No. 719,782. PATENTED FEB. 3, 1903.

Z. T. FURBISH.

PLIERS.

APPLICATION FILED MAY 15, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig 3.

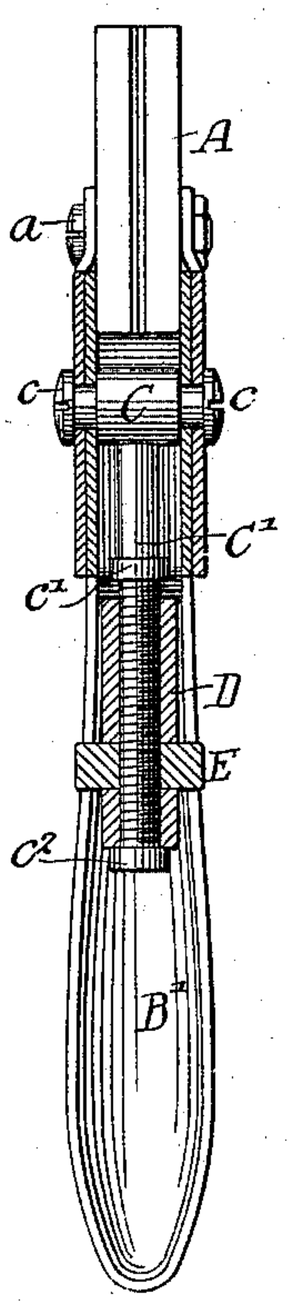


Fig. 1.

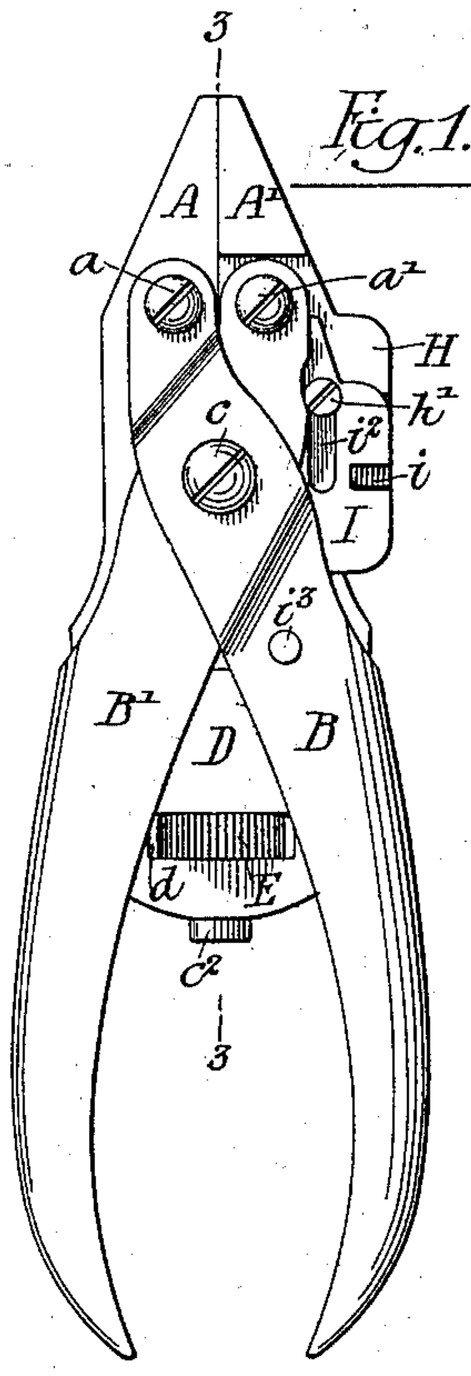


Fig. 7.

