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Patented Feb. 21, 1899.

C. C. BALDWIN.

PLIERS FOR CLAMPING CLIPS ON WIRES.

(Application filed Dec. 12, 1898.)

(No Model.)

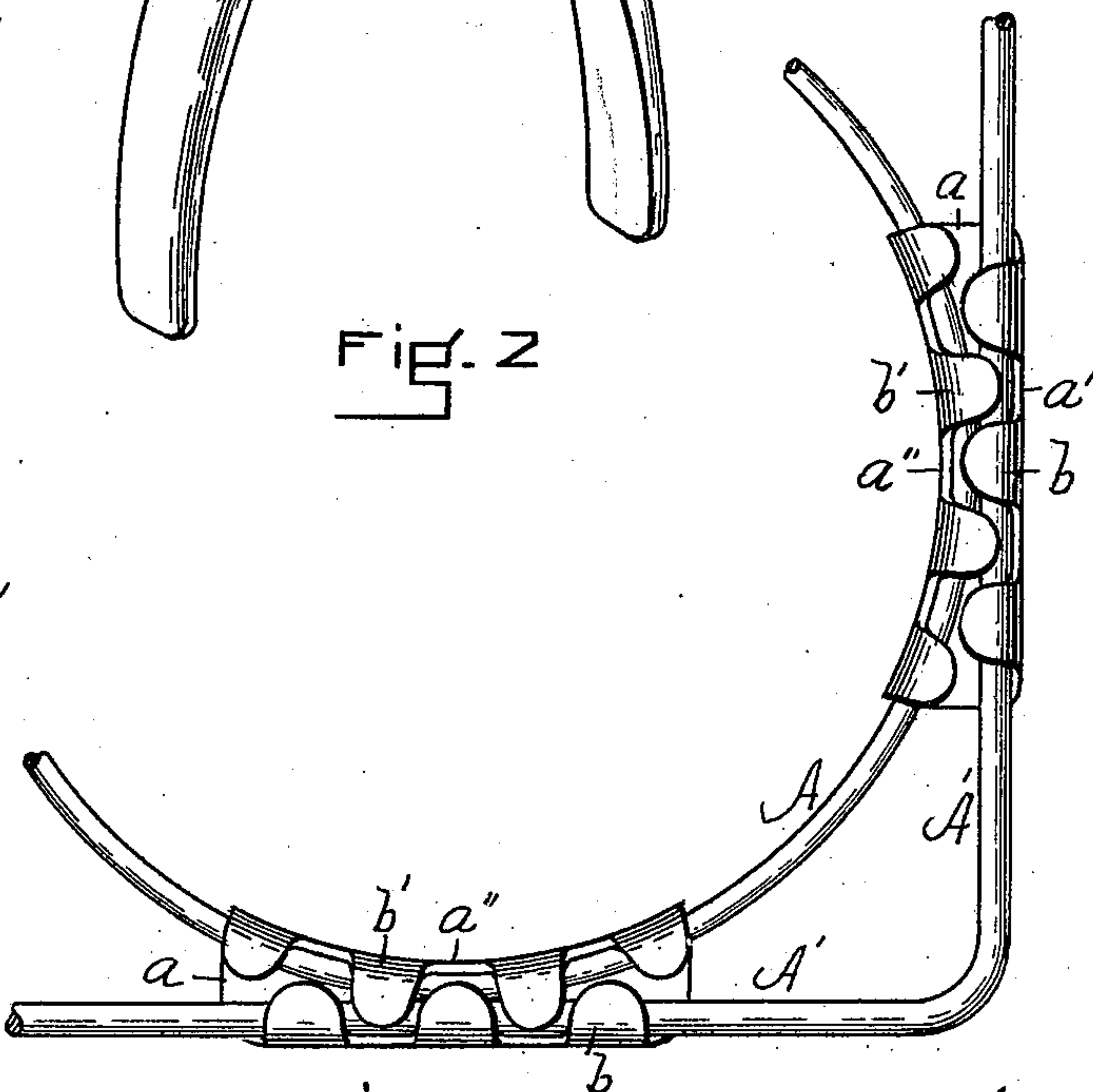
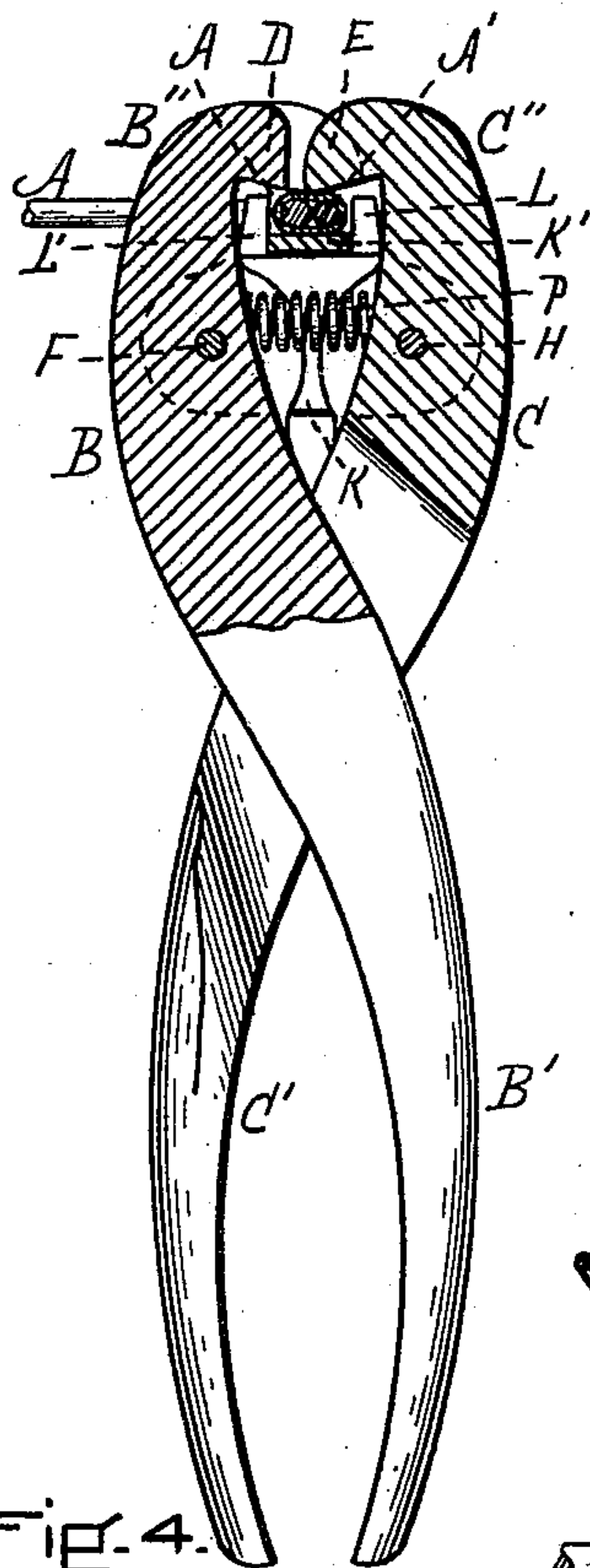
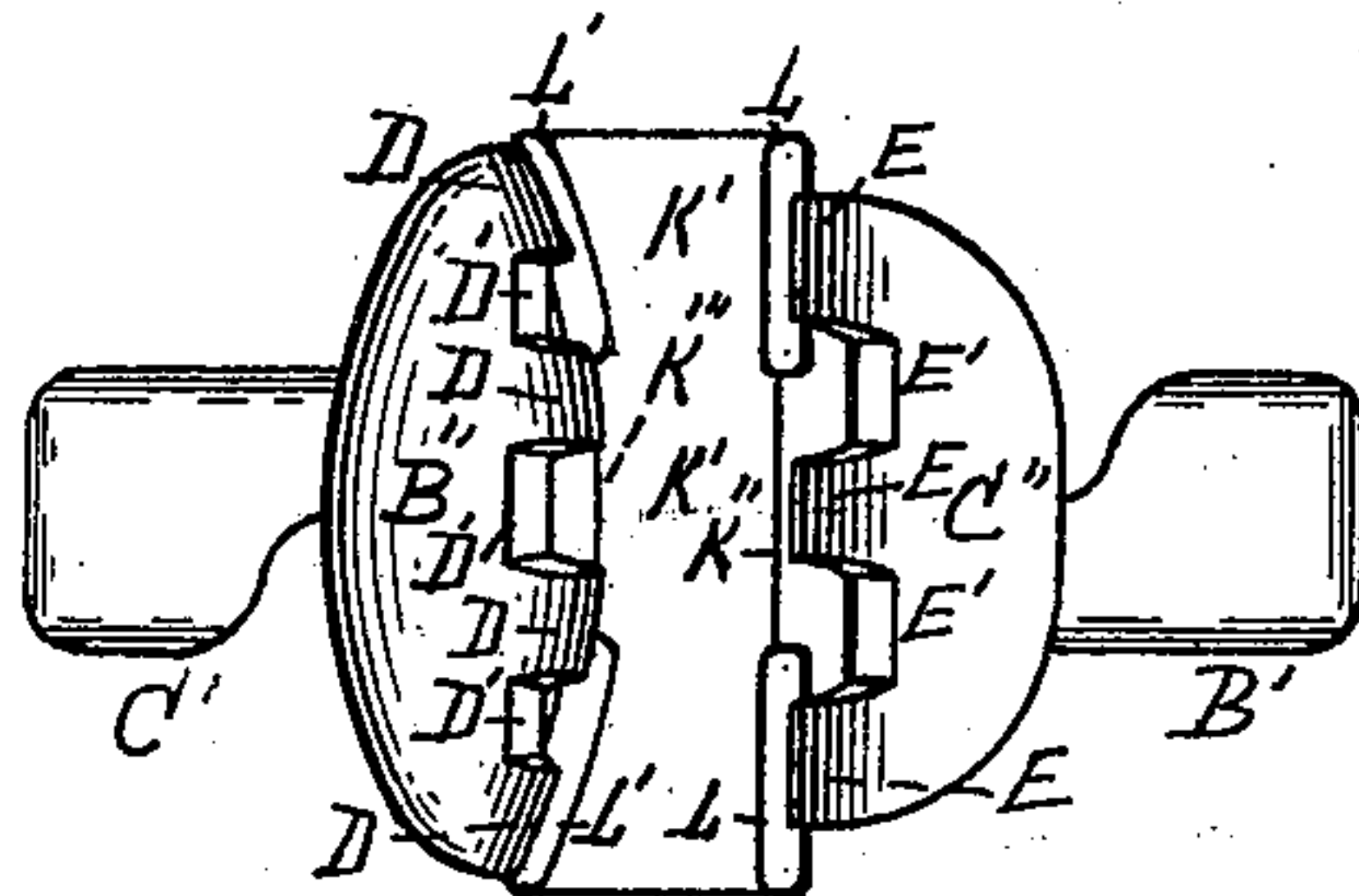
