

W. A. BERNARD.

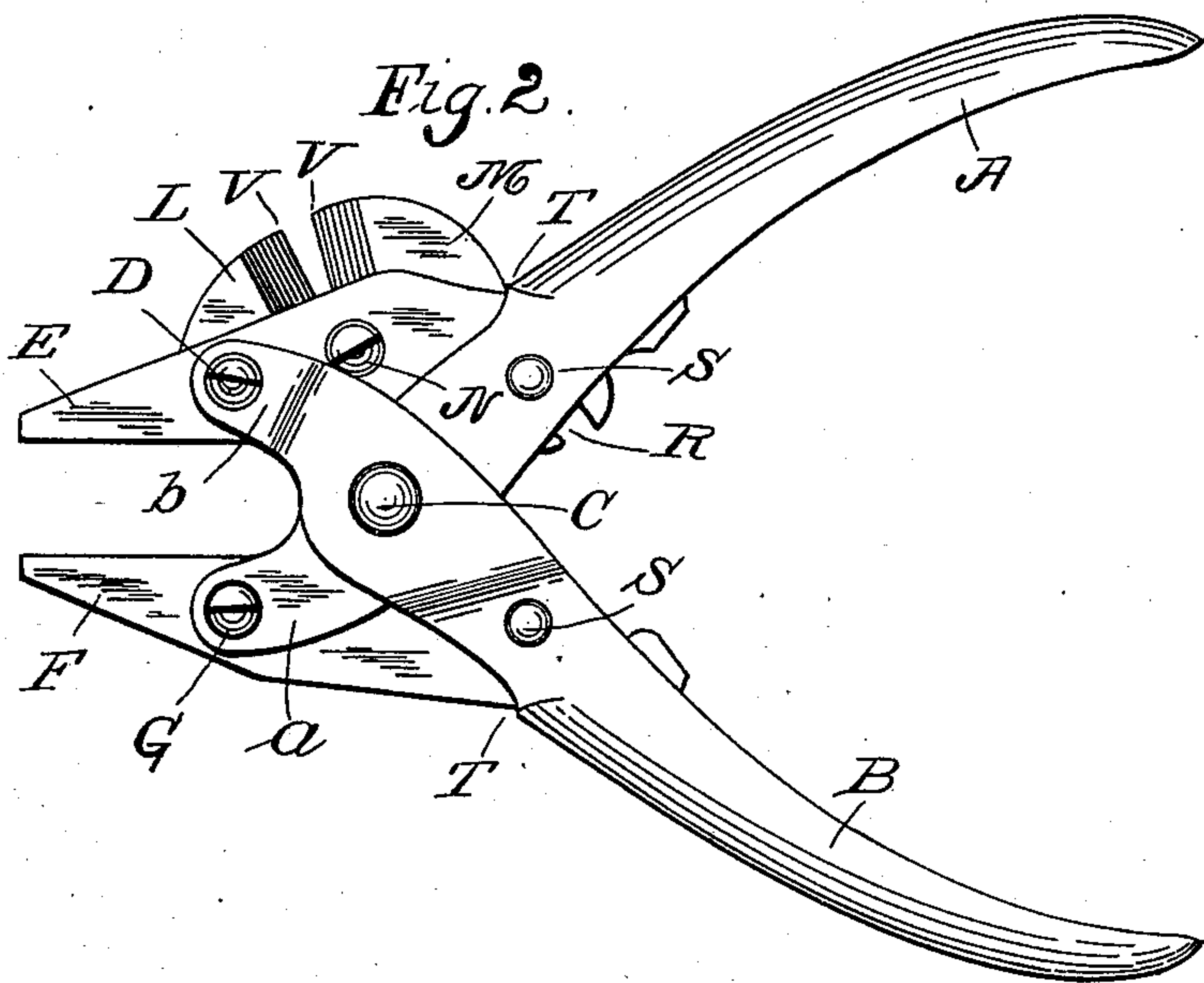