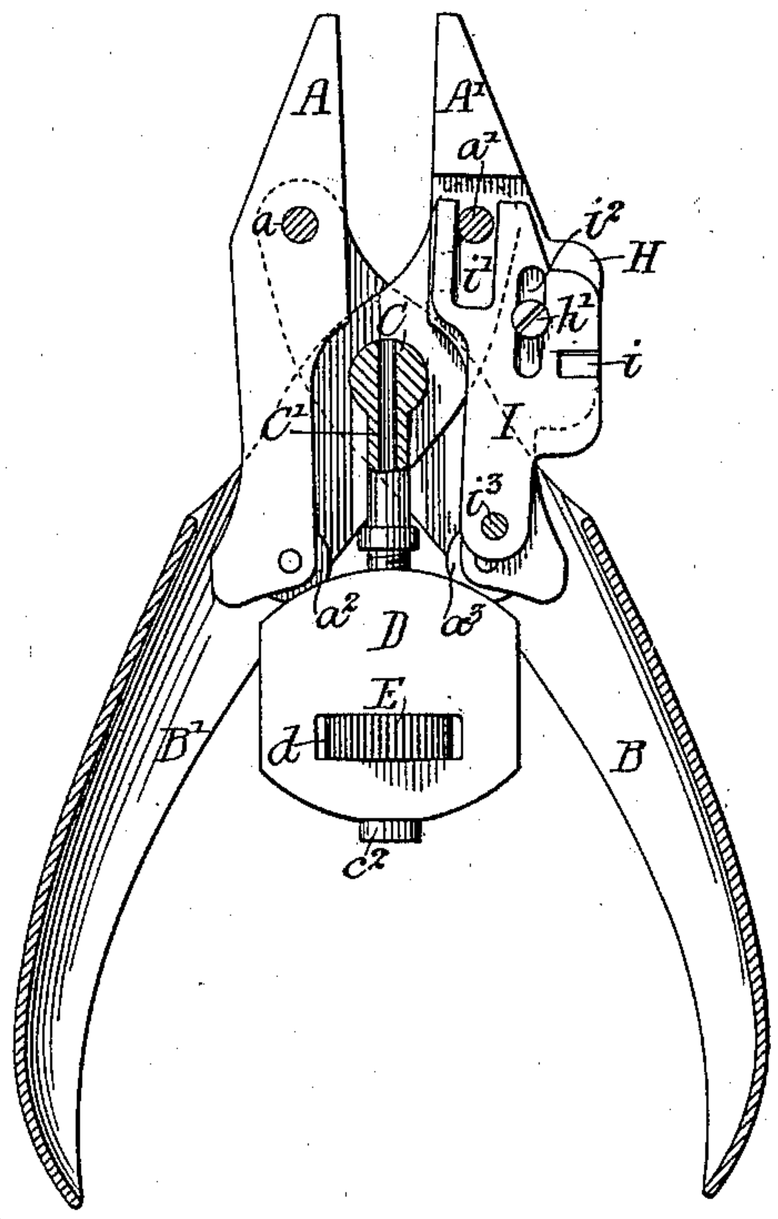


Fig. 6.

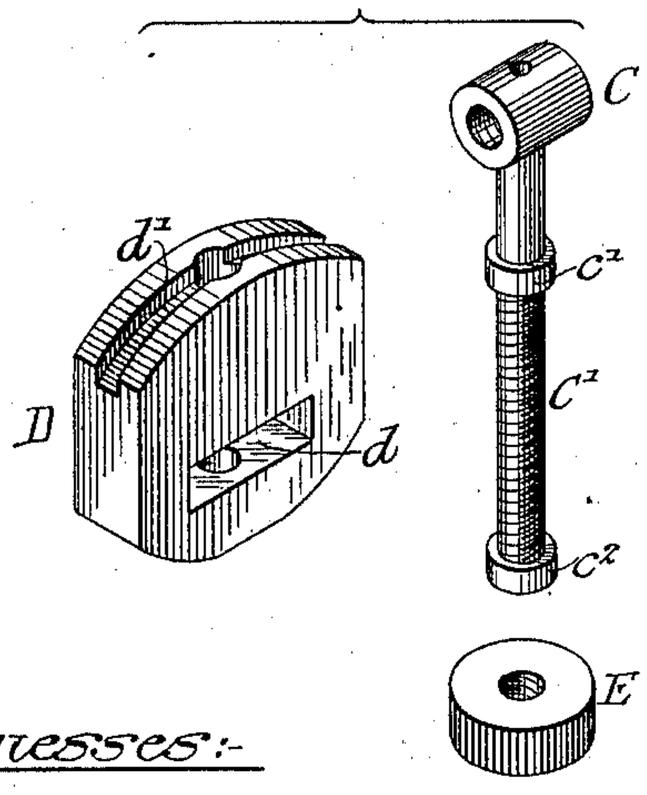


Fig. 4.

