

No. 834,941.

PATENTED NOV. 6, 1906.

J. A. STAPLES.  
BENDING TOOL.  
APPLICATION FILED SEPT. 2, 1905.

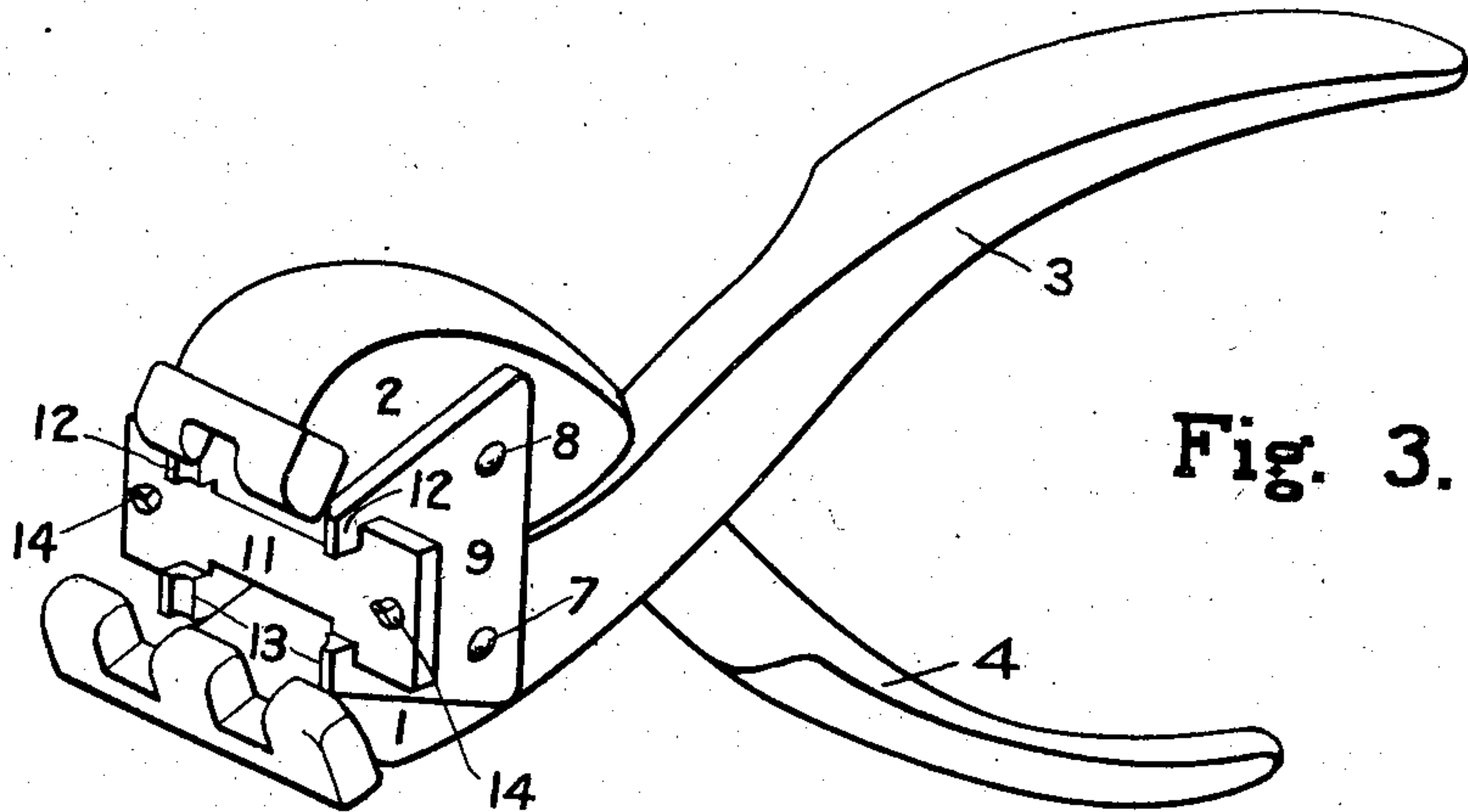


Fig. 3.

