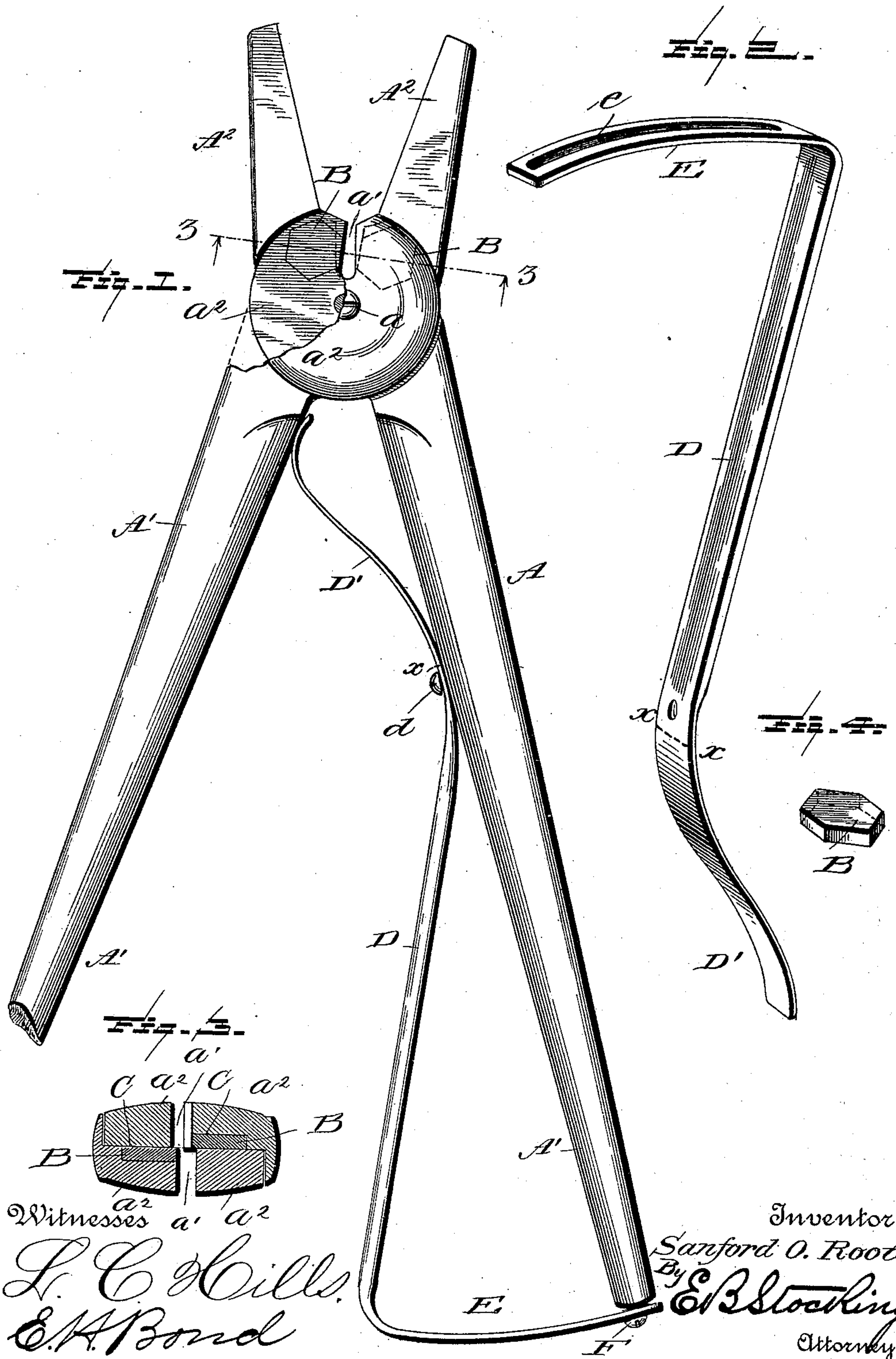


(No Model.)

S. O. ROOT.
PLIERS.

No. 496,902.

Patented May 9, 1893.



UNITED STATES PATENT OFFICE.

SANFORD O. ROOT, OF LODI, NEW YORK.

PLIERS.

SPECIFICATION forming part of Letters Patent No. 496,902, dated May 9, 1893.

Application filed October 25, 1892. Serial No. 449,942. (No model.)

To all whom it may concern:

Be it known that I, SANFORD O. ROOT, a citizen of the United States, residing at Lodi, in the county of Seneca, State of New York, have invented certain new and useful Improvements in Pliers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in that class of pliers embodying in connection therewith nippers or cutting-jaws, and it is designed primarily as an improvement upon the construction shown in the patent No. 477,066, issued to me June 14, 1892, having for its object to improve in several particulars thereupon.

Among the primary objects is to increase the effective portion of the cutting-plates as well as to dispense with the screws employed in the old construction for holding them in place. In the present construction the cutters are seated in recesses and held in place therein without the employment of extraneous means, the said cutters being held by frictional engagement of the adjacent or opposing faces of the same and the companion jaw of the pliers. The cutting-plate has its edges at a right angle to the sides so that it may be reversed and its position changed to present new cutting edges; thus a cutting plate having six sides can be made to present twelve different cutting edges, increasing the durability or life of the cutter greatly beyond that of a cutter having its edges beveled as in my old form of construction. The pliers may have one or two of such cutting-plates; when only one is used the companion jaw may have any suitable provision for coacting with the cutting-plate; it may be chilled, or otherwise equipped for service.