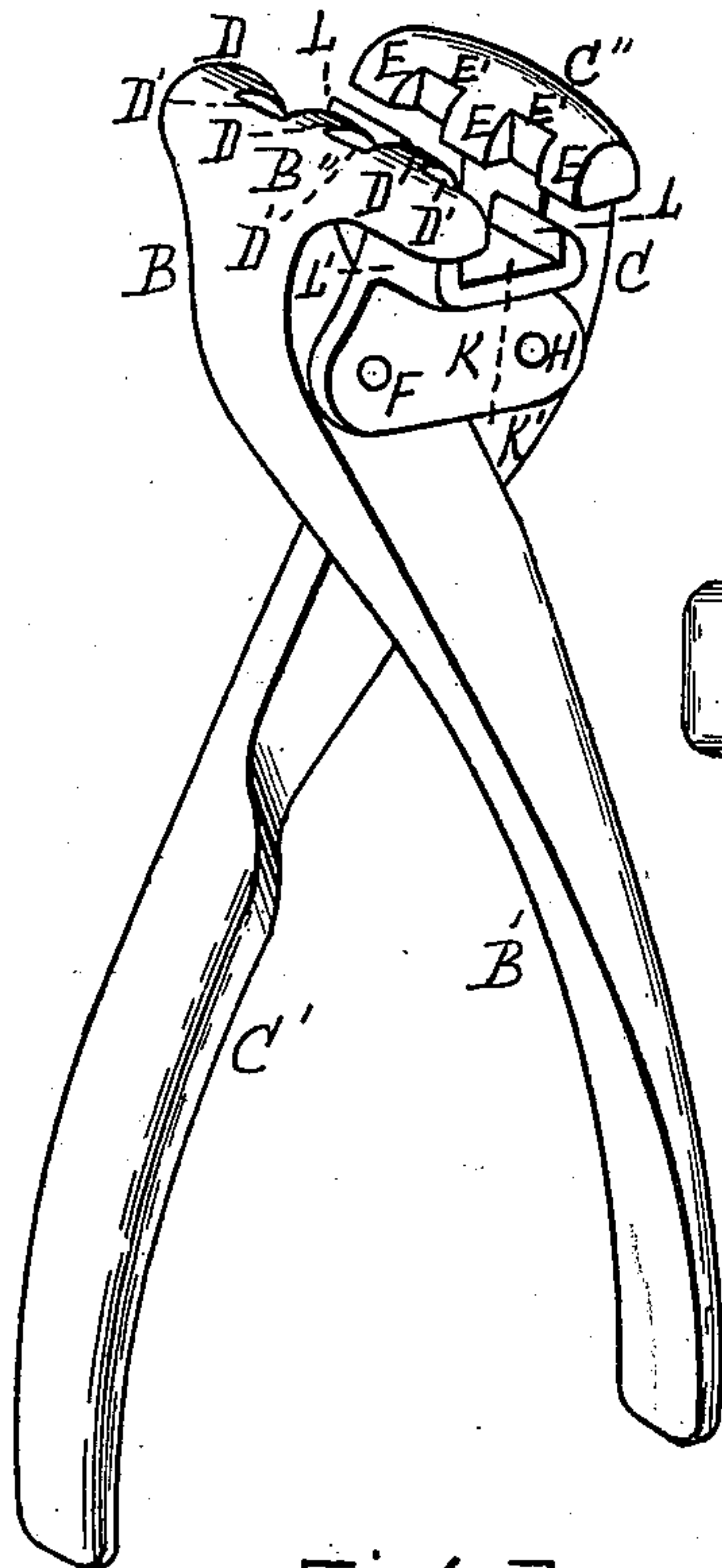
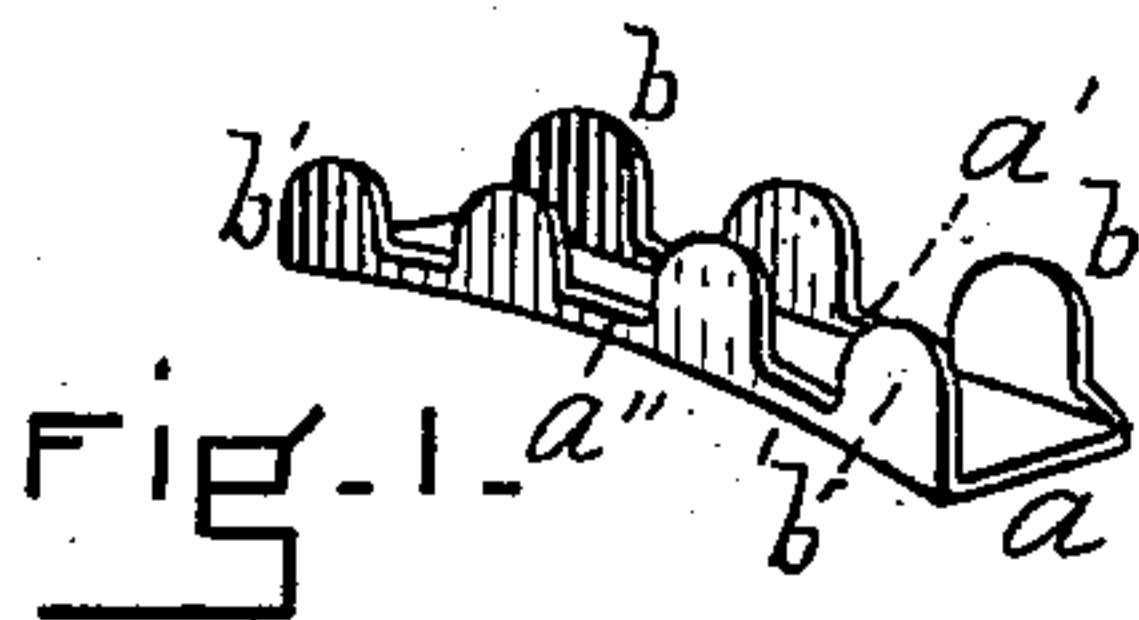