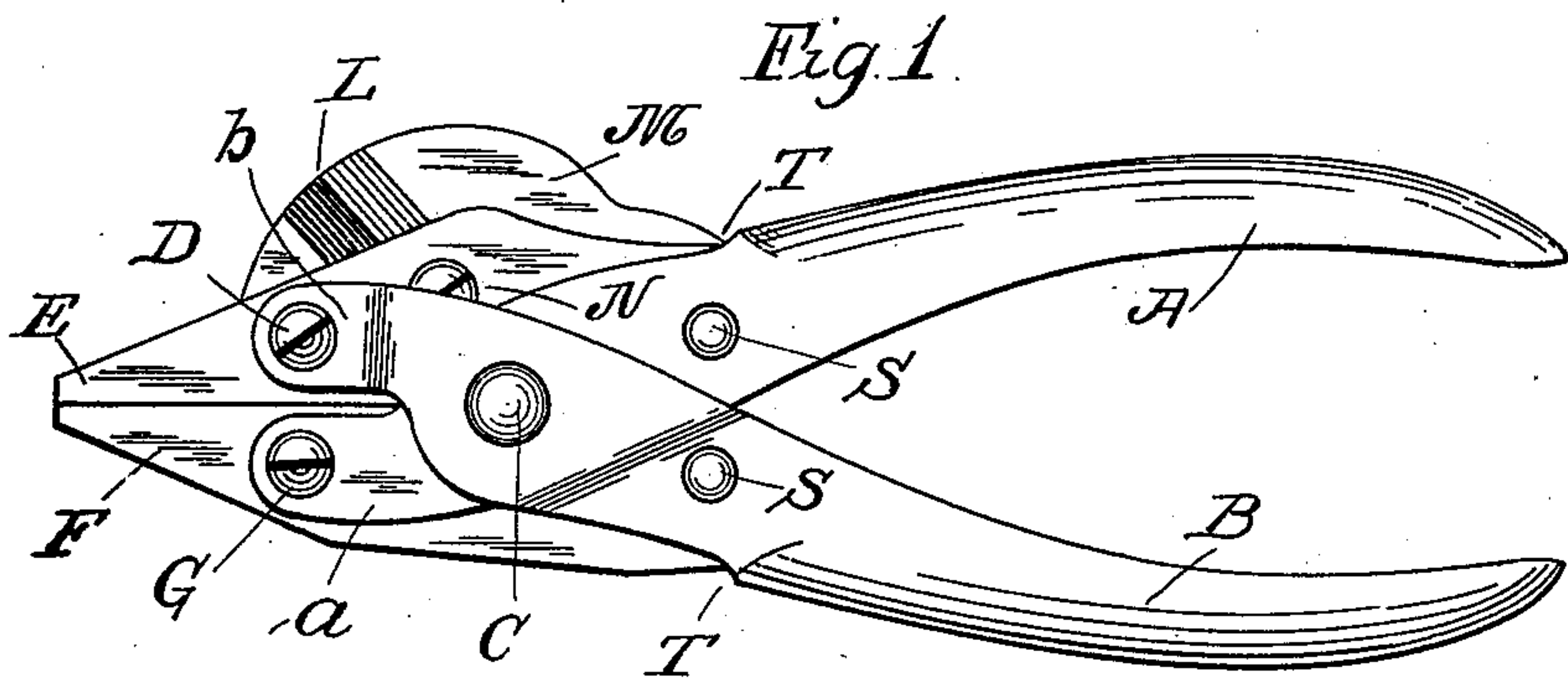
PLIERS.

