

N^o 15,079



A.D. 1911

Date of Application, 28th June, 1911

Complete Specification Left, 11th Dec., 1911—Accepted, 2nd May, 1912

PROVISIONAL SPECIFICATION.

Improvements in or relating to Belt Fasteners.

I, FRANK HORNBY, of 274, West Derby Road, Liverpool, Manufacturer, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in that type of belt fastener for making butt joints on driving belts in which the abutting ends of the belt are gripped, within recesses formed in the connecting plate, by means of cup headed bolts and nuts. In such types of belt fastener the ends of the connecting plate have been rounded, and it is found that these rounded ends tend to tear or cut the belt in the region of the curved edges. One of the objects of the present invention is to avoid such tearing of the belt during wear. Again, the cup heads of the bolts in previous types have been furnished with prongs adapted to embed themselves in the belt and thus avoid turning of the bolt while the nut is being tightened up; such prongs, however, are apt to tear the material of the belt and consequently weaken it, while the operation of producing such a pronged cup head on the connecting bolts is very expensive. The present invention is directed to providing a type of bolt head which, while effectively obviating the turning of the bolt when screwing up the nut, shall avoid damaging the belt.

According to this invention the plate constructed from a sheet metal blank is made square at its ends in plan, instead of round as in the more usual type, the plate being made up from a stamping, and the ends of the blank being afterwards curled up so as to form straight cylindrical edges which shall be lenient to the belt in wear, and not likely to tear the same. The longitudinal edges of the plate are also curled over, to give longitudinal rigidity to the plate, and a central transverse rib is embossed up from the metal between the bolt head recesses. These recesses are embossed up in a, preferably, four sided pyramidal form and are pierced centrally to receive the bolt shank. The bolt head is similarly shaped in pyramidal form so as to socket itself within the embossed recesses in the plate. By such a construction the abutting ends of the belt are compressed into the pyramidal recesses of the plate and held very securely therein, while the pyramidal construction effectually prevents the bolt turning as the nut is being tightened up.

Such a construction of belt fastener is very economical to manufacture, owing to it being stamped up from sheet metal, and by reason of the curled ends, transverse rib, and longitudinal end curlings, the plate acquires a very considerable rigidity.

Dated this 27th day of June, 1911,

For the Applicant,

A. J. DAVIES,
Patent Agent by Examination,
37, Moorfields, Liverpool.

[Price 8d.]



Hornby's Improvements in or relating to Belt Fasteners.

COMPLETE SPECIFICATION.

Improvements in or relating to Belt Fasteners.

I, FRANK HORNBY, of 274, West Derby Road, Liverpool, Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in that type of belt fastener for making butt joints on driving belts in which the abutting ends of the belt are gripped, within recesses formed in the connecting plate, by means of cup headed bolts and nuts, the sides and ends of the plate being turned over to form curled edges. In such types of belt fastener the ends of the connecting plate have been rounded looked at in plan, and it is found that these rounded ends tend to tear or cut into the belt in the region of the rounded ends of the plate. One of the objects of the present invention is to avoid such tearing of the belt during wear. Again, the cup heads of the bolts in previous types have been furnished with prongs adapted to embed themselves in the belt and thus avoid turning of the bolt while the nut is being tightened up; such prongs, however, are apt to tear the material of the belt and consequently weaken it, while the operation of producing such a pronged cup head on the connecting bolts is expensive. The present invention is directed to providing a type of bolt head which, while effectively obviating the turning of the bolt when screwing up the nut, shall be so formed as to avoid damaging the belt when in use.

The invention is illustrated in the accompanying drawings, in which Fig. 1. is a plan view of the blank or stamping from which the plate of the belt fastener is formed. Fig. 2. is a plan view of the plate showing the sides and edges curled up and the recesses embossed for the bolt heads. Fig. 3. is a cross section on the line A—A Fig. 2., and Fig. 4. is a cross section on the line B—B. Fig. 5. is a plan view of a belt fastener in position coupling the ends of a belt, Fig. 6. being a longitudinal vertical section on the line C—C of Fig. 5. Fig. 7. is a perspective view of the bolt and nut for gripping the fastener to the belt. Fig. 8. is a plan view of the underneath face of the nut showing the radial locking notches, Fig. 9. showing a modified arrangement of the notches.