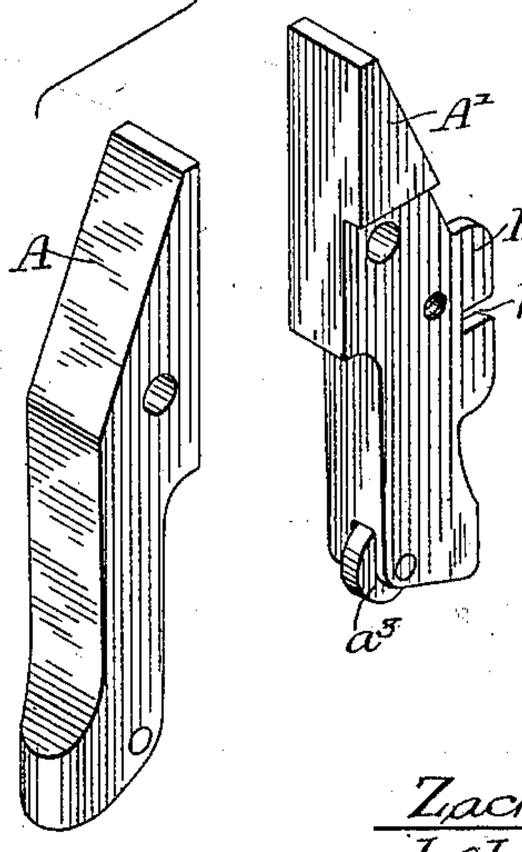
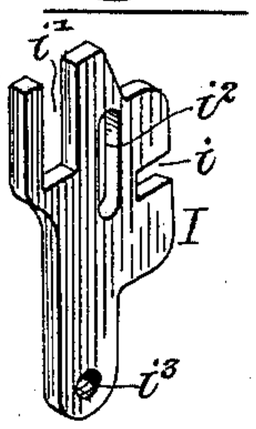


Fig. 5.



Witnesses:-

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 7.

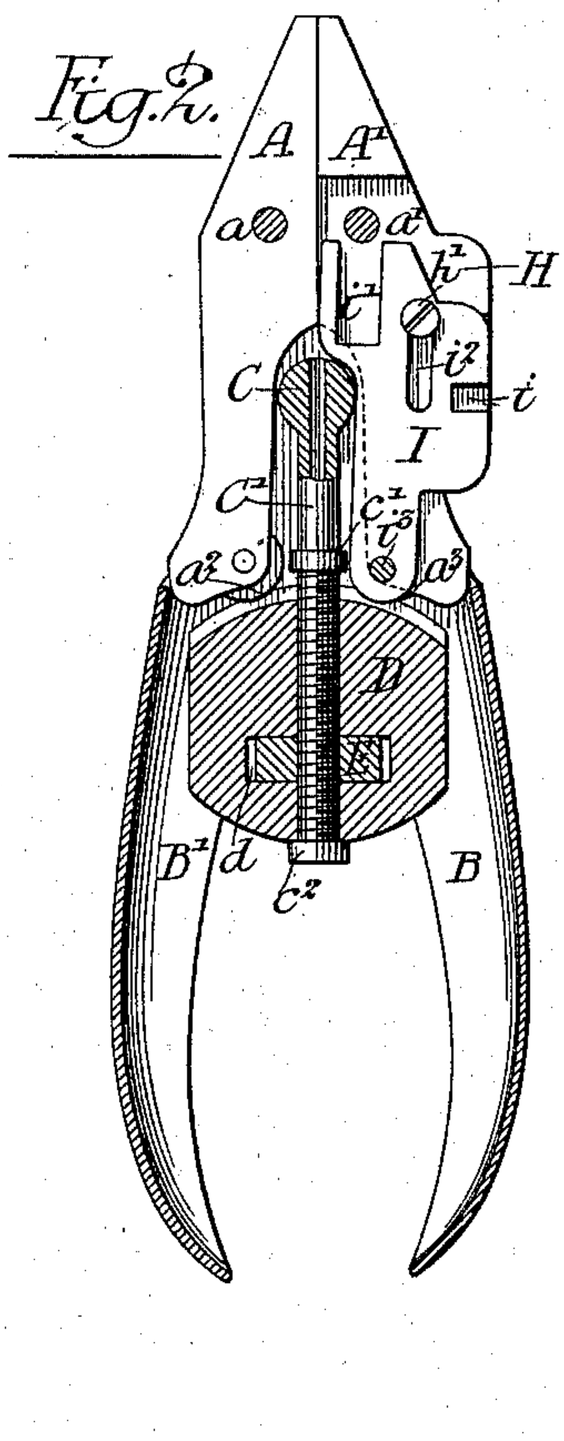


Fig. 8.