APPLICATION FILED MAY 22, 1909.

999,738.

Patented Aug. 8, 1911.

2 SHEETS—SHEET 1.



WITNESSES:

J. S. Coleman
M. O. Williams

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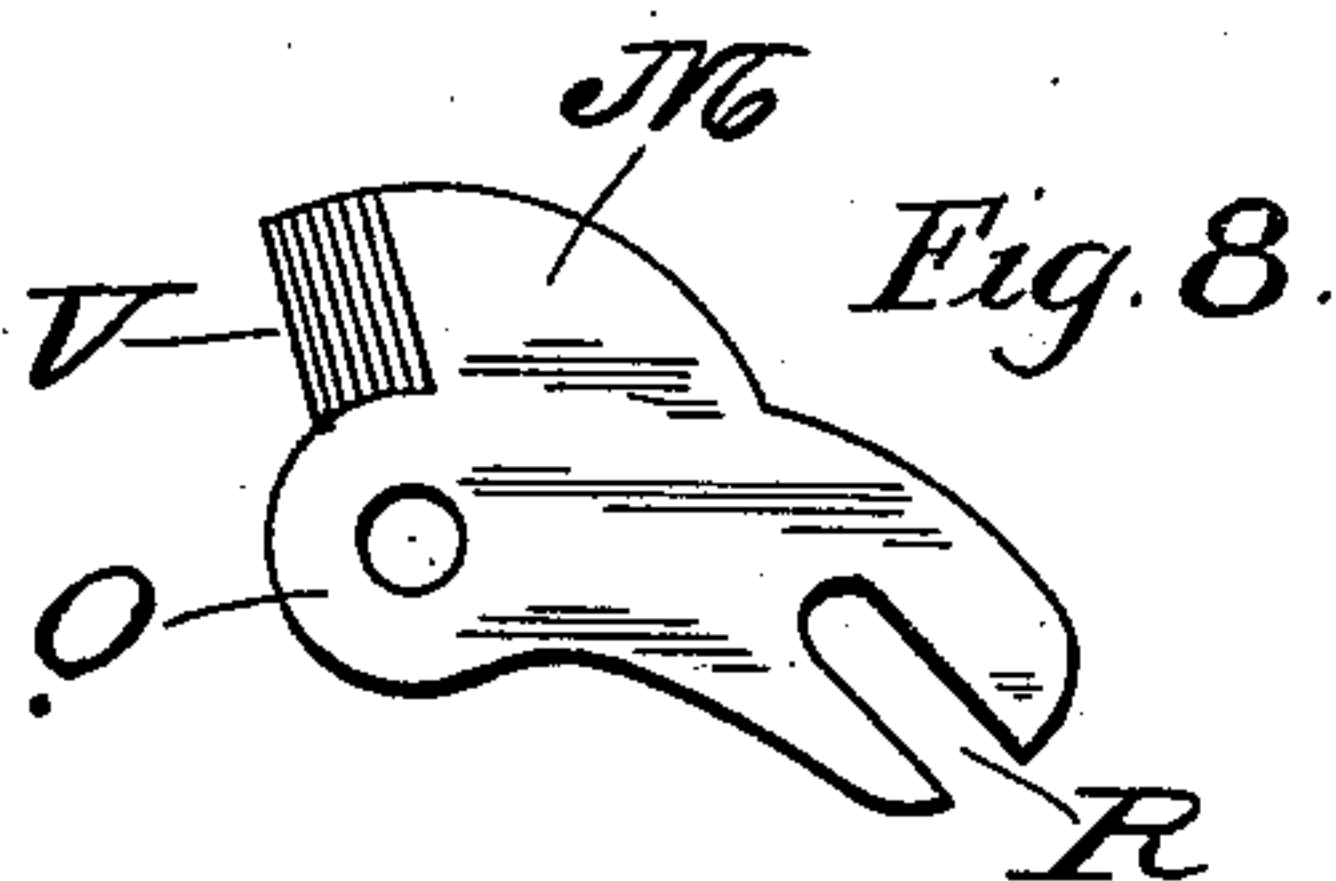
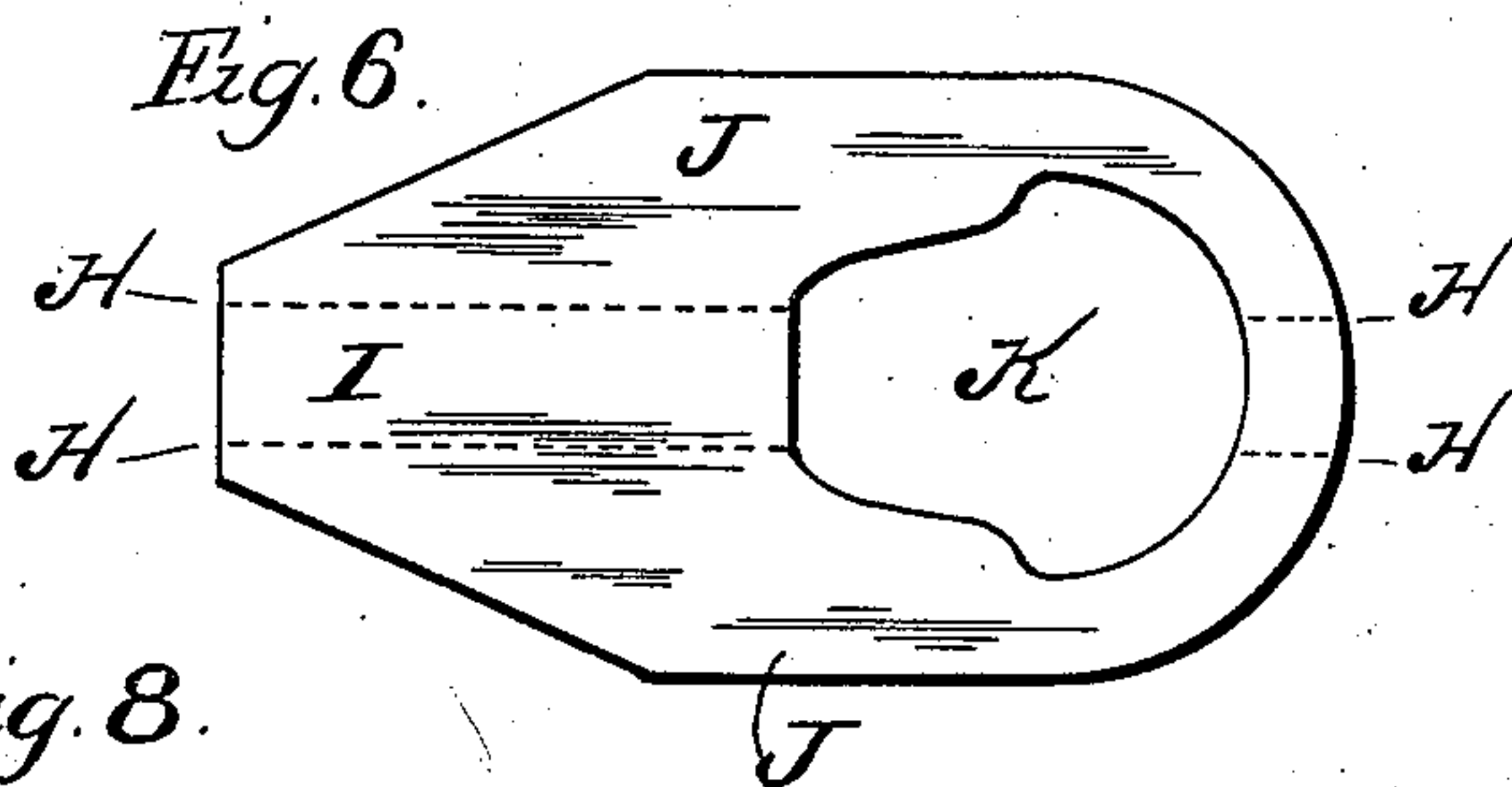
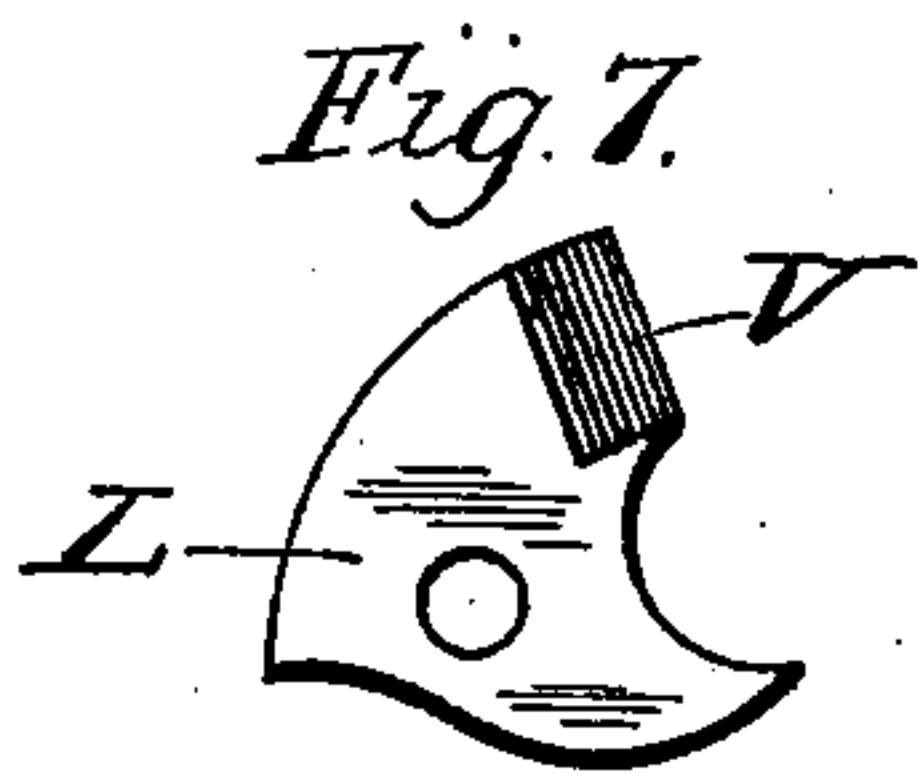
