

G. E. PURPLE.
BELT COUPLING.

APPLICATION FILED SEPT. 3, 1908.

938,511.

Patented Nov. 2, 1909.

Fig. 1.

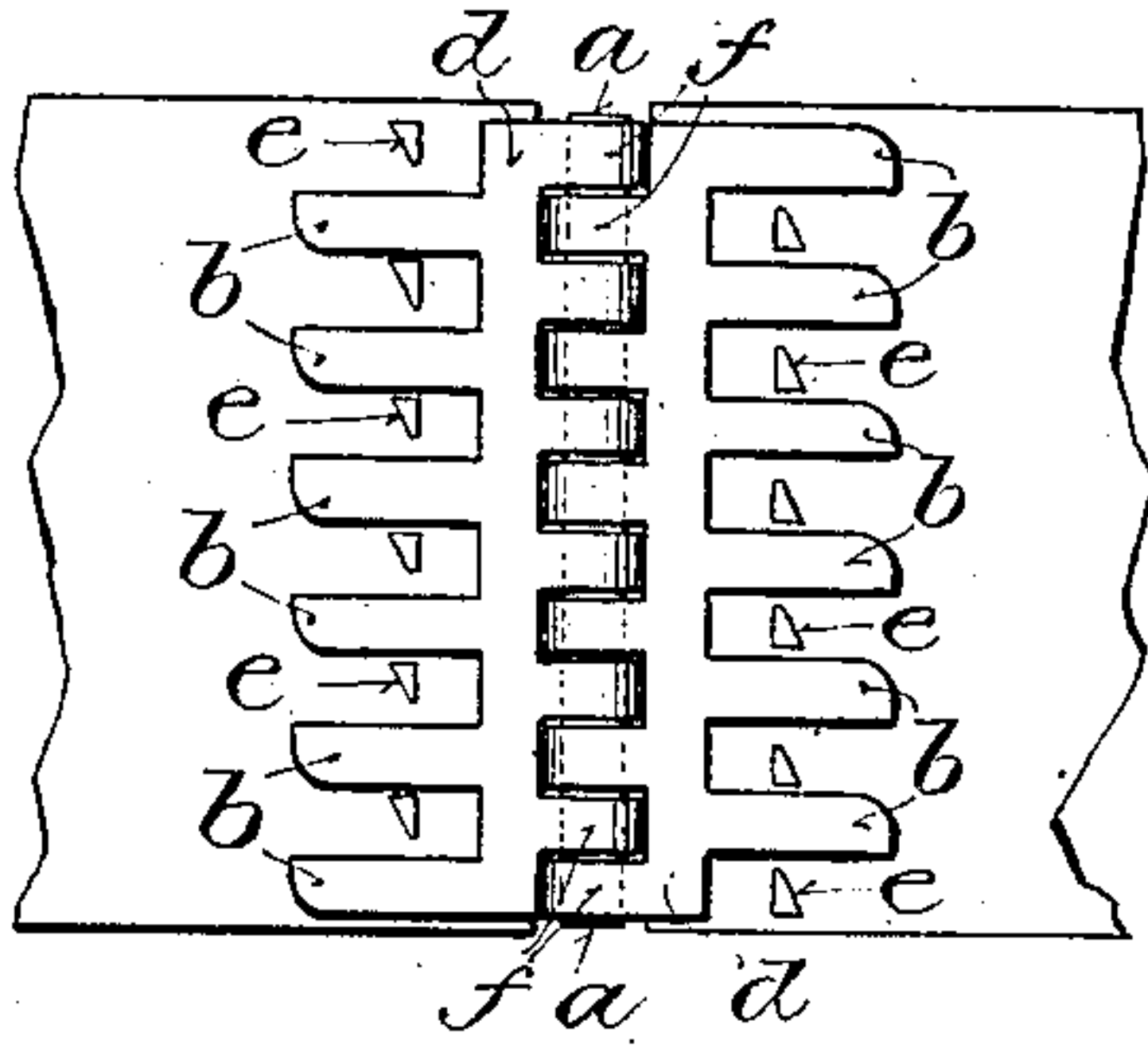


Fig. 2.

