

(No Model.)

C. C. DOUGLASS.  
BELT FASTENER.

No. 577,361.

Patented Feb. 16, 1897.

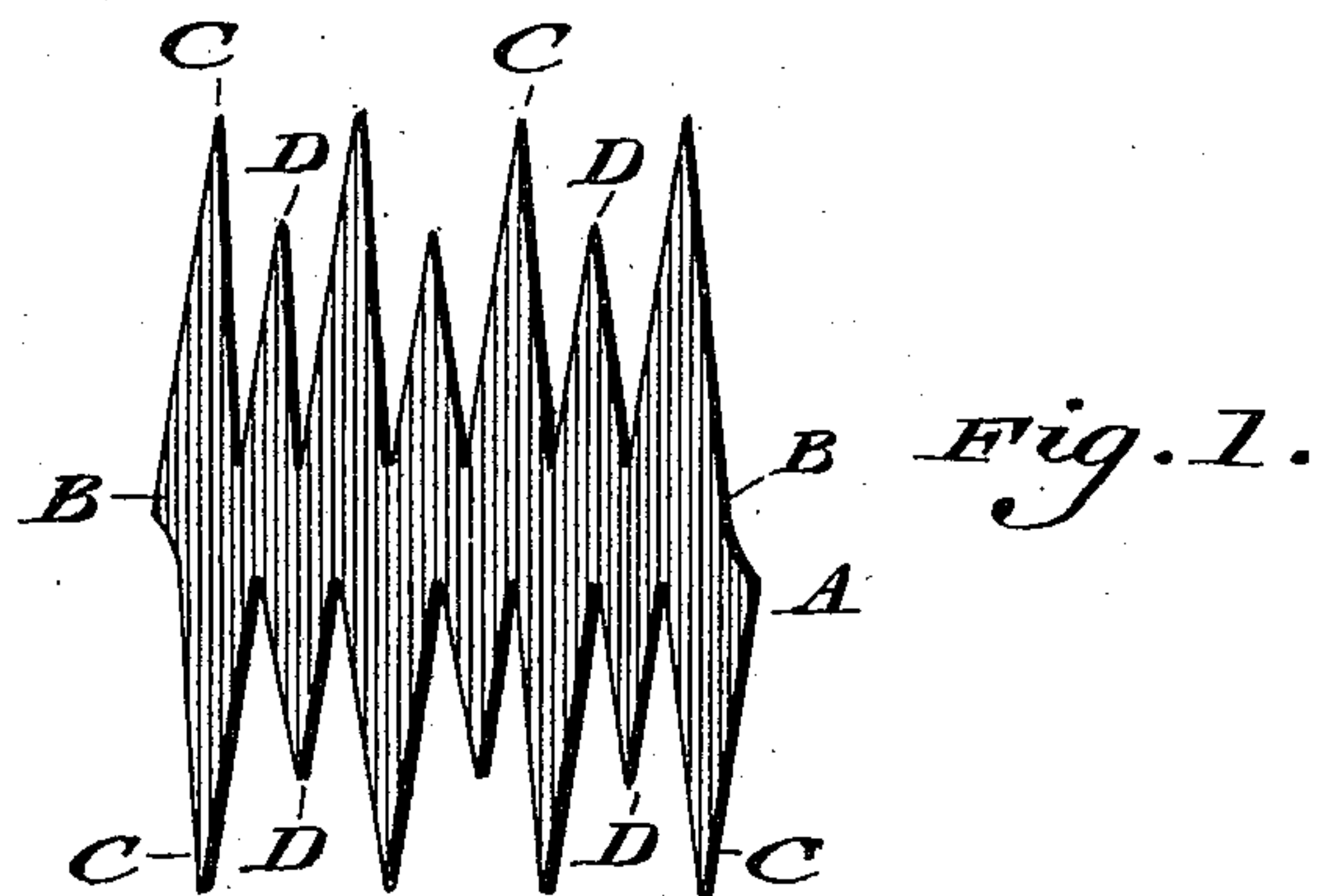


Fig. 2.

