

No. 717,270.

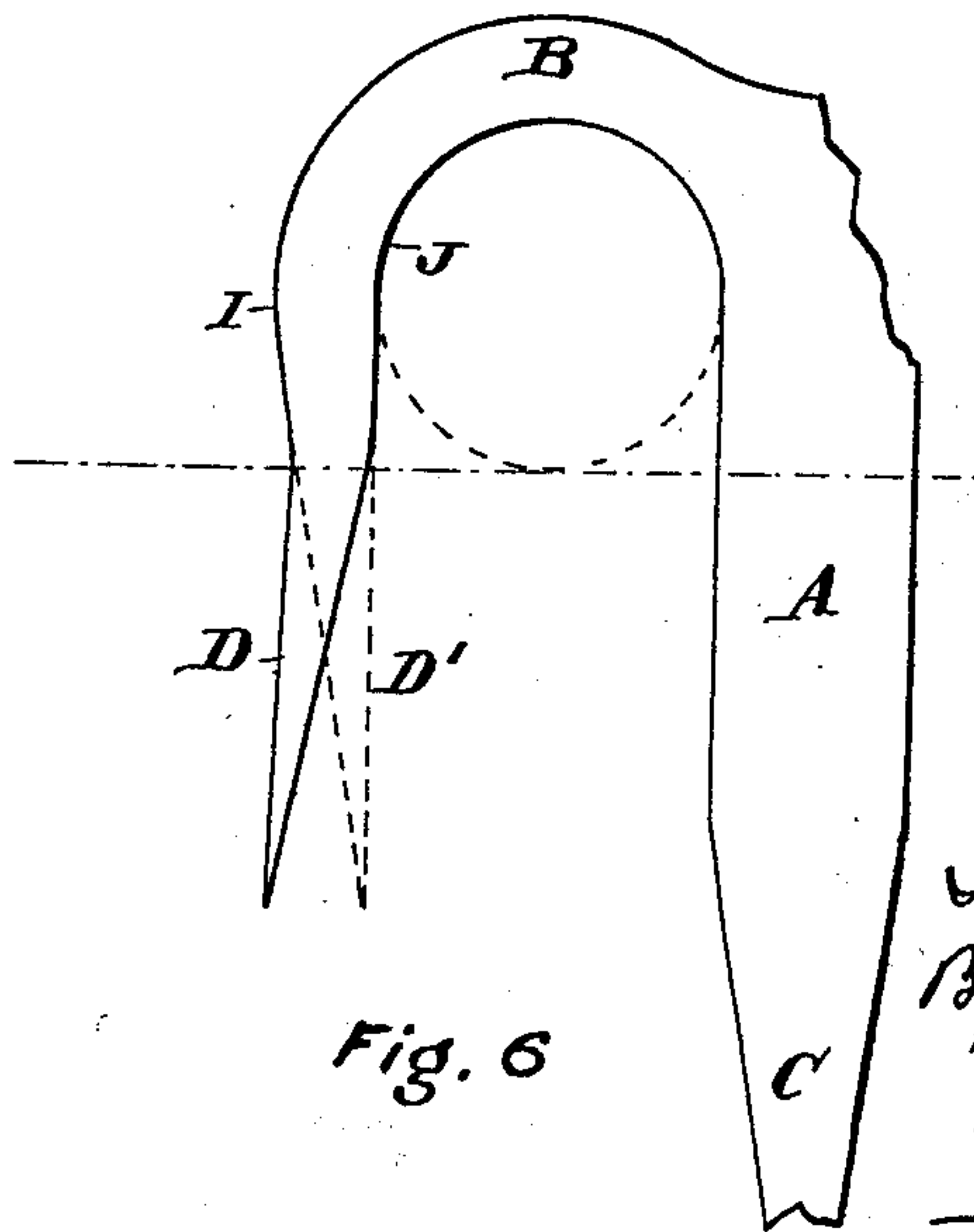
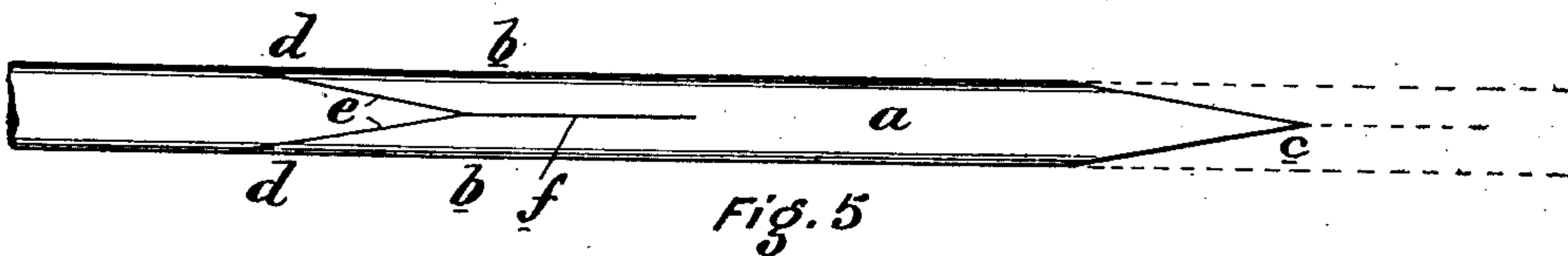
