

(No Model.)

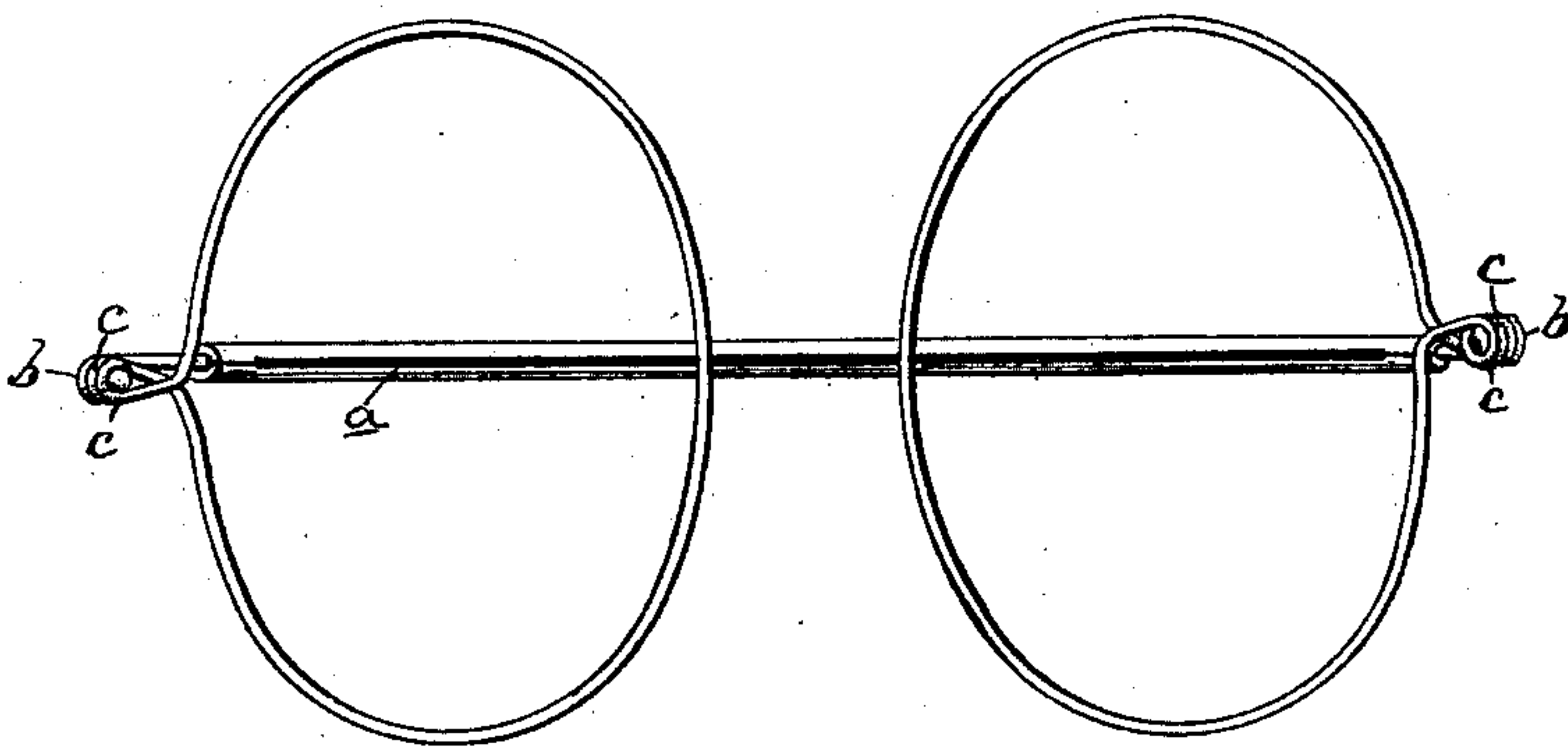
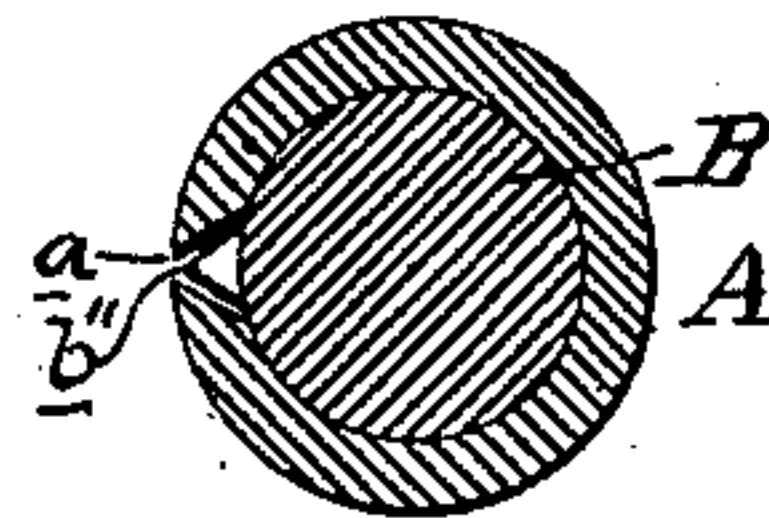
