

No. 639,792.

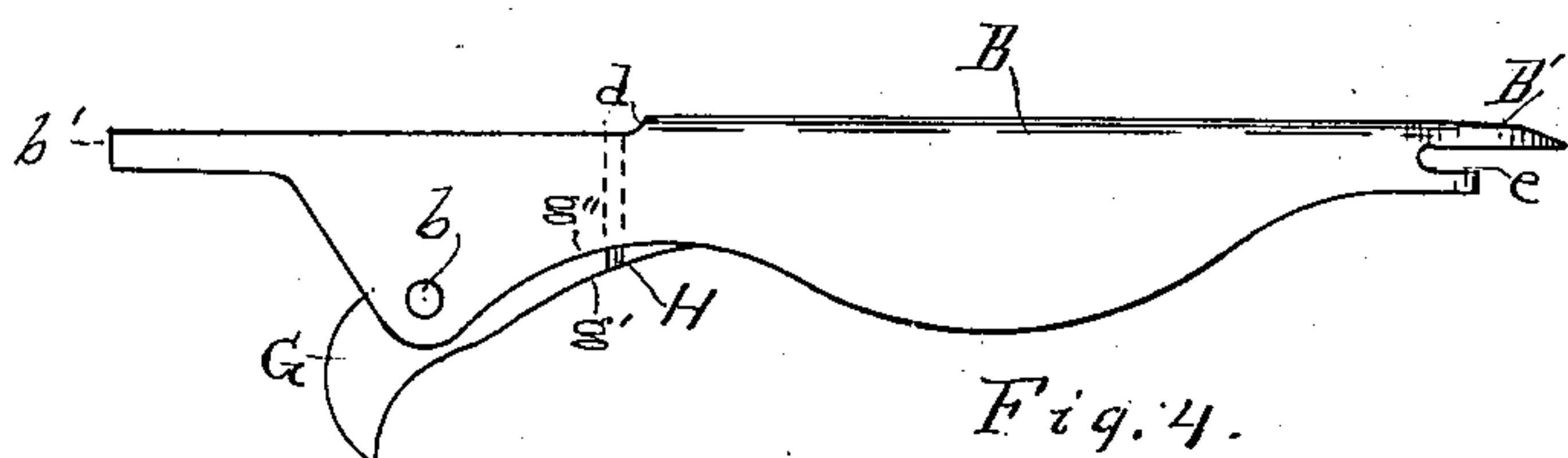
