H. R. RUSSELL.
Parallel Pliers.

No. 168,924. Patented Oct. 19, 1875.

Fig. 1

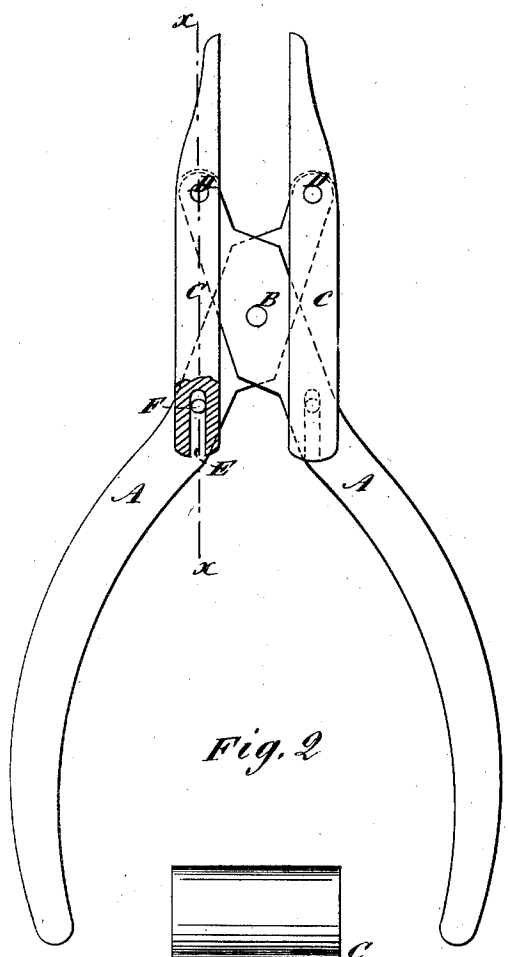
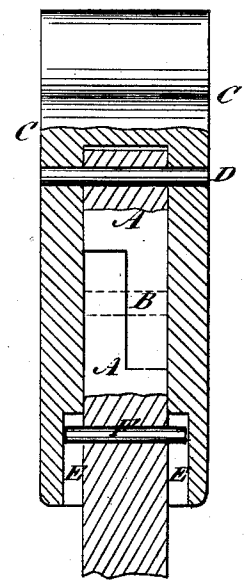


Fig. 2



WITNESSES:
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UNITED STATES PATENT OFFICE.

HENRY R. RUSSELL, OF WOODBURY, NEW JERSEY, ASSIGNOR OF ONE-HALF HIS RIGHT TO ISAAC S. RUSSELL, OF NEW MARKET, MARYLAND.

IMPROVEMENT IN PARALLEL PLIERS.

Specification forming part of Letters Patent No. **168,924**, dated October 19, 1875; application filed September 4, 1875.

To all whom it may concern:

Be it known that I, HENRY R. RUSSELL, of Woodbury, Gloucester county, New Jersey, have invented new and Improved Parallel Pliers and Vises, of which the following is a specification:

My invention relates to pliers, vises, &c., in which the jaws are constructed independently of the pivoted handles or levers for working them, and are so pivoted to the handles or levers, and provided with guide-pins, that they always work parallel to each other, while the handles or levers turn on a pivot; and it consists of open-ended grooves in the jaws for the guide-pins, so contrived that the guide-pins may be permanently fixed in the handles or levers before the jaws are attached, and then be engaged with the jaws when they are applied by sliding into the open-ended grooves—a contrivance which allows of fixing the pins in the jaws more permanently than they can well be when the pins have to be put into the handles through slots, and it allows of dressing out the grooves to make them true and smooth by a milling-tool, which cannot be used in the slots as commonly made.

My plan secures simplicity and cheapness, and the tool is strong and neat. The grooves do not have to extend through the jaws, as the slots of the other arrangement do, and hence my tool has greater strength from a given quantity of metal.

Figure 1 is a side elevation of my improved parallel pliers, with a part sectioned to show the open-ended grooves; and Fig. 2 is a section on the line *x x* of Fig. 1.

Similar letters of reference indicate corresponding parts.

A represents the handles or levers, which are pivoted at B in the manner of ordinary pliers. C represents the jaws, which are pivoted to the levers at D near the griping ends, and at the other ends have open-ended grooves E, fitted on guide-pins F, projecting from the sides of the handles at the same distance from the pivot B that the pivots D are.

I am aware that a mortise has been used in pliers of this type; but my open-ended guide-groove or end open slot enables me to manufacture the pliers cheaply, of great strength, and with an attractive appearance, because the latter enables me to reach conveniently and dress nicely the inside of slot by machinery, while the pins D are readily cast upon the handles A, and can easily enter the slots. In the case of mortises the pins could not enter them; hence,

What I claim is—

Pliers having pins D F equally distant from fulcrum B and jaws C, pivoted on the pins D, and provided with open-slotted rear ends, as and for the purpose specified.

HENRY R. RUSSELL.

Witnesses:

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SAML. H. LADD.