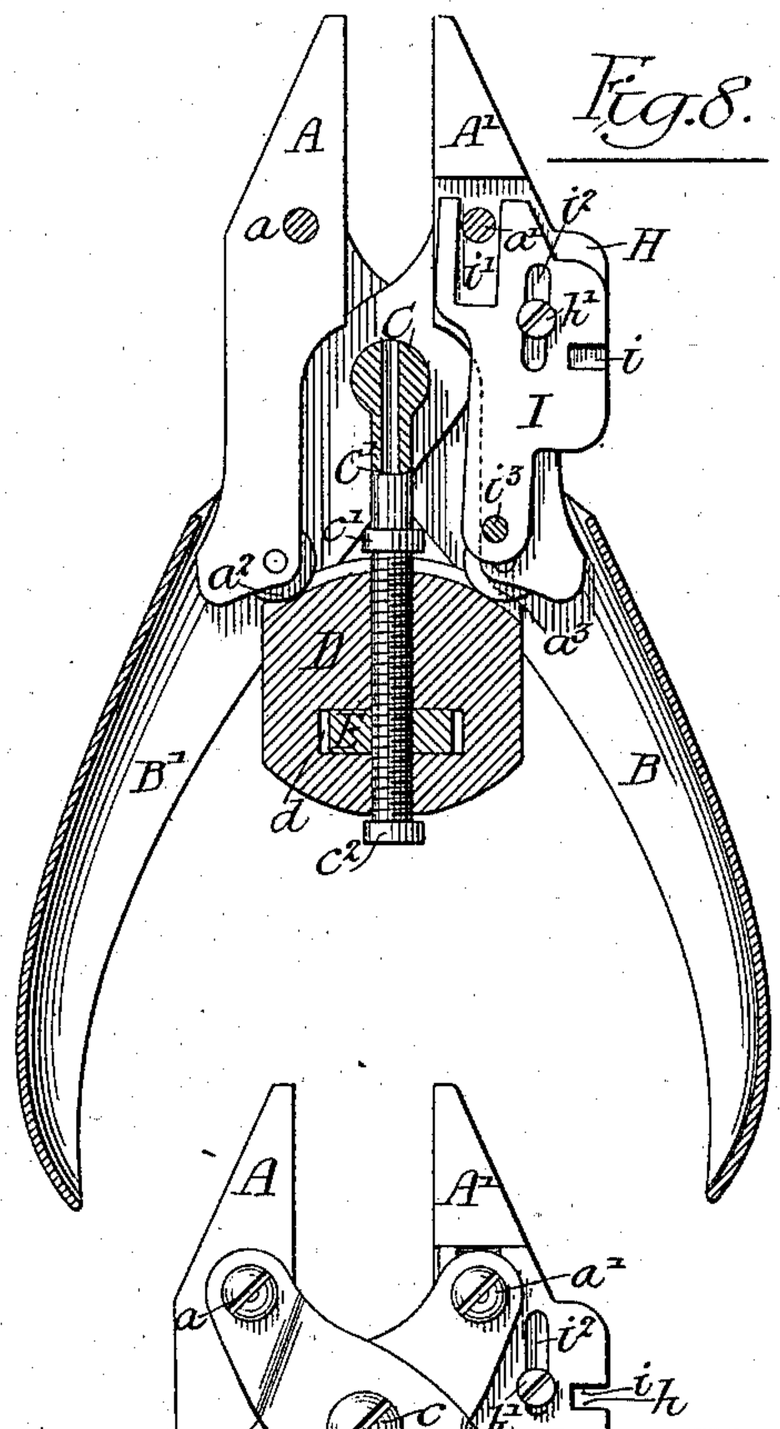
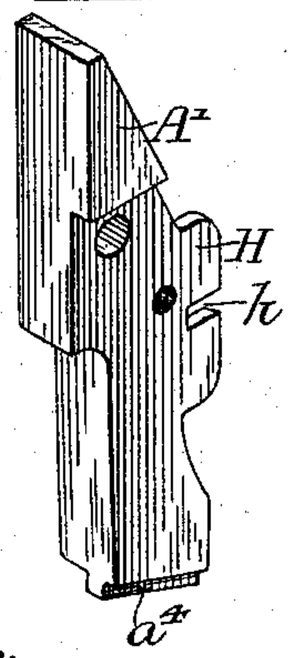


Fig. 9.