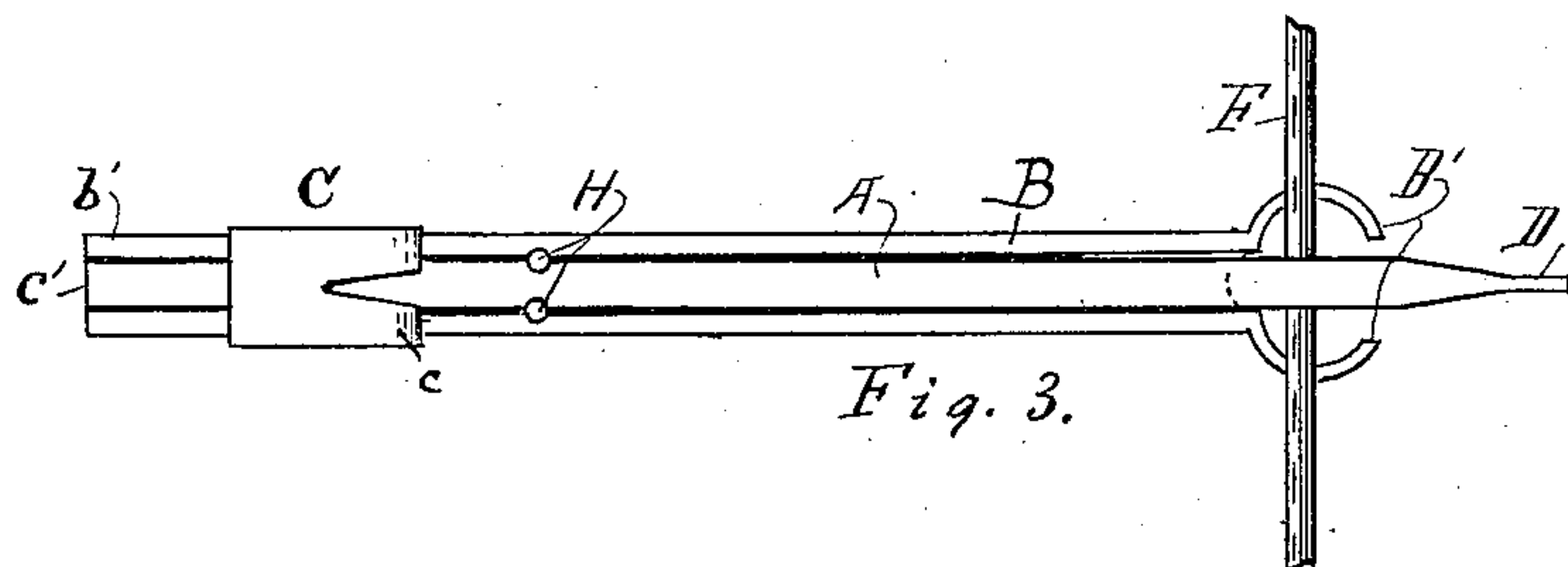
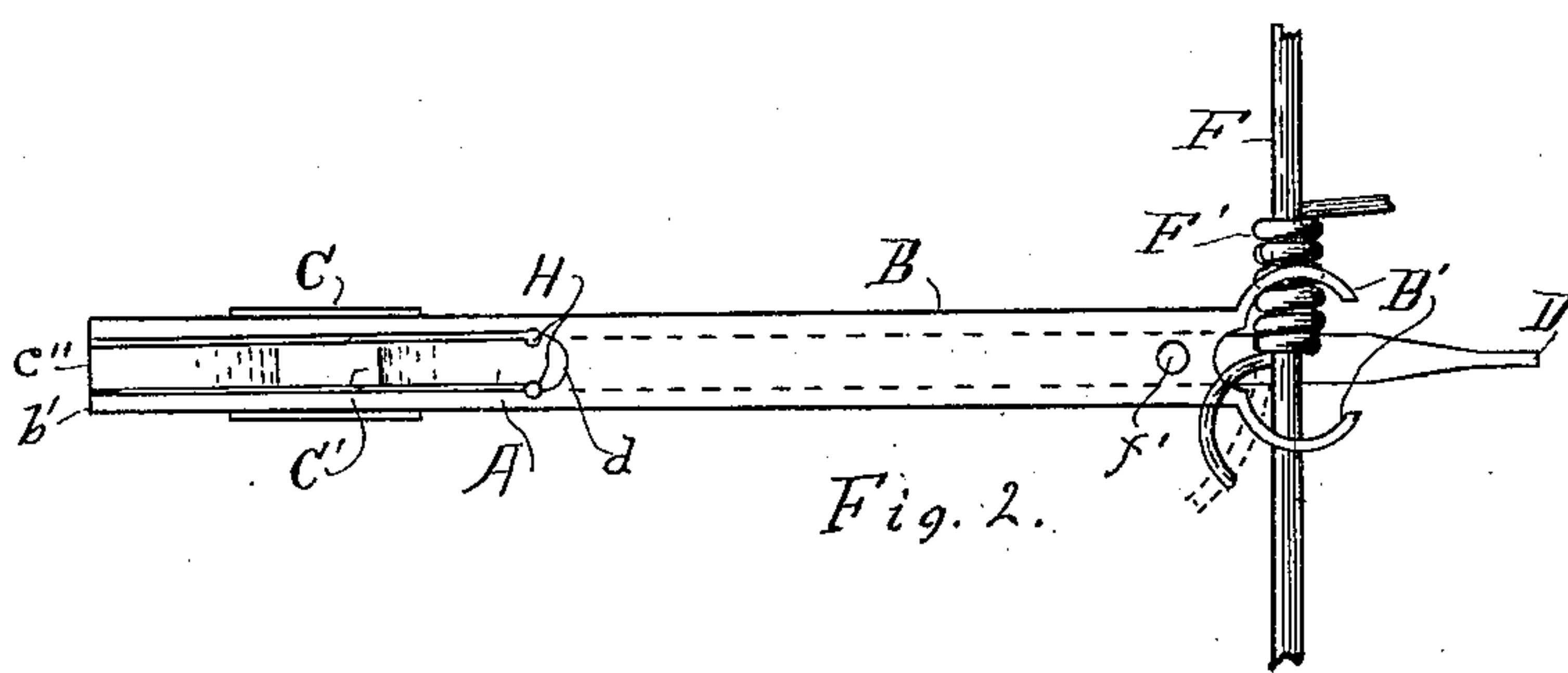