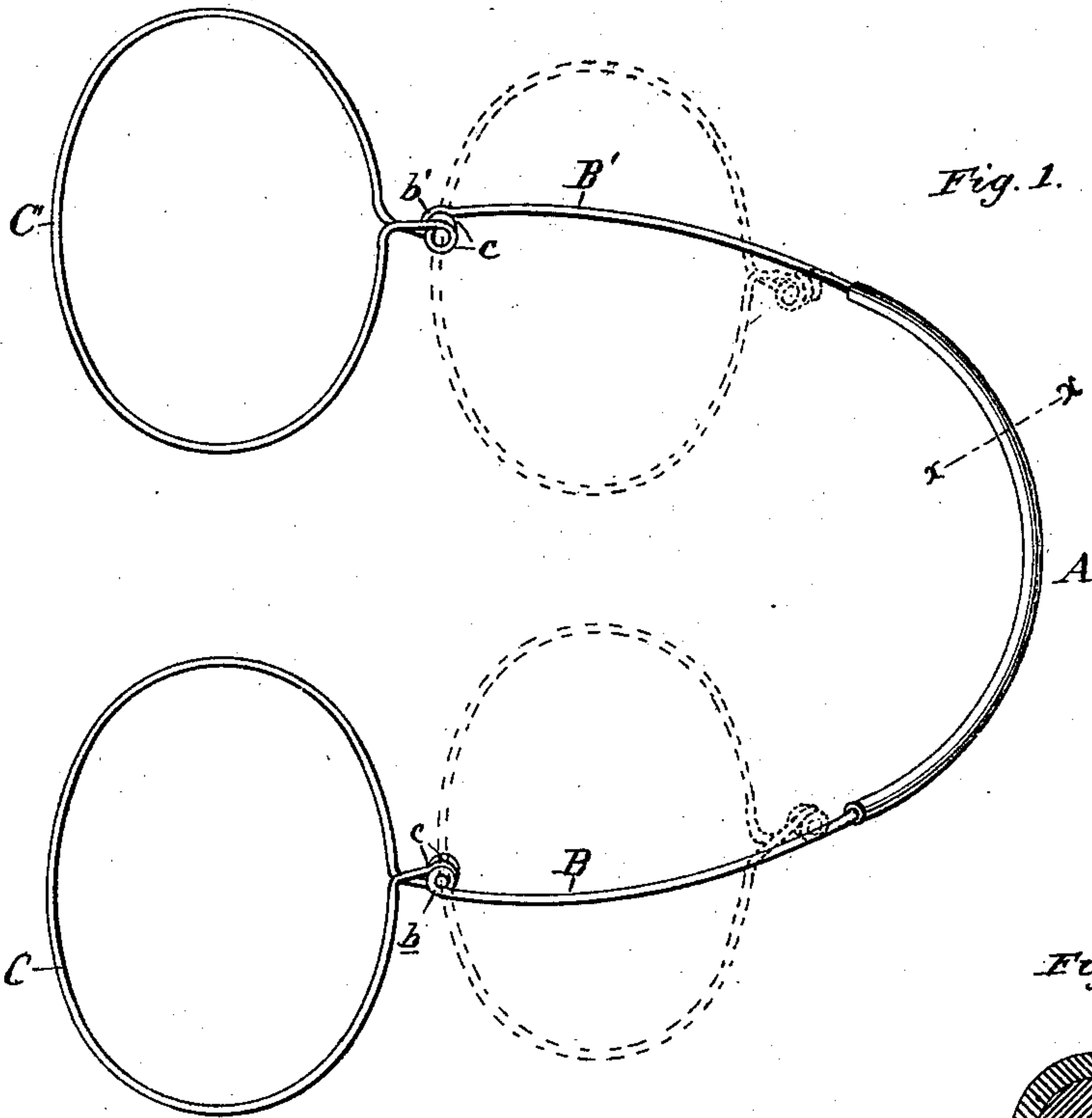
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I. B. KLEINERT.