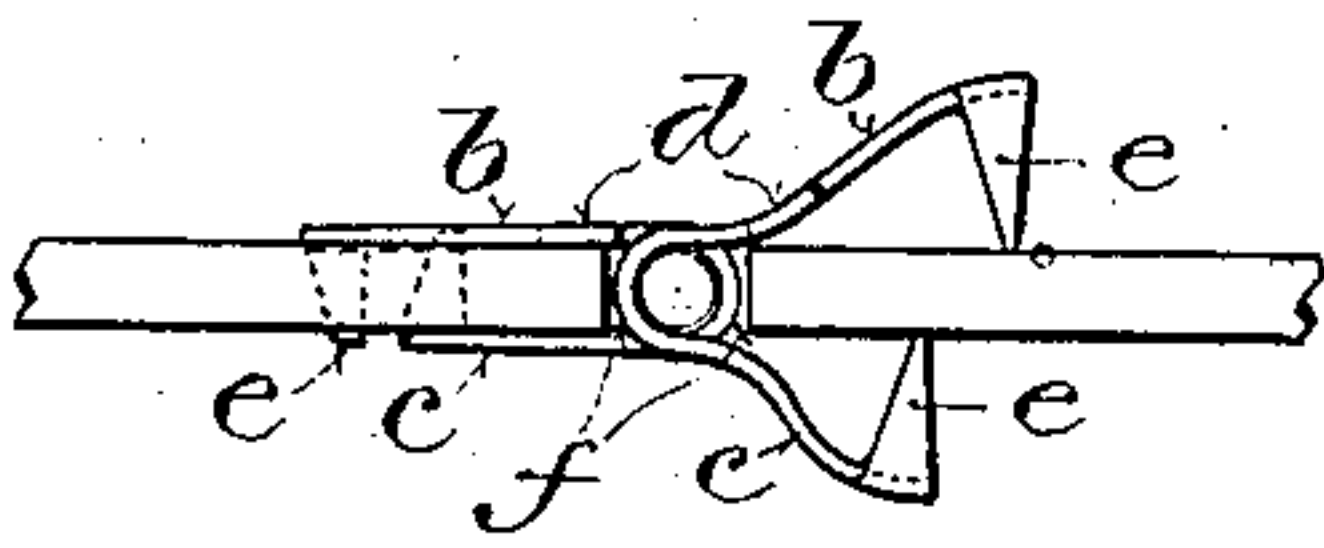


Fig. 5.

