

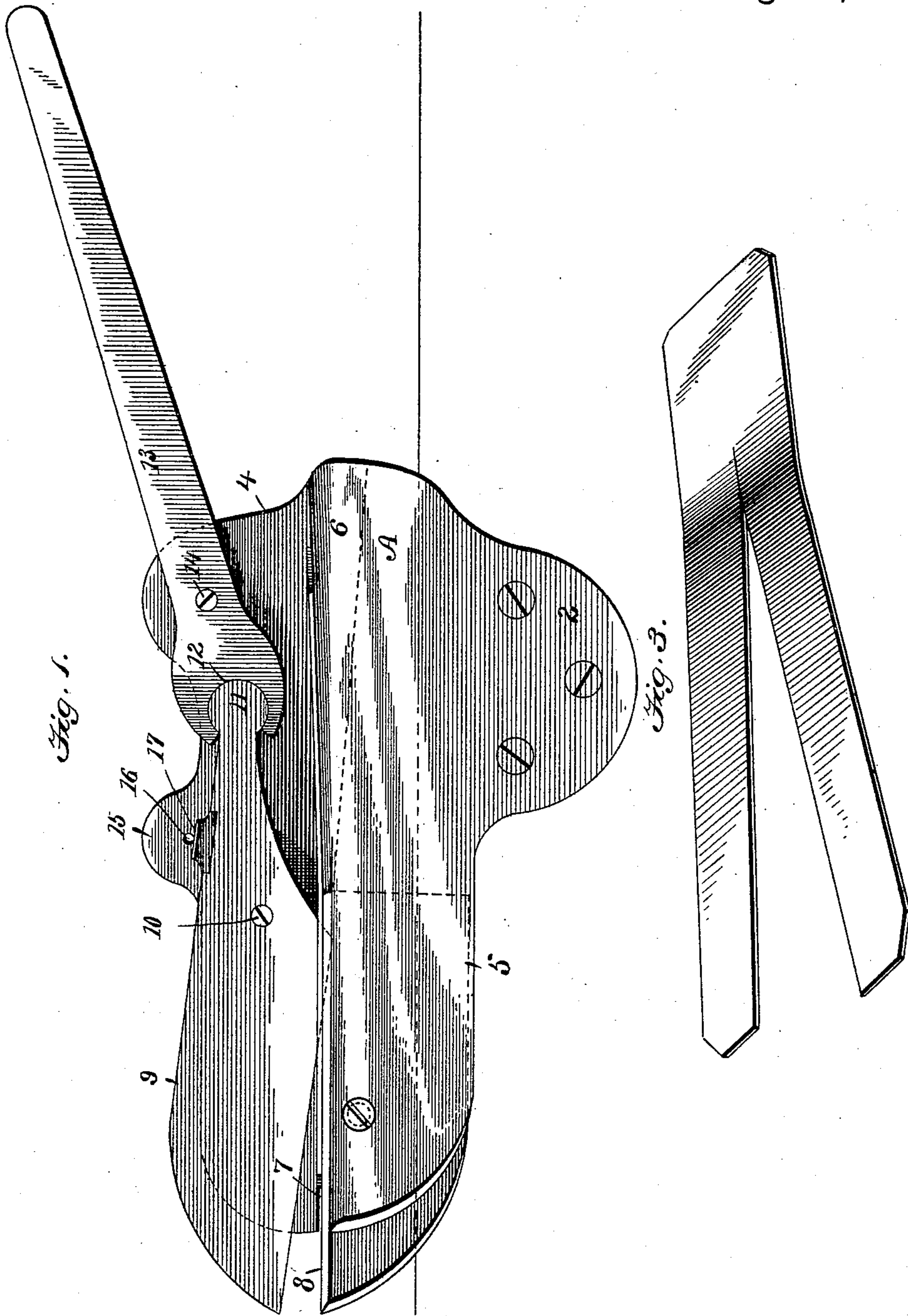
(No Model.)

2 Sheets—Sheet 1.

H. V. SMITH.  
METAL SHEARS.

No. 457,405.

Patented Aug. 11, 1891.



Witnesses:  
E. H. Smith  
A. S. Munson.

Inventor:  
Henry V. Smith  
By, *A. M. Wooster*  
his Attorney.

