

H. O. FRY.

BALE TIE.

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936,882.

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Fig. 1

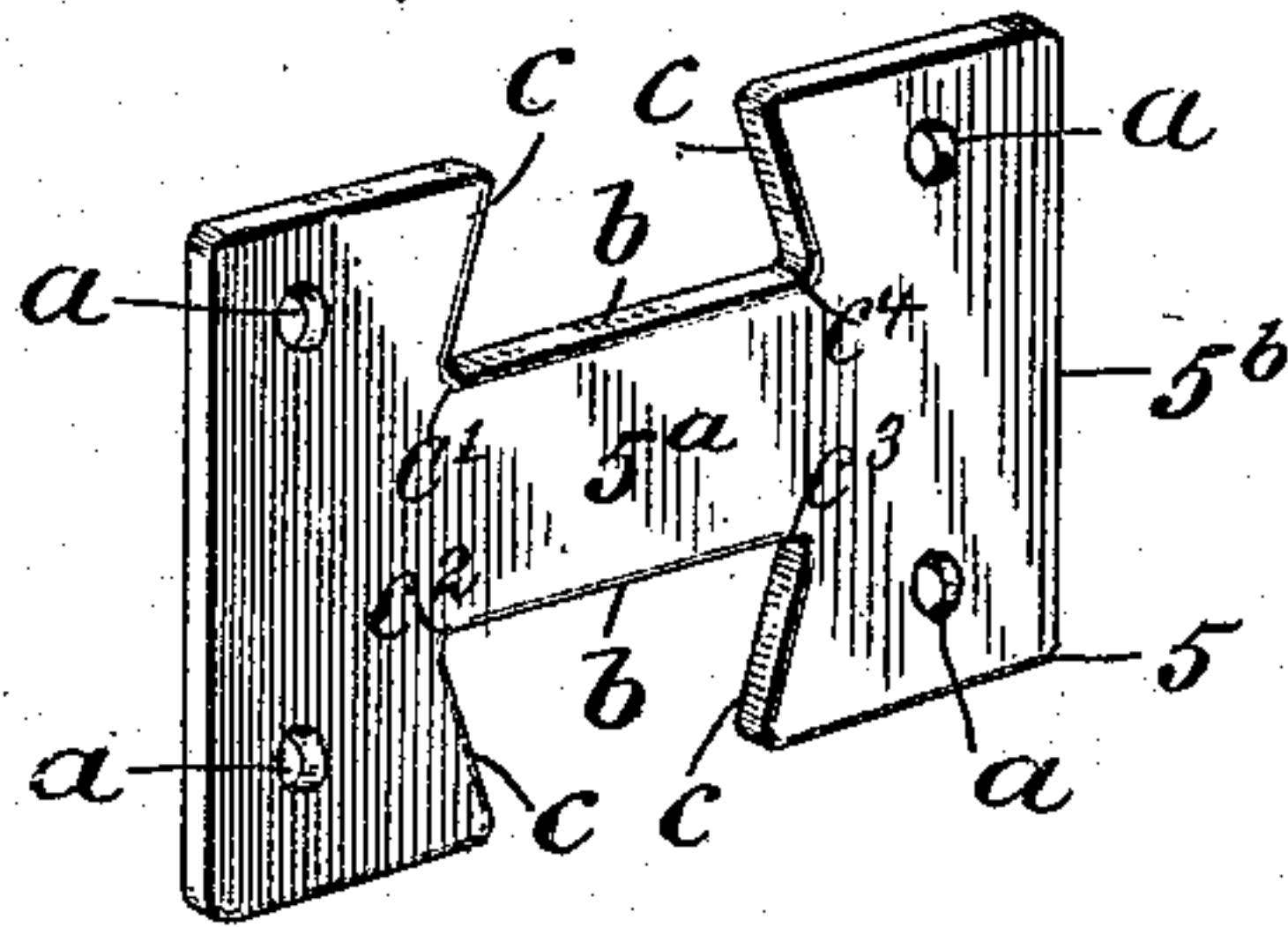


Fig. 2

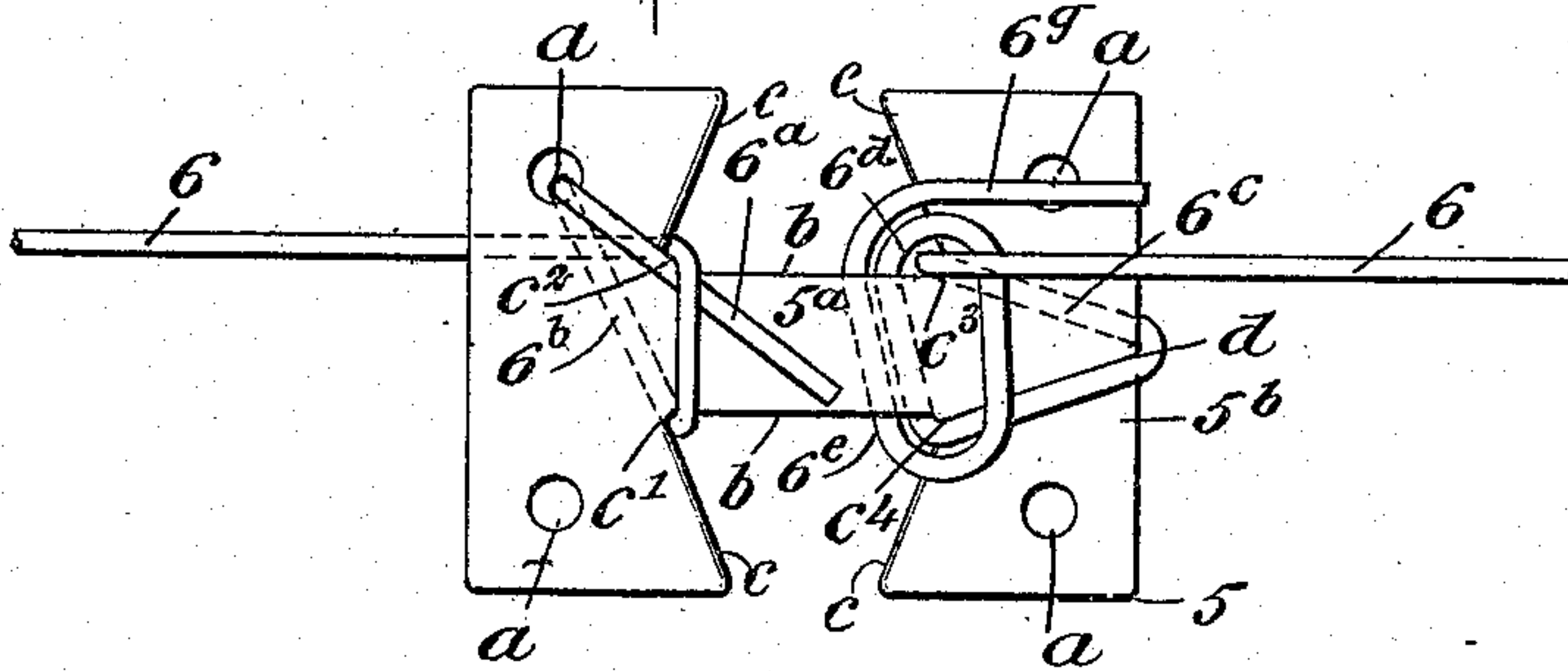