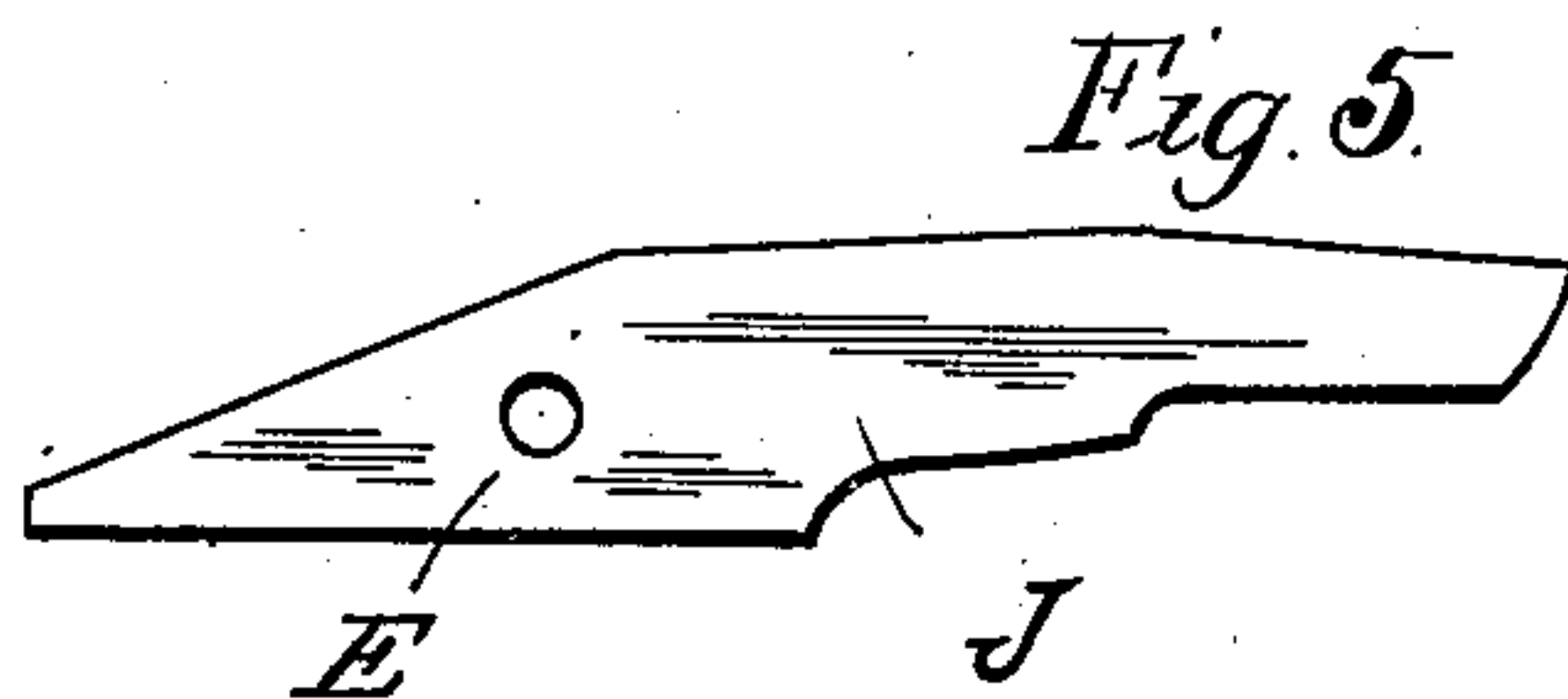
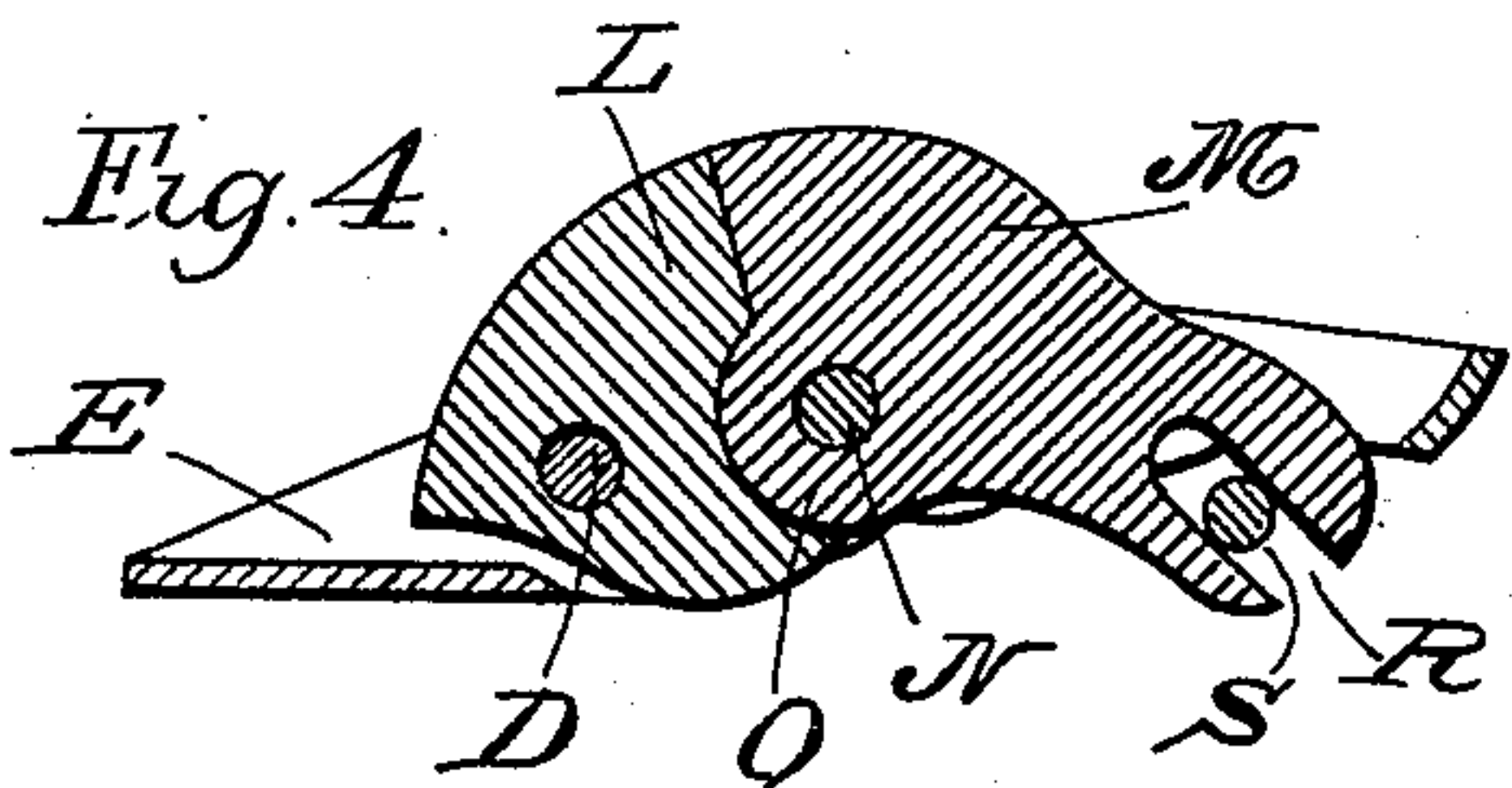
