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No. 792,135.

PATENTED JUNE 13, 1905.

I. JACKSON.
FASTENER.

APPLICATION FILED OCT. 3, 1904.

Fig. 1.

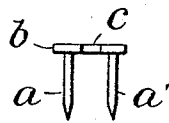


Fig. 3.

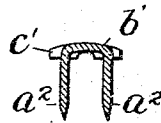


Fig. 5.

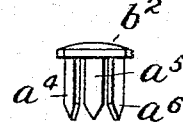


Fig. 7.

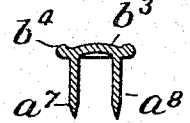


Fig. 2.

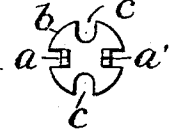


Fig. 4.

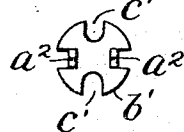


Fig. 6.

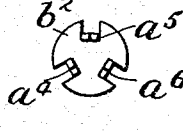


Fig. 8.

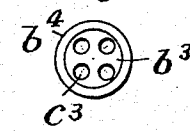


Fig. 9.



Fig. 10.

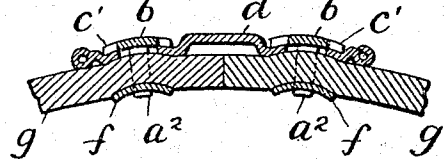


Fig. 11.



Fig. 12.

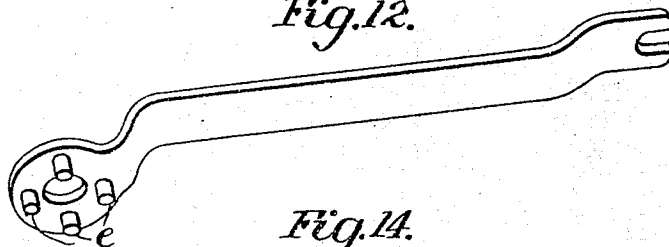


Fig. 14.

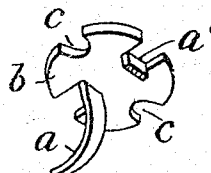


Fig. 13.

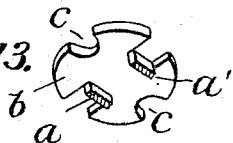


Fig. 15.

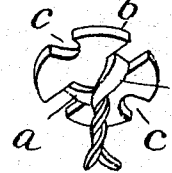
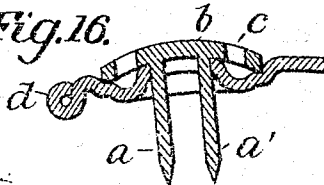


Fig. 16.



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UNITED STATES PATENT OFFICE.

ISAAC JACKSON, OF GLOSSOP, ENGLAND.

FASTENER.

SPECIFICATION forming part of Letters Patent No. 792,135, dated June 13, 1905.

Application filed October 3, 1904. Serial No. 227,007.

To all whom it may concern:

Be it known that I, ISAAC JACKSON, a subject of the King of Great Britain, residing at Glossop, in the county of Derby, England, have invented certain new and useful Improvements in Fasteners, of which the following is a specification.

This invention relates to means whereby driving-belts or the like may be secured together, but which may also be used for other purposes.

The object of the invention is to provide an improved means of the character described, as will be hereinafter set forth.

In the accompanying drawings, Figures 1 and 2 are respectively a side elevation and plan of one form of fastener. Figs. 3 and 4 are respectively a vertical section and plan of another embodiment. Figs. 5 and 6 are respectively a side elevation and plan of another modification. Figs. 7 and 8 are respectively a sectional view and plan of another construction. Fig. 9 is a sectional view of still another construction. Fig. 10 is a sectional view of a butt-joint in which washers upon the clenching side of the rivet are employed. Fig. 11 is a plan of the washer shown in Fig. 10. Fig. 12 is a perspective view of a wrench or key for engagement with the rivet-heads. Figs. 13, 14, and 15 illustrate the condition of the fastener when withdrawn from a belt by use of the wrench or key. Fig. 16 is a sectional view illustrating a form of fastener adapted to facilitate the operation of the wrench or key.

