

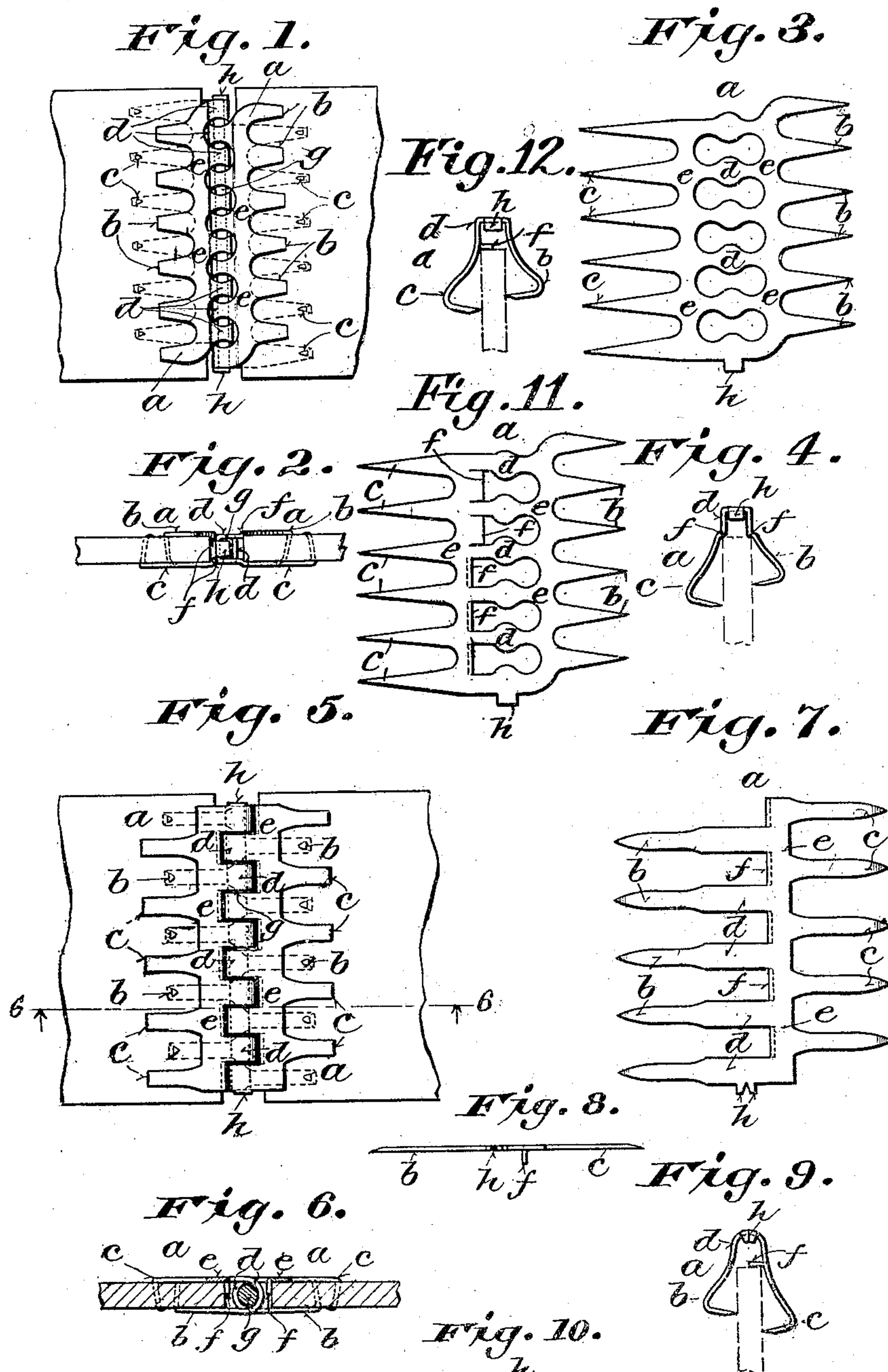
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BELT COUPLING.

APPLICATION FILED SEPT. 23, 1907.

938,510.

Patented Nov. 2, 1909.