Fig. 3

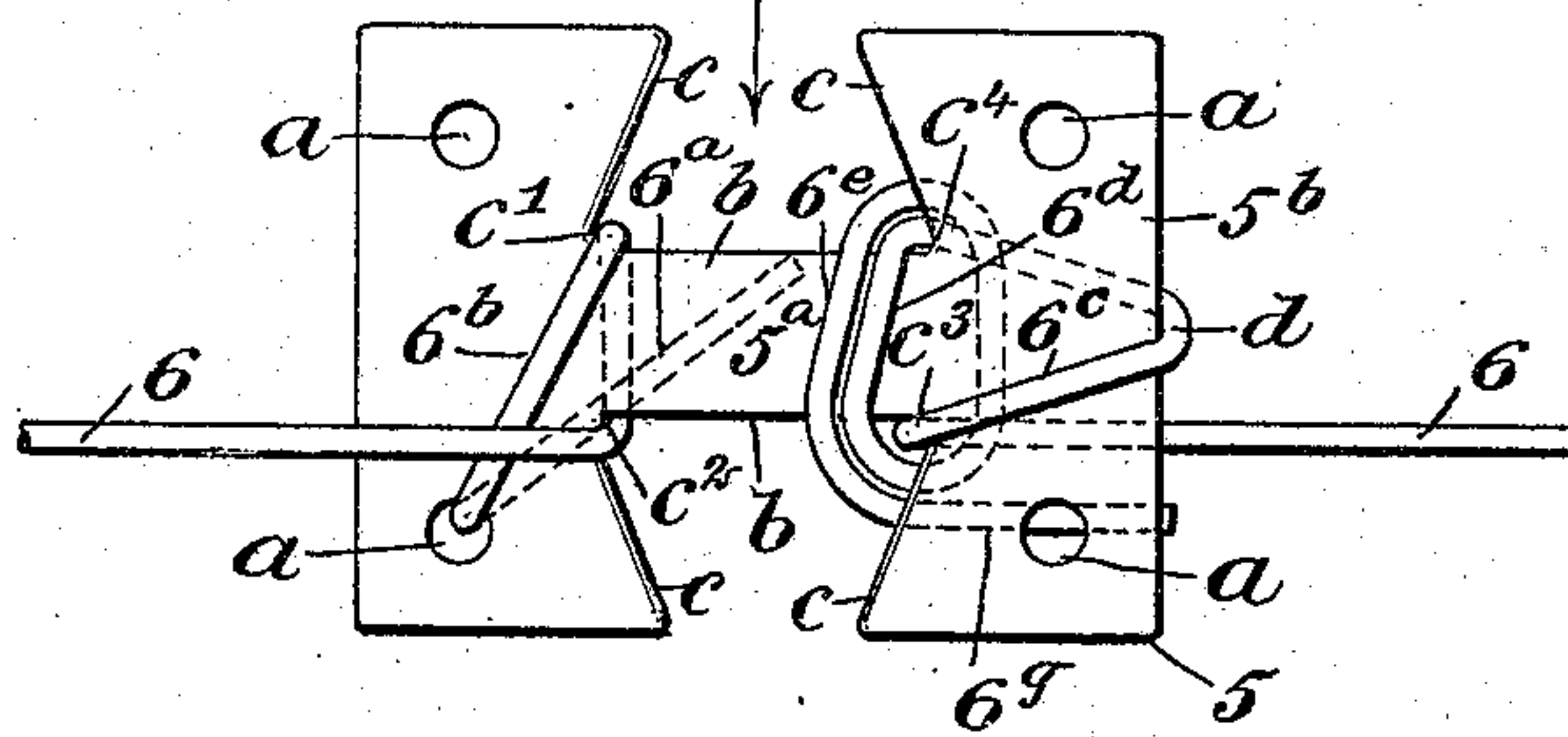
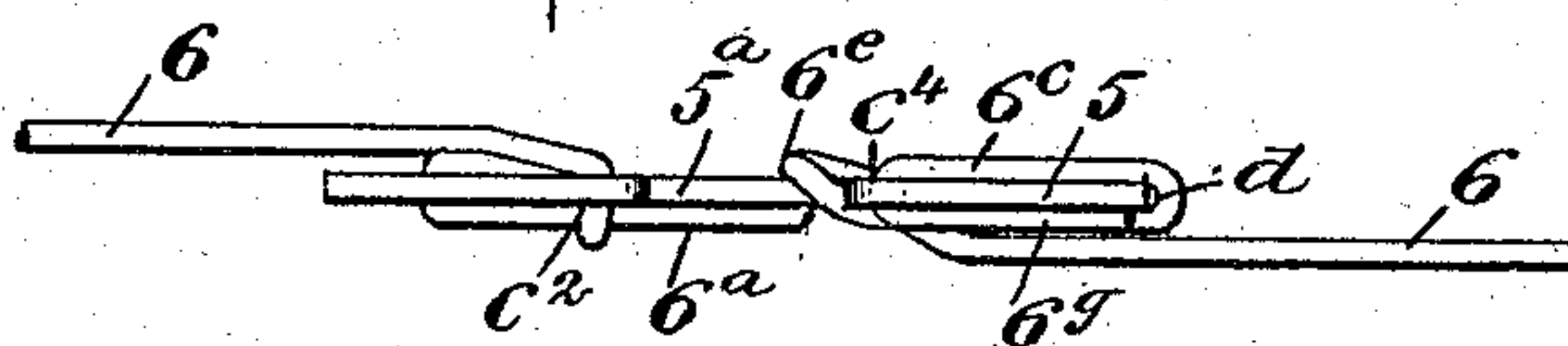


