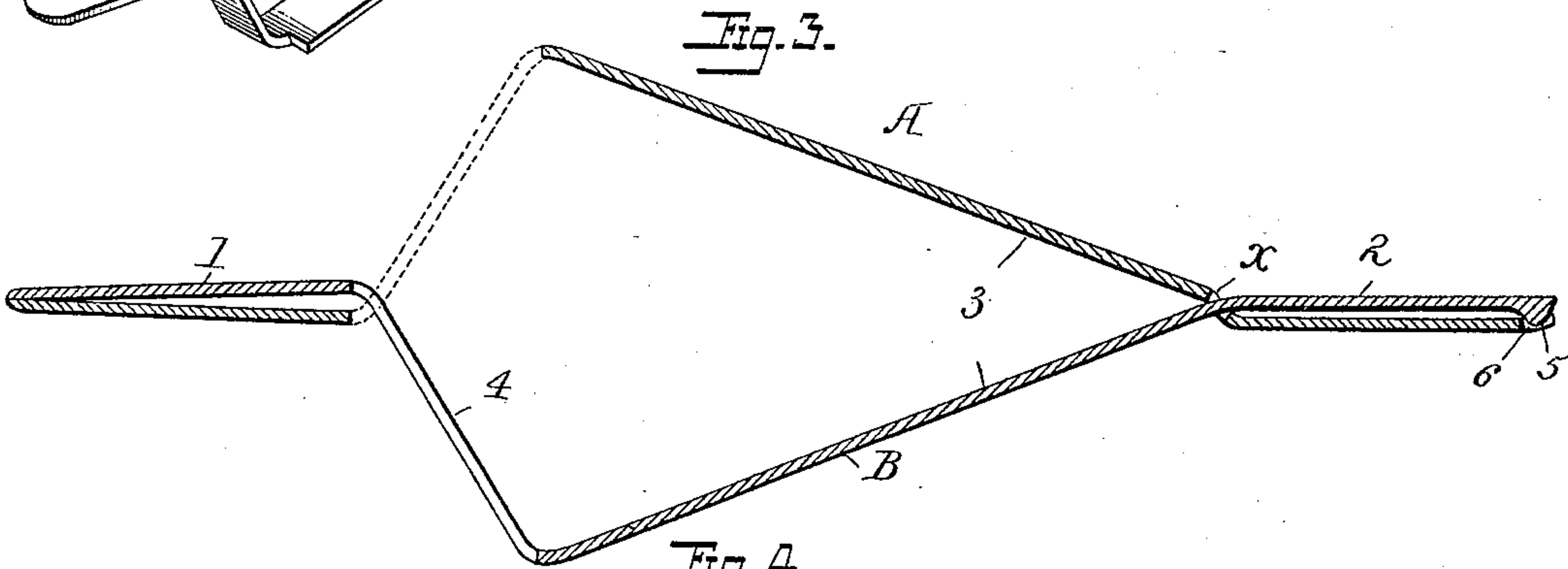