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# UNITED STATES PATENT OFFICE

GEORGE E. PURPLE AND ALBERT B. BEACH, OF CHICAGO, ILLINOIS, AND WILLIAM H. TROUT, OF MILWAUKEE, WISCONSIN, ASSIGNORS TO FLEXIBLE STEEL LACING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## BELT-COUPLING.

938,510.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed September 23, 1907. Serial No. 394,190.

*To all whom it may concern:*

Be it known that we, GEORGE E. PURPLE and ALBERT B. BEACH, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, and WILLIAM H. TROUT, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, 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 to separable hinged or jointed couplings for flexible machine belts and the like. Its main objects are to provide couplings of this class which shall be strong and durable, which can be easily and quickly applied to belt ends without special tools, and which will admit of readily disconnecting and connecting the ends of a belt without detaching the members of the coupling therefrom, and generally to improve the construction and operation and increase the convenience of such couplings.

It consists in certain novel features of construction and in the peculiar arrangement and combinations of parts as hereinafter particularly described and pointed out in the claims.

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

Figure 1 is a plan view of one form of coupling embodying the present invention, and as applied to the ends of a belt; Fig. 2 is an end elevation of the same looking toward one edge of the belt; Fig. 3 is a plan view of one member of the coupling as cut from sheet metal and before it is bent into its final or commercial shape; Fig. 4 is an end elevation of the member as bent into commercial shape ready for application to a belt; Fig. 5 is a plan view of a modified form of the coupling as applied to the ends of a belt; Fig. 6 is a section of the same on the line 6-6, Fig. 5; Fig. 7 is a plan view of one member of the coupling before it is bent into its final or commercial shape; Fig. 8 is an end view at the same stage of its formation; Fig. 9 is an end view showing the same in commercial form ready for at-

tachment to a belt; Fig. 10 is an end view of a modification of the construction shown in Figs. 7, 8 and 9; and Fig. 11 is a plan view, and Fig. 12 is an end view similar to those of Figs. 3 and 4, of a slight modification of the construction therein shown.

The coupling in its several modified forms is composed of two main members which are alike and are struck or cut from sheet metal, primarily in a flat form.

Referring to Figs. 1 to 4 inclusive, each member *a* is formed with two sets of prongs *b* and *c*, and with intermediate hinge loops or bearings *d*, the prongs of each set and the hinge loops at each end being connected by cross strips *e*. To insure and facilitate properly locating the members square across the ends of a belt when they are placed thereon and attached thereto, each member is formed with one or more inwardly bent transverse shoulders *f*, forming stops or gages, as shown in Figs. 2 and 4, for the ends of the belt to abut against. These stops also serve to prevent the ends of the belt from entering the hinge loops *d*. As shown in Fig. 4, the points or ends of the prongs are bent inwardly at approximately right angles to their shanks and the connecting strips *e*, while the shanks with the connecting strips are primarily bent outward, diverging sufficiently to readily permit of the insertion of a belt end between the opposing points against the shoulders *f*. In this form the coupling members are supplied to the trade ready for attachment to belts, which is readily accomplished by driving the pointed ends of the prongs through the belt and clenching them in or upon it, as shown in Figs. 1 and 2. This does not require special tools, but may be done with an ordinary hammer or similar tool. The connecting strips *e* and the shanks of the prongs are preferably curved slightly inward between the shoulders *f* and the inturned points or ends, so that they will be embedded in or closely hug the faces of the belt when the pointed ends are driven through it and clenched. In this form of coupling the hinge loops *d* are centrally widened or expanded, the openings between them being widened at the ends and of less width between the ends than the central portions of the loops, so that the loops



of one member will interlock with those of the other member when the pivot pin is removed, thus preventing the separation of the members except by a movement of one member first toward the other and then in a direction transverse to the plane of the belt.

When the members of the coupling have been attached to the ends of a belt as above stated, the loops of one member are inserted side-wise through the enlarged ends of the openings between the loops of the other member, and a pin *g* is then passed through the loops of both members, pivotally connecting them, as shown in Figs. 1 and 2. To hold the pin in place, the terminal loop at one end of each member is formed with an ear or projection *h*, which is bent inwardly over the end of the pin. The prongs *b* of each member alternate with the prongs *c* on the opposite side thereof, and are preferably made shorter, so that their points or ends will pierce the belt between the longer prongs and out of line with their points or ends. A more secure fastening of the members to the belt is thus obtained, and the weakening of the belt which would result from piercing it with all the prongs of each member in the same line, is avoided.