The improved fastener consists of or is provided with two, three, or more limbs or prongs, which are adapted to pass into or through the article to be fastened and are secured to or formed upon a common or single head. The complete fastener may be cast or be otherwise suitably formed in malleable iron or other convenient metal. The limbs may be of any desired section and may be arranged in any suitable relative positions. For example, they may all be in one plane, or they may be arranged upon or around the edge or other part of the head and disposed opposite to each other or at any regular or irregular distance apart from each other.

The ends of a belt or equivalent may be fastened together by passing the prongs of one of the improved fasteners through them and clenching the prong ends. The prongs may be so set or slightly bent or curved that when they are driven through the belt and against an anvil or the like they clench themselves. This inclination may be such that those prongs which bend when driven home all bend in one direction—as, for example, in the form of a right-handed screw-thread.

The fastener is adapted to be withdrawn or released, when desired, by rotation, for allowing or facilitating which the head of the fastener may be suitably formed to engage with a key, spanner, or equivalent device. For example, the head may be formed on its external face with holes or slits or perforations, or with both, the key for engagement therewith being similarly and correspondingly formed. By rotation the prongs may be so bent that the fastening device screws out of the belt or the prongs may be broken off the head, the head being suitably formed.

The head may be of any shape and is preferably beaded or rounded at the edge to obviate all risk of the fastener catching anything when in use, for which purpose its height is also kept as low as possible. The face of the head which comes into contact with or is nearest to the belt may be concave or recessed. This may be accomplished by bending the head so that it is concave on the under side, or the head may be flanged, so that a recess on the under side is formed. Better engagement for the key can thus be obtained.

The prongs or limbs of the fastener may be so shaped that they are capable of cutting or forcing their way through the material when the fastener is being placed in position.

The improved fastener may be used for either lap or butt joints in driving-belts. In the latter case one or more of the prongs can be engaged with each of the adjoining ends, the head forming a bridge across the joint, or a bridge piece or plate for use in a butt or other joint may be secured in place upon the ends of the belt by the fasteners described. Such a plate may have recesses on its face and have beaded or returned edges and may have

more than one hole for the passage of a fastener at each end. A preferred form of plate is cast with a recess or recesses on its outer face to contain or partially contain the head or heads of the fastening device or devices and with concavities on its inner face. In either form of joint the prongs may pass through and engage with a suitably formed and perforated washer on the opposite side of the belt to the fastener-head. In ordinary use the head of the fastener would be on that side of the belt which does not come into contact with the pulley; but this arrangement may be reversed, if desired.

The head of the fastener or those parts with which the key is to come into contact may be formed with the upper parts of their edges slightly overhanging the lower parts.

The accompanying drawings illustrate the improved fastener or fastening device in various modified forms and uses as a driving band or belt or like fastener; but it will be understood that the fastener may be used for many other purposes, such as connecting handles to traveling-bags or for connecting any two articles together one or both of which is composed of suitable material.

Figs. 1 and 2 show in side elevation and in plan from below, respectively, a fastener having two prongs or limbs a a' , oppositely disposed and formed upon or with a single common head b . In the form shown the points of the limbs are sharpened, so that they may easily penetrate a material such as leather, and the limbs and the heads are stamped out of a piece of sheet metal and the limbs bent, although they may be cast or otherwise formed or built up. The points of the prongs, however, may be blunt and holes be provided in the belt or the like for their passage. It is preferred to form the head with openings or recesses c c' , by means of which engagement with a key or detacher may be effected, or equivalent devices may be provided.

