

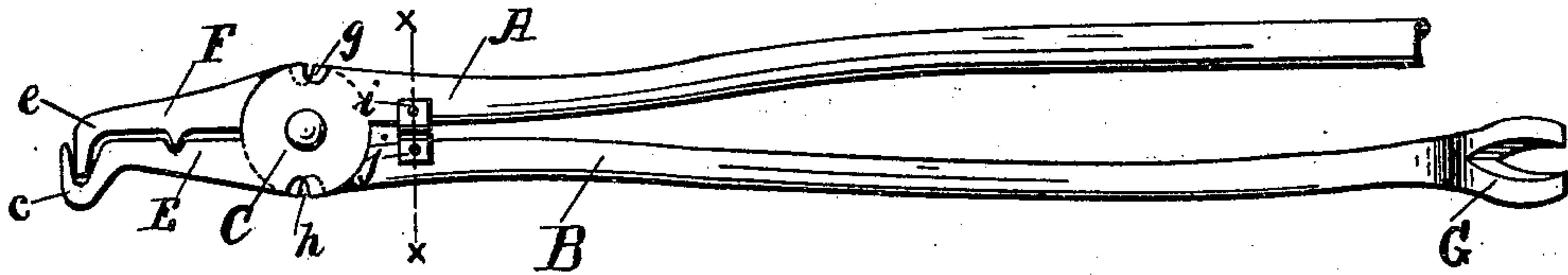
(No Model.)

L. H. EDMONDS & E. D. COOPER.  
PLIERS.

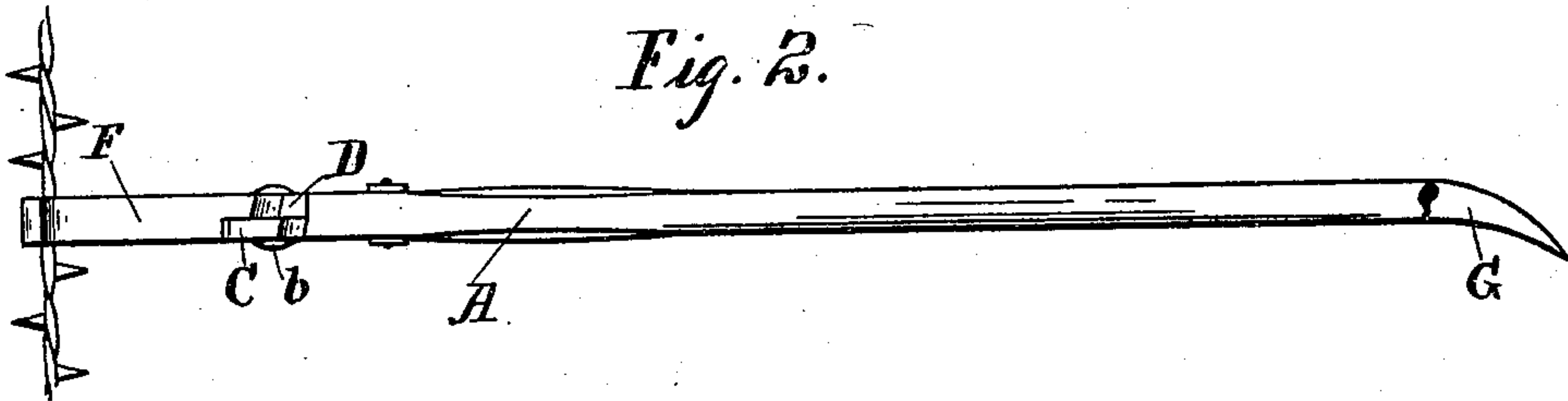
No. 551,748.

Patented Dec. 17, 1895.