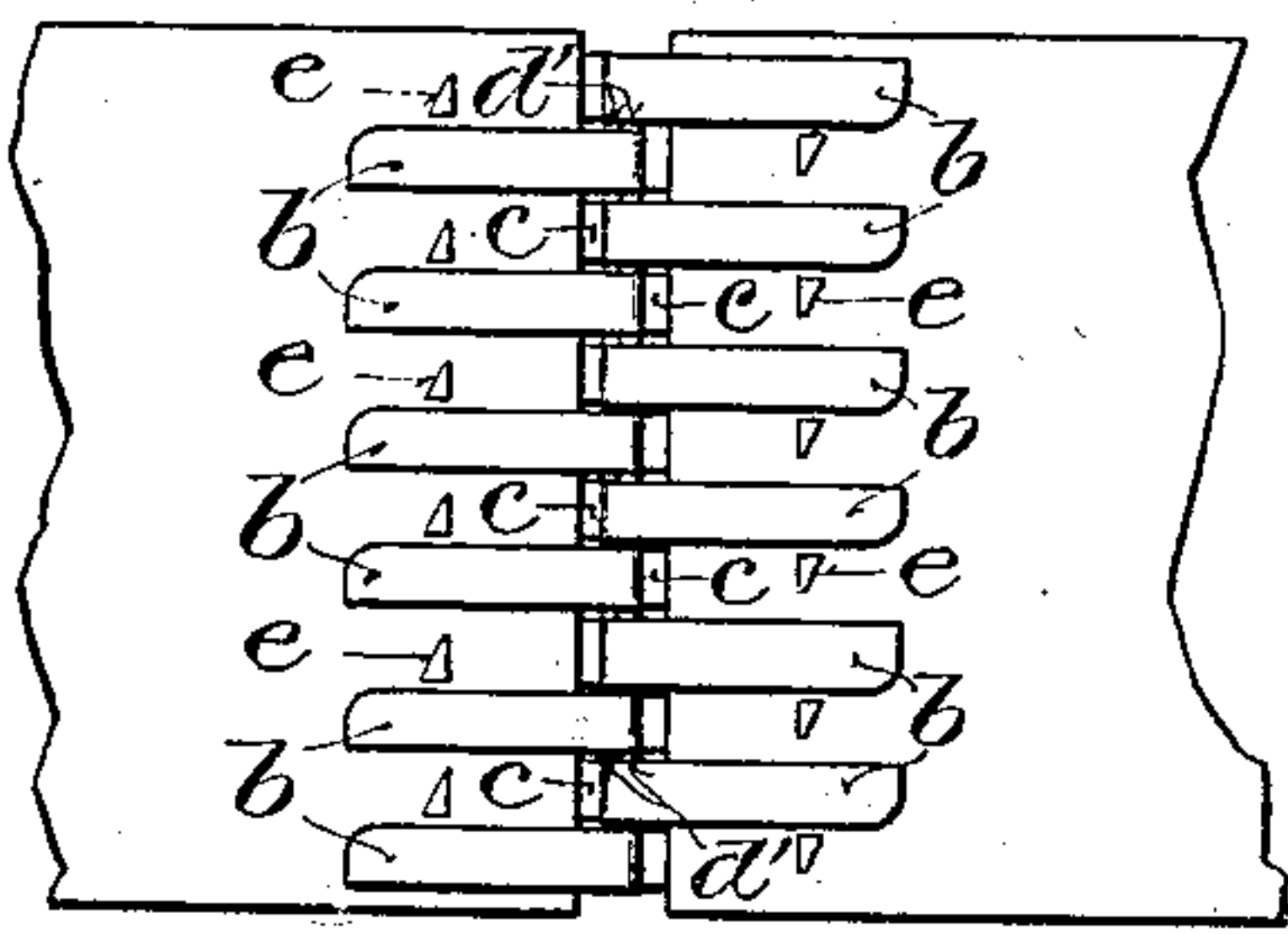


Fig. 6.

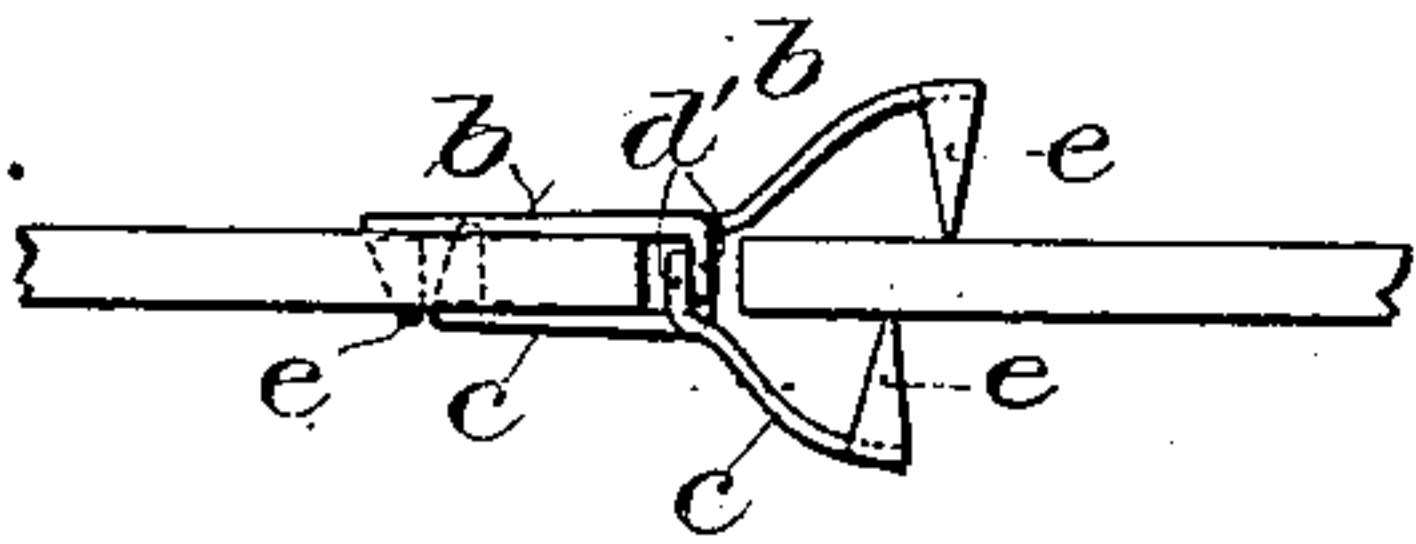


Fig. 9.

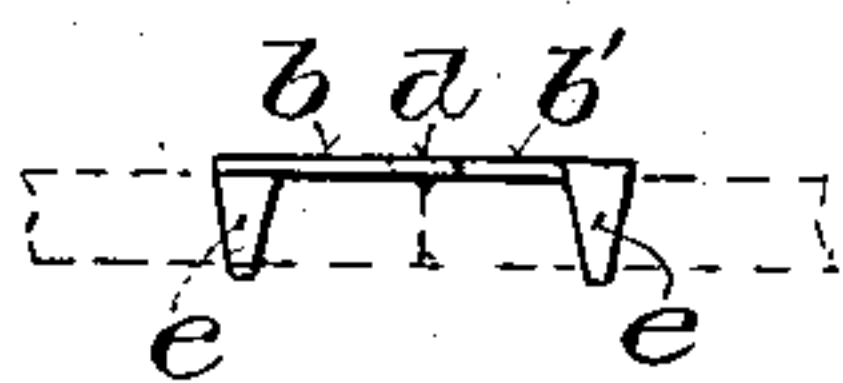


Fig. 3.