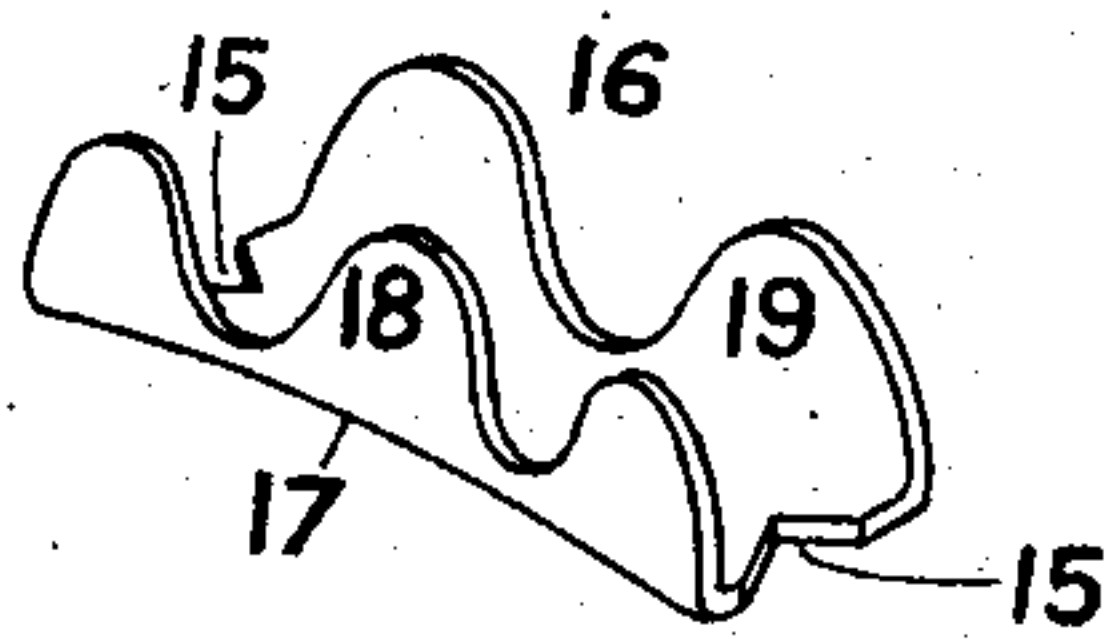


Fig. 4.