EAR PROTECTOR.

No. 359,612.

Patented Mar. 22, 1887.



Witnesses
C. A. Raeder
Thomas Ernest

Inventor
Isaac B. Kleinert

By his Attorney *J. W. Robertson*

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

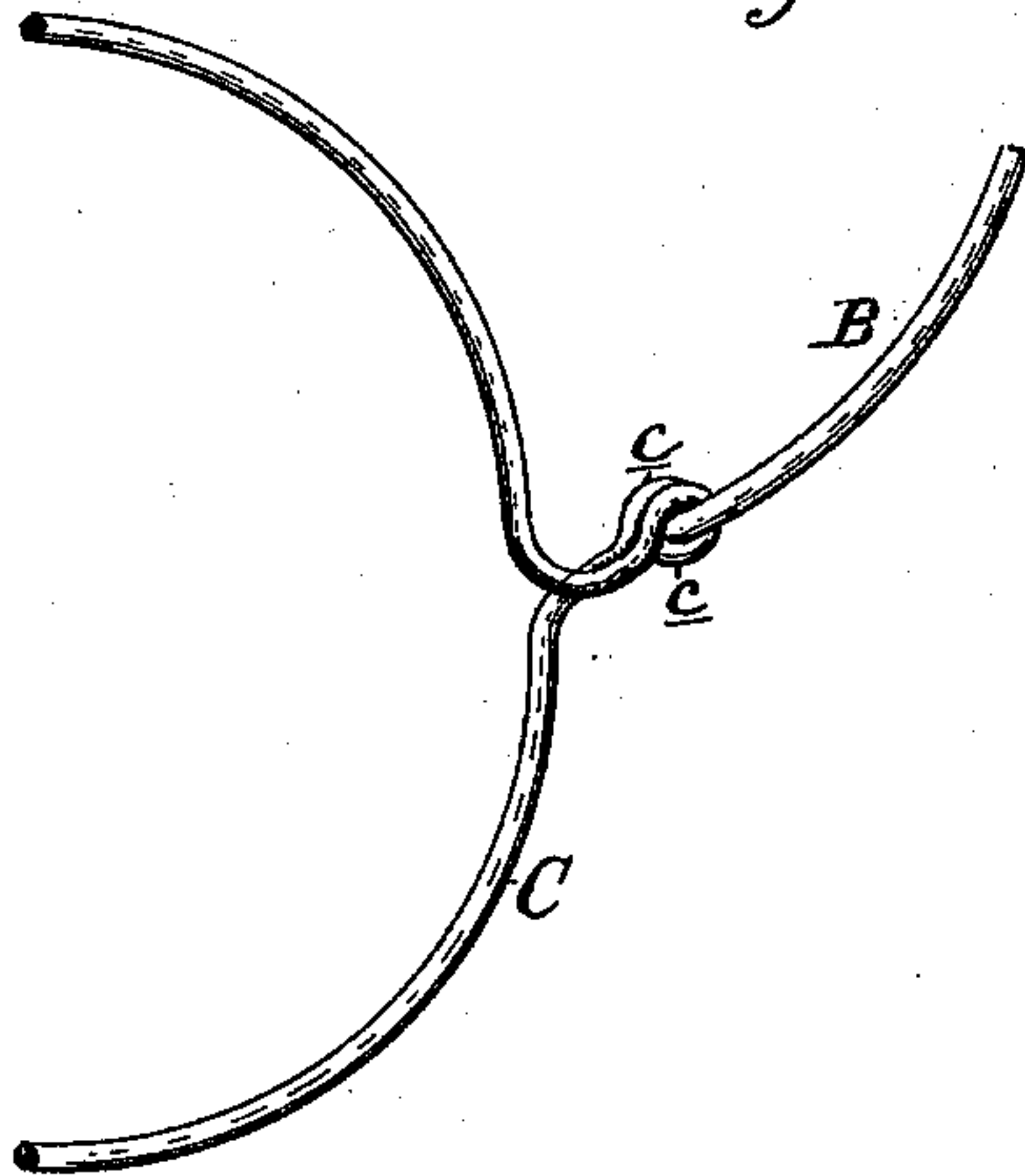


Fig. 5.