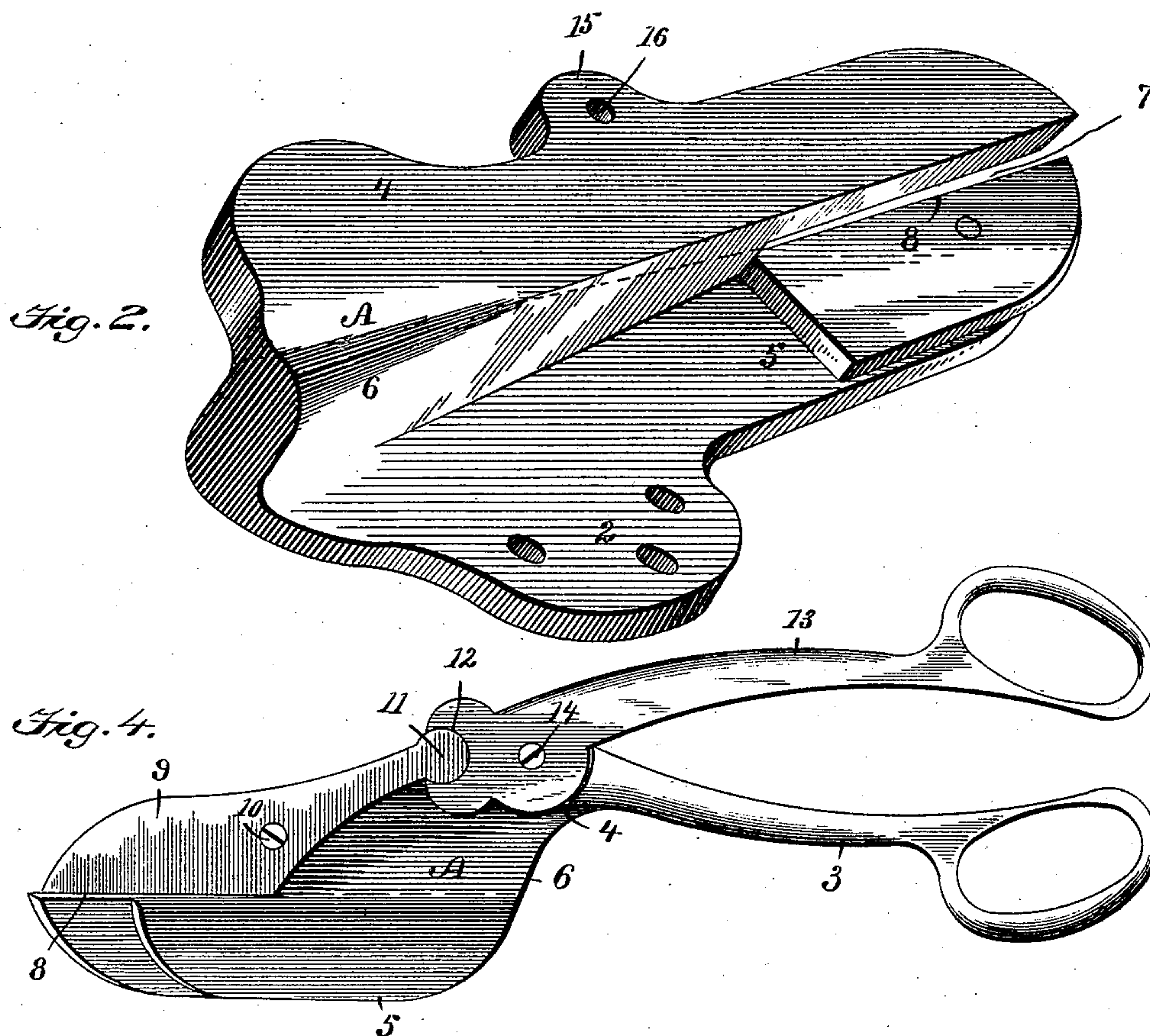
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*his Attorney.*



# UNITED STATES PATENT OFFICE.

HENRY V. SMITH, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO FRANKLIN  
B. BRADLEY, OF SAME PLACE.

## METAL-SHEARS.

SPECIFICATION forming part of Letters Patent No. 457,405, dated August 11, 1891.

Application filed January 16, 1891. Serial No. 378,000. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY V. SMITH, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Metal-Shears; and I do hereby 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.

My invention has for its object to produce metallic shears which shall be so constructed as to cut large pieces of sheet metal without rolling the metal upon either side of the cut. This result I accomplish by so constructing the body which carries the fixed cutter that in use the movable cutter shall pass between the part of the body to which it is pivoted and the fixed cutter, and by placing the fulcrums of the operating-lever and the movable cutter out of the plane of the cutting-edges, so that in use the severed metal upon one side of the cut will pass over a part of the body and under the fulcrums of the operating-lever and the movable cutter, the metal upon the other side of the cut passing under said part of the body, so that the metal on both sides of the cut is not displaced in the horizontal plane and but slightly in the vertical plane, and the operator is enabled to use the entire length of the cutting-edges without cramping and without loss of power.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a form of my novel shears adapted for attachment to a bench or other structure, the movable cutter being in the open position; Fig. 2, a perspective of the body detached; Fig. 3, a perspective of a strip of metal after cutting, showing the position assumed by the metal on opposite sides of the cut after passing the cutting-edges; and Fig. 4 is a side elevation of a smaller form of my novel shears adapted for hand use, the movable cutter being in the closed position.

A denotes the body, which may be provided with a lip 2 for attachment to a bench, as indicated in Figs. 1 and 2, or with a shank 3, as in Fig. 4.