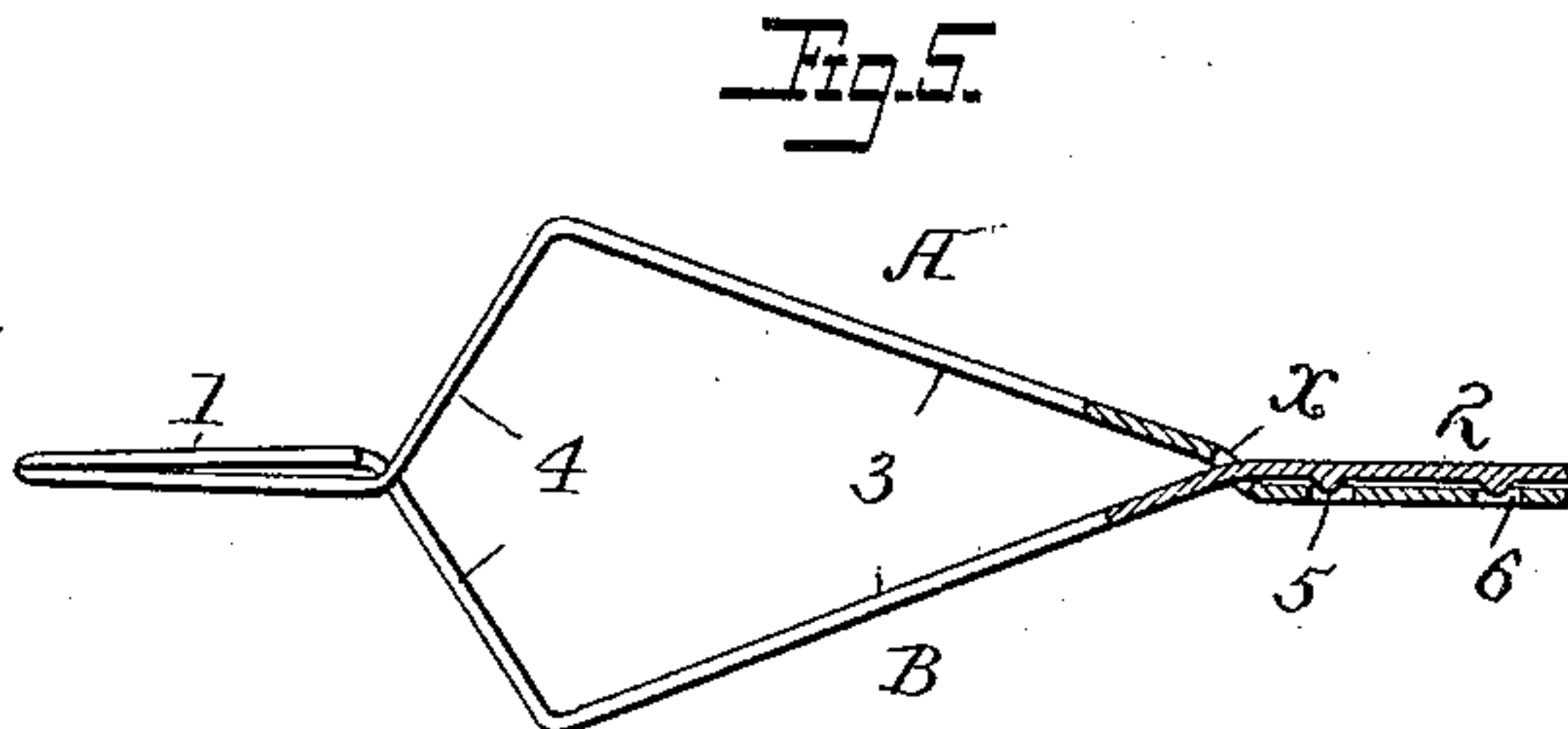
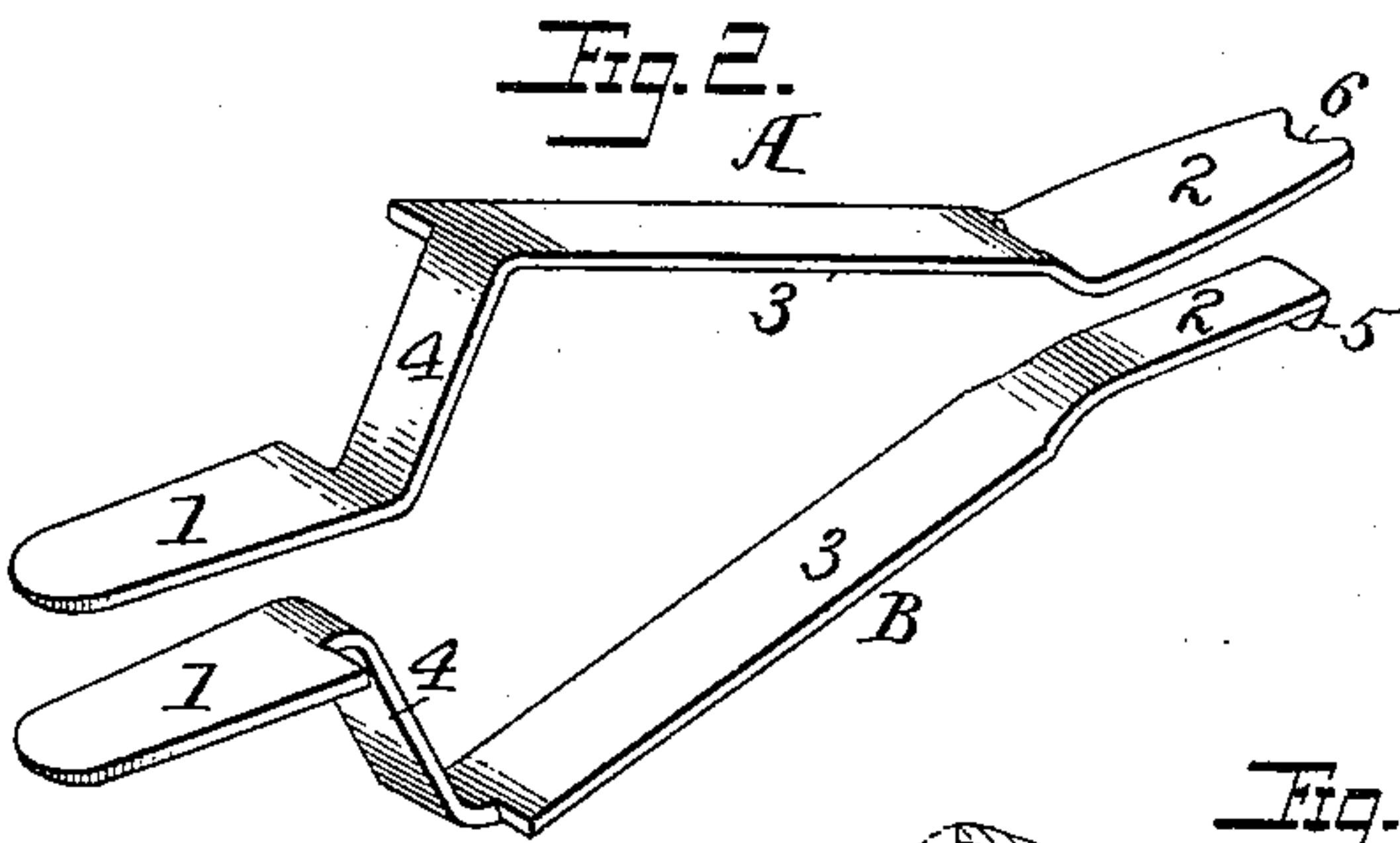