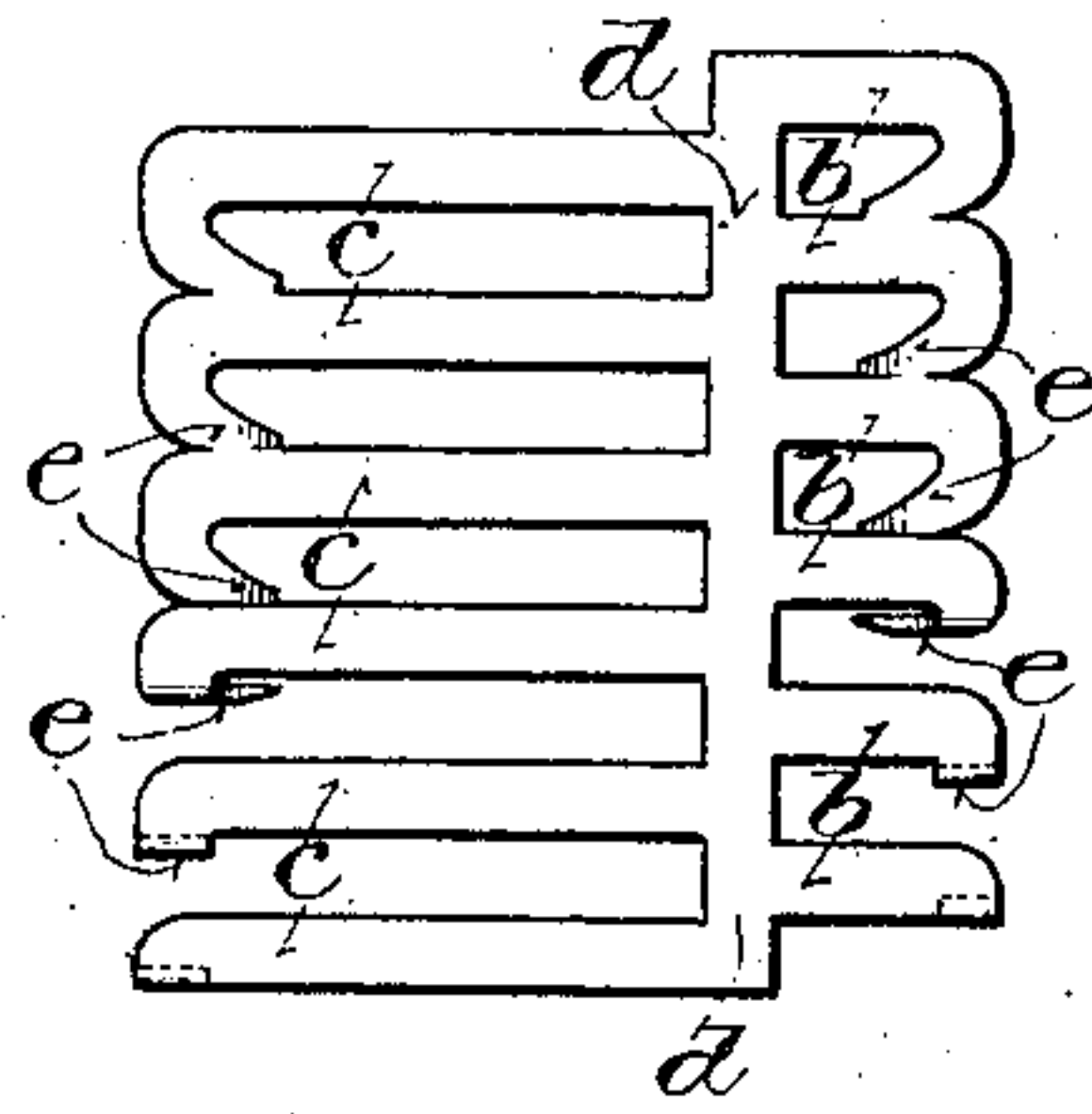


Fig. 4.