The essential feature of construction of the body of my novel shears is that the upper and lower parts thereof are offset from each other, so as to lie in different vertical planes, said upper and lower parts being connected at the rear end of the body by a shoulder lying at right angles to said parts. For convenience in description I will designate the upper part of the body by 4, the lower part by 5, and the transverse shoulder by which said parts are connected by 6. Forward of the shoulder and between parts 4 and 5 of the body is a slot 7, through which the movable cutter swings in use. The shoulder is made thin where it commences at the rear end of the slot and increases in thickness toward the rear end of the body, as clearly appears in Fig. 2. The object of the increased thickness at the rear end is to give ample strength to the body to withstand the strain in use, while by making said shoulder thin at its forward end I avoid the necessity in use of curling the metal upon either side of the cut, it being apparent that the metal upon one side of the cut will pass over the shoulder and the metal upon the other side under the shoulder, and that all curling of the metal is avoided, the strips of metal on opposite sides of the cut being simply sprung away from each other in the vertical plane sufficiently to let the shoulder pass between them. Upon the inner face of part 5 of the body—that is, the face toward the other part—is a cutting-edge, denoted by 8. This cutting-edge may be formed upon the body, but is preferably formed upon a separate piece and secured thereto, as shown in the drawings. Between this cutting-edge and part 4 of the body is slot 7, which is made just sufficiently wide to permit the movable cutter 9 to pass between part 4 of the body and the lower or fixed cutting-edge. The movable cutter is fulcrumed upon a screw-pin 10, which engages part 4 of the body, its rear end extending backward and being preferably provided with a curved head 11, which engages a similarly-curved socket 12 in the forward end of an operating-lever 13, which is fulcrumed on a screw-pin 14, engaging part 4 of the body, there being ample space in all positions of the parts for the strip of metal on



that side of the cut to pass over the shoulder and under the fulcrums of the operating-lever and the movable cutter.

In order to provide in the same tool a simple form of wire-cutter, I form a projection 15 on part 4 of the body, which is provided with a hole 16 through it, and operating in connection therewith I provide a cutter 17 on the back of movable cutter 9, which operates to cut off a piece of wire that has been passed through the hole, the same movement of the operating-lever that acts to close the movable cutter in cutting acting, also, to cut off a piece of wire, if required.

15 The mode of using my novel metal-shears is the same as that of ordinary metal-shears. The result, however, is entirely different, in that without the slightest lateral strain upon either of the strips of metal after they have been separated one strip will pass over the shoulder upon one side and the other below the shoulder on the other side. In Figs. 1 and 4, for instance, the upperside of the shoulder is toward the point of view. Suppose a piece of metal to be passed in from the left in either form and the movable cutter operated in the usual manner. The strips of metal will be sprung apart in the vertical plane just sufficiently to allow one strip to ride upon the shoulder and the other to pass under it without, however, there being the slightest lateral strain upon the strips.

By "lateral strain" I mean a tendency to force the edges that have been separated away from each other in the horizontal plane.

35 Having thus described my invention, I claim—

1. Metal-shears consisting of a body having upper and lower parts offset from each other, 40 said parts having between them at their forward ends a slot, the rear ends being joined by a shoulder, said lower part having a cutting-edge upon its inner face, and a movable cutter pivoted to the upper part and adapted to pass into the slot between said upper part 45 and the other cutting-edge.

2. Metal-shears consisting of a body having upper and lower parts offset from each other, said parts having between them at their forward ends a slot, the rear ends being joined

by a shoulder made thin at its forward end and increasing in thickness toward the back, said lower part having a cutting-edge upon its inner face, and a movable cutter pivoted to the upper part and adapted to pass into the slot between said upper part and the other cutting-edge. 55

3. A body for metal-shears, consisting of upper and lower parts offset from each other and having between them at the forward end a slot and back of said slot a shoulder in a plane at right angles to said parts and connecting said parts, said shoulder being made thin at its forward edge and increasing in thickness toward the back. 60 65

4. Metal-shears consisting of a body having upper and lower parts offset from each other, said parts having between them at their forward ends a slot, the rear ends being joined by a shoulder, said lower part having a cutting-edge upon its inner face, a movable cutter pivoted to the upper part and adapted to pass into the slot between said upper part and the other cutter and having at its rear end a rounded head, and an operating-lever also pivoted to the upper part and having at its forward end a socket which is engaged by the head, the fulcrums of the movable cutter and the operating lever being out of the plane of the cutting-edges. 70 75 80

5. The body consisting of upper and lower parts offset from each other and having between them a slot, said lower part having a cutter on its inner face and the upper part a hole 16, a movable cutter pivoted to the upper part and adapted to pass into the slot and having on its back a cutter 17, and an operating-lever engaging the rear end of the movable cutter, so that the cutting-edge thereon will act in connection with the lower cutting-edge, for the purpose set forth, and cutter 17 will act in connection with hole 16 as a wire-cutter. 85 90

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

HENRY V. SMITH.

Witnesses:

A. M. WOOSTER,

ARLEY I. MUNSON.