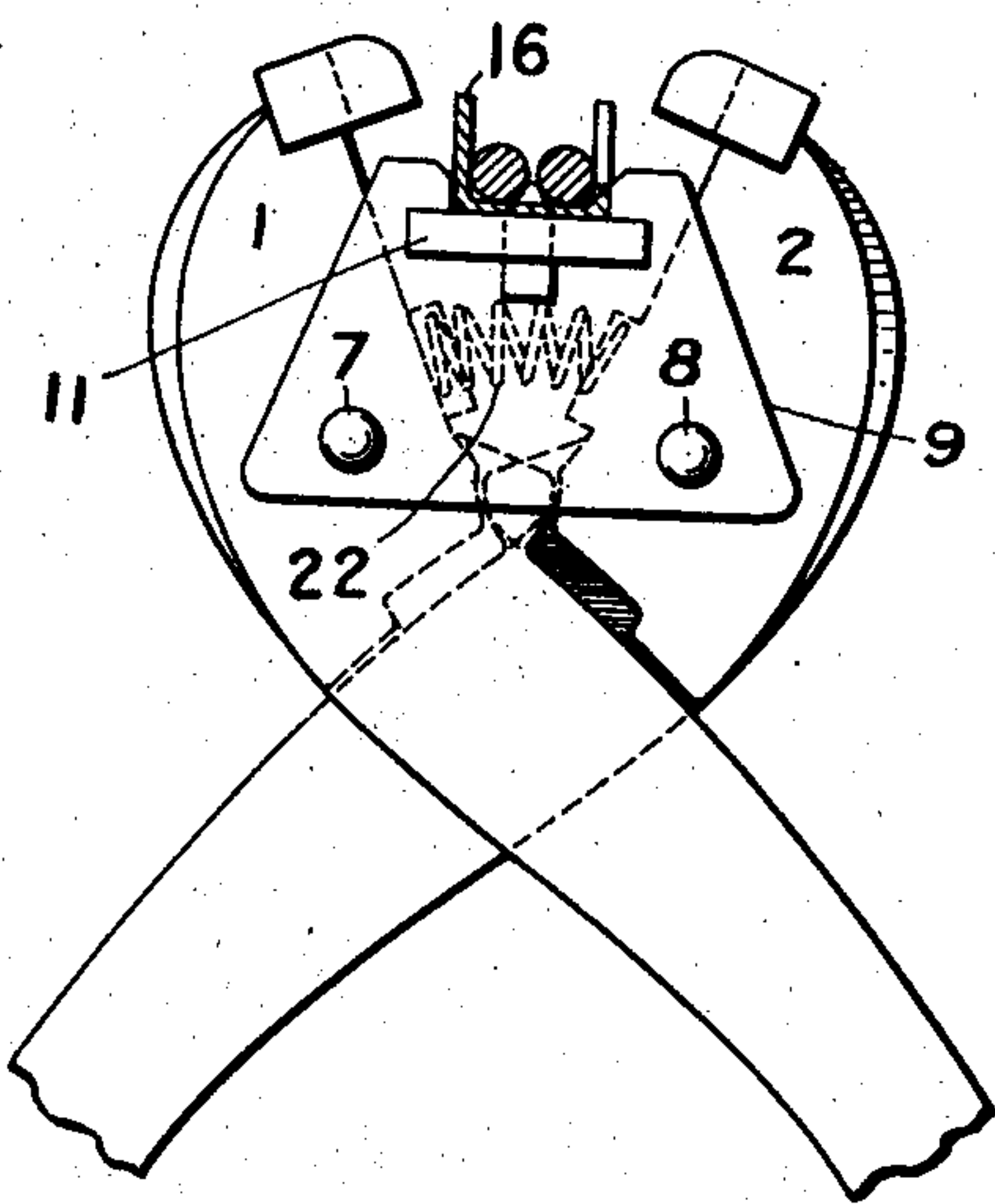


Fig. 1.