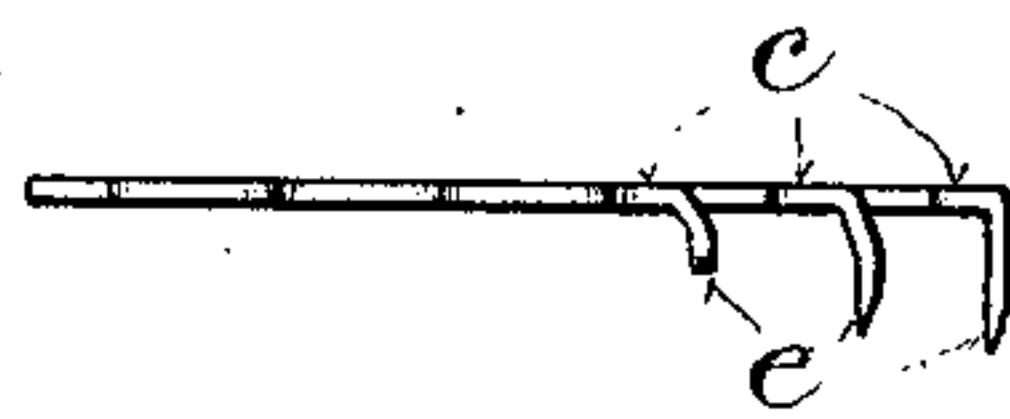


Fig. 7.

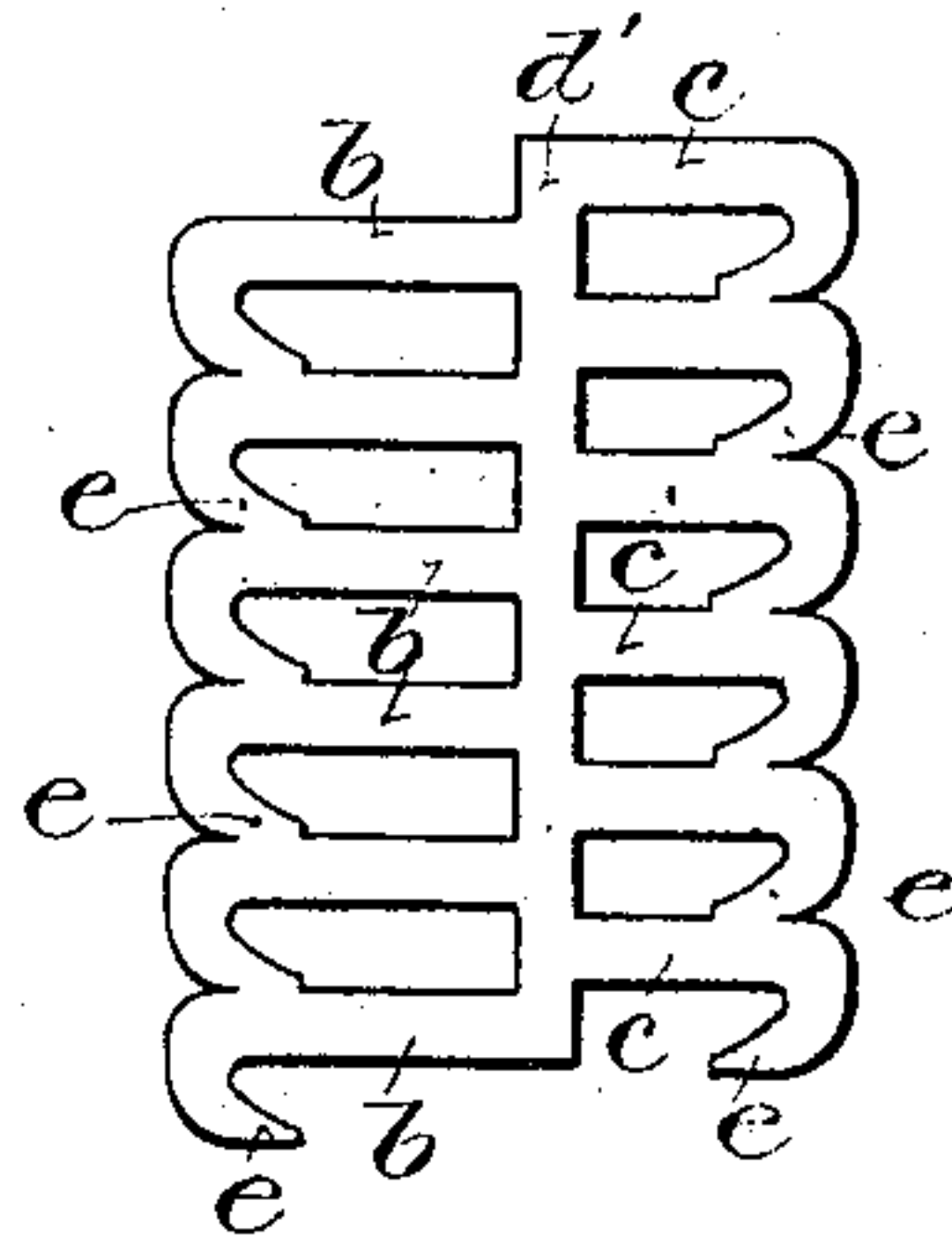


Fig. 8.

