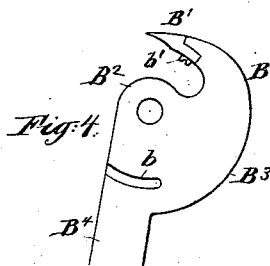
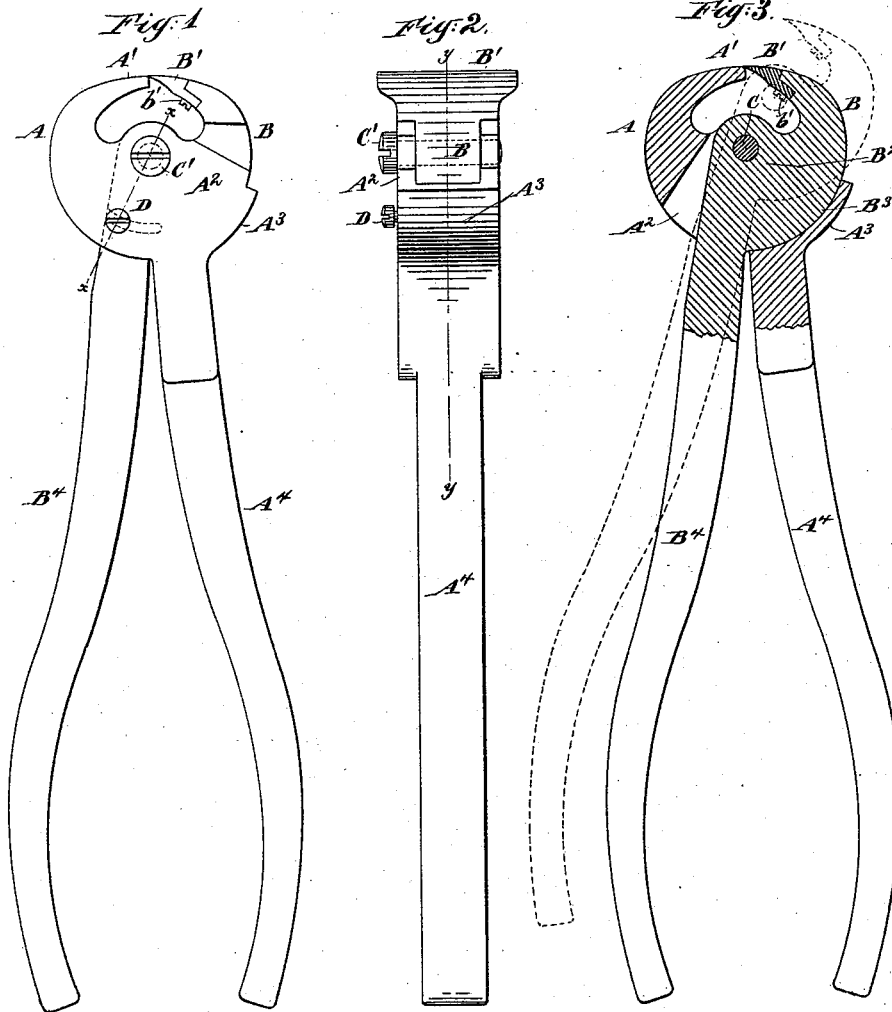


(No Model.)

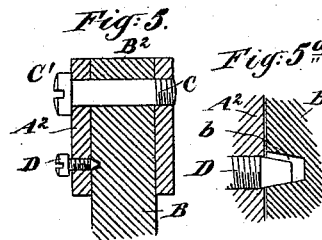
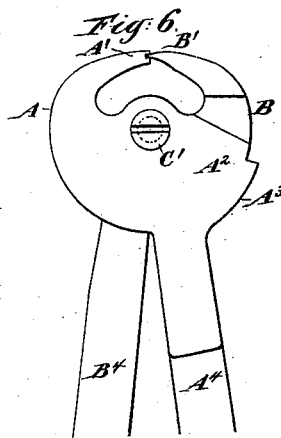
C. BOECKER.  
CUTTING PLIERS.

No. 456,352.

Patented July 21, 1891.



Witnesses:  
Charles R. Searle,  
Chas. S. Barber.



Inventor:  
Charles Boecker  
By his attorney  
James D. Stetson

# UNITED STATES PATENT OFFICE.

CHARLES BOECKER, OF NEW YORK, N. Y.

## CUTTING-PLIERS.

SPECIFICATION forming part of Letters Patent No. 456,352, dated July 21, 1891.

Application filed January 3, 1891. Serial No. 376,603. (No model.)

### *To all whom it may concern:*

Be it known that I, CHARLES BOECKER, a citizen of the United States, residing in the city and county of New York, in the State of New York, have invented a certain new and useful Improvement in Cut Nippers and Shears, sometimes called "Cutting-Pliers," of which the following is a specification.

The invention relates to the construction. I have devised a form which gives great strength and allows cutting-edges of good width to be very strongly supported by a narrow hinge, so that a large portion of each end of the cutting-edges is available to cut long wires extending past the hinge. It also allows the cutting-edges thus conditioned to be brought very near the axis, so as to give great "purchase" to the action.

