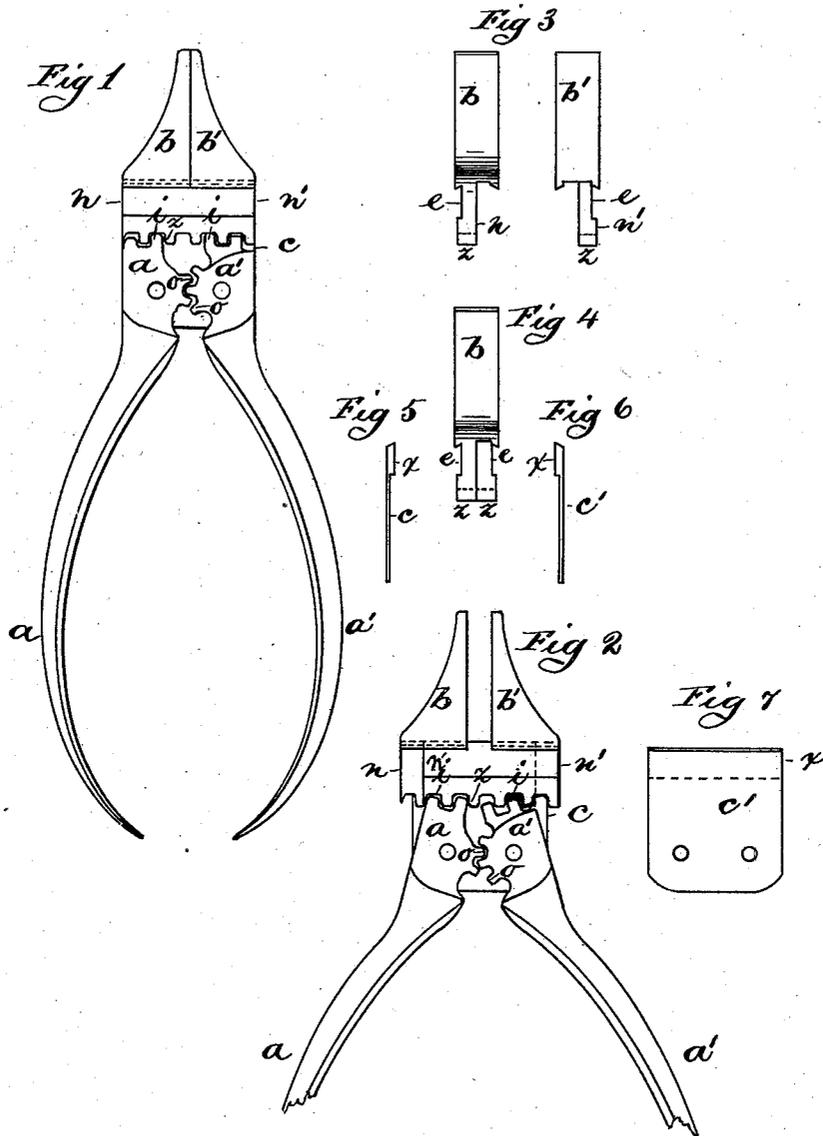


E. N. PARKER.
Parallel Pliers.

No. 225,485.

Patented Mar. 16, 1880.



Witnesses

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PARALLEL PLIERS.

SPECIFICATION forming part of Letters Patent No. 225,485, dated March 16, 1880.

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To all whom it may concern:

Be it known that I, ERASTUS N. PARKER, of Springfield, county of Hampden, and State of Massachusetts, have invented new and useful Improvements in Parallel Pliers, of which the following is a specification.

My invention relates to the construction of improved hand-pliers; and the object of my improvements is to provide such pliers with nipping-jaws adapted to move directly from and toward each other, actuated by the ordinary movement of the handles, thus causing said jaws to more firmly gripe an article between them than they can when operated from a pivoted center in the ordinary way.

I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a pair of my pliers with the side plate removed. Fig. 2 is a like view to Fig. 1, but with the plier-handles in a position to cause the jaws to be opened or moved one away from the other. Fig. 3 is a view of the two jaws detached from the pliers or handles, showing the outside edge of one and the inner face of the other, which two, if moved together, would present the view shown in Fig. 4. Figs. 5 and 6 are side plates, showing an edge view thereof. Fig. 7 is a side view of one of the side plates.

Like letters refer to like parts in the several figures.

My pliers consist of the handles *a a'*, pivoted between two side plates, *c c'*, as shown. The upper ends of said handles, above their pivoted points, are provided with teeth *i* or short gear-segments, as also are those parts of said handles between the pivots and opposite to each other provided with teeth *o*, which are adapted to interlock with each other, as shown.

The side plates, *c* and *c'*, are constructed each with a longitudinal half-dovetail rib, *x*, as shown, and each plate is pierced with two rivet-holes of corresponding position, so that the handles *a a'* may be riveted between said plates in the relative positions shown in Figs. 1 and 2.

The plier-jaws *b b'* are constructed with the lower thinner portions *n n'* upon their bottom edges, set a little one side of the central line, so that said jaws will "halve" together, as

seen in Fig. 4. The lower edge of said portions *n n'* is provided with a series of teeth, *z*, like a rack, as shown, and said portions *n n'* project beyond the inner face of the jaw at right angles thereto a distance equal to the width of the adjoining jaw, as seen in Fig. 2. The outer sides of said parts *n n'* have longitudinal grooves *e*, half dovetail, cut therein, of such dimensions as to adapt them to receive the ribs *x* on the inner face of plates *c c'*.

The above-named parts of my pliers are assembled in the positions relatively shown in Fig. 1, and the two rivets securing the side plates being tightened, the pliers operate as follows:

It will be understood by the position of the jaws, as shown in Fig. 4, that, as the rows of the teeth *z* on them are side by side, the upper toothed ends of handles *a a'* set correspondingly off, so that the teeth *i* and *z* will properly interlock.

The object of the teeth *o* on that part of the handles between the rivets is to cause both handles to move simultaneously and to the same extent when they are operated, so as to cause both jaws, when they open, to move an equal distance from the center. Thus, when the handles *a a'* are spread, their upper toothed ends swing inwardly, each one operating to carry one of the jaws *b b'* in a right line away from the other, said jaws sliding by their lower portions, *n n'*, side by side, and upon the ribs *x* on plates *c c'*, which ribs fit in the longitudinal grooves *e* in the sides of said jaws.

The reverse movement of the handles causes the jaws to move toward each other and to grasp any object placed between them. The short lever of the handles—that is, that portion of them between their pivots and the lower toothed edges of the parts *n n'* of the jaws—causes the latter, when a proper force is applied to the handles to draw them together, to gripe any object between them with great force, and as the inner faces of said jaws are parallel to each other, an object so secured between them is borne upon by such a considerable surface of the jaws as to prevent it from swinging from side to side when operated upon, as is the case with ordinary pliers.

What I claim as my invention is—

1. In combination with the jaws *b b'*, adapt-

ed to be moved horizontally to and from each other, supported by the side plates, *c c'*, the handles *a a'*, pivoted between said side plates, and provided with the teeth *i*, adapted to interlock with the teeth *z* on the lower edge of said jaws, substantially as and for the purpose set forth.

2. In combination, the handles *a a'*, provided

with the teeth *i* and *o*, the side plates, *c c'*, and the jaws *b b'*, provided with the teeth *z*, substantially as and for the purpose described.

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Witnesses:

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