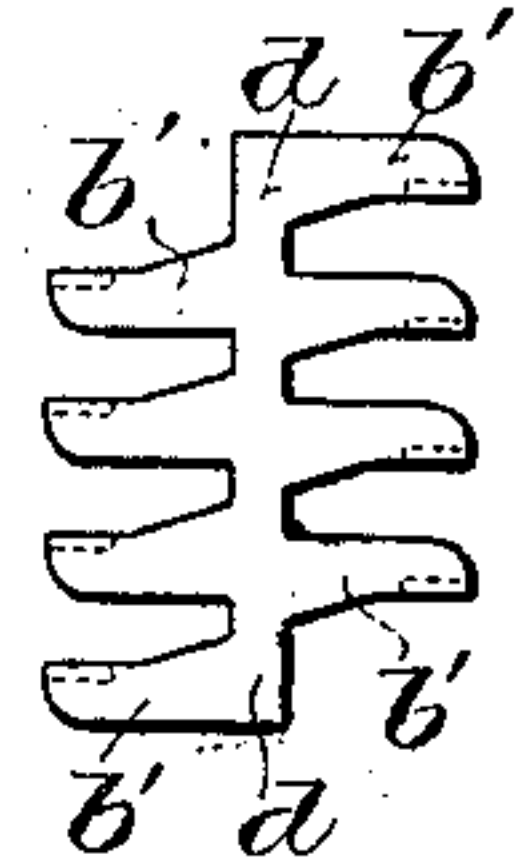
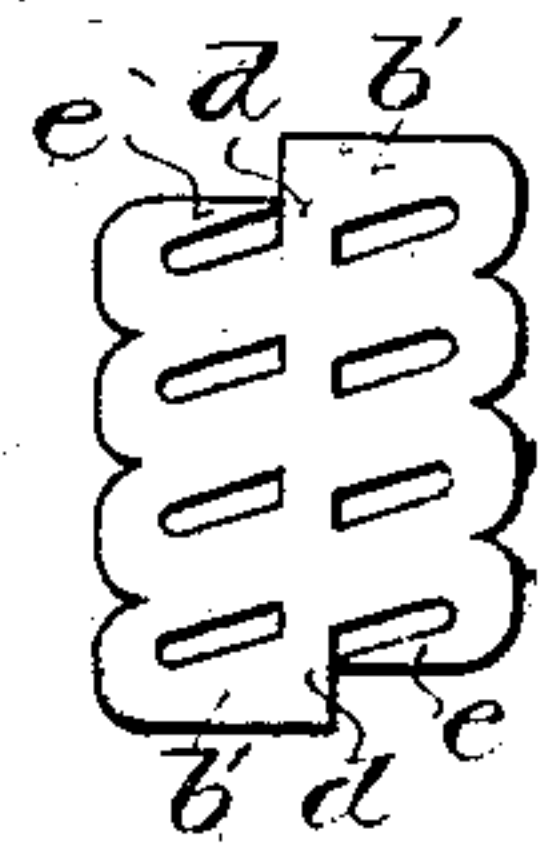


Fig. 10.



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UNITED STATES PATENT OFFICE.

GEORGE EDWARD PURPLE, OF CHICAGO, ILLINOIS, ASSIGNOR TO FLEXIBLE STEEL LACING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

BELT-COUPLING.

938,511.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed September 3, 1908. Serial No. 451,482.

To all whom it may concern:

Be it known that I, GEORGE E. PURPLE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Belt-Couplings, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

This invention relates more particularly to belt couplings, lacings or fastenings which are made from sheet metal with clenchable prongs for securing them in the belt ends. Its main objects are to avoid weakening the belting where the prongs pass through it, to prevent straightening of the prongs and separation of the belt ends by the pull thereon, and generally to facilitate the manufacture and to improve the construction of devices of this class.

It consists in certain novel features of construction as hereinafter particularly described and defined in the claims.

In the accompanying drawing like characters designate the same parts in the several figures.