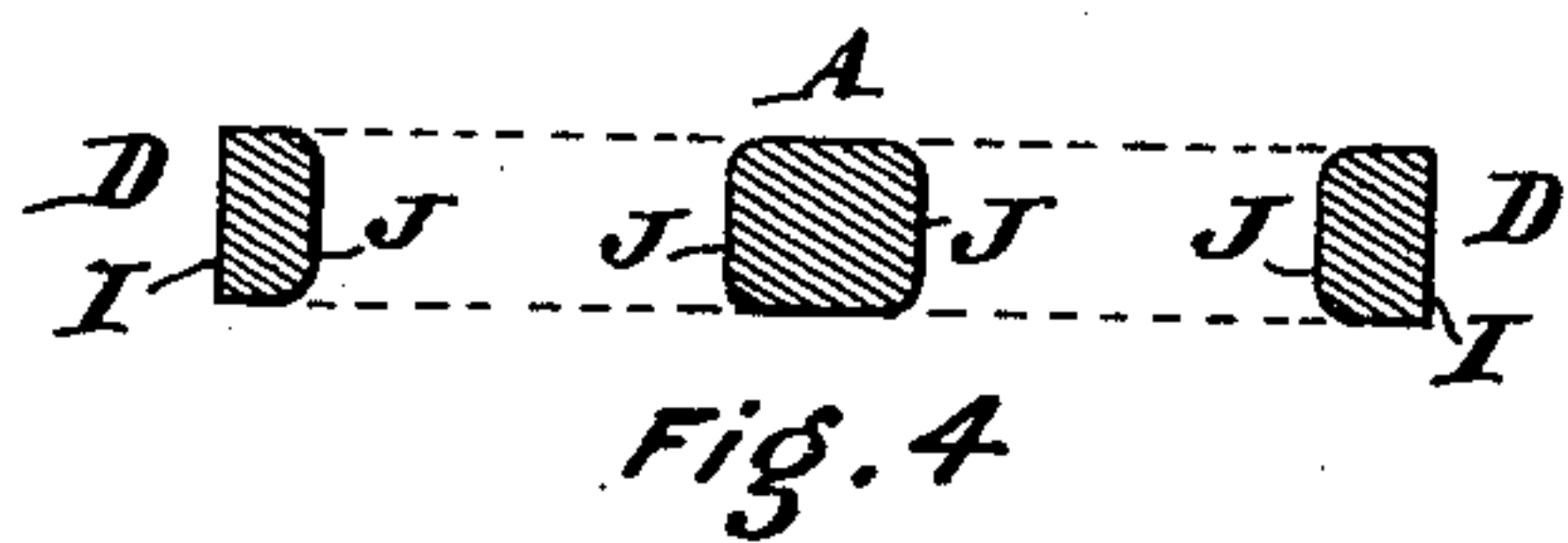
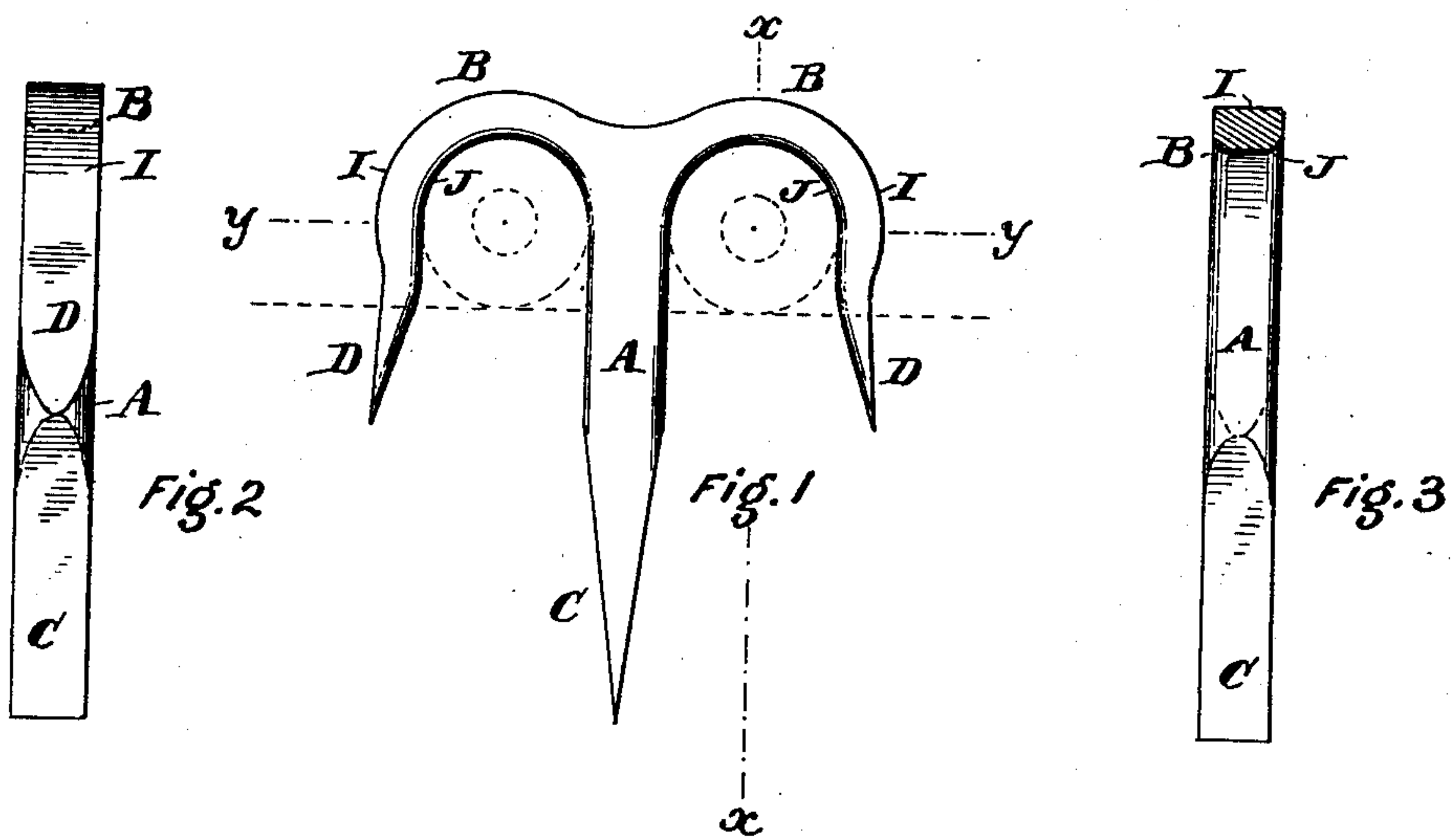
Patented Dec. 30, 1902.