Figs. 3 and 4 show in vertical section and in plan from below a form of fastening device having a cupped head b' or a head which is hollow or concave on its under side instead of the flat head shown in the previous figures with prongs a^2 and a^3 . Figs. 5 and 6 similarly illustrate a fastening device formed with three limbs or prongs a^4 a^5 a^6 , also stamped from a sheet, as in Figs. 1, 2, 3, 4, the parts where the limbs are bent down serving to form the recesses c^2 . Four or more prongs or limbs may be similarly provided. Figs. 7 and 8 show in a like manner a fastener formed with a head having a rounded or beaded edge b^4 , the recesses c^3 not being formed by the removal of the metal going to form part of the limbs, but being separately formed. A fastening device such as this may be conveniently cast; but it may also be stamped or similarly formed, if desired.

Fig. 9 shows a fastening device in vertical section in which the rounded edge is obtained by flanging the edge of the head b^5 downward. A concavity is thus secured beneath the head which permits the pins on the key to get a better grip when a key of the type described later is employed.

In Fig. 10 a joint is shown in which each fastening device has combined with it a lower or inner washer or plate f , having openings through which the ends of the limbs are passed before they are clenched. When they are clenched, the washer, which is preferably cupped or dished, as shown, is forced into the substance of the belt. Such a lower washer is shown in plan in Fig. 11. Such a lower or inner washer may be used when no top plate is used or with a single top plate.

Fig. 12 illustrates a key which may conveniently be used for effecting the removal of the fastening device from a belt, so that the belt may be released or undone for any purpose. This key has one end formed with pins or the like e , adapted to engage with the holes or recesses in the head of a fastener; but this will be varied, of course, according to the shape of the head and the means adopted for imparting rotary motion to such head. By means of this key the head of a fastened fastener may be twisted round and twisted off and separated from its prongs, which are left in the belt in such case. The ends of the belt can then be separated or the top plates may be removed. This method of removing a fastener is preferred, and the limbs are so proportioned and formed that they will break off the head when a sufficient rotary motion has been given to the latter; but the limbs may be so formed that they will twist and unscrew or withdraw from the belt upon the head being turned. Figs. 13, 14, and 15 show the fastener as it appears when removed in the manner described. In Fig. 13 both of the prongs a a' are shown as broken off, while in Fig. 14 one of the prongs has been broken and the other bent so as not to interfere with the withdrawal of the fastener. As shown in Fig. 15, the two prongs may by the action of the key or wrench be twisted together as the fastener is withdrawn. Other methods and means, however, than those described may be employed for detaching or unfastening the fastening device. The other end of the key may be slotted, as shown, so that its ends may be introduced under a head of a fastener.

If desired, the plate d may have an indentation or groove formed therein about the opening through which the fastener extends, into which the projections e on the key or wrench will extend. (See Fig. 16.) This construction will reduce the frictional resistance to rotation of the key or wrench.

The invention may be embodied in a variety of structures without departing from its

pirit. It should not, therefore, be limited to the embodiments shown.

What I claim is—

1. A rivet having a head provided with recesses adapted to be engaged by a device for turning the head on its axis, said head having integral prongs projecting at right angles herefrom, substantially as described.

2. A rivet comprising a head having recesses in its edge and prongs extending at right angles therefrom, substantially as described.

3. A rivet comprising a head having recesses in its edge and prongs extending at right angles to said head from points of said head located at the bases of said recesses, substantially as described.

4. A rivet comprising a head having recesses in its edge and prongs extending at right angles thereto from points of said head located at the bases of said recesses, said head having

other recesses in its edge located between the aforesaid recesses, substantially as described.

5. A rivet comprising a cupped head having recesses in its edge and prongs extending at right angles therefrom, substantially as described. 25

6. A rivet having a cup-head provided with recesses adapted to be engaged by a device for turning the head on its axis, said head having integral prongs projecting at right angles from its concave side, substantially as described. 30

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

ISAAC JACKSON.

Witnesses:

HERBERT JACKSON,

ALBERT W. BATCHELOR.