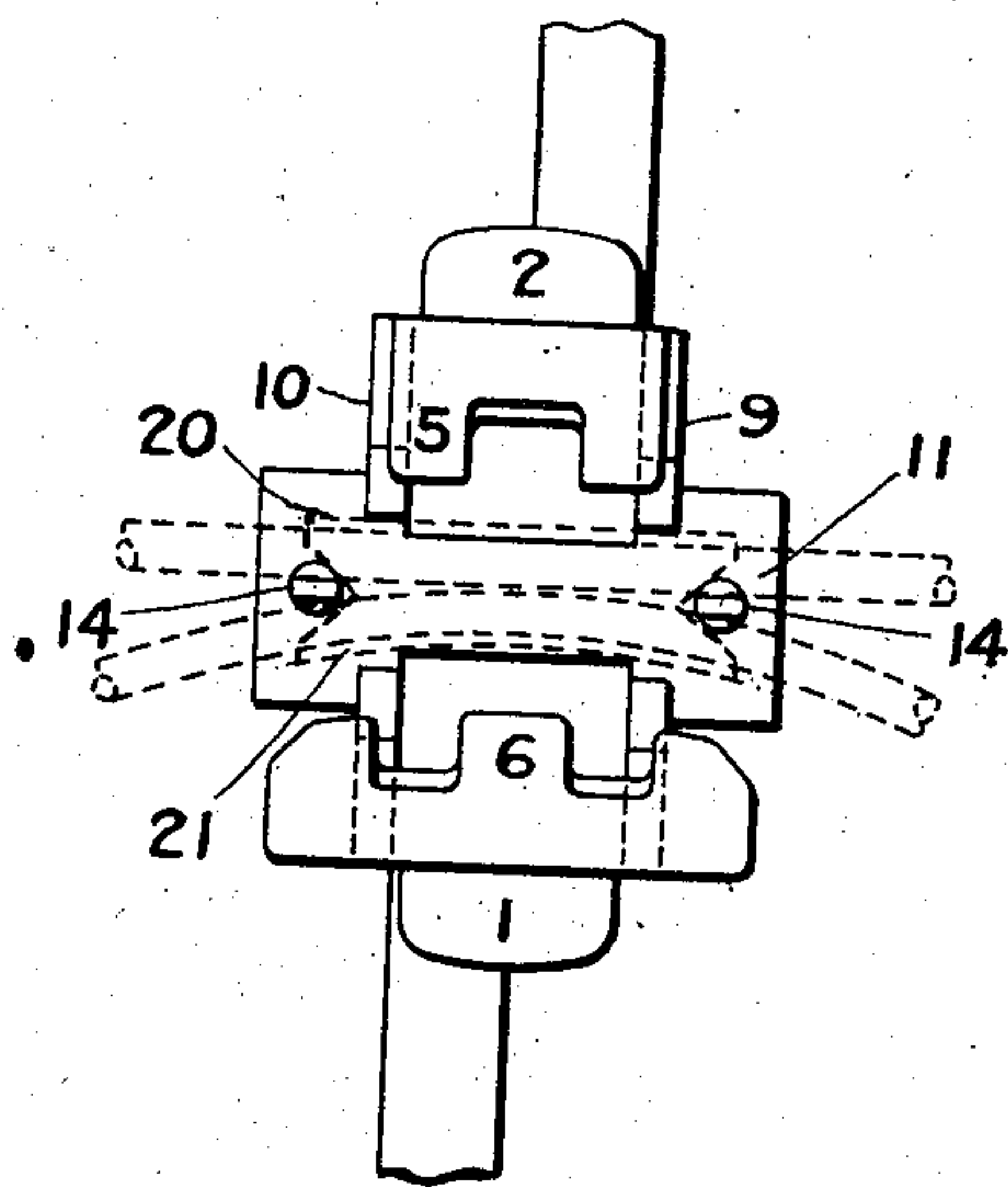


Fig. 2.

WITNESSES:

*J. A. Staples*  
*Robert S. Blair*

*J. A. Staples* INVENTOR  
*Warfield & Duell* BY  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

JOHN A. STAPLES, OF NEWBURGH, NEW YORK.

## BENDING-TOOL.

No. 834,941.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed September 2, 1905. Serial No. 276,790.

*To all whom it may concern:*

Be it known that I, JOHN A. STAPLES, residing at Newburgh, in the county of Orange and State of New York, have invented certain new and useful Improvements in Bending-Tools, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to tools, and is particularly directed to the provision of pliers peculiarly adapted to clamp clips about wires.

It has for one of its objects to provide pliers characterized by increased simplicity and efficiency.

Another object is to provide pliers such that during the operation of clamping a clip about two or more wires relative movement or slipping of the wires is prevented, insuring the holding and clamping of the same in a definite predetermined relative position.

Another object is to provide a pair of pliers of the above type so constructed that the clip will be accurately positioned with respect to the clamping-jaws.

Another object is to provide efficient and practical means for securing a furniture-spring in operative position.

Other objects will be in part obvious and in part appear hereinafter.

My invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the device hereinafter described and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, wherein is illustrated one of the various possible embodiments of my invention, Figure 1 is a side elevation of the same, showing the pliers in an open position with a clip positioned between the clamping-jaws. Fig. 2 is a plan view of the same. Fig. 3 is a view in perspective of the same, the clip being omitted. Fig. 4 is a view in perspective of a clip adapted for use with the pliers.

Similar reference characters refer to similar parts throughout the several figures of the drawings.

Preliminary to a description of the specific features of my invention and in order to render clearer of understanding certain of the objects thereof it may here be noted that my invention, although capable of other uses,

relates especially to pliers particularly adapted to clamp a peculiar style of clip about the upper coil of a furniture-spring and the adjacent portion of a wire to which it is desired to secure the same. I have found that during the clamping operation the wires have a tendency to roll or otherwise move relatively to each other, and it is highly desirable, therefore, that means be provided to prevent such relative or rolling movements. I have also found it desirable to provide means in connection with pliers of the above type adapted to determine the position of the clip relative to the clamping-jaws of the pliers, and thus hold the same in position during the clamping operation and accurately position it upon the wires.