H. DE L. RAPSON.

STAPLE.

(Application filed Feb. 3, 1902.)

(No Model.)



Attest  
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By *[Signature]*

# UNITED STATES PATENT OFFICE.

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## STAPLE.

SPECIFICATION forming part of Letters Patent No. 717,270, dated December 30, 1902.

Application filed February 3, 1902. Serial No. 92,285. (No model.)

*To all whom it may concern:*

Be it known that I, HOBART DE LANCEY RAPSON, of the city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Staples, of which the following is a specification.

My invention has reference to staples; and it consists of certain improvements fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to construct a metallic staple in a simple and inexpensive form, so shaped as to have three prongs and be specially adapted for holding all pliable materials without danger of cutting or abrading the same where the strain of the material comes against the metal of the staple.

My improvement is especially useful as a means for holding electrical wires where cheapness and durability are required, together with safety, to the insulation of the wire.

In carrying out my invention I provide the central shank of the staple with two laterally-extending outer prongs terminating in the downwardly-projecting pointed ends, giving the staple the shape of the letter T, and in which the lateral arms are so curved as to form semicylindrical upper portions, so as to clamp the wire and at the same time exert no undue pressure on any particular part such as would occur if the upper parts were made straight. Furthermore, the surfaces which are caused to come in contact with the material to be clamped are all smooth, since they are the natural surfaces produced in the rolling or drawing of the rod or wire from which the staple is made, and for this reason there is the greatest protection against abrading the material through which the staple is driven. In my preferred form I make the staple from a section of wire rectangular in cross-section, which wire is sharpened on one end and provided with a V-shaped notch at the other end, which is split down into the body, the object of which construction being to form two prongs which may then be bent outwardly and downwardly to constitute the two outer prongs of the staple. From this it will be seen that the three prongs are knife-

edged, and hence have great penetrating qualities, and no loss of material is required in the production of the staple. I further prefer to bend the knife-edges of the outer prongs outwardly from a point somewhat below the top of the staple, so as to change the angle of the knife-edges of these prongs to produce a somewhat-tapering entrance between the sides of the outer prongs and center prongs, the advantage of which is to cause the material being held to be drawn toward the central prong. In the case of wire this is not of so much importance as in case of other materials, as this construction insures the adjacent parts closely butting against each other, as will be readily understood. It will also be noticed that the inner surface of these outer prongs are perfectly smooth, so that they do not abrade or cut the material when being driven in.