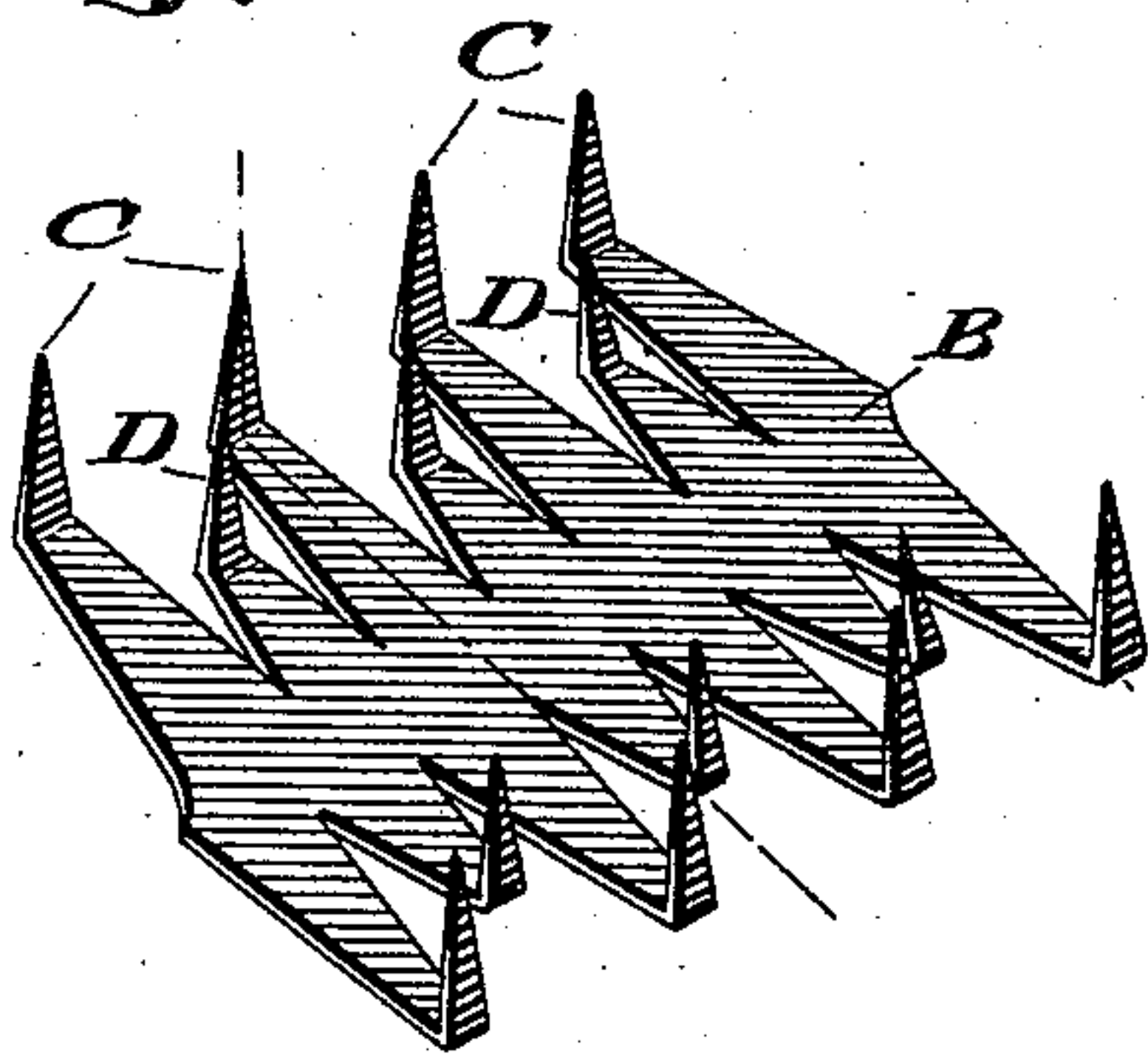


Fig. 3.