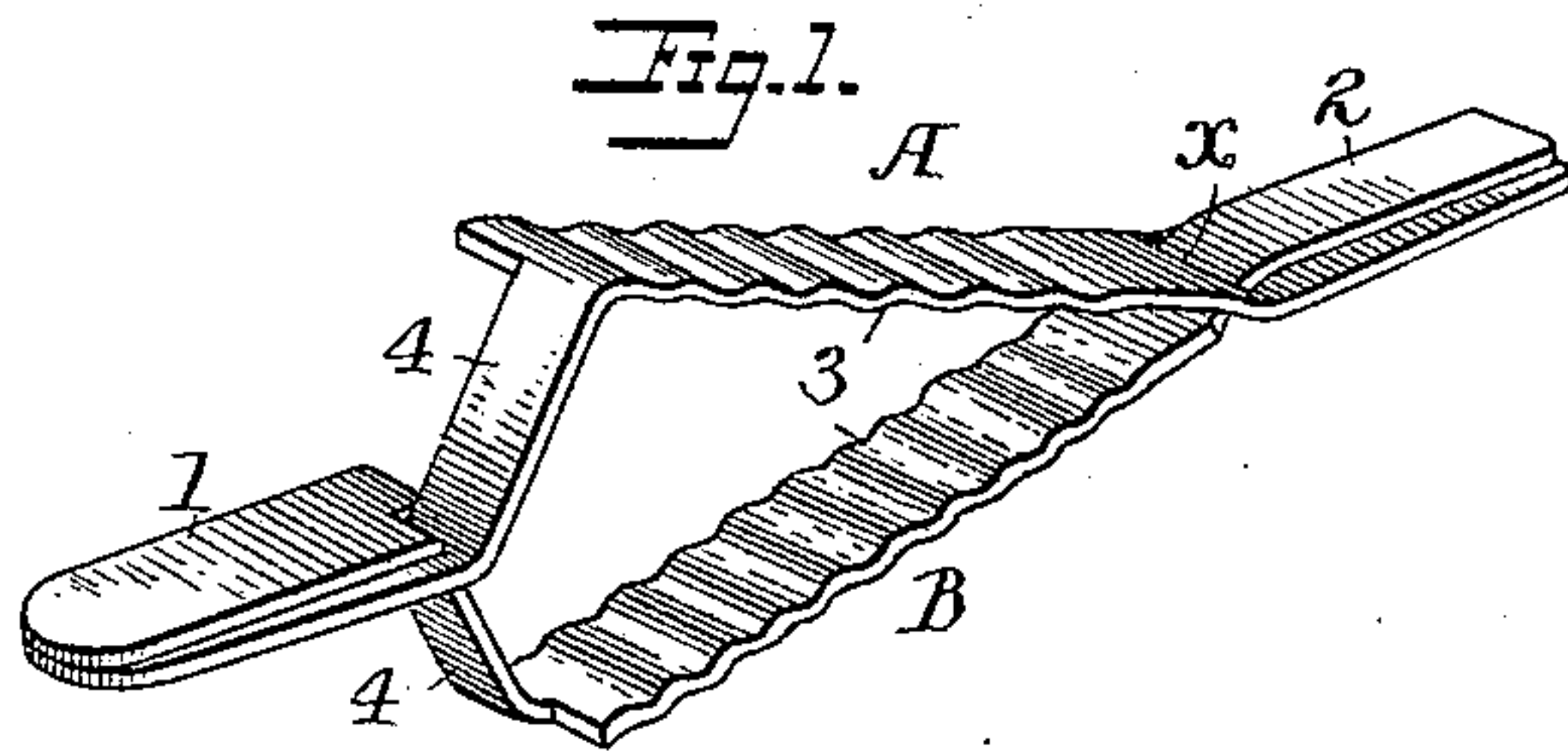