Figure 1 is a plan view of a separable two-part loose pin coupling embodying the invention as applied to a belt; Fig. 2 is an edge or side view of the same, the member at the left being shown as fastened to the belt end, and the member at the right in the form it has before it is attached to the belt; Fig. 3 is a plan view of a blank as partially formed for one member of the coupling; Fig. 4 is an end view of the partially formed blank as viewed from the left with reference to Fig. 3 only the prongs at the left end of the blank being shown; Fig. 5 is a plan view of an interlocking two-part coupling also embodying the invention as applied to a belt; Fig. 6 is an edge or side view like Fig. 2, of this form of coupling; Fig. 7 is a plan view of a partially formed blank for one member of the coupling shown in Figs. 5 and 6; Fig. 8 is a plan view of a modification showing the invention as embodied in a one-piece coupling; Fig. 9 is an edge or end view of the one-piece coupling as applied to a belt; and Fig. 10 is a plan view of a partially formed blank for this form of the coupling.

Referring to Figs. 1 to 4 inclusive, showing a separable form of coupling comprising two members which are pivotally connected

like a hinge by a loose or removable pin *a*, each member is formed of sheet metal with two sets of alternating prongs *b* and *c*, on opposite sides of and integral with a cross strip or piece *d* and terminating with points *e*, in planes approximately perpendicular to and lengthwise of the shanks of the prongs, which are adapted to lie flatwise on the opposite sides of a belt to which the coupling is applied, as shown in Figs. 1 and 2. The prongs *c* of one set are made longer than the prongs *b* of the other set, and are bent as shown in Fig. 2 to form hinge loops or pivot bearings *f* for the pin *a* by which the members of the coupling are separably connected. When thus formed the points of the prongs *b* are at a greater distance from the loops *f* than the points of the prongs *c*, so that the latter will pierce the belt out of line with the former, and will clench in the spaces between the shanks of the prongs *b*. The shanks of the prongs are primarily bent as shown at the right in Fig. 2, so that the end of a belt may be inserted between the opposing points *e*, which may then be driven through the belt and clenched, as shown in Fig. 1 and at the left in Fig. 2, with an ordinary hammer.

By making the prongs of different lengths so that the points of one set will pierce the belt out of line with the points of the other set, interference of the opposing points with one another is prevented, the holes or slits made through the belt by the points are distributed, weakening of the belting is avoided, and a more secure attachment of the coupling to the belt is obtained.

The members of this coupling may be conveniently stamped or cut from continuous or long strips of sheet metal, and the prongs and points progressively formed, as shown in Figs. 3 and 4.

The points, in order to obtain the required length from a flat blank, being taken from the metal between the shanks of the prongs, are primarily made of hook shape, as shown at the top of Fig. 3. The openings between the prongs are first punched, the points are then swaged to sharpen them, and then they are severed from the shanks of the adjoining prongs next to the sharpened ends and partially bent over as shown on the third prongs from the bottom of Fig. 3 and from the right of Fig. 4, so that the edges of the inwardly

hooked portions of the points are exposed between the shanks of adjacent prongs in position to be operated upon and straightened edgewise by punches passing through the spaces between said prongs. The outer curved ends of the shanks and hooked points being backed by a suitable die or support, the points are straightened edgewise and bent into the form in which they are shown on the second prongs from the bottom in Fig. 3 and the second prong from the right in Fig. 4. Finally they are straightened flatwise, as shown on the bottom prongs in Fig. 3 and the prong at the extreme right in Fig. 4, their faces on one side being brought flush or approximately so, with the adjacent edges of the shanks on which they are formed. These operations are preferably performed progressively on one or more of each series of prongs at a time. The prongs are then bent to the form in which they are shown at the right in Fig. 2, and in which they are ready for the market and for use. The points *e* thus formed and disposed with relation to the shanks of the prongs, piercing the belt through which they are driven lengthwise instead of crosswise, weaken the belting very little, if any, and being disposed edgewise to the pull or strain of the belt on their shanks, and bent over or clenched laterally or crosswise with relation to their shanks, most effectively resist the tendency of such strain or pull to straighten and withdraw them from the belt.

Referring to Figs. 5, 6 and 7, showing a modified form of the coupling, the hinge loops *f* are omitted and the cross piece *d'* of each member interlocks with and serves as a pivot bearing for that of the other member, as most clearly shown in Fig. 6. In other respects the coupling is substantially like that shown in Figs. 1 and 2.