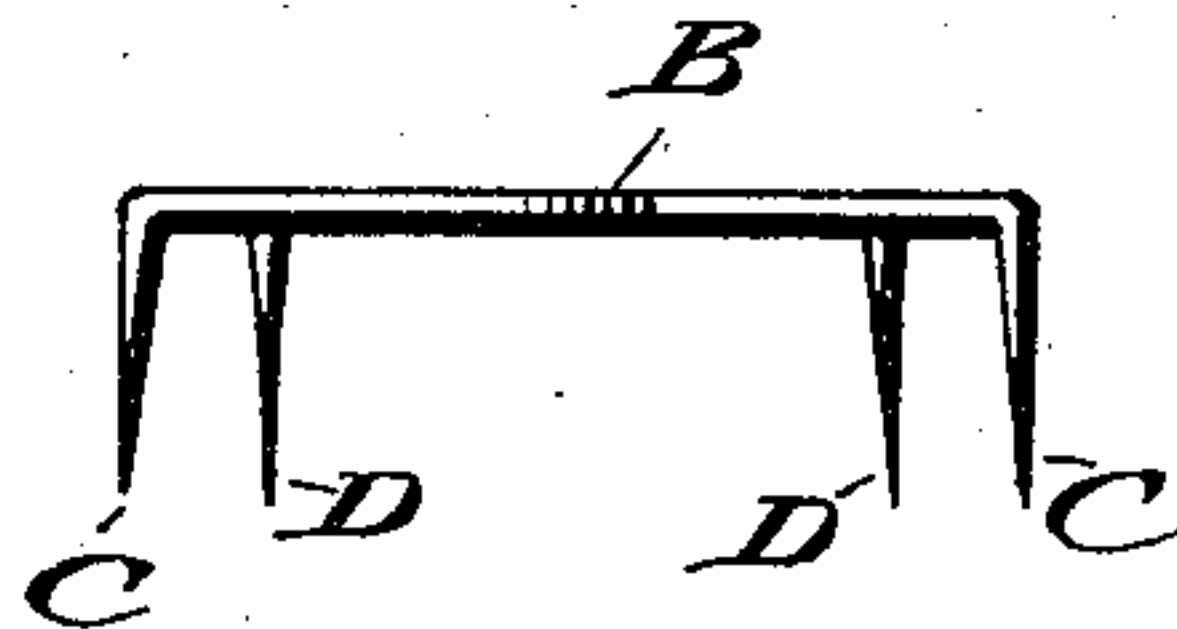


Fig. 5.

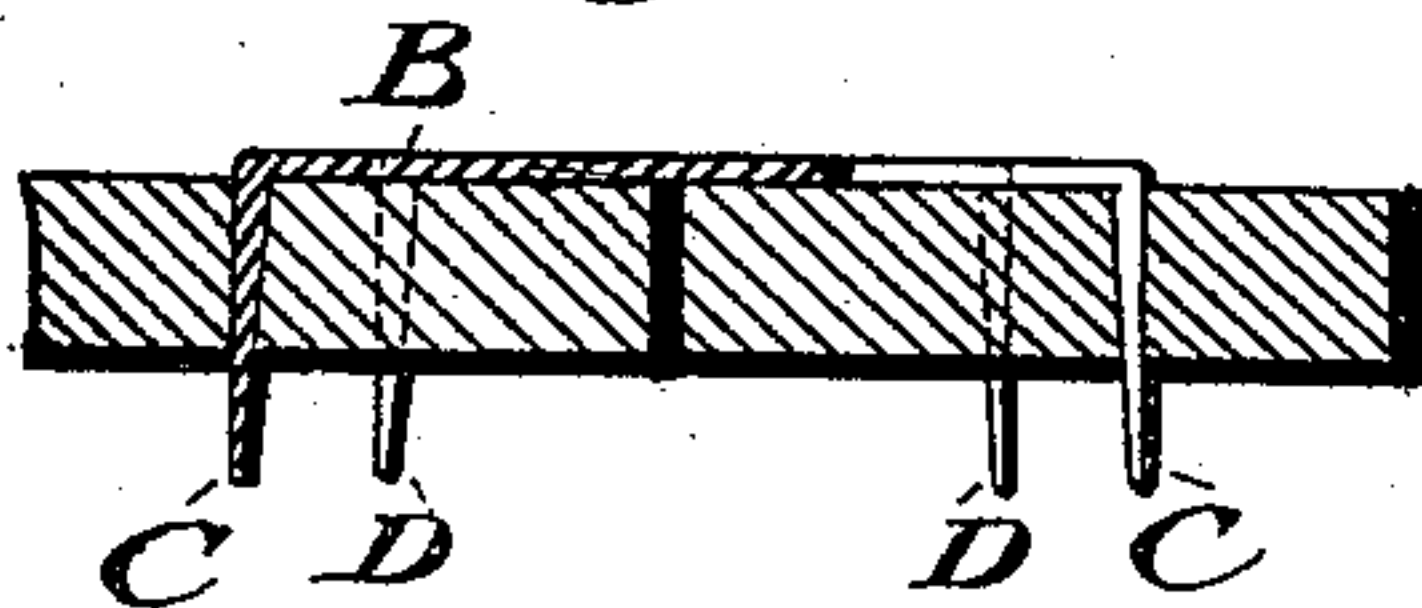


Fig. 6.