(No Model.)

C. H. TRUAX.  
SURGICAL INSTRUMENT.

No. 450,266.

Patented Apr. 14, 1891.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

CHARLES H. TRUAX, OF CHICAGO, ILLINOIS.

## SURGICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 450,266, dated April 14, 1891.

Application filed February 5, 1891. Serial No. 380,352. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. TRUAX, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Separable Instruments for Surgery, &c., of which the following is a specification.

My invention relates to that class of instruments—such as pinchers, clamps, and tweezers—in which two blades, generally spring-blades, are connected together at the butts and are opened and closed by bringing the bodies or stems together; and my invention consists in means for connecting two blades so as to be readily separable, and also so as to avoid recesses or corners that cannot be reached by the cleansing implement when it is necessary to render the instrument aseptic, to which end I construct the implement as set forth hereinafter, and as illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of an artery-clamp embodying my improvements; Fig. 2, the same, showing the parts detached with plain uncorrugated stems; Fig. 3, an enlarged longitudinal section; Fig. 4, a plan; Fig. 5, a part section showing a modification. Figs. 6 and 7 are perspective views showing modifications in the forms of the sockets. Fig. 8 is a longitudinal section showing a modification of the retaining device. Figs. 6, 7, and 8 show only the butt portions of the instrument.