Fig. 4



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## BALE-TIE.

936,882.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed September 30, 1908. Serial No. 455,463.

*To all whom it may concern:*

Be it known that I, HENRY O. FRY, a citizen of the United States, and a resident of Bridal Veil, in the county of Multnomah and State of Oregon, have invented a new and Improved Bale-Tie, of which the following is a full, clear, and exact description.

The purpose of this invention is to provide novel details of construction for a bale tie, especially well adapted for holding a wire strand bound tightly around a bundle of shooks, lath, shingles or other material, to adapt such material for convenient handling and transportation.

The invention consists in the novel formation of a metal tie plate, and the peculiar method of applying a wire band thereon, so as to quickly secure the wire band at its ends drawn taut around a bale, as is hereinafter described, and defined in the appended claim.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of an improved locking plate, whereon the tie band is secured by its ends when the tie is placed upon a bale; Fig. 2 is a reversed plan view of the improved tie plate, and of a wire tie band secured thereto by a novel attachment of end portions of the wire thereon; Fig. 3 is a plan view of the tie plate, and of the end portions of the wire band secured thereon at end portions of said tie plate; and Fig. 4 is an edge view of the tie plate and ends of the band, secured thereon as shown in Fig. 3, seen in direction of the arrow in said figure.

The improved tie plate 5, is formed of metal either cut and stamped into shape, or cast into form as may be preferred. The tie plate may with advantage, be cut from plate metal of suitable thickness, and is rectangular in contour, the dimensions being proportioned to suit the character of the material to be tied, and the gage of wire that is to be employed as a tie band. As shown, the tie plate is of greater length than width, and near each of the four corners a perforation  $a$  is formed therein. At an equal distance from the ends of the plate 5, a flat bottomed recess is formed in the parallel side edges of the tie plate, said bottom edges  $b$  that are parallel with each other, each terminating at the ends thereof in end walls  $c$  that incline

somewhat toward the ends of the tie plate and join the bottom edges  $b$  forming similar acute angles therewith.

As shown, the formation of the similar recesses in the side edges of the tie plate 5 leaves a center bar  $5^a$  remaining intact with the end portions thereof. A wire 6 of suitable thickness and length is provided as a tie band for securing a desired number of laths, shooks or box boards in a compact bundle. If the dimensions of the material to be bundled necessitate it, two tie bands of wire are employed and each secured in tightly drawn condition upon a bundle near an end thereof, by means of one of the improved tie plates 5, and as the method of application is similar for both bands, a description of the same for one band will be sufficient for both.