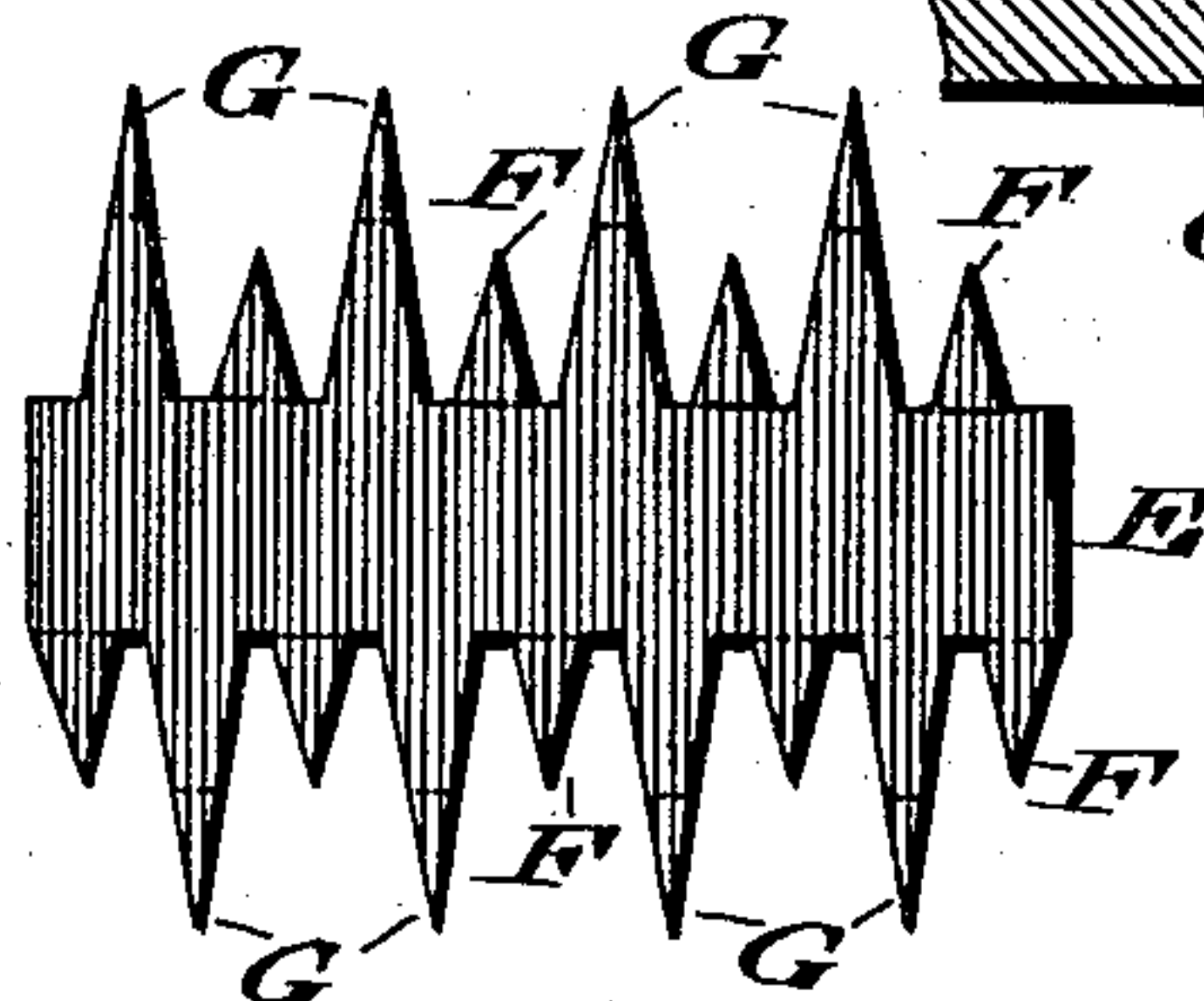
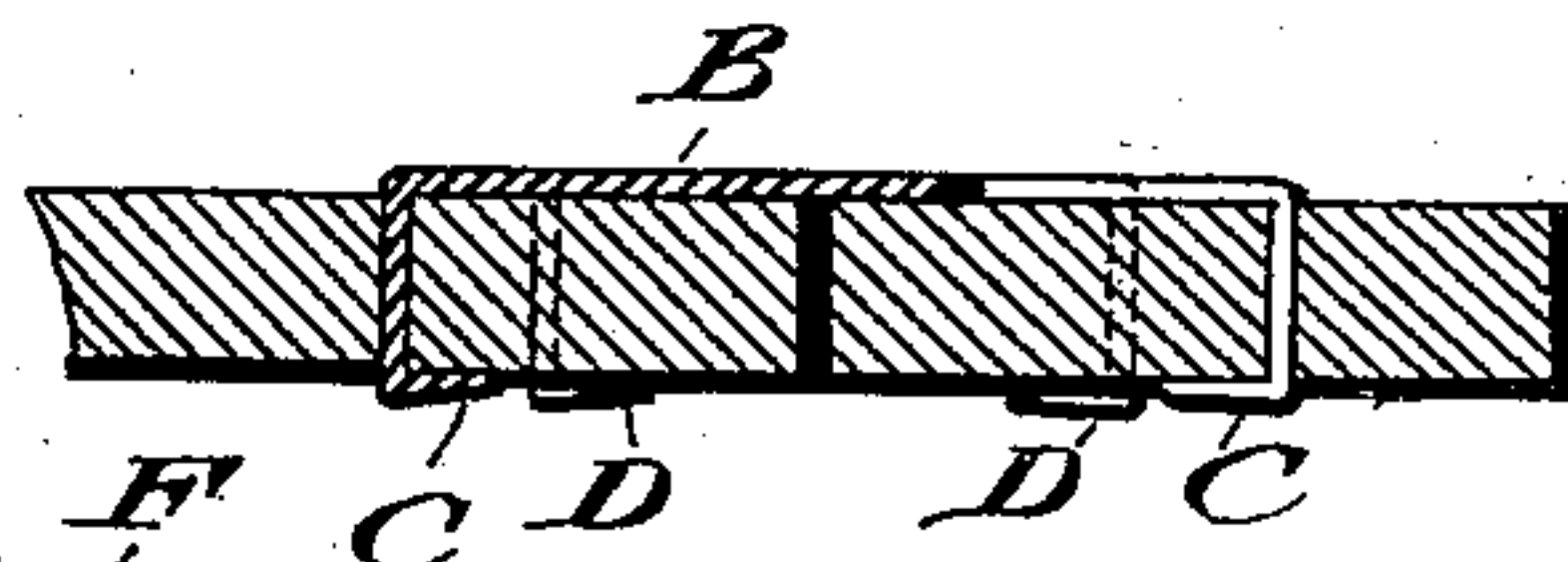