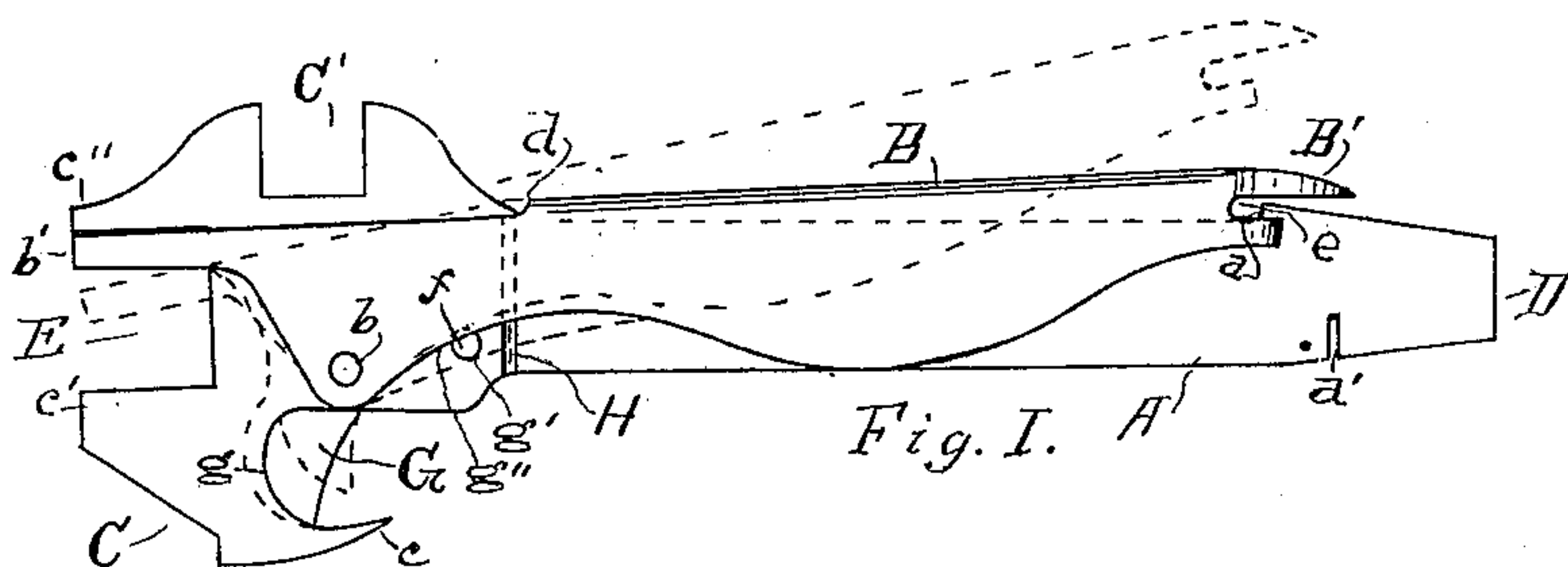
Patented Dec. 26, 1899.