According to this invention the plate 1 of the fastener is struck up from a sheet metal blank as shown in Fig. 1., the dotted lines in Fig. 1., showing where the blank is subsequently embossed. The ends 1^a and sides 1^b of this blank are then curled up as shown in Fig. 2. thus providing straight transverse ends 1^a across the extremities of the plate, instead of such ends being curved when looked at in plan as in the more usual type of belt fastener. The ends 1^a of the plate are well turned over during this operation of forming the plate as shown in Fig. 6. so that these edges are straight and approximately cylindrical and are consequently very lenient to the belt in wear and do not tear into the leather or material. The longitudinal sides 1^b of the plate are also well turned over as shown, thus giving longitudinal rigidity to the plate, and a central transverse rib 2 may be embossed in the metal of the fastener plate to act in conjunction with the end curls 1^a to give transverse rigidity. Recesses 3 are stamped up in the plate, these recesses being embossed in a preferably four sided pyramidal form and are pierced centrally at 4 to receive the bolt shank. The head 5 of the bolt 6 shown in Fig. 7. is correspondingly shaped pyramidally to socket itself within the depression of the belt 6^a as the latter is pressed into the embossed recess 3 in the plate by screwing up the nuts 7. By such a construction the abutting ends of the belt are compressed into the pyramidal recesses of the plate

Hornby's Improvements in or relating to Belt Fasteners.

and held very securely therein, while the pyramidal construction effectually prevents the bolt turning as the nut is being tightened up.

The transverse ribs 2 may be further joined by longitudinal shorter ribs 2^a to the recesses 3 thus producing an exceedingly strong form of plate. The
5 nuts 7 are provided with the usual podger holes 8 for tightening up, and in the under face of the nut are cut a series of radial grooves or notches 9. These notches may extend some distance across the under face of the nut as shown in Fig. 8., or as in the form shown in Fig. 9. be cut in the outer rim only 7^a of the nut, this rim being formed on the under face. These notches are adapted
10 when the nut is being tightened up to engage with the corners 3^a of the embossed recesses of the plate, and spring over the corners—the slight elasticity of the embossed metal permitting this—as the nut is being tightened up, thus acting to lock the nut against unscrewing. Any number of such locking notches may be fitted in the under surface of the nuts.

15 Such a construction of belt fastener is very economical to manufacture, as it may be readily stamped up from sheet metal, and by reason of the curled ends, transverse rib, and longitudinal side curlings, the plate acquires a very considerable rigidity.

20 Though shown as straight the fastener would be actually slightly cambered longitudinally in the usual manner.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. An improved belt fastener stamped up from a sheet metal plate the sides
25 and transverse ends of which are of rectangular formation and turned over to form curled edges, the plate having pyramidal embossed recesses into which the belt is pressed by pyramidal shaped heads on the connecting bolts, substantially as described.

2. A belt fastener comprising; a rectangular plate stamped up from a sheet
30 metal blank and having curled sides and transverse ends, pyramidal recesses embossed in the plate, pyramidally headed bolts adapted to grip the belt in the recesses, and nuts for the bolts having a series of radial notches adapted to engage the outer corners of the pyramidal recesses, whereby the nuts may be locked, substantially as described.

35 3. The improved belt fastener, substantially as described and shown in the accompanying drawings.