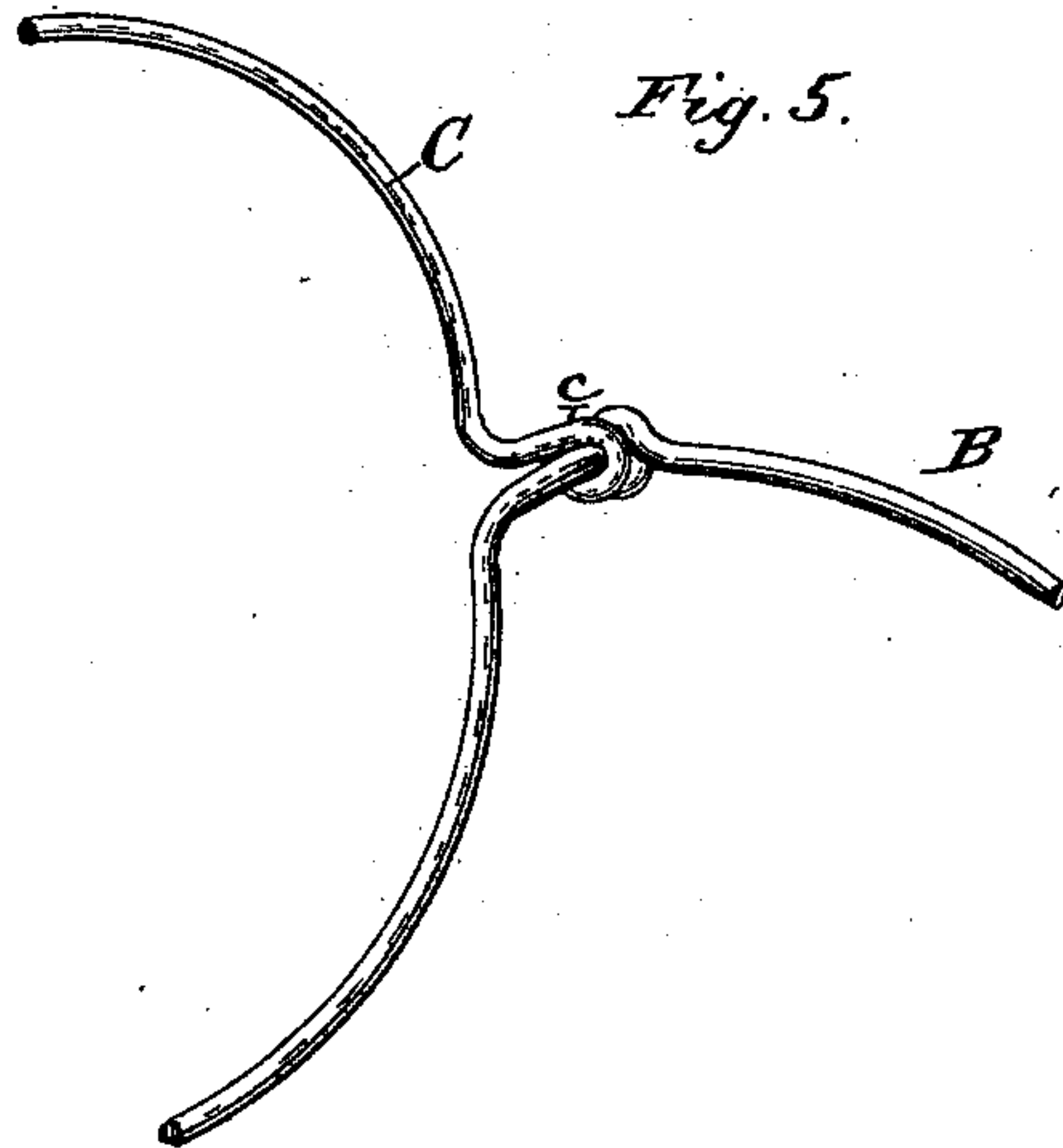