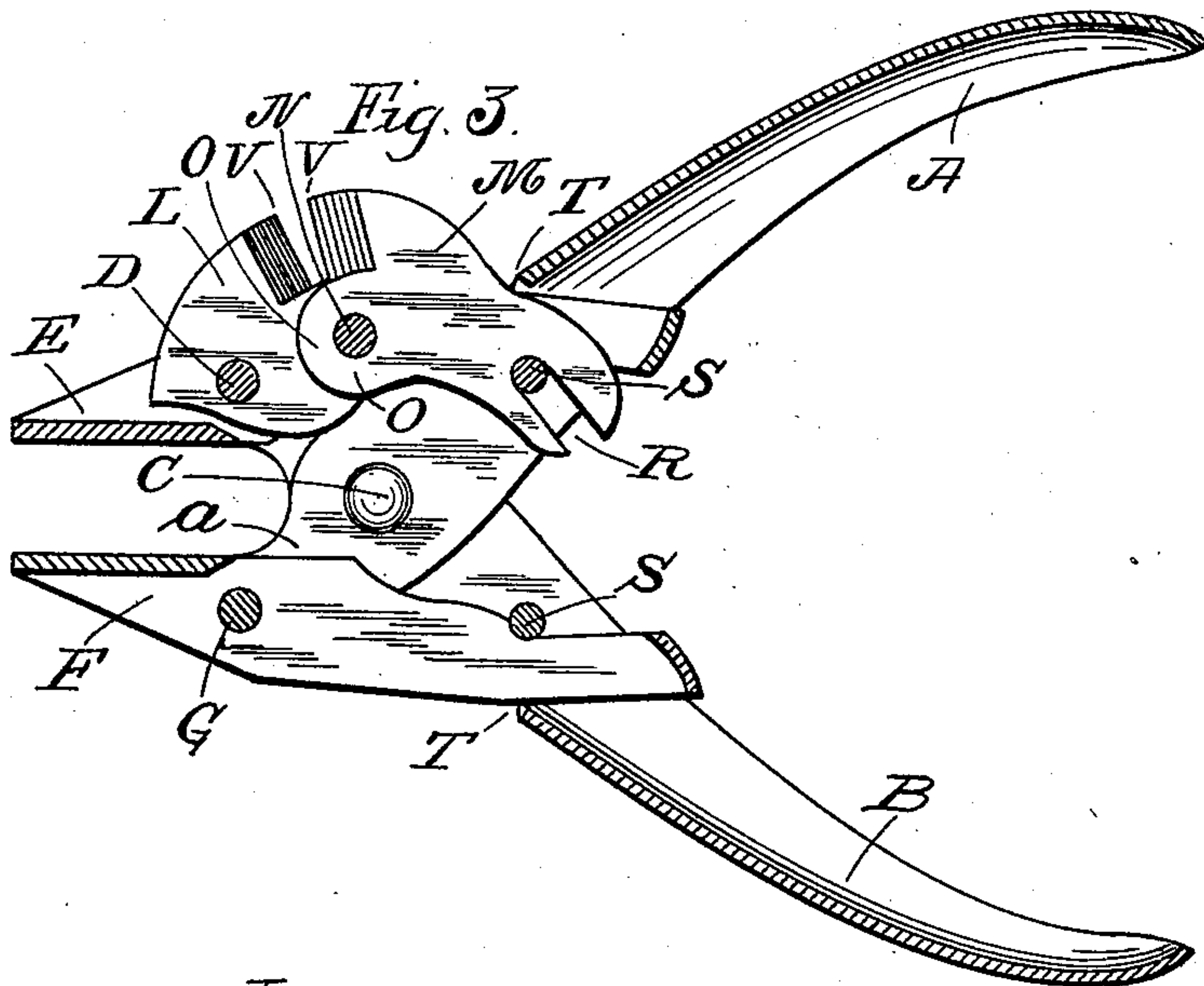
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2 SHEETS—SHEET 2.