J. H. SULLIVAN.

REPAIR TOOL FOR USE BY ELECTRIC LINEMEN.

(Application filed May 17, 1898.)

(No Model.)



Witnesses.

Inventor.

A. W. Joannes
S. D. Hoff

John H Sullivan

By Killey & Allgier

Attorney.

UNITED STATES PATENT OFFICE.

JOHN H. SULLIVAN, OF GRAND RAPIDS, MICHIGAN.

REPAIR-TOOL FOR USE BY ELECTRIC LINEMEN.

SPECIFICATION forming part of Letters Patent No. 639,792, dated December 26, 1899.

Application filed May 17, 1898. Serial No. 680,974. (No model.)

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 Repair-Tools for Use by Electric Linemen and Others, of which the following is a specification.

My invention relates to improvements in wire-cutting, wire-splicing, and general electric-line repair-tools; and its object is to conveniently combine as many instruments in one as is possible without rendering the combination inconvenient to manipulate. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of my improved implement. Fig. 2 is a top plan, and Fig. 3 is a bottom plan, of the same; and Fig. 4 is an elevation of the adjustable arm of the same.

In constructing this implement I make use of a base or inner section A, having one end provided with a hammer-head C and claws *c* upon one edge, a wrench C' upon the opposite edge, and a wrench and pliers at the end, the other end being constructed to form a screw-driver D, an offset *a* for use in splicing wire, as hereinafter more fully described, and a saw-set *a'*.

To complete the implement, I combine with the inner section an outer section B, which is folded to fit closely but freely over the two sides and one edge of the inner section. The back or upper edge of this section is closed from the point of juncture of the prongs B' to *d*. At *d* a mortise is made to allow the wrench-head C' to be passed through for assembling the parts of the implement. The end *b'* is solid, and when in its normal position it forms one jaw of the wrench E, the arm *c'* forming the other jaw, and when thrown to the position indicated by the dotted lines it forms, with the jaw *c''*, flat pliers.

The section B is pivoted to A, as at *b*, so that it may be conveniently operated thereon, as indicated by the dotted lines in Fig. 1. On the opposite edge of one side of this section I form a cutting-jaw G, that acts with a cutting edge *g* on the neck of the hammer to form pliers for cutting wire, &c. A second pair of cutting-pliers is formed by drilling a diagonal hole *f* through the inner section and

forming a cutting edge *g'* on the other side of the section B from that seen in Fig. 1, arranged to act in conjunction with the cutting edge of the inner section at said hole to cut wire when properly manipulated. In conjunction with these pliers I form a clamp or pliers to prevent the severed wire from dropping by making the opposite edge of the wall of the section B at *g''* to project just far enough over the hole to engage the wire just before it is severed by the cutters *g'* and *f*. By this means, though the operator may have but one hand free with which to hold and cut the wire, he can do so without danger of dropping the piece severed. At the opposite end of section B the metal is drawn down narrow and divided to form two curved prongs B', projecting laterally to form bearings upon the wire F, that is being wound or spliced, said bearings being opposite to and in direct line with the offset *a* in the inner section.

For the purpose of regulating the distance apart that I desire to place the coils of the winding wire F' or the splicing wire I form a lateral division, as *e*, in these diverging arms, and, presuming that the wire passing out between the curved arms B', as in Fig. 2, will wind the coils the width of the diameter of the wire apart, if I desire to increase the distance I pass the end of the winding wire out of the left-hand lateral aperture, as indicated by the dotted lines in Fig. 2, which holds the "lead" of the wire at a greater incline as it encircles the receiving-wire, and consequently winds the successive coils a correspondingly greater distance apart, thus making an open coil, and if I desire to diminish the distance I pass it out through the opposite lateral aperture.