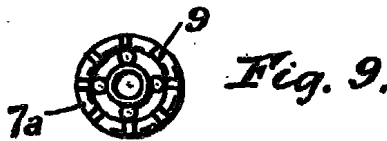
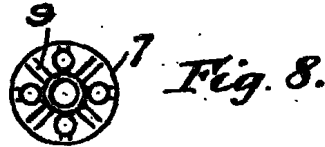
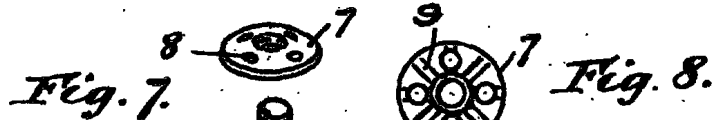
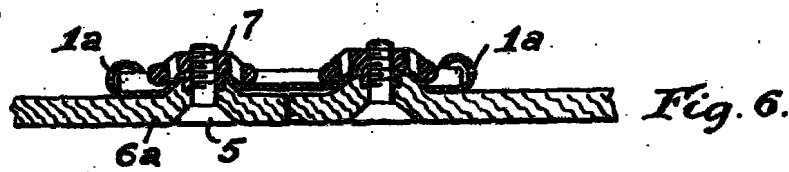
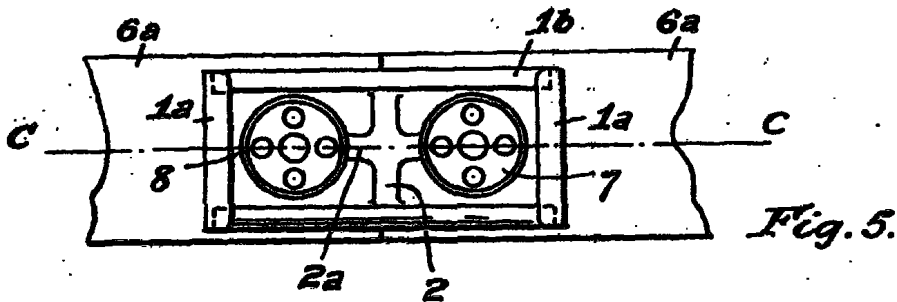
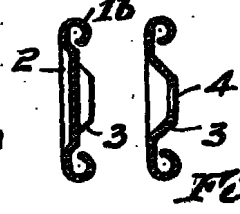
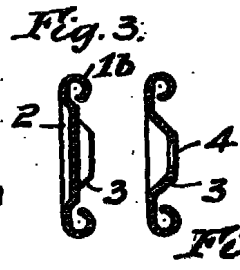
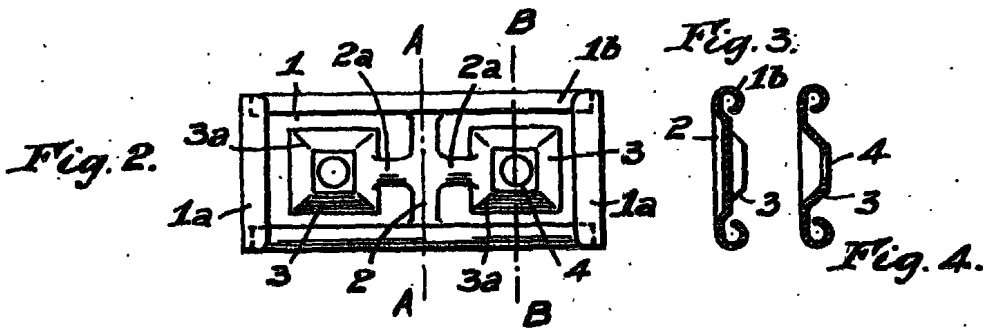
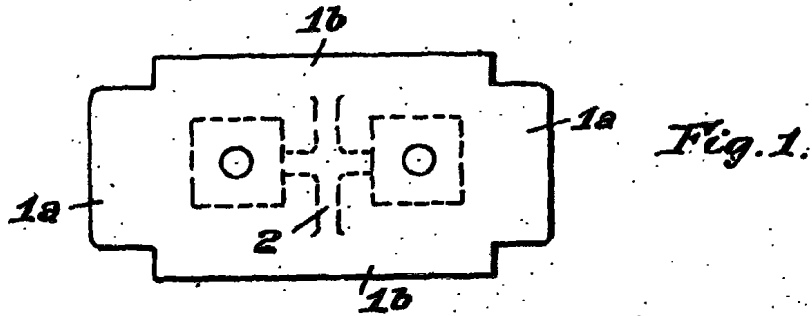
Dated this 1st day of December, 1911.

For the Applicant,

A. J. DAVIES,
Patent Agent by Examination,
37, Moorfields, Liverpool.

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[This Drawing is a reproduction of the Original on a reduced scale.]



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