Fig. 10.



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UNITED STATES PATENT OFFICE.

ZACHRY T. FURBISH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO NORTH BROTHERS MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

PLIERS.

SPECIFICATION forming part of Letters Patent No. 719,782, dated February 3, 1903.

Application filed May 15, 1902. Serial No. 107,474. (No model.)

To all whom it may concern:

Be it known that I, ZACHRY T. FURBISH, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Pliers, of which the following is a specification.

The object of my invention is to so construct a pair of pliers or pincers that they can be used either to hold articles having parallel sides or articles in which the sides are tapered or otherwise irregular.

My invention relates, further, to a cutter made in connection with the pincers.

In the accompanying drawings, Figure 1 is a view showing my improved pincers closed. Fig. 2 is a view similar to Fig. 1 in section. Fig. 3 is a section on the line 3 3, Fig. 1. Fig. 4 is a detached perspective view of the two jaws. Fig. 5 is a perspective view of the moving element of the cutter. Fig. 6 is a view showing the adjusting mechanism detached. Fig. 7 is a view showing the pincers open and set to grasp a tapered object. Fig. 8 is a view similar to Fig. 7 and the pincers set to grasp an object having parallel sides. Fig. 9 is a view showing the pincers full open and the cutter in position to receive a wire or other article to be cut, and Fig. 10 is a view of a modification.

A A′ are the two jaws of the pincers. The jaw A is pivoted at a to the lever B, and the jaw A′ is pivoted at a' to the lever B′. These two levers are extended to form handles by which the pincers are operated. These levers are made, in the present instance, of struck-up sheet metal having two members which pass on each side of the jaws A A′, as illustrated in the drawings. These members are pivoted together at c and to a block C, shown clearly in Fig. 2; but it will be understood that the levers may be either cast or made of struck-up sheet metal or in any manner without departing from the main feature of my invention.

The jaws A A′ have extensions which pass into the handles, as shown in Fig. 2, and in the present instance on the ends of these extensions are rollers a^2 a^3. Carried by the block C is a screw-threaded stem C′, on which is mounted a guide D in the form of a slide having an opening d in the present instance, in which is placed an adjusting-nut E, which is screw-threaded and is adapted to the screw-threads on the stem C′, so that on turning the nut E the slide can be raised or lowered. In order to limit the movement of the slide, I provide stops c' c^2.

The upper end of the slide D is curved or beveled, as shown, and has grooves d' therein to receive the rollers a^2 a^3. By this arrangement the rollers keep the block steady and prevent it from turning on the stem C′.

The block C and its stem C′ are preferably made hollow, as shown in Fig. 2, so as to allow for the passage of a wire of any length. The opening through the stem may be of any width, depending greatly upon the size of the pincers.

When it is desired to only make parallel pincers, then the guide D instead of being a slide may be fixed to the stem. The shape of the upper portion of the guide or slide D will be determined by the pivots of the levers and the pivots of their jaws.

In operating the pincers when it is desired to grasp a tapered object the nut E is operated to move the slide down to the position shown in Fig. 7, so that it will not interfere with the free movement of the lower portion of the jaws, and when a tapered object is placed between the jaws the jaws will accommodate themselves to the tapered object, as they will simply swing on their pivots a a' until they properly grasp the object. The lower end of the jaws being clear of the slide D the rollers merely extend into the slide to prevent the slide turning.

When it is desired to convert the pliers into parallel pliers, then the slide is moved toward the pivot by turning the nut E until the jaws are parallel, so that the movement of the lower parts of the jaws will be controlled by the slide, and the curve of the slide is such as to keep the jaws parallel either in the open or closed position.

By adjusting the slide nearer the stop c' I can throw the points of the pliers toward each other when it is desired to pinch an object on the extreme end of the pliers. By means of the slide D, I can obtain three adjust-

ments—namely, one in which the jaws swing on their pivots to grasp irregular objects, one in which the jaws are held parallel, and one in which the extreme ends of the jaws are brought together.

