

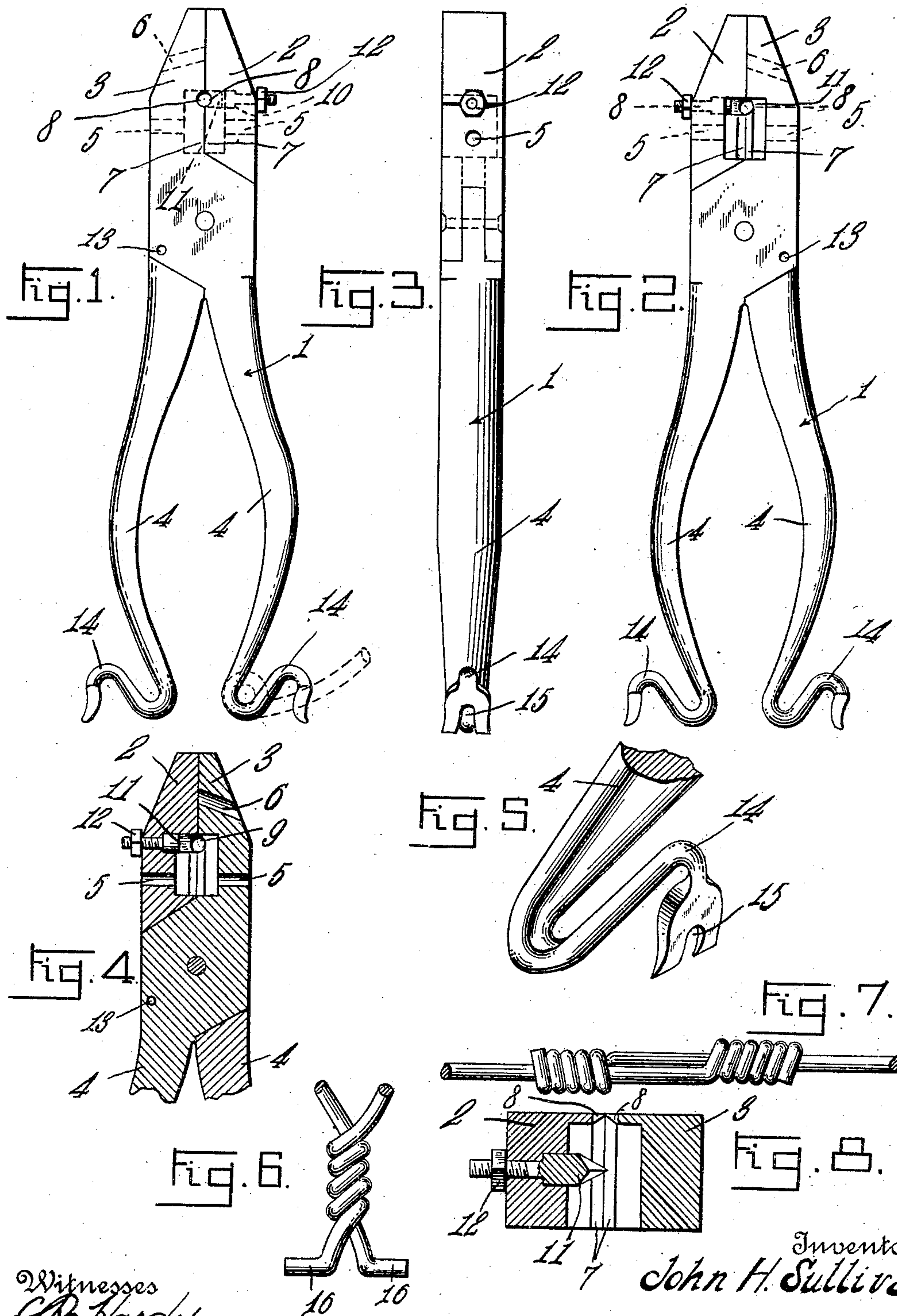
J. H. SULLIVAN.

PLIERS.

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955,370.

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UNITED STATES PATENT OFFICE.

JOHN H. SULLIVAN, OF GRAND RAPIDS, MICHIGAN.

PLIERS.

955,370.

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To all whom it may concern:

Be it known that I, JOHN H. SULLIVAN, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Pliers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in pliers.