The instrument consists of two parts A B, each of which is in the form of a spring-blade, the two blades being connected detachably together at one end and spreading from their point of connection and having a spring action, so that when the diverging parts have been pressed together between the fingers they will separate automatically when released. The separation of the two parts may be the means of separating or bringing together the nose or pinching ends of the instrument. Thus in the case of pliers the pinching ends separate when the pressure upon the blades is released; but in artery-clamps or forceps, where the two blades are bent and cross each other, as shown in Figs. 1 to 5, pressure upon the blades separates the noses, which automatically come together when the pressure is released. In the latter case the nose portion 1

and the butt-end 2 of each blade are substantially upon the same plane, and the body 3 extends at an angle from the butt 2, with an intermediate connection 4 between its ends and the nose 1, the connection 4 of each blade being one-half the width of the blade, and the connection 4 of one blade being set to one side and crossing the connection of the other blade, as best shown in Figs. 1 and 3. Each blade is tempered so as to spring back to shape after being depressed toward the plane of the butt. Heretofore the butts of such instruments have been permanently connected together by brazing or riveting, or have been detachably connected by screws. In either case it is difficult to cleanse the instrument, as is required in antiseptic surgery. In order to obviate these objections I make the instrument in two separable parts, the heel or butt of one part passing through a socket or between guides or lips upon the other part and one or both heels being elastic, with one or more projections upon one heel or butt adapted to spring into corresponding recesses or notches of the other heel or butt, thereby holding the separable parts together.

In the construction shown in Figs. 1 to 5 the blade A has a recess or socket  $x$  at the point of junction between the body 3 and butt 2, and the butt 2 of the blade B is contracted in width, so as to pass through said recess, and at the end of the butt of the blade B, upon the inner side, is a lug 5, adapted to a recess or notch 6 on the end of the butt of the other blade. When the parts are put together, as shown in Figs. 3 and 4, the resiliency of the blades tends to hold the butts in contact and maintain the projection 5 in the notch 6, thereby preventing the longitudinal separation of the blades, while the sides of the socket  $x$  prevent the lateral displacement of the blades. Instead of passing one blade through the other, the socket may be formed by turning up and over lips 7 7 upon one blade, as shown in Fig. 6, where the lips do not meet; but in Fig. 7 they are continued so as to meet, or they may extend across, forming a continuous bridge; but in either case there is a socket  $x$  to receive the narrow heel 2 of the other blade.

In Figs. 6 and 7 the lug and notch are arranged as shown in Figs. 1 to 4; but the lug



may be in the center of the heel with the recess below it, as shown in Fig. 8, or there may be two lugs and recesses, as shown in Fig. 5.

It will be seen that while the two blades are 5 securely maintained in position they can be separated at any time by introducing the thumb-nail or a suitable implement between the butts and springing them apart until the projection or projections are carried from the 10 recesses, and then drawing forward the blade B, so as to carry its butt out of the socket of the blade A. To secure a better hold upon the blade B for this purpose, and also upon the blade A, the body of each blade is preferably 15 corrugated transversely, as shown in Fig. 1. After the blades have been separated they can be thoroughly cleansed, inasmuch as there are no sharp corners or inaccessible recesses that cannot be reached by the cleansing-tool. 20

Without limiting myself to the precise construction and arrangement of parts shown and described, I claim—

1. The two-part separable instrument consisting of two blades, one having at or near 25 the butt a socket for the passage of the butt to the other blade, with one or more lugs upon one of the butts adapted to corresponding recesses in the other, substantially as set forth.

2. The combination, in an instrument, of two 30 spring-blades, one having a socket at or near the butt, the other having a contracted butt adapted to said socket, with one or more projections upon one butt adapted to corresponding recesses in the other, substantially as set 35 forth.

3. The combination of the two blades, each bent to form a nose 1, butt 2, body 3, and connecting narrower portion 4, and one having a 40 socket for the reception of the butt of the other and a projection to engage the notch or shoulder with the other, substantially as set forth.

4. The combination, in a two-part separable 45 instrument, of two blades, each having nose and butt portions 1 2, and intermediate body 3, and contracted portions 4, one blade having a transverse slot for the passage of the contracted butt of the other, substantially as 50 described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES H. TRUAX.

Witnesses:

W. S. MCARTHUR,  
CHARLES E. FOSTER.