My invention also comprehends minor details of construction and will be better understood by reference to the drawings, in which—

Figure 1 is an elevation of my improved staple. Fig. 2 is an edge elevation of the same. Fig. 3 is a sectional elevation of the same on line *x x*. Fig. 4 is a cross-section of the same on line *y y*. Fig. 5 is a plan view of one of the staple-prong sections before being bent into a finished form, and Fig. 6 is a diagram illustrating the manner of bending the point of the side prong to secure the slanting inner surface.

A is the main shank of the staple and is pointed at the lower end, as at C. The body part of the main shank A is provided at the top with two arms B B, extending laterally outward and downward to constitute downwardly-extending prongs D D, of shorter length than the middle shank A. These prongs are pointed, so as to readily enter the wood, and the inner surface extends outwardly as we approach the point, so as to constitute between the shank A and the prong a tapering entrance. The object of this is that when the staple is driven into the wood or other support the prong D enters the material and in descending through it draws it inward toward the central prong A, with the result that the materials on both sides are caused



to make a good butted joint or seam. By making the arms B B of the prongs arch shape at the top, approximately a semicircle, it is adapted to more uniformly fit down upon the insulated wires when used for properly supporting the same and has a minimum tendency to cut or abrade the insulation-covering.

In the construction shown the staple is best made from a rectangular wire having smooth rounded corners, and these rounded corners and smooth surfaces are indicated at J. It will be seen that they are the parts which directly press against the material to be held by the staple, and consequently there is no rough or sharp surface on the staple to press against the material. The point C of the shank A is beveled to a knife-edge, so as to easily enter and also retain its direction of entering on being driven home.

In forming the staple the section of the metal is split at the top and the two parts thus formed separated laterally and bent downward to produce the prongs, and it will be seen that the inner surface J J thus formed will be smooth, and while the edges I will be more or less sharp they will not be the edges which bear against the materials being held, and hence such sharpness at this part is of no consequence.

In Fig. 5 I have shown a plan view of metal wire from which the staple is made, the same being cut into sections, which are separated by V-shaped incisions. *a* is the body of the metal made by stamping on the V-shaped lines *e*. It is tapered to the point C at one end, and at the other end it is so shaped as to produce the V-shaped incision, and the bottom of the incision is continued in the split *f*, thereby forming the two lateral prongs *b b*, terminating in points *d*. This is the condition of the metal section from which the staple shown in the other figures is made.

When the prongs are bent over and downward, the points take the position indicated in dotted lines D' in Fig. 6, and they are then bent slightly outward, as indicated in the solid lines at D, so as to produce a tapering entrance between the point D and the side of the main shank A. In this manner the inner surface of the point, as well as the inner surface of the arch, is perfectly smooth. On account of the roughness of the metal, due to the incision *e*, the more or less rough outer surfaces I of the metal will be away from the material being held. The points of the prongs will be more or less pointed and of most excellent shape to enter the material to be held, as well as the wood into which they are to be driven.

While I have shown and described my preferred manner of making a staple, it is to be understood that it may be made in other ways—such as, for example, stamping it out of metal and pressing the staple-blank to properly finish it; but I believe the manner of making it described and illustrated is more satisfactory and cheaper. Of course while I have shown the wire as rectangular, with rounded corners, it is evident that wire from which the staple is made may be cylindrical, if so preferred. I do not confine myself to the special configuration of the arch *b* of the prongs, as such shape may be changed or made to suit the particular shape or requirement of the article to be held, the object being that as far as possible it shall conform to the shape of the article, so as to hold it without giving abrading pressure to any one point.

While I have shown the staple of small size for purposes in which a small staple may be employed, it is readily understood that the staple may be also made of large size, such as would be suitable for supporting steam-pipes or for constituting guides for operating rods, cables, &c.

While I prefer the construction shown, I do not limit myself to the minor details, as these may be modified without departing from the spirit of the invention.

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

1. A staple having the long central shank pointed at the bottom, the lateral arched-shaped portions B, B, extending from and integral with the central shank at the top and the downwardly-extending pointed prongs D, D, integral with the outer and lower edges of the arched-shaped portions B, B, and in which the under parts of the arched-shaped portions B, B, and the inner portions of the prongs D, D, are smooth and rounded in cross-section and the outer surfaces I of these parts are flat.

2. A staple consisting of a long central shank pointed at the bottom and branched at the top into two oppositely-directed arch-shaped portions having their ends pointed to form prongs of shorter length than the central shank and extending downward and outward to form tapering entrances to the arch-shaped portions.

In testimony of which invention I have hereunto set my hand.

HOBART DE LANCEY RAPSON.

Witnesses:

R. M. HUNTER,  
GEO. W. REED.