FIG. 4.

FIG. 2.

FIG. 3.

FIG. 5.

WITNESSES

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## PLIERS FOR CLAMPING CLIPS ON WIRES.

SPECIFICATION forming part of Letters Patent No. 619,710, dated February 21, 1899.

Application filed December 12, 1898. Serial No. 698,949. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES C. BALDWIN, a citizen of the United States, residing in Barton, in the county of Orleans and State of Vermont, have invented new and Improved Pliers for Clamping Edge-Clips for Uniting Bed and Furniture Springs with the Edge-Wires Thereof, of which the following is a specification.

This invention is a peculiarly-constructed pair of pliers for the purpose of clamping a certain style of edge-clip around the upper coil of a bed or furniture spring and the edge-wire, whereby the springs in the bed or furniture bottom are united to the wires which constitute the spring edge. The invention consists in the novel construction of said tool, hereinafter described, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the edge-clip for which the pliers are particularly adapted and constructed. Fig. 2 is a perspective view of my improved pliers in their normal or open position. Fig. 3 is a plan view of the same. Fig. 4 is a view, partly in central vertical section and partly in elevation, showing the jaws of the pliers closed upon an edge-clip, thereby uniting the outer coil of a spring such as is used in bed-bottoms with the edge-wire. Fig. 5 is a plan view showing portions of the outer coil of a bed-spring and of an edge-wire, said spring and wire having been clamped together by edge-clips which have been operated upon by my pliers.

Similar letters of reference indicate corresponding parts.

The clip to be operated upon by my pliers is made of sheet metal and comprises a base *a*, having a straight edge *a'*, from which integral tongues or flanges *b* extend up at right angles, and a curved edge *a''*, from which tongues *b'* extend up at right angles, all as shown in Fig. 1. When the clip has secured the upper coil *A* of a spring to an edge-wire or a connecting-wire *A'*, the tongues *b* overlap the straight wire *A'* and the tongues *b'* overlap the curved wire *A*, interlapping, as shown in Fig. 5, and thereby securely and rigidly connecting the spring with the edge-wire. This clip is not new in this invention and makes no part thereof.