The first step in the method of applying a band 6, as illustrated in Figs. 2 and 3, consists in passing one end portion  $6^a$  of the tie band up through one of the corner perforations  $a$ ; as shown in Fig. 2, said occupied perforation is near the upper left hand corner of the tie plate. The end portion  $6^a$  is bent flat upon and diagonally across the center bar  $5^a$ , and the portion of wire  $6^b$  that is at the lower side of the tie plate is drawn across it and into engagement with an acute angular corner  $c'$  around which it is bent upward, and then across to the opposite angular corner  $c''$  and from it outward across the portion  $6^b$  of the wire that extends between the perforation  $a$  and the corner  $c'$ . The tie plate is turned over when it is to be applied upon a bale. It will be noted that the portion of the wire that extends across the center bar 5 at the left end of Fig. 2, binds the end portion  $6^a$  upon the center bar  $5^a$  and thus effectively ties the end portions of the wire strand upon the left end of the tie plate. To expedite the operation of tying the material into bundles, it is obvious that the end portions of a number of tie bands may be connected with respective tie plates 5, ready for use as a tie, the operation being completed by securing the other end of each tie band upon the remaining end of a respective tie plate 5. To this end, the tie band is passed around the bundle of lath or other material that is to be bound together, and the remaining end portion of the tie band is drawn forcibly toward the tie plate that may be seated at a desired point on the material, with the side shown



in Fig. 3 disposed uppermost. The end portion of the wire strand is now passed below the nearest transverse edge  $5^b$  on the tie plate and engaged with an angular indented corner  $c^3$  thereon, said tie wire being drawn forcibly so as to bind the strips of material together in a bundle. When the tie wire is thus drawn upon a sufficient degree, it is kinked at the corner  $c^3$  by bending the wire upward and then endwise of the tie plate, producing a member  $6^c$  thereon, and at the edge  $5^b$  of the tie plate said member  $6^c$  approaches, an acute angular bend  $d$  is formed in the wire strand by bending the latter down over said edge of the tie plate. From the angular bend  $d$  the wire strand is drawn toward and upward in forcible engagement with an angular corner  $c^4$ , that is at the end of the center bar  $5^a$  and opposite the angular corner  $c^3$ . The remaining end portion of the wire strand 6 is now wrapped around the center bar  $5^a$  in two coils,  $6^d$ ,  $6^e$ , and thence is projected longitudinally across the adjacent end portion of the tie plate, said projected portion  $6^e$  being cut off so as to be flush with the transverse edge of the end portion of the tie plate toward which said portion  $6^e$  is extended.

It will be noted in Figs. 2 and 3, that the end portions of the tie band, are extended directly opposite from each other, and also that the connection of said end portions upon respective ends of the improved tie plate are unyielding. The tie plates 6 are so constructed that the edges thereof are devoid of sharp corners, so that they cannot break the wire strand when applied thereto.

It will also be noted in Fig. 3 that the ends  $6^a$ ,  $6^e$  of the strands are tucked beneath the tie plate, and thus avoid catching upon projections over which the tied bundles may be drawn while in transit.

It is to be understood that any desired number of the improved bale ties may be placed on a bale, and that the tie plates and bands are to be formed in dimensions that will be most effective in service.

It should be explained that while but one perforation  $a$  is utilized in the tying operation, it is a feature of advantage in the matter of saving time, to provide a perforation in each corner of the tie plate, as in taking up one for connecting it with a wire, the workman need not turn the plate, as any corner will be available.

In applying the bands, it is immaterial whether the tie plates are secured on tie wires before use, or at the time the bands are placed on the bales, as either way may be adopted and give speedy results.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

A bale tie plate, substantially rectangular in form and having in each corner a perforation, and having in opposite sides recesses whose end walls are both undercut.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY OSCAR FRY.

Witnesses:

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