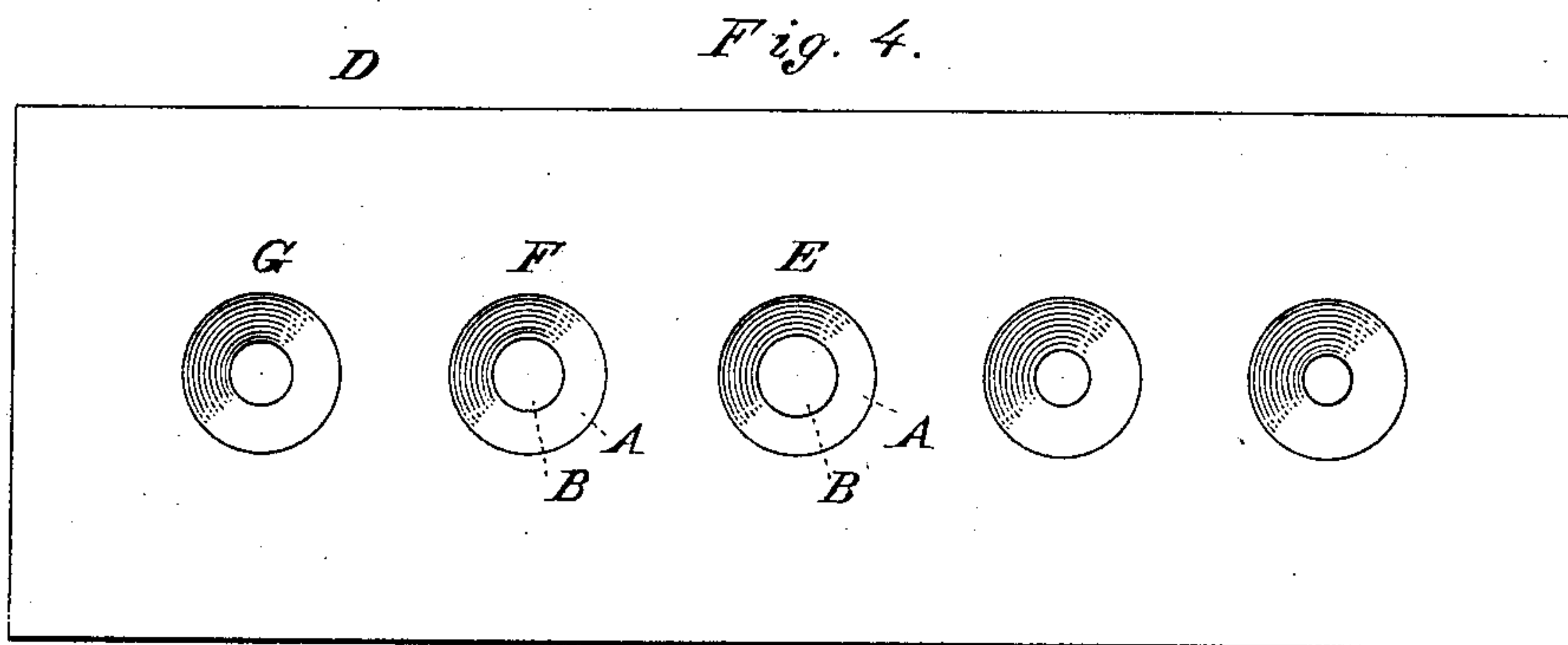
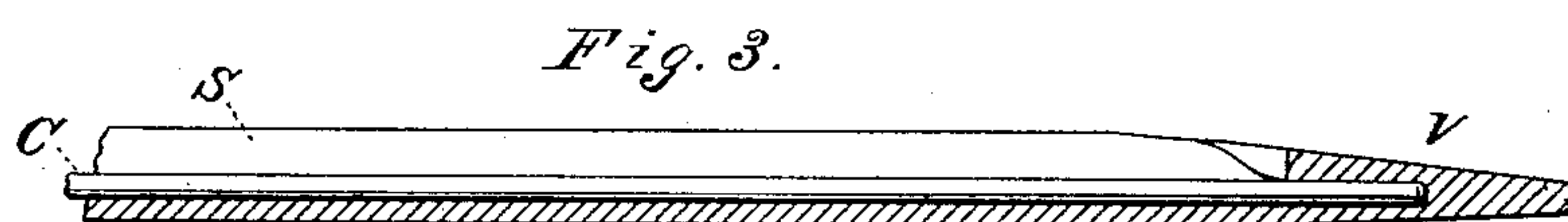