Referring to Figs. 5 to 9 inclusive, showing a modified construction, the hinge loops *d* of each member of the coupling are connected at one end only by a cross strip *e*, the shorter prongs *b* being separate continuations of the loops. In this case the stops *f* for determining the position of the coupling members on the belt ends are formed by inwardly bent lips or ears struck from the spaces between the loops *d* on one side of the connecting strip *e*. The loops *d* of each member alternate with those of the other member, but are not centrally widened or expanded to interlock therewith, as in the form of the coupling first described. The members of this form of coupling are also shaped and supplied as shown in Fig. 5 ready for attachment to belts as hereinbefore explained, and the terminal loop at one end of each member is formed with an inwardly bent ear or projection *h* for holding the hinge pin *g* in place.

In the form of the coupling shown in Figs. 1 to 4 inclusive, the hinge loops *d* are made of angular shape to conform to a rectangular or flat sided pin *g*, which is shown in Figs. 1 and 2, and in the form of the coupling shown by the other figures of the drawing, the hinge loops are bent into approximately semicircular shape to conform to a round pin, which is shown in Figs. 5 and 6, but a hinge or pivot pin of either form may be used in either form of coupling, the loops *d* being shaped to correspond. With a round pin a rotating joint is produced, while a rectangular or flatsided pin forms a rocking joint, which eliminates the

rotating friction or slipping of the loops *d* on the pin and thus reduces wear. Either form of the hinge or pivot pin may be made of rawhide, hardwood, or other similar material.

The interlocking joint formed by centrally widening the hinge loops *d*, as shown in Figs. 1 and 3, affords greater bearing surface on the pivot pin, and makes it impossible to shear the pin. With this form of coupling, if the pivot pin should be omitted or removed or become inoperative, the connection between the belt ends would be maintained by the interlocking loops *d*.

The ends of a belt connected by either form of the coupling may be readily disconnected by withdrawing the pin *g* without detaching either of the main members *a* from the belt. The ordinary slack or lost motion in the joint will permit the insertion of the hinge pin and its removal from the coupling without bending the ears or projections *h*.

The members of the coupling, whether of the general shape shown in Figs. 1 and 3, or of the shape shown in Figs. 5 and 7, may have gage stops *f* formed by inwardly bent shoulders as shown in Figs. 2, 4 and 10, or by inwardly bent lips or ears struck from the sheet metal blanks, as shown in Figs. 6, 8 and 9 11 and 12.

We claim:

1. As a new article of manufacture, a metallic belt coupling member formed in one piece with two sets of primarily diverging prongs having inwardly and oppositely bent clenchable points and with intermediate hinge loops connected by a cross strip at a distance from the bends of the prongs, the points of one set of prongs alternating with the shanks of the other set and arranged to pass into and to be clenched in the spaces between said shanks, substantially as described.

2. A belt coupling composed of two members, each formed integrally with two sets of oppositely bent clenchable prongs and with intermediate hinge loops, the prongs of one set alternating with and being arranged to pass between those of the other set and the loops of one member alternating with and fitting between those of the other member, and a pin adapted to pass loosely through said loops and pivotally connect the two members each of which has an inward projection on one of its terminal loops for retaining said pin in place, substantially as described.

3. A belt coupling comprising two members each formed with two sets of oppositely and inwardly bent clenchable prongs and with intermediate centrally widened hinge loops adapted to interlock with those of the other member, and a pivot pin adapted to pass loosely through and form a bearing



for the loops of both members, substantially as described

4. A belt coupling comprising two members each formed with two sets of oppositely and inwardly bent clenchable prongs and with intermediate centrally widened hinge loops, adapted to interlock with those of the other member, each set of prongs being connected adjacent to the loops by a cross strip, and the necks at the ends of the loops of each member being adapted to pass transversely to the plane of the coupling between the widened portions of the loops of the other member, and a pivot pin adapted to pass loosely through and form a bearing for

the loops of both members, substantially as described.

In witness whereof we hereto affix our signatures in presence of two witnesses.

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