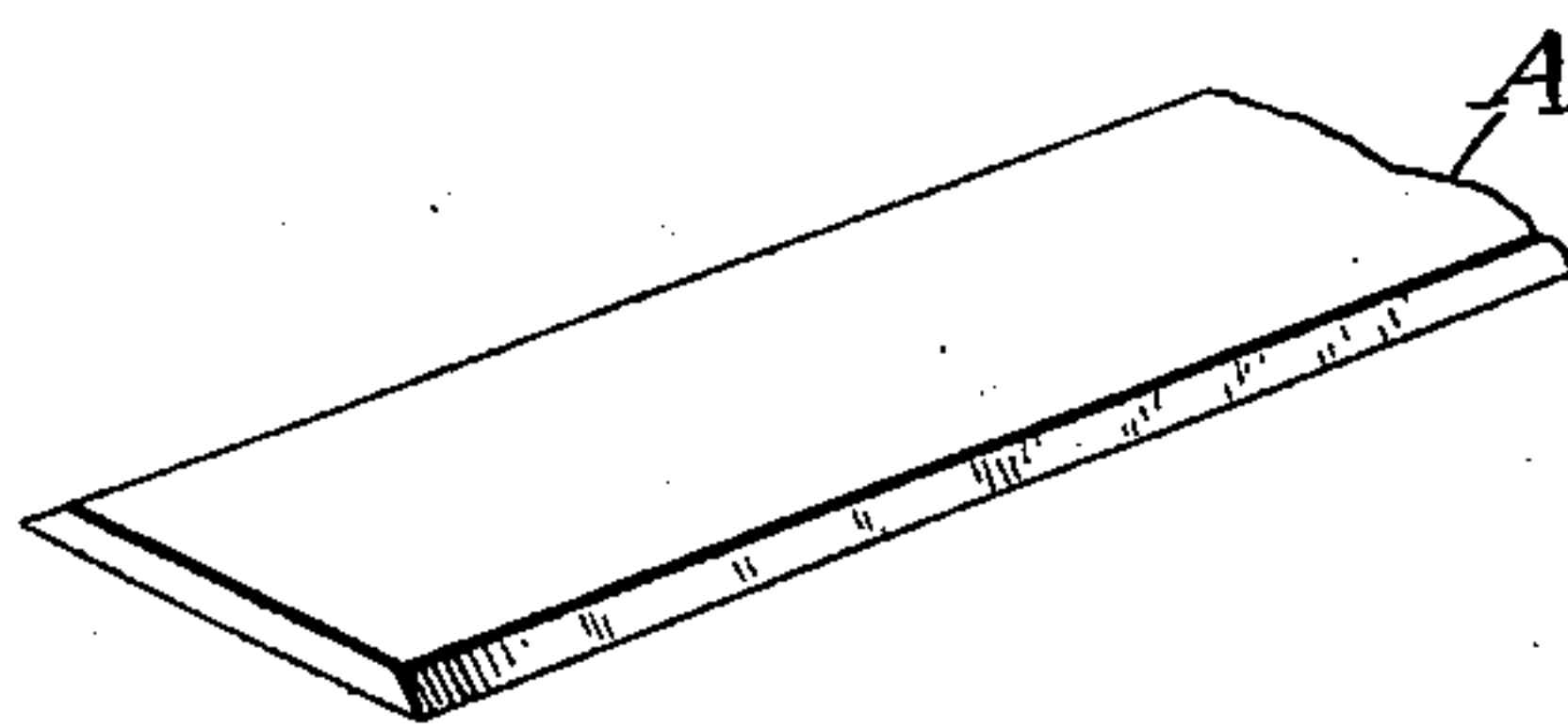