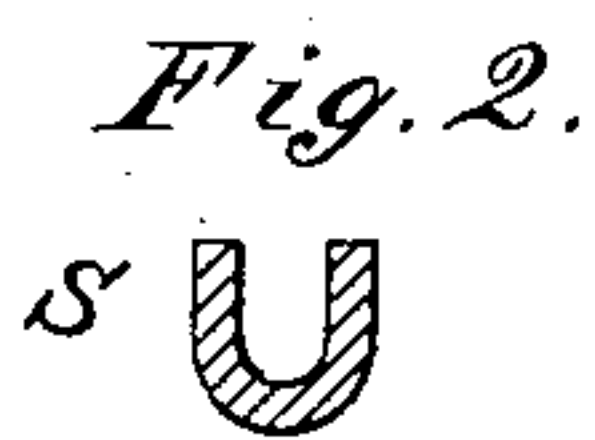
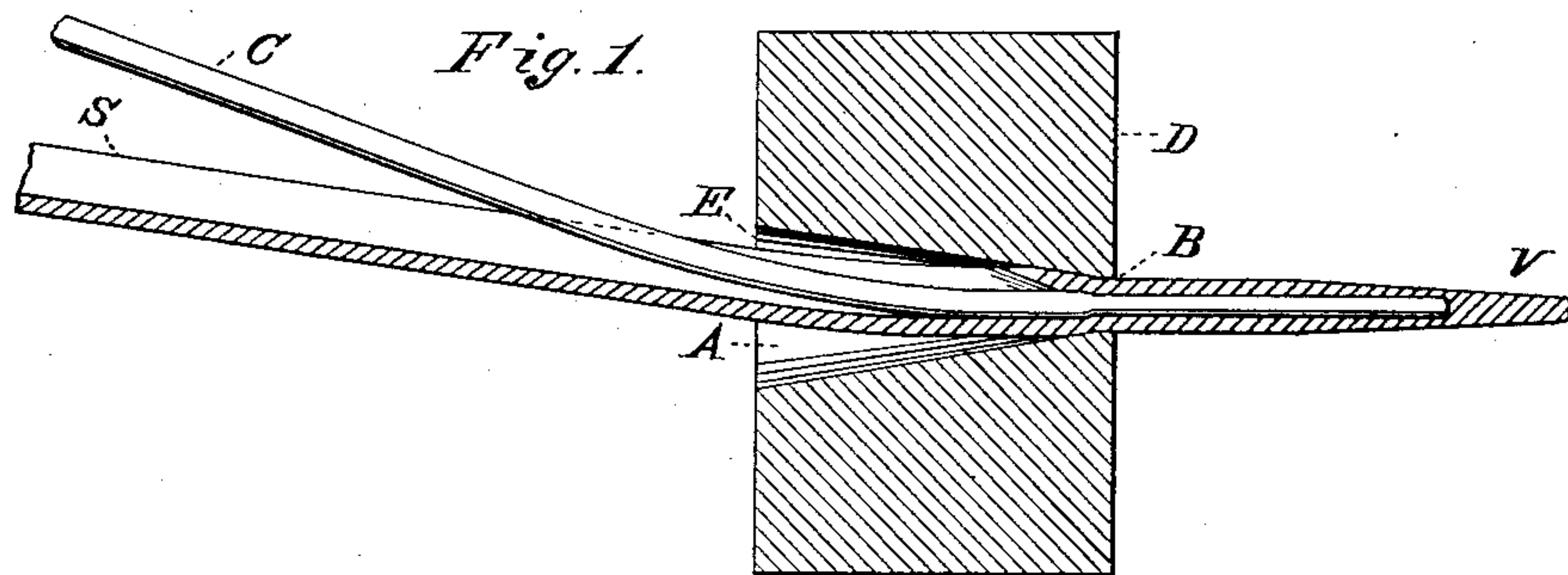