WITNESSES:
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UNITED STATES PATENT OFFICE.

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PLIERS.

999,738.

Specification of Letters Patent.

Patented Aug. 8, 1911.

Application filed May 22, 1909. Serial No. 497,741.

To all whom it may concern:

Be it known that I, WILLIAM A. BERNARD, of the city and county of New Haven and State of Connecticut, have invented new and useful Improvements in Pliers and Similar Tools, of which the following is a full, clear, and exact description, when taken in connection with the accompanying drawings, which form a part thereof.

This invention relates to pliers, punches and similar tools, and consists in the production of a tool of that class in which the jaws and operating levers may be formed hollow.

The invention further consists in a novel method of mounting the cutting blades of such pliers, together with other novel improvements and combinations of parts set forth and claimed hereinafter.

Referring to the drawings, Figure 1 represents a side elevation of cutting pliers embodying the invention, Fig. 2, a similar view with the jaws open, Fig. 3, a longitudinal central vertical section through the pliers, as shown in Fig. 2, Fig. 4, a longitudinal vertical central section through one of the jaws and the cutting blades, Fig. 5, a side elevation in detail of one of the jaws, Fig. 6, a view of the blank from which one of the jaws is formed, and Figs. 7 and 8, side detail views of the cutting blades.

In all figures, similar letters of reference represent like parts.

In the drawings, the parts designated by the letters A and B represent hollow sheet metal handles or operating levers of the form shown in Letters Patent of the United States, No. 427,220, granted to me May 6, 1890. These lever handles are provided with forwardly projecting parallel plates *a* and *b*, which are pivoted together by a common fulcrum pin C. Between the plates *b* of the handle B is pivotally mounted at D a jaw E and between the plates *a* of the handle A a jaw F is similarly pivotally mounted at G. These jaws are shown formed of sheet metal from a blank substantially like that indicated in Fig. 6. The metal is bent along the dotted lines H (Fig. 6) so that the portion I forms the operating surface of the jaw, and the parts J the strengthening edge flanges or supports and the piece of metal between the flanges J forms a cross brace. A perforation K is stamped out of the blank as shown in Fig. 6, so that when the blank is

formed up into the jaws a central slot will be formed in which a cutting blade may operate. Within one of the jaws, as E, a cutting blade L is mounted between the side flanges J of the jaw, which is secured in place by the pivot pin D connecting the jaw E and handle B. A second cutting blade M is mounted in the slot or perforation K between the sides J of the handle, and is pivotally secured therein by means of a fulcrum pin N so that it is capable of rotary movement within the jaw. The forward end of this blade M, as shown more particularly at O, is curved to take into a corresponding recess on the blade L, thereby holding the blade L against movement in the jaw E. Toward the rear the blade M is provided with a slot R for the reception of a pin S extending through the handle. As is shown more particularly in Fig. 3, the rear ends of the jaws project back into the hollow handle and slide between pins S and the front edge T of the handles. The movement of the handle levers in opening or closing the jaws tends to open or close the cutting edges V of the cutting blades because as the jaw E is moved rearward in the handle A, the pin S tends to slide in the slot R which is, as shown in Figs. 3 and 4, at an angle to the line of movement of the jaw on which the blade M is mounted, and will therefore tend to turn the blade M on its pivot N moving the cutting edge V away from the cutting edge of the other blade L, which moves directly rearward in the line of the jaw E. The movement of opening and closing the handle levers A and B tends to move the jaws E and F so that their operating surfaces continue parallel to each other, as set forth in my prior patent above referred to.

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

1. In pliers, and similar tools, the combination with operating levers; of jaws actuated thereby, one of said jaws having a pivotal connection with one lever, and a sliding connection with the other lever; and a cutting blade rigidly connected with said jaw and a second cutting blade pivoted to said jaw and having a sliding connection with an operating lever, whereby when the levers are opened or closed the pivoted cutting blade will be rotated on its pivot in said jaw, substantially as described.

2. In pliers and similar tools, the combination with operating levers; of jaws actuated thereby, one of said jaws having a pivotal connection with one lever; and a cutting blade rigidly connected with said jaw, and a second cutting blade pivoted to said jaw; said jaw and pivoted cutting blade having sliding connections with one of the operating levers in different directions, substantially as described.

3. In pliers and similar tools, the combination with operating levers; of jaws actuated thereby, one of said jaws having a pivotal connection with one lever and a sliding connection with the other lever; and a cutting blade rigidly connected with said jaw, and a second cutting blade pivotally mounted on said jaw and having a slot and pin connection with one of the operating levers, whereby upon the movement of said lever said pivoted blade will be rotated on its pivot, substantially as described.

4. As an article of manufacture, a jaw for pliers or similar tools of sheet metal having

a thin operating surface and parallel side stiffening plates at right angles to the operating surface and projecting to the rear thereof, and a rear cross brace at right angles to said side plates and operating surface, said operating surface, side plates and rear cross brace being integral, substantially as described.

5. As an article of manufacture, a jaw for pliers or similar tools, having an operating surface and parallel side stiffening plates at right angles to the operating surface, and a rear cross brace at right angles to said side plates, said operating surface, side plates and rear cross brace being formed integral from a sheet of metal having a longitudinal slot, substantially as described.

In witness whereof, I have hereunto set my hand on the 20th day of May, 1909.

WILLIAM A. BERNARD.

Witnesses:

SAMUEL H. FISHER,
M. OLIVE WILLIAMS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."