The above and other defects are remedied and many positive advantages attained in constructions of the nature of that hereinafter described.

Referring now to the drawings, the jaws 1 and 2 are provided with manipulating-handles 3 and 4, respectively. The upper ends of jaws 1 and 2 are broadened and turned inwardly toward each other and are provided with spaced teeth 5 and 6, respectively, the teeth upon each member being staggered with reference to those upon the other and the spaces being of such width as to receive the opposing teeth when the jaws are brought together, as will be apparent hereinafter.

Arranged upon either side of jaws 1 and 2 and pivotally connected to each by pins 7 and 8 are plates 9 and 10, supporting a bed 11, which lies between the jaws and under the teeth projecting from their inwardly-extending portions. Plates 9 and 10 are carried slightly over the upper surface of bed 11 at either side thereof to form abutments 12 and 13, the function of which will be set forth hereinafter.

Extending from bed 11, near each end thereof, are studs 14, preferably substantially V-shaped, as shown, and adapted to enter similarly-shaped notches 15 in the ends of a clip 16, which rests upon bed 11, as clearly shown in Figs. 1 and 2.

Clip 16 comprises a strip of sheet metal having a base 17, from the lateral edges of which extend at right angles thereto spaced tongues or flanges 18 and 19, respectively. In this illustrative embodiment of my invention I preferably provide clip 16 with one straight lateral edge 20; the opposite edge being curved, as at 21, so that when the clip



is clamped about the upper coil of a bed or other furniture spring and the edge or binding wire thereof the curved edge will conform to the contour of such coil, while the straight edge will receive the wire. Clip 16 is designed to rest upon bed 11 with studs 14 occupying recesses 15, cut in the ends of said clip. Stud 14 are placed upon bed 11, so as to maintain the tongues or flanges of the clip opposite the inwardly-extending teeth 5 and 6, as clearly shown in Fig. 2, these tongues corresponding in number and position with the teeth with which they are to coact. Jaw 1, moreover, is slightly convexed to receive the curved edge of clip 16, jaw 2 being straight to receive the straight edge 20. An extensile spring 22 is arranged between jaws 1 and 2, adapted normally to maintain the same in an open position.

The method of use of the above-mentioned parts is substantially as follows: Clip 16 being placed upon bed 11 with studs 14 occupying the recesses 22, as hereinbefore described, the device is ready for use. The clip carried by the pliers is now placed about the wires to be clamped with the curved edge thereof adjacent the upper coil of the spring, and the jaws 1 and 2, by means of handles 3 and 4, respectively, are forced together, teeth 5 and 6 engaging tongues 18 and 19, respectively, bending them about the wires to clamp them firmly together. The tongues of the clip when the same is clamped about the wires fit within the similarly-shaped spaces upon the opposite sides thereof. During the clamping operation the tongues 18 and 19, inasmuch as they have a greater relative movement at their upper extremities than at their bases, force the wires firmly between abutments 12 and 13 and the V-shaped studs 14, thereby preventing all relative movement or any tendency to roll one upon the other.

It will accordingly be seen that I have provided a pair of pliers well adapted to achieve the objects of my invention. The position of the clip with respect to the clamping-jaws is accurately determined, and the studs, by reason of their V-shaped surfaces, together with the coacting abutments, serve to maintain the wires in a fixed position during the clamping operation.

It will be understood, of course, that the relative number of tongues upon the clip or the teeth upon the clamping-jaws is purely arbitrary, and a greater or less number may be employed without effecting a departure from the spirit of my invention, although there are many advantages inherent in the use of the clip shown.

As many changes could be made in the above construction and many apparently widely-different embodiments of my invention could be made without departing from the scope thereof, I intend that all matter

contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I desire it also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

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

1. In a device of the class described, in combination, a pair of jaws adapted to operate upon a clip and clamp the same about a plurality of wires, means forming a pivotal connection for said jaws, and means upon said first-mentioned means for positively holding apart the wires during the clamping thereof, said last-mentioned means being adapted to position the clip in a predetermined location with respect to said jaws.