(No Model.)

I. A. & M. D. KILMER.  
MANUFACTURE OF COMPOUND WIRE.

No. 309,468.

Patented Dec. 16, 1884.



WITNESSES

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# UNITED STATES PATENT OFFICE.

IRVING A. KILMER AND MELVIN D. KILMER, OF SCHENECTADY, NEW YORK.

## MANUFACTURE OF COMPOUND WIRE.

SPECIFICATION forming part of Letters Patent No. 309,468, dated December 16, 1884.

Application filed May 17, 1884. (No model.)

*To all whom it may concern:*

Be it known that we, IRVING A. KILMER and MELVIN D. KILMER, citizens of the United States, residing at Schenectady, in the county of Schenectady and State of New York, have invented certain new and useful Improvements in Process of Making Compound Wire for Telegraphic and other Purposes; and we 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of this invention, and shows a vertical section taken through the draw-plate, and a portion of the wire. Fig. 2 is a cross-section through the outer covering for the wire before being drawn. Fig. 3 is a section taken lengthwise of the wire-covering, and shows the core adjusted for being drawn with it. Fig. 4 is a front view of the draw-plate.

This invention has relation to telegraphic and other wires for purposes connected with the application of electricity.

The invention consists in the novel method or process of, first, forming a U-shaped blank of soft steel or iron; secondly, introducing a copper wire longitudinally in the hollow thereof and drawing both through a tapering die to close the steel or iron upon the copper core; and, thirdly, drawing the compound wire thus formed down to any size required, all as hereinafter set forth, and pointed out in the appended claim.

In carrying out this invention a strip or ribbon of soft steel or iron, (Swedish iron being preferred,) to the length of several hundred feet, is rolled in U-shaped form in cross-section. A coil of copper wire of sufficient length for the purpose hereinafter described is also provided.

D represents a draw-plate, which is made of steel, chilled iron, agate, or other sufficiently hard substance. In this plate are formed the die-apertures or draw-holes E F G, which are somewhat conical or tapering in form from the entrance A to the discharge B. The draw-holes vary in diameter in a graduated manner.

The U-shaped strip-blank S is coiled upon a reel, which is located in front of the draw-plate, and the coil of copper wire C is placed upon a second reel above the strip-blank; or, said copper wire may be conducted by guides above the strip-blank in proper position to be introduced into the channel thereof. The end of the strip-blank is rolled in tapering form, as indicated at V, so that it will extend through the draw-hole E of the plate. The end of the copper wire is introduced into the cone-shaped recess in the end of the strip-blank, and is centered therein by the form of said recess. The projecting portion of the tapered end of the strip-blank having been seized by the pinchers of the drawing-machine, the blank closes upon the end of the copper wire, grasping it firmly as soon as the drawing operation commences. The drawing being continued, the U-shaped blank is continuously closed upon the copper wire, which is fed into the channel thereof and forms the core of the compound wire which is thus made. By the action of the draw-plate the edges of the U-shaped blank are solidly joined, and said blank is centrally pressed in solid contact with the copper-wire core. This first drawing usually reduces a little the thickness of the strip-blank as well as the diameter of the wire. By passing the compound wire thus formed through the next smaller draw-hole of the draw-plate the diameter of the compound wire will be further reduced, and by the action of still smaller draw-holes the size of the compound wire may be reduced according to requirement. In each reduction the thickness of the outer wall of steel or iron is reduced, as well as the diameter of the copper core. No heat is employed in the drawing.

When the compound wire is reduced to the proper size, it may be galvanized or covered with a protective coating to prevent rust, or for such other purpose as its prospective use may require.

This compound wire is designed to serve an excellent purpose as a conductor of electricity, especially adapted for telegraph and telephone lines. The steel or iron outer wall gives great strength and perfectly protects the copper core, which furnishes the conduction in the most efficient form.



We are aware that it is not new in the manufacture of wire to place a copper wire in a U-shaped strip of iron or steel and draw the same through a die, so as to have the said iron or steel envelop the wire; and while we have described the complete process of manufacturing wire, it will be understood that the novelty relied upon is in the peculiar manner of preparing the stock for the production of wire, as specifically hereinafter pointed out.

Having described this invention, what we claim, and desire to secure by Letters Patent, is—

In the manufacture of wire substantially as described, the process of preparing the stock

therefor, which consists, first, in forming a U-shaped blank of soft steel or iron; second, in rolling one end of the blank thus formed to a taper with an inner cone-shaped recess; and, third, in introducing one end of a copper wire into the said recess for the subsequent operation of drawing, as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

IRVING A. KILMER.  
MELVIN D. KILMER.

Witnesses:

RICHARD FULLER,  
E. I. TRUAX.