Fig. 6.



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UNITED STATES PATENT OFFICE.

ISAAC B. KLEINERT, OF NEW YORK, N. Y.

EAR-PROTECTOR.

SPECIFICATION forming part of Letters Patent No. 359,612, dated March 22, 1887.

Application filed June 23, 1886. Serial No. 206,040. (No model.)

To all whom it may concern:

Be it known that I, ISAAC B. KLEINERT, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Ear-Protectors, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

10 Figure 1 is a perspective view of my improvement, representing it in full lines expanded to its largest size, and in dotted lines when contracted. Fig. 2 shows an enlarged transverse section on the line X X, Fig. 1. 15 Fig. 3 shows the protector folded as when not in use, and Figs. 4, 5, and 6 are details showing the mode of forming different parts, and which will be hereinafter more particularly referred to.

20 This improvement relates to that class of ear-protectors provided with extensible bows, such as are shown in the Patents Nos. 170,942 and 315,233; and the invention consists in the peculiar combination and the construction and 25 arrangement of parts, hereinafter more particularly described, and then definitely pointed out in the claim.

Referring now to the details of the drawings, A represents a tube, made in any convenient 30 manner, but preferably as hereinafter described, in which slide two wires, B B', the free ends of which are secured to the ear-frames C C', which may be made and attached in any convenient way. I prefer, however, to 35 form and connect them as shown in Figs. 1 and 2, each frame being made of a single wire bent into a substantially oval form, with its ends bent outward from the oval and formed into loops c c, through which and through a 40 loop, b, or hole formed on or in the end of the wire B, a pin or rivet is inserted and headed in any suitable manner. This mode of procedure not only firmly secures together the ends of the wire forming each ear-frame, but 45 also connects the frame to the bow or wire B by a pivotal connection, which will be found to be very convenient in adjusting the frames to the ears, and also admits of the ready folding of the frames back upon the bow or wires 50 B B when required, as shown in Fig. 2, as in packing or storing, or in order that the article

may be carried in the pocket when not in use.

As before stated, the tube may be made in any convenient way; but I prefer to make the same of a strip of sheet metal with the edges 55 beveled, as shown in Fig. 6, which strip I afterward pass through draw-plates until it assumes the form shown (enlarged) in Fig. 2, thus making a round hollow tube with a keyway, a, on one side of the bore. This bore is 60 of such size as to readily admit of the passage of the wires B B', which would turn in the same when nearly drawn out, as shown in full lines in Fig. 1, were it not that the inclosed ends of the wires are slightly turned outward 65 to form keys b'', that enter the keyway a, formed in the bore of the tube.

Instead of forming a loop on the wire B, I sometimes bend its outer end at right angles and pass the bent end through the loops c c on 70 the frame C, and rivet or "upset" said bent end, thus forming a pivotal connection between the frame C and wire B, as shown in Fig. 4; or instead of passing the end of the wire B through the loops of the frames, as shown in 75 Fig. 4, I make only one loop on the wire of which the frame is formed, and then turn the other end at right angles, as shown in Fig. 5. I then make a loop in the wire B and pass the bent end of the frame C through the loop 80 formed on its opposite end and through the loop on the wire B, and rivet the whole together, as shown in Fig. 5. These modes I should consider the equivalents of each in pivotally connecting the parts together. 85

The wires B B' may be allowed to be withdrawn entirely; but I prefer to close up the groove in the tube near each end, so that they cannot be entirely withdrawn.

By this construction it will be seen that an 90 ear-protector is made that can not only be adjusted to suit any size head, or held in any desired position on the same, or folded in a small compass at will, but one that will be durable and readily and cheaply made. 95

The tube has the further advantage that, being about one-half of the length of the bow when fully extended for the largest-size head, and very nearly the whole length of the bow when adjusted for the smallest size, can be 100 covered with a flexible non-metallic material, thus overcoming a great objection made

against protectors of this class in which the
form of the extension-joint prevents the use of
such covering—viz., the liability of the ex-
posed metal drawing frost—which defect is felt
5 the most when the need for such ear-protect-
ors is the greatest.

What I claim as new is—

The combination of the ear-frames C C', the
curved tube A, the wires B B', of substantially
10 the same diameter as the bore of the tube, and

the groove *a* and bent ends *b''*, for preventing
the wires turning in the tube, substantially as
described.

In testimony whereof I affix my signature, in
presence of two witnesses, this 21st day of June, 15
1886.

ISAAC B. KLEINERT.

Witnesses:

T. J. W. ROBERTSON,
M. P. CALLAN.