Fig. 4.

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# UNITED STATES PATENT OFFICE.

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## BELT-FASTENER.

SPECIFICATION forming part of Letters Patent No. 577,361, dated February 16, 1897.

Application filed March 10, 1896. Serial No. 582,545. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES C. DOUGLASS, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Belt-Fasteners, which improvement is fully set forth in the following specification and accompanying drawings.

This invention relates to certain improvements in belt-fasteners. It is well understood among those skilled in this art that the laced belt-fastenings wherein rawhide or prepared leather strips or the like are laced back and forth through the belt ends constitute an exceedingly strong and yet flexible fastening, but the expense and labor involved in thus lacing together the ends of the belt and the necessity of removing leather from the belt in forming the holes for the lacing offer serious objections to such modes of fastening together the ends of the belt.

It is the object of my invention to provide an improved flexible-metal fastener which can be easily forced through the belt ends without weakening the belt by first cutting holes therein and have all its narrow points clenched on the under side thereof, and which is constructed to fasten the belt ends on the principle of the lacing before referred to and will thus attain the strength and distribution of strain along the belt ends present in the lacing, and yet will be durable and very cheap in first cost and easily and quickly applied.

The invention consists in a flexible-metal fastener constructed as more fully and particularly pointed out and described herein-after, and specified in the claims.