In order to provide a suitable cutter for the pincers, I form on the jaw A′ a blade H, having a notch *h*, and mount a sliding cutter-plate I on this jaw, as shown in Fig. 5. This cutter-plate has a notch *i*, which will aline with the notch *h* when the pliers are full open, as shown in Fig. 9.

The cutter-plate I is slotted at i' to fit around the pivot-pin a', and is also slotted at i^2 for the reception of a screw-pin h', which guides the cutter-plate when moved.

The cutter-plate I is pivoted at i^3 to the handle B, so that when the handle is opened and closed the cutter-plate I will slide on the jaw. When it is wished to sever a wire, for instance, the jaws are opened, as shown in Fig. 9, the wire inserted in the jaws, and by closing the nippers the jaw I will slide past the jaw H and will sever the wire.

In some instances the rollers a^2 a^3 may be dispensed with, and a tongue a^4 may be formed in each jaw, as shown in Fig. 10, which enters a groove in the slide, or a tongue may be formed on the slide entering a groove in each jaw, so as to provide means for preventing the slide turning on its spindle.

I claim as my invention—

1. The combination in a pair of pincers, of two levers pivoted together, a jaw pivoted to one arm of each lever, and an adjustable guide hung from the pivot of said levers and engaging the jaws, substantially as and for the purpose set forth.

2. The combination in a pair of pincers, of two levers pivoted together, a jaw pivoted to one arm of each lever, a stem hung from the pivot of the levers, and a guide mounted on the stem and interlocking with the lower ends of the jaws so that they will move in parallel lines, the interlock preventing lateral movement of the guide, substantially as described.

3. The combination in a pair of pincers, of two levers pivoted together, a jaw pivoted to one arm of each lever, a block at the pivot of the levers, a stem hung from the block, and a guide carried by the stem, said block and stem being hollow, substantially as and for the purpose set forth.

4. The combination in a pair of pincers, of two levers pivoted together, a jaw pivoted to the short arm of each lever, a slide, means for moving the slide toward and from the pivot of the levers, said slide engaging the lower ends of the jaws in one position and being free of the jaws in the other position, substantially as described.

5. The combination of a pair of pincers, two levers pivoted together, a jaw pivoted to the short arm of each lever, said jaws having extensions, a stem hung from the pivot of the levers, a slide on the stem, means for adjusting the slide on the stem, said slide shaped at its upper end so as to hold the jaws parallel when set, substantially as described.

6. The combination of the two levers pivoted together, a jaw hung from the short arm of each lever, a block to which the levers are pivoted, a screw-stem extending from said block, a slide on the screw-stem, said slide having curved upper end against which the inner ends of the jaws rest when the slide is in one position, and a nut on the stem controlling the movement of the slide, substantially as described.

7. The combination of the two levers pivoted together, a jaw hung from the short arm of each lever, a block to which the levers are pivoted, a screw-stem extending from said block, a slide on the screw-stem, said slide being curved at one end against which the inner ends of the jaws rest when the slide is in one position, and a nut on the stem controlling the movement of the slide, with stops on the stem to limit the movement of the slide in either direction, substantially as described.

8. The combination in a pair of pincers, of two levers pivoted together and to a block, a jaw secured to the short arm of each lever, said jaws having extensions, a screw-stem on the said block, a slide on the screw-stem, and a nut on the stem for adjusting the slide, the upper end of the slide having a double bevel and grooved, with projections on the ends of the jaws entering the groove and acting as a guide for the slide, substantially as described.

9. The combination of the two levers, a block to which the two levers are pivoted, a jaw pivoted to the short arm of each lever having rollers at their inner ends, a screw-stem extending from the block, a slide on the stem, and a nut for adjusting the slide on the stem, the upper end of the slide shaped and grooved to receive the rollers on the ends of the jaws, substantially as described.

10. The combination of the two levers pivoted together, a jaw pivoted to the short arm of each lever, one of said jaws having a notched blade forming one element of the cutter, a sliding notched blade forming the other element of the cutter, said blade being guided on the jaw and pivoted to one of the levers, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ZACHRY T. FURBISH.

Witnesses:
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JOS. H. KLEIN.