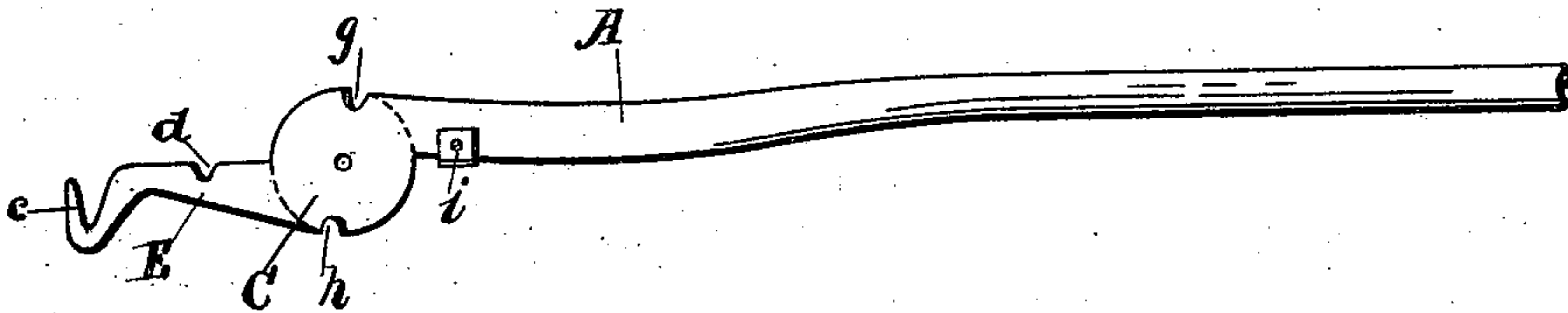
*Fig. 1.*



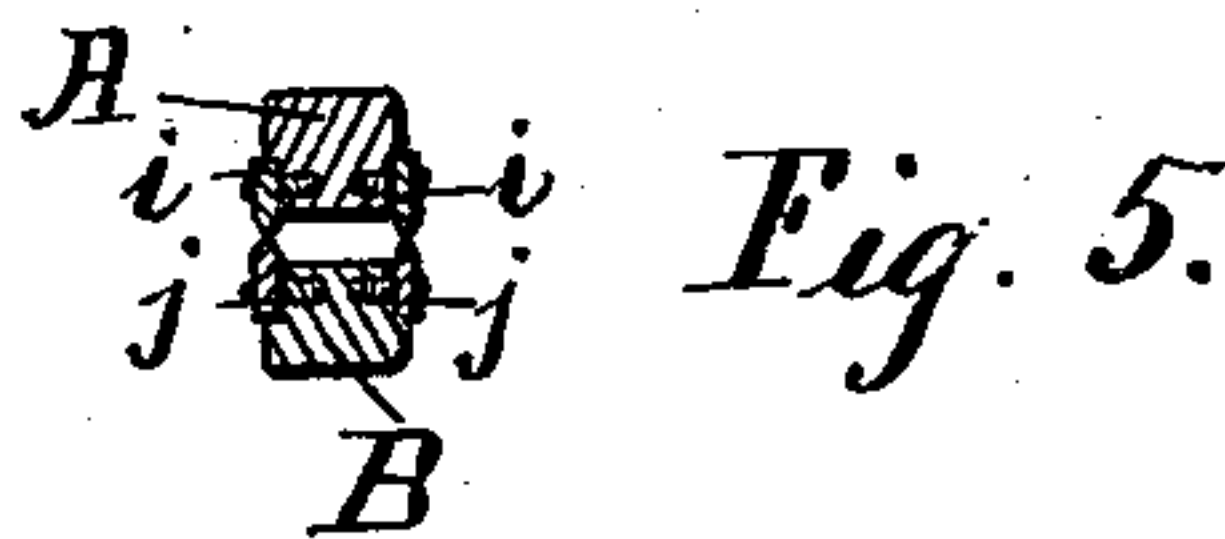
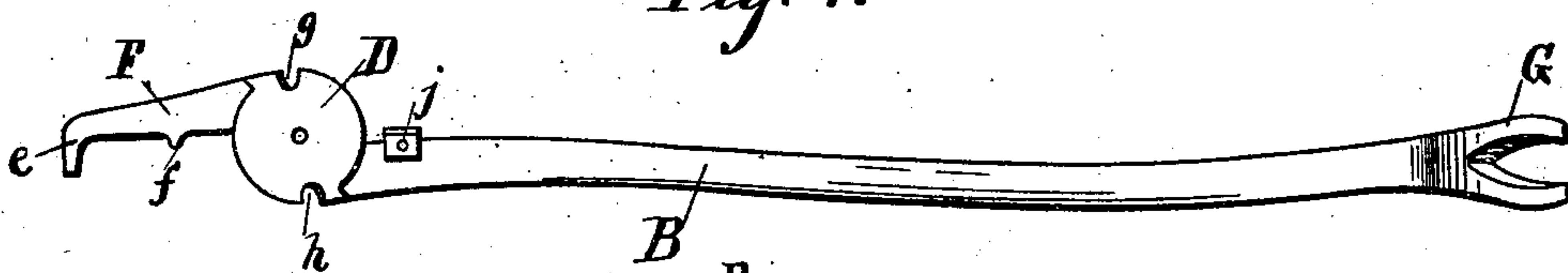
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses:  
J. H. Milans  
J. E. Hutchinson

Inventors:  
L. H. Edmonds and  
E. D. Cooper  
By J. S. Barker  
Ass. Atty.



# UNITED STATES PATENT OFFICE.

LYMAN H. EDMONDS AND ERASMUS DARWIN COOPER, OF MORAVIA,  
NEW YORK.

## PLIERS.

SPECIFICATION forming part of Letters Patent No. 551,748, dated December 17, 1895.

Application filed September 16, 1893. Serial No. 485,699. (No model.)