A further object of the invention is to provide means whereby the pliers may be manipulated with one hand in case the handles thereof become so far spread as to otherwise render it a difficult matter to grasp both handles. For this purpose I provide one of the handles with a finger-hold arranged between the two handles and designed to be grasped by the fingers until the handles have approached near enough to each other to enable them to be manipulated in the usual manner. The end connection of this finger-hold is of a

sliding nature so as to permit of its movement in order to let the handles come as near together as is necessary. This finger-hold may sometimes be extended in the form of a spring to normally keep the jaws separated.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a view of my improved pliers with a portion broken away and the jaws open. Fig. 2 is a perspective view of the finger-hold and spring detached. Fig. 3 is a cross section through the line 3 3 of Fig. 1, looking in the direction of the arrows. Fig. 4 is a perspective view of one of the cutting-plates removed.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates one of the members of the pliers, and A' the other member. Each member comprises a handle portion and a jaw A² and may be of any approved construction except as hereinafter specified. The two members are pivotally secured together by suitable means as a screw *a*. The members are provided with the slots *a'* similar to those of the prior patent, and in fact the general construction of the parts is substantially the same, although other forms may be employed in connection with my present improvements which I am now about to describe.

B are the cutting-plates which may assume any polygonal form and their edges are at right angles to their faces as seen in Figs. 3 and 4 which construction renders them reversible, which they cannot be when beveled as in my prior patent, and also permits of their being changed in position so as to bring a different side into use when the one becomes worn past its usefulness. Thus with a six-sided cutting-plate I obtain six different cutting edges or faces upon each side or face of the plate, and this being reversible makes twelve, six upon each side. These cutters are disposed in correspondingly shaped sockets

or recesses C in the inner faces of the disk portions a^2 of the members of the pliers adjacent to the slots a' therein as seen in Figs. 1 and 3 and so located that one of the cutting edges of each plate is substantially parallel with and adjacent to one of the side walls of the slot. In case two of these cutters are arranged in the one pair of pliers they are arranged at opposite sides of the conjunctive slots, opposing and working upon one another. If a single cutter is employed it will bear the same relation to the slot in the member in which it is mounted and the other member can be suitably constructed to co-operate therewith. The plates are secured in their sockets or recesses simply by frictional contact of the edges thereof and the walls of the recesses and no screw or other means is necessary; they cannot become displaced owing to each plate being held against displacement by the adjacent or opposing face of the companion jaw of the plier as seen best in Fig. 3. The cutter need not necessarily be a very snug fit, in fact, it is desirable that the fit be such that the plates can be readily removed when it is desired to change them or their position.

D is a supplemental handle or finger-hold; it may terminate at its point of attachment to the handle of the member A as indicated by the line at x , or it may be continued and made thinner to form a spring which bears against the opposite member as seen in Fig. 1 to normally keep the jaws separated. The finger hold may be secured to its member in any suitable manner as by a screw d as seen in Fig. 1. The spring portion D' has its end curved to bear against the member A' and permit free movement with minimum friction. The other end of the finger-hold is bent at substantially a right angle to its length and provided with a slot e which extends nearly the whole length of said right angled portion E as seen in Fig. 2 and in which slot works a screw or other device F held in the end of the handle portion of the member A as seen in Fig. 1, the connection being such as while it permits free sliding movement of the portion E the latter is prevented from displacement.

In practice, with the jaws spread or open it is a difficult matter to grasp the member A with the fingers of the hand which has hold of the member A', and here is where the finger-hold plays its part. With the jaws spread the fingers first grasp the finger-hold and thus pull the member A toward the other one and when the said member is near enough to be

grasped by the fingers the same may be done and when further pressure is applied the screw F will ride in the slot of the portion E of the finger-hold and permit the handles of the two members of the pliers to be brought close together.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as new is—

1. Cutting pliers provided with polygonal cutters, having their edges at right angles to their sides or faces and seated in polygonal recesses in the opposing faces of the jaws and held in place therein solely by frictional engagement of the parts and the opposing faces of the opposing jaws, substantially as described.

2. In combination with a polygonally recessed jaw of pliers, a cutter having a polygonal outline with its edges at a right angle to its sides or faces and held in said recess by solely frictional contact of the walls of the recesses and the sides of the cutter whereby it may be moved and reversed to present new cutting edges or faces and a co-operating jaw similarly provided, substantially as specified.

3. Cutting pliers having polygonal recesses in its jaws, and polygonal cutters with their edges at a right angle to their faces or sides and seated in said recesses and held in place solely by the walls of the same and the adjacent or opposing face of the jaws, substantially as specified.

4. Cutting pliers, one of the members of which is provided with a finger-hold secured to said member and having one end movable with relation to and guided by means on said member, as set forth.

5. Cutting pliers one of the members of which is provided with a finger-hold movable with relation to the member to which it is attached and extended to form a spring bearing against the other member, as set forth.

6. The combination with the two members of a pair of pliers, of a finger-hold secured to one member and having a right angled portion slotted and engaging a projection on the end of said member, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

SANFORD O. ROOT.

Witnesses:

GILBERT TOWNSEND,
RICHARD K. SPEAR.