The object of the invention is to provide an improved construction of pliers by means of which the ends of the wires may be readily twisted together or one wire twisted or wound upon another, thereby particularly adapting the pliers for use in connecting the ends of wires for forming splices.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is a side view of one side of a pair of pliers embodying my improvements. Fig. 2, is a similar view of the opposite side of the pliers. Fig. 3, is an edge view. Fig. 4, is a longitudinal sectional view of the outer or jaw end of the pliers. Fig. 5, is a detail perspective view of the outer end of one of the handles. Fig. 6, is a side view of the ends of two wires, showing one way in which they may be twisted together by my improved pliers; and Fig. 7, is a similar view showing the manner in which one wire may be twisted or wound on another wire as in forming a splice, and, Fig. 8 is a horizontal section taken through the jaws of the pliers and through the scraping bit.

Referring more particularly to the drawings, 1, denotes the pliers which are here shown and are preferably in the form of cutting pliers and consist of jaw members 2 and 3, which are pivoted together in the usual manner and are provided with handles 4. In the jaws 2 and 3 opposite to the hollow portion thereof formed by the cutting blades are alined wire receiving passages 5. In the nose or outer portion of the jaw 3, is formed an inclined passage 6, while in the edges of the cutting blades 7, adjacent to one end of the same are formed semi-circu-

lar notches 8, which, when the edges of the cutting blades are brought together, form a circular passage or aperture 9.

In the jaw 3, at right angles to and in the same vertical plane as the aperture 9, is formed a passage 10, the outer portion 7 is reduced or of less diameter than the inner portion. In the passage 10, is arranged a scraping bit 11, having a reduced shank to fit the reduced end of the passage 10. The reduced end of the bit 11 projects through the outer side of the jaw 3, and is threaded to receive a fastening nut 12, by means of which the bit is secured in place in the jaw. The inner end of the bit 11 is provided with a sharpened concave scraping edge which scrapes the wire of its insulation when the wire is drawn through the aperture 9.

Through the rear portion of the jaws 2 and 3 is formed a passage 13, into which a piece of wire, nail, or similar device is inserted to lock the jaws together in closed position when the tool is employed for scraping or cleaning a wire or for using the same for certain other purposes.

The outer ends of the handles 4, are bent rearwardly and then forwardly in the form of goose necks 14, and the outer ends of said goose neck portions of the handles are notched or bifurcated, as shown at 15. By thus forming the ends of the handles, the latter may be employed for holding and winding one wire upon another, as indicated in dotted lines of Fig. 1, of the drawings, thus enabling the handle ends of the pliers to be used for forming splices or for joining the ends of two wires.

In the operation of the tool to twist two wires together in the manner shown in Fig. 6, of the drawings, the ends of the wires are bent to form short oppositely disposed right-angular projections 16, which are inserted through the oppositely disposed apertures 5, in the jaws. The portions of the wire to be twisted pass between the outer ends of the jaws which are loosely closed thereon. After thus engaging the wire with the pliers, the latter are turned or revolved, which will twist the wires together in even uniform twists, each of which will have the same tension. In winding one wire upon another as when forming a splice such as is shown in Fig. 7, of the drawings, one of the wires is engaged with the aperture 9, formed by the notches 8, in the jaws, while the end of the wire to be twisted or wound is inserted in

one of the passages 5, and thus securely held while the tool is turned around on the other wire, which serves as a pivot in the aperture 9. By thus turning the pliers, the end of
5 one wire is wound around the other in regular uniform coils, each of which will have the same tension and by inclining the tool in one direction or the other while turning the same around the wire, the coils of the
10 wire being wound may be formed at a greater or less angle or more or less closely together as desired. The passage 6, in the nose of one of the jaws, is employed for holding the end of a wire when making certain
15 other forms of twists or connections.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without
20 requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of
25 the invention, as defined in the appended claims.

Having thus described my invention, what I claim is:

1. In a pair of pliers, cutting blades on the jaws formed in their edges with notches 30 adapted to register and form a wire receiving aperture when the jaws are closed, and a cutting bit having a threaded shank extending through one of said jaws and a sharpened scraping edge to scrape the insulation 35 from the wire as it is passed through said aperture, and a nut screwing on said shank to hold the bit in position.

2. A pair of pliers having the outer ends of its handles bent longitudinally and reversely and the outer portion of each of said 40 bent ends notched out and so curved as to adapt it for holding the end of a wire.

3. A pair of pliers having the outer ends of its handles bent longitudinally and reversely and the outer portion of each of said 45 bent ends flattened and notched out, and so curved as to adapt it for holding the end of a wire.

In testimony whereof I have hereunto set 50 my hand in presence of two subscribing witnesses.

JOHN H. SULLIVAN.

Witnesses:

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