*To all whom it may concern:*

Be it known that we, LYMAN H. EDMONDS and E. DARWIN COOPER, citizens of the United States, residing at Moravia, in the county of Cayuga and State of New York, have invented new and useful Improvements in Pliers, of which the following is a specification.

Our invention relates to improvements in pliers, and has for its object to make a pair of pliers which shall be adapted to securely grasp and hold two strands of wire arranged parallel to each other; and to this end it consists of a pair of pliers one jaw of which is provided with a groove adapted to hold securely one above the other two strands of wire laid therein, parallel or side by side, and the other jaw provided with a tooth which is adapted to enter the said groove and bear upon the uppermost of the said wires.

Figure 1 is a side view of the pliers with the jaws closed. Fig. 2 is a top view of the pliers closed upon two strands of barbed fence-wire. Fig. 3 represents the front or left-hand half of Fig. 1 detached; Fig. 4, the back or right-hand half, also detached; and Fig. 5, a cross-section through on the line  $x x$ , Fig. 1.

Similar letters indicate like parts in the figures.

It is necessary for telegraph, telephone, and electric-light linemen in their work to hold two wires with some device in uniting the ends of two wires together by twisting the strands around each other. The same has to be done and is more difficult in the construction of fences with barbed wire.

It is very difficult to hold two wires firmly together side by side in a common pair of pliers. To overcome this difficulty, the devices shown in the drawings were organized, and consist of two parts A and B, which are united by the pivot or bolt  $b$ . The pivotal center, where the two parts cross, is preferably enlarged, and forms disks C D. These disks are but one-half the thickness or width of the jaws E F. The jaw E at its outer end is bent so as to form a narrow V-shaped groove  $c$  across its end parallel to the pivot  $b$ , and having a depth greater than its widest part, and across the same jaw between the V-shaped groove and its disk part a smaller groove  $d$  may be made. The jaw F has its

end turned down to form a tooth  $e$  to fit the groove  $c$  when the two jaws are closed together, the sides of the tooth being substantially parallel with the sides of the groove when the jaws of the pliers are closed together. It will be observed that the groove  $c$  of the jaw E extends entirely across the face or end of the jaw, and that the tooth  $e$  is of substantially the same width as is the groove. Between this tooth and the disk portion of the jaw is a tooth  $f$  which fits the groove  $d$ . This tooth may be formed with the jaw or be a separate piece, having a shank, and be inserted in a cavity or hole made in the jaw to receive it. The V-shaped groove in conjunction with the tooth, adapted to its groove, will pinch firmly together two wires and hold them firmly, whereas the jaws of ordinary pliers will not do so.

The disk parts of the pliers have openings  $g$  and  $h$  made in their outer edges. The openings are so located in each disk that with the pliers partly opened they will be opposite each other and when closed will pass each other, and being made of hardened steel will sever wire inserted in them when opened. As these cutting devices are not well adapted for cutting wires that are enlarged by being covered with an insulating substance, we have devised additional cutters  $i$  and  $j$ , which we apply to the handles of the pliers back of the disks, the handles being recessed on their sides, as seen in Fig. 5, so as to give additional support to the screws with which they are held in place.

Fig. 5 shows cutters on both sides of the handles, the handles being fitted for holding the cutters on either side, as the user may prefer. But one set is to be used at the same time. As they are removable they can be taken out and sharpened or new ones inserted which cannot be done with the disk cutters. At times, especially in the construction of wire fences, the strands of which are attached to the posts with staples, it is necessary to draw some of the staples. We have therefore provided the rear end of one of the handles with a claw G, which for greater convenience we have arranged at right angles to the axis of the pliers.

It will be understood that we do not confine ourselves to the exact forms of construction



shown, as modifications of the same can be made without changing the nature of our invention, as it is evident that if a V-shaped piece were added to one of the jaws of ordinary pliers on each edge or side, so that the other jaw would shut closed down between the two V-shaped elevations, the same result would be accomplished. It will also be understood that it is not necessary to have the pieces constructed with two V-shaped grooves, as it will be found in particular classes of work pliers with a single V-shaped groove, adapted to the work, will be found equally as useful.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

A pair of pliers, one jaw of which is pro-

vided with a narrow V-shaped groove formed across its face and having a depth greater than its widest part, and the other jaw formed with a tooth of substantially the same width as the groove and adapted to enter into and register with the said groove and having its sides substantially parallel with the faces of the groove when the jaws are closed together, whereby the pliers are adapted to hold firmly two wires arranged side by side when placed one above the other in the said V-shaped groove, and with the tooth brought firmly to bear upon the uppermost wire, substantially as set forth.

LYMAN H. EDMONDS.

E. DARWIN COOPER.

Witnesses:

HENRY M. JEWETT,

WILLIAM V. WALKER.