My invention also allows the jaws to be entirely separated at will to facilitate the exchange of the cutter of the sharpening of the cutting-edge when it is made in one with the jaw which carries it or to allow other repairs or adjustment. The exterior of the joint of the male part is finished concentric to the axis of motion. The exterior shell or rim of the other or female part is extended as far around as is practicable, and its surface is also finished concentric to the axis. These surfaces, being slightly lubricated, rub upon each other and afford an unusually strong bearing, relieving the pivot from much of the strain to which it is ordinarily subjected. The central pivot is tapped in and is easily removable. The male part is formed with the handle or main part of the lever so narrow that it can be drawn endwise through the socket in the female part. Then the two parts of the cut nippers may be easily separated.

At a little distance from the pivot which serves as the axis of motion I provide a pin inserted through the female part and engaged in a short groove in the male part, which is concentric to the axis. This provides still further security in case the pivots shall through wear or other cause become loose.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a face view. Fig. 2 is an edge view. Fig. 3 is a central longitudinal section on the line  $yy$  in Fig. 2. Fig. 4 is a face view of a portion detached. Fig. 5 is a section on the line  $xx$  in Fig. 1. Fig. 5<sup>a</sup> is a corresponding section of a portion on a larger scale, and Fig. 6 is a face view showing a modification.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A is the female part, certain portions being designated when necessary by supernumerals, as A' A<sup>2</sup>, &c.

B is the male jaw and handle, certain parts being similarly designated when necessary by supernumerals.

C is the screw or rivet which forms the axis of motion, and C' is the head thereof.

D is a re-enforcing pin tapped through the part A and engaging its slightly-tapered point in a short groove  $b$ , concentric to the axis C in the part B. This groove is of nearly rectangular section, its sides being beveled to match.

The part A has a wide edge at A', flat cheeks A<sup>2</sup> A<sup>2</sup> at the joint, a back bearing A<sup>3</sup>, having its inner surface milled or otherwise accurately finished concentric to the axis C, and a handle A<sup>4</sup>. The outer surface of the thick edge A' is ground true.

The jaw B is finished with a cutting-edge at B', which is a little further from the axis C than the thick edge A' and so formed that on forcibly closing the nippers the truly-ground inner face of the edge B' will pass shearwise beyond the truly-ground outer face of the edge A'. This cutting-edge is formed on a separate cutter B', secured by screws  $b'$ , inserted from the inside. The handle B<sup>1</sup> is so narrow that it can be inserted and removed through the socket between the cheeks A<sup>2</sup>. The hinge part B<sup>2</sup> is adapted to just fill the space between the cheeks A<sup>2</sup>. Its edge B<sup>3</sup> is finished concentric to the axis of motion C and adapted to match against the correspondingly-finished back bearing A<sup>3</sup> of the rim of the part A. The pivot C and also the re-enforcing pin D are screw-threaded and set in correspondingly-screw-threaded holes, as shown. The pin D should be carefully ad-

justed, so that its slightly-tapered end will bear fairly against the inner side of the concentric groove *b*. The thick edge *A'* produced on the jaw *A* presses firmly on the wire without cutting it, causing all the cutting to be done by the sharp edge *B'* on the jaw *B* and making a very nearly square cut through the wire. The pin *D* relieves the axis *C* from much of the strain, tending to move the part *B* endwise in effecting the shearing cut.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention.

Parts of the invention can be used without the whole. I can make the sharp cutting-edge *B'* in a single piece with the jaw *B*. Fig. 6 shows such a construction. It may be a preferable form of the invention for cheap instruments. This figure shows also a modification in which the sharp edge of the part *B* is still nearer the axis *C* and is received in a groove in the thick edge of the part *A*.

Although the invention is intended mainly for cutting wire, it is obvious that it may serve usefully in cutting metal and other material in various other forms. It may be used in some cases in cutting sheet metal.

I claim as my invention—

1. A pair of cut nippers having one part socketed through the other and adapted to be put together and separated by a longitudinal movement, in combination with each other and with a removable pivot *C* and a removable backing-pin *D*, engaged in a concentric groove *b*, arranged for joint operation, as herein specified.

2. A pair of cut nippers having one part *B*

socketed through the other *A* and adapted to be put together and separated by a longitudinal movement, the socketed part *A* having a concentric interior surface *A'*, and the male part *B* having a concentric exterior surface *B'*, adapted to apply together and relieve the pivot from strain, in combination with a removable pivot *C*, as herein specified.

3. A pair of cut nippers having one part *B* socketed through the other *A*, adapted to be put together and separated by a longitudinal movement, the socketed part *A* having a concentric interior surface *A'* and the male part *B* having a concentric exterior surface *B'*, adapted to apply together and relieve the pivot from strain, in combination with a removable pivot *C* and with a re-enforcing pin *D* on one part engaging in a concentric groove *b* in the other part, all arranged for joint operation, as herein specified.

4. The cut nippers described, having one part *B* socketed through the other *A*, a concentric partial rim *A'* on the part *A* and a concentric partial periphery *B'* on the part *B*, a removable pivot *C*, an adjustable re-enforcing pin *D*, carried on one part, engaging in a concentric groove *b* on the other part, and a removable cutter *B'*, secured by detachable fastenings *b'*, all combined and arranged to serve as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

CHARLES BOECKER.

Witnesses:

CHARLES R. SEARLE,  
H. A. JOHNSTONE.