2. In a device of the class described, in combination, a pair of jaws adapted to operate upon a clip and clamp the same about a plurality of wires, means forming a pivotal connection for said jaws, and means for positively holding apart the wires during the clamping thereof, said last-mentioned means being adapted to position the clip in a predetermined location with respect to said jaws.

3. In a device of the class described, in combination, a pair of pivotally-connected clamping-jaws, a bed arranged between said jaws adapted to support a clip, said clip being provided with recesses in either end thereof, and means upon said bed adapted to enter the recesses in said clip to determine its position with respect to said jaws.

4. In a device of the class described, in combination, a pair of clamping-jaws, a bed arranged between said jaws adapted to support a clip, said clip being provided with recesses in either end thereof, and means adapted to enter the recesses in said clip to determine its position with respect to said jaws.

5. In a device of the class described, in combination, a pair of clamping-jaws, each of which is provided with a plurality of spaced teeth, means forming a pivotal connection for said jaws, said means being provided with a bed, a clip provided with a plurality of tongues resting upon said bed, said clip being provided with recesses in either end thereof, and means extending from said bed and entering said recesses in said clip to determine the position of said clip so that each tongue thereof will be engaged by one of the teeth of said jaws upon the same being forced together.

6. In a device of the class described, in combination, a pair of clamping-jaws adapt-



ed to receive a clip therebetween and clamp the same about a plurality of wires, one of said jaws being convexed to receive a concave lateral edge of said clip, teeth upon said jaws, a plurality of tongues upon said clip, a bed pivotally connecting said jaws upon which said clip is adapted to rest, means for positively holding the wires in fixed relative position while being clamped, and means for determining the position of the clip so that each of the teeth of said jaws will engage one of the tongues of said clip to bend the same about the wires upon said jaws being forced together.

7. In a device of the class described, in combination, a pair of clamping-jaws adapted to receive a clip therebetween and clamp the same about a plurality of wires, teeth upon said jaws, a plurality of tongues upon said clip, a bed pivotally connecting said jaws upon which said clip is adapted to rest, means for positively holding the wires in fixed relative position while being clamped, and means for determining the position of the clip so that each of the teeth of said jaws will engage one of the tongues of said clip to bend the same about the wires upon said jaws being forced together.

8. In a device of the class described, in combination, clamping-jaws, means adapted to support a clip in operative relation thereto, and means adapted to interlock with the ends of said clip and prevent endwise movement thereof.

9. In a device of the class described, in combination, clamping-jaws, means adapted to support a clip therebetween about a plurality of wires, means adapted to force said jaws together and clamp said clip about said wires, and means adapted to positively hold apart portions of said wires during the clamping thereof.

10. In a device of the class described, in combination, clamping-jaws, means adapted

to support a clip therebetween about a plurality of wires, means adapted to force said jaws together and clamp said clip about said wires, and means adapted to project between said wires during the clamping thereof.

11. In a device of the class described, in combination, clamping-jaws, means adapted to support a clip in operative relation thereto about a plurality of wires, means adapted to force said jaws together, means adapted to prevent endwise movement of said clip, and means adapted positively to hold said wires in fixed relative position during the clamping thereof.

12. In a device of the class described, in combination, clamping-jaws, means adapted to support a clip in operative relation thereto about a plurality of wires, means adapted to prevent lateral movement of said clip in any direction, and means adapted to project between said wires during the clamping thereof.

13. In a device of the class described, in combination, clamping-jaws, means adapted to support a clip therebetween about a plurality of wires, means adapted to interlock with said clip and prevent lateral movement thereof in any direction, and means adapted to project between said wires and hold the same in fixed relative position during the clamping thereof.

14. In a device of the class described, in combination, clamping-jaws, means adapted to force said jaws together, supporting means adjacent said jaws, and a renewable member positioned upon and interlocking at its ends with said supporting means and adapted to be engaged and acted upon by said jaws.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN A. STAPLES.

Witnesses:

ALEX D. DARRAGH,  
C. H. HANFORD.