To manipulate the implement for winding or splicing wires, the main wire F is placed in the offset *a* with the winding wire F' wound once or twice around as a starter, and the curved arms B' are brought to bear upon it to clamp it between the two main arms. The end of the winding wire is passed through one of the apertures, as shown, and the implement carried around and around, with the wire F as a pivot, until the desired amount of wire is placed.

I sometimes form a small aperture *f'* through the edge of the arm B, just back of the di-

vision formed by the arms B', which I find very convenient and advantageous in winding small wire, but not necessary when winding large wire.

5 The object of folding the outer section so that it will project down each side of the inner section is twofold—first, to strengthen it and to form a reliable pivot-bearing at *b*, and, second, to avert the danger of pinching the
10 hand when manipulating the instrument.

The wire that is being wound is pressed snugly to the main wire and locked thereon by the friction of the arms of the implement.

15 The edges of the arms B' may be sharpened and made available for opening tin cans by forcing one of them through the can and prying until it cuts through in the usual manner.

I construct a staple-turner on my implement by forming grooves H in the two portions of the implement in position so that a
20 piece of wire may be placed in and bent to the proper form by simply bringing the two sections to their normal position.

Having thus fully described my invention,
25 what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a repair-tool, an inner and an outer section pivotally connected near one end, the inner section having a diagonal hole through
30 it near the pivot-point, the outer section infolding the inner section, one side of the outer section formed as a cutting-jaw with the edge of the diagonal hole through the inner section and to pass by and form a wire-cutter
35 therewith, the opposite side of the outer section made to only partially cover the opposite end of the hole and form a clamp to prevent the severed end of the wire from dropping from the cutter, substantially as and for the pur-
40 pose set forth.

2. In an electrician's repair-tool, an inner section, an outer section pivoted thereto, opposing jaws projecting longitudinally from the short end of the inner section, a jaw pro-
45 jecting longitudinally from the short end of the inner section between the opposing jaws of the outer section and so placed that normally it lies against one of the opposing jaws and unites with the other opposing jaw to form
50 a wrench, and may be operated with its ad-

joining jaw to form flat pliers, thus rendering this portion of the tool readily interchangeable from a wrench to pliers and vice versa, substantially as and for the purpose set forth.

3. In a repair-tool, an inner section, an outer section infolding said inner section and piv-
55 oted thereto near one end, the free end of the inner section having an offset to receive and hold wire, the adjacent end of the outer section flattened to lie parallel with the edge of
60 the inner section and divided and spread laterally to form a broad bearing so that the wire may be clamped between this bearing and the end of the inner section in said offset, to hold the wire in position to be successfully wound,
65 substantially as and for the purpose set forth.

4. In a repair-tool, an inner section, an outer section infolding said inner section and piv-
70 oted thereto near one end of both sections, the edge of the free end of the inner section having an offset for the reception of wire at right angles with the section, the adjacent end of the outer section divided and spread laterally to form a broad bearing opposite the off-
75 set in the inner section, and provided with an aperture back of the line of division to act as guides to regulate the distance of the coils of the wire as it is wound, substantially as and for the purpose set forth.

5. In a repair-tool, an outer and an inner
80 section, the outer section infolding the inner section and pivotally connected therewith near one end, the opposite end of the inner section having an offset to receive wire, and the end of the outer section divided and ar-
85 ranged to wind wire, substantially as and for the purpose set forth.

6. In a repair-tool, two sections pivotally connected near one end, the opposite end of one section provided with an offset to receive
90 wire, the adjacent end of the other section divided vertically and laterally for regulating the width of the spirals when winding wire, substantially as and for the purpose set forth.

Signed at Grand Rapids, Michigan, May 13, 1898.

JOHN H. SULLIVAN.

In presence of—

ITHIEL J. CILLEY,

JAS. M. CARVER.