B and C are two jaws provided, respectively, with handles *B'* and *C'*. The upper ends of these jaws are broadened and bent inwardly toward each other at *B''* and *C''* and are provided with alternate teeth and spaces of substantially even width, the teeth on the portion *B''* being lettered *D* and the spaces between said teeth being lettered *D'*, and the teeth on the portion *C''* being lettered *E*, and the spaces between them being lettered *E'*. The lower edges of these teeth are substantially horizontal when the jaws are opened. The inner side of the operative portion *B''* is formed substantially on a curve—that is to say, is convex and corresponds with the concave shape of the edge *a''* of the clip. The operative portion *C''* is substantially straight and corresponds with the straight edge *a'* of the clip. The teeth *E*, formed on the portion *C''* correspond in number, position, and size with the tongues *b*, extending upward from the straight edge of the clip, and the teeth *D* correspond in number, position, and size with the tongues *b'*, extending up from the curved edge of the clip. Inasmuch as the straight edge *a'* has three tongues and the curved edge *a''* four tongues and as the tongues on one edge are opposite the spaces between the tongues on the opposite edge, the teeth *D* and *E* are located, respectively, opposite the spaces *E'* and *D'*, said spaces being large enough to receive the teeth opposite them. These jaws *B* and *C* are not directly pivotally connected, as in ordinary pliers, but are pivoted, respectively, on opposite sides at *F* and *H*, with the opposite ends of a pair of horizontal links or plates *K*, which support and are integral with a horizontal bed *K'*. This bed lies between the jaws and under the teeth of their operative portions, and the edge *K''* of the bed is straight and next the portion *C''*, while the edge *K'''* of the bed is curved and next the portion *B''*. It will be seen, therefore, that the bed is of substantially the shape of the portion *a* of the clip. From the straight edge *K''* of the bed integral upright guards *L* extend and from the curved edge *K'''* integral upright guards *L'* extend, said guards being preferably near the opposite ends of the bed, which has sufficient area to accommodate the



clip on its surface. The jaws of the pliers are kept normally open by means of a suitable spring P.

In practical operation the clip is laid in the bed with the wires A and A' on the clip next its edges  $a''$  and  $a'$ , respectively. The handles C' B' are then pressed toward each other, and the teeth D' force the tongues  $b'$  over the curved wire A, the teeth E at the same time forcing the tongue  $b$  over the straight wire A', as indicated in Fig. 4.

Of course the number of teeth D E may be varied to accommodate the tongues  $b' b$  in the clip.

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

1. Pliers for clamping edge-clips of the character described and for the purpose specified, comprising a pair of jaws each provided with inwardly and substantially horizontally-extending teeth; links pivotally connected at their opposite ends with said jaws; and a bed for supporting the clip as it is operated upon by the jaws, substantially as described.

2. Pliers for clamping edge-clips of the character described and for the purpose specified, comprising the jaws B and C formed at their upper ends into the inwardly-extending operative portions B'' and C'', said portions being respectively provided with the inwardly-extending interlapping teeth D, E; links pivotally connected at their opposite ends with said jaws; and a bed supported by said links and adapted to sustain said clip while it is being operated upon by the jaws, substantially as set forth.

3. Pliers for clamping edge-clips of the character described and for the purpose specified, comprising the jaws B and C, said jaw B being formed at its upper end into the inwardly-extending operative portion B'' the inner edge of which is convex, and said jaw C being formed at its upper end into the substantially straight inwardly-extending operative portion C'', said portions B'' and C'' being respectively provided with the inwardly-extending interlapping teeth D and E; links pivotally connected at their opposite ends with said jaws; and a bed supported by said links and adapted to sustain said clips while they are being operated upon by the jaws, substantially as described.

4. Pliers for clamping edge-clips of the character described and for the purpose specified, comprising the jaws B and C, said jaw B being formed at its upper end into the inwardly-extending operative portion B'' the inner edge of which is convex, and said jaw C being formed at its upper end into the substantially straight inwardly-extending operative portion C'', said portions B'' and C'' being respectively provided with the inwardly-extending interlapping teeth D and E; links pivotally connected at their opposite ends with said jaws; and the bed K' supported by said links and formed with the straight edge K'' and curved edge K''', said bed being provided at said edges with the upright guards L and L', substantially as set forth.

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Witnesses:

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