Referring to Figs. 8, 9 and 10, showing a one-piece coupling or fastening, the two sets of prongs *b'* on opposite sides of the transverse connecting strip *d*, are substantially alike, and their shanks instead of being bent as in the two-part hinge couplings shown in Figs. 2 and 6, are left substantially flat and are applied to the outer or corresponding faces of the meeting ends of a belt, as shown in Fig. 9. The points *e* of the prongs are formed and disposed with respect to their shanks substantially the same as in the other forms of the coupling hereinbefore described.

Various changes in the details of construction of the coupling and in the method

or process of manufacture may be made without departing from the principle and scope of the invention.

I claim:

1. A sheet metal belt coupling formed with prongs connected by a cross piece and having points bent into planes approximately perpendicular to that of the shanks of the prongs and lengthwise thereof, substantially as described.

2. A sheet metal belt coupling formed integrally with prongs connected by a cross piece and terminating in laterally clenched points in planes approximately perpendicular to and lengthwise of the shanks of the prongs which are adapted to lie flatwise and lengthwise on a belt end to which the coupling is applied, substantially as described.

3. A sheet metal belt coupling formed integrally with two sets of prongs connected by a cross piece and terminating with points in planes approximately perpendicular to and lengthwise of the shanks of the prongs, substantially as described.

4. A metal belt coupling having prongs integrally formed with a connecting cross piece and terminating in planes approximately perpendicular to and lengthwise of their shanks with flat points which are clenched transversely to said shanks, substantially as described.

5. A sheet metal belt coupling having prongs integrally formed with and connected by a cross piece and terminating in planes substantially perpendicular to and lengthwise of their shanks and flush with one edge thereof in laterally clenched points, substantially as described.

6. A belt coupling comprising two sheet metal members each formed integrally with two sets of alternating prongs connected by a cross piece and terminating with points in planes approximately perpendicular to and lengthwise of the shanks of the prongs, substantially as described.

7. A belt coupling comprising two sheet metal members each having two primarily divergent sets of alternating prongs integrally connected by a cross piece and terminating in planes approximately perpendicular to and lengthwise of their shanks with points clenched crosswise of the shanks, substantially as described.

In witness whereof I hereto affix my signature in presence of two witnesses.

GEORGE EDWARD PURPLE.

Witnesses:

PHILIP S. RINALDO,

A. B. BEACH.

DISCLAIMER.

938,511.—*George Edward Purple*, Chicago, Ill. BELT-COUPPLINGS. Patent dated November 2, 1909. Disclaimer filed December 15, 1919, by the assignee, *Flexible Steel Lacing Company*.

Enters its disclaimer—

"To the one-piece form of belt coupling, lacing, or fastening illustrated in Figs. 8, 9 and 10 of the drawings of said Letters Patent, and hereby erases from the drawing the said Figs. 8, 9 and 10, and hereby erases, cancels and withdraws from the specifications of said Letters Patent the following statements, to wit:

"Page 1, lines 46 to 52:

"Fig. 8 is a plan view of a modification showing the invention as embodied in a one-piece coupling; Fig. 9 is an edge or end view of the one-piece coupling as applied to a belt; and Fig. 10 is a plan view of a partially formed blank for this form of the coupling.

"Page 2, lines 44 to 57:

"Referring to Figs. 8, 9, and 10, showing a one-piece coupling or fastening, the two sets of prongs *b'* on opposite sides of the transverse connecting strip *d*, are substantially alike, and their shanks instead of being bent as in the two-part hinge couplings shown in Figs. 2 and 6, are left substantially flat and are applied to the outer or corresponding faces of the meeting ends of the belt, as shown in Fig. 9. The points *e* of the prongs are formed and disposed with respect to their shanks substantially the same as in the other forms of the coupling hereinbefore described.

"Further enters its disclaimer to so much of claims 1, 2, 3, 4 and 5 of said patent, and each of them, as may cover a one-piece coupling adapted to overlies the joint of the belt and having prongs at the opposite ends to engage the abutting ends of the belt, or any coupling which is not a two-part belt-coupling, the two members of which are separable and adapted to be pivotally connected and each member bent at an intermediate position to form hinge-loops or pivot-bearings and to bring the prongs into divergent alternating positions, so that the end of the belt may be inserted between the opposing prongs of the member and the prongs passed through the belt end from opposite sides thereof and clenched;

"Thereby limiting said claims 1, 2, 3, 4 and 5, and each of them, to a two-part belt-coupling, the two members of which are separable and adapted to be pivotally connected and each member bent at an intermediate position to form hinge-loops or pivot-bearings and to bring the prongs into divergent alternating positions, so that the end of the belt may be inserted between the opposing prongs of the member and the prongs passed through the belt end from opposite sides thereof and clenched."

[*Official Gazette December 23, 1919.*]