Referring to the accompanying drawings, Figure 1 is a plan view of a blank as cut out from flexible sheet metal preparatory to bending down the points to form the completed fastener. Fig. 2 is a perspective view of the completed fastener. Fig. 3 is an end view thereof. Fig. 4 is a plan view of the blank for a modified form. Figs. 5 and 6 are sectional views through a belt with the fastener uniting the ends thereof, Fig. 5 showing the points before clenching and Fig. 6 showing them clenched.

The fastener is cut out in a single piece

from thin flexible sheet metal and in the form of a blank A, having the straight elongated strip or body B to lie transversely along the belt and parallel with and over the meeting edges thereof. A multiplicity of parallel projections extend outwardly from each longitudinal edge of this strip. Each edge has two series of projections alternating long and short, each projection tapering from the strip outwardly to a sharp point. The long projections C at both edges of the strip or body are all of the same length and usually shaped the same as and alternate with the short projections D, which are also of the same length.

The outer portions of the long projections C are bent down at right angles to form the two straight lines of points of such a length as to pass completely through the belt and permit effective clenching on the under side thereof. The short projections D are also bent down at right angles and in the same direction as the long projections to form the two rows of points between and parallel with the two rows of the long projection points. The short projections are bent down to form points of a proper length to pass completely through and permit clenching on the opposite side of the belt, and hence all the points of the long and short projections are of approximately the same length.

All the outward projections from one edge of the body or strip are staggered in relation to those at the opposite edge of the body, so that the plane of the length of each projection passes between a long and short projection at the opposite edge of the body; also, a greater number of long projections are provided than short projections, and they are so arranged that long projections are at both ends of each side edge of the fastener, the four corners of the fastener being thus provided with long projections of equal length with the long and short projections arranged between them.

In applying the fastener the belt ends are brought together and the fastener placed thereon with the body above and parallel with the end edges of the belt, and then pressure is applied which forces the sharp points through the belt and permits clenching thereof on the



opposite side of the belt. By reason of the thin tapered points the fastener can be easily and quickly forced through the belt without weakening the same, as results where holes have to be cut and leather removed. The lacing principle is followed in so staggering or arranging the outwardly-extending projections that each projection virtually pulls against two projections at the opposite edge of the body. Thus each short projection and also each long projection pulls against and is arranged opposite a long and short projection at the opposite edge of the body, so that the strain is equally distributed along the body and various projections, while the end long projections equalize the strain and pull at the ends of the body, so that there is no twisting strain on the fastener tending to pull one end thereof ahead of the other or to throw excessive strain on the short projections nearer the ends of the belt than the long projections. The lines of strain are diagonally across the fastener from each projection to the two opposite projections, as in the lacing. By reason of this arrangement wear and strain on the belt ends and tendency to pull the points through the belt are reduced to a minimum. Material advantages are also attained by the flexibility of such a fastener permitting it to bend with the belt and conform to the shape of pulleys without the jarring and thumping incident to the employment of rigid heavy fasteners which tend to separate the fastener from the belt and wear its projections through the belt, in addition to other disadvantages.

The strength and effectiveness of the fastener are materially increased by having the intermediate body or strip with the projections extending outwardly from side edges, and hence pulling on each other through the body, while the four parallel rows of projections pass through the belt ends in different planes transverse thereof, reducing strain

thereon at any one point to a minimum and distributing the strain.

In Fig. 4 a blank is shown for a fastener wherein the lacing principle is followed, although the ends of the fastener are not provided with the four long projections and the projections are slightly separated, dotted lines showing the bending points of the projections.

What I claim is—

1. A belt-fastener formed of a single piece of flexible sheet metal so that the fastener can bend with the belt, the same consisting of an elongated strip or body having the plurality of pointed projections extending outwardly from its opposite longitudinal edges, and alternately long and short and all bent at right angles to form points to pass through the belt and be clenched on the opposite side thereof, the projections on one side of the body staggered with relation to those at the opposite side so that each projection pulls on two opposite projections in accordance with the lacing principle, substantially as shown and described.

2. The belt-fastener composed of a flexible metal strip or body having the plurality of tapered pointed projections extending outwardly from its opposite edges and all turned down to form points to pass through and be clenched on the under surface of the belt, the projections at each side alternately long and short so that four rows of points are formed, the projections at one edge staggered with relation to those at the opposite edge so that each projection is arranged opposite and pulls against a long and short projection the four corners of the fastener having the long projections, substantially as shown and described.

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Witnesses:

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