No. 708,565. Patented Sept. 9, 1902.

F. M. LINDERMAN & C. A. BINZ.

BELT STUD OR FASTENER.

(Application filed Jan. 6, 1902.)

(Model.)

Fig. 1.

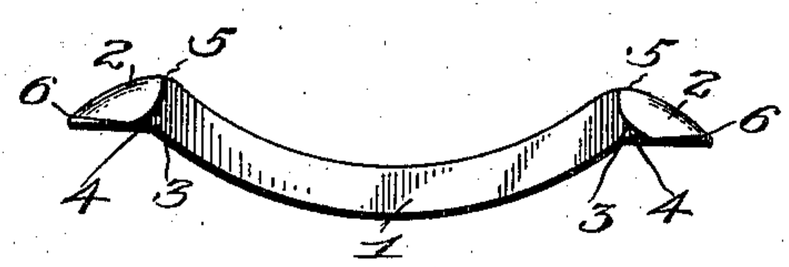


Fig. 2.

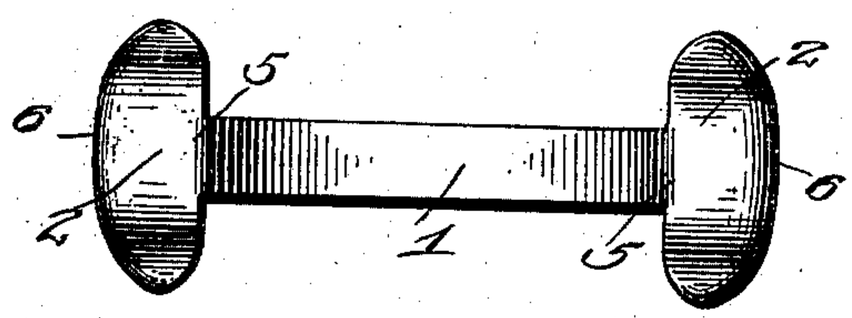


Fig. 3.

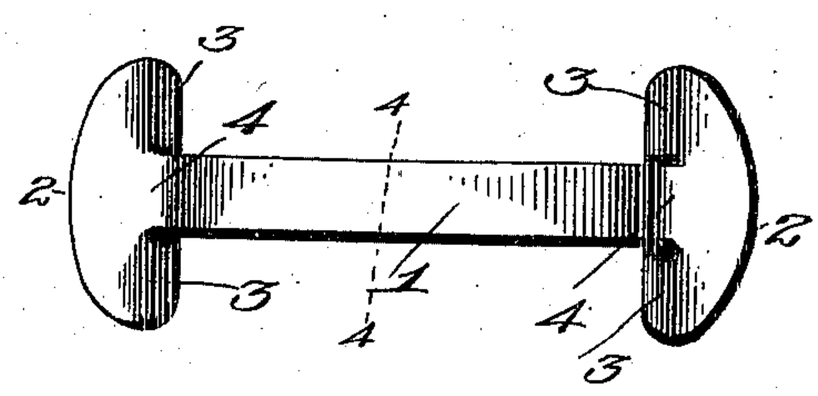


Fig. 4.

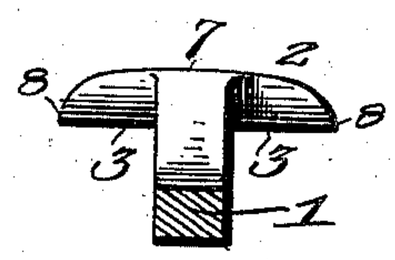
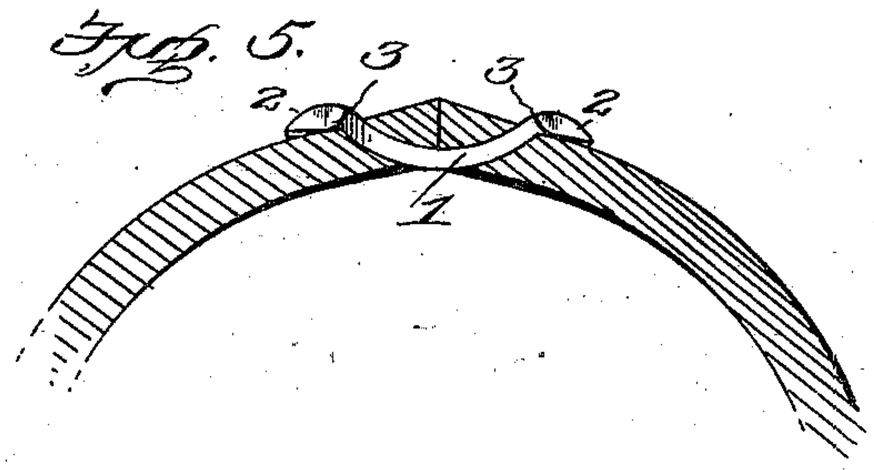


Fig. 5.



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FRANK M. LINDERMAN AND CHARLES A. BINZ, OF CHICAGO, ILLINOIS.

BELT STUD OR FASTENER.

SPECIFICATION forming part of Letters Patent No. 708,565, dated September 9, 1902.

Application filed January 6, 1902. Serial No. 88,667. (Model.)

To all whom it may concern:

Be it known that we, FRANK M. LINDERMAN and CHARLES A. BINZ, citizens 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 Studs or Fasteners; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in belt studs or fasteners of the type shown in the patent to Henry Blake, No. 282,258, granted July 31, 1883, in which the stud is composed of a curved bar or shank having T-heads at its ends to engage and connect the meeting edges of a belt.

The objects of the present invention are, first, to wholly obviate or minimize cutting of the belt and tearing out of the studs under the resistance and pressure created when the fastened ends of the belt pass around a pulley; second, to adapt the heads of the studs to lie flat on the belt without liability of cutting the same, so that a belt-tightener may easily run over them without interference, and, third, to promote the second-named object by beveling or rounding the upper surfaces of the heads in a peculiar manner, so as to adapt the studs to ride smoothly over the belt-tightener and at the same time obviate liability of injury to the workman when the belt is shifted by hand.

In the accompanying drawings, which illustrate the invention on an enlarged scale, Figure 1 is a side view of a belt-stud embodying our invention. Fig. 2 is a top plan view of the same. Fig. 3 is a bottom plan view. Fig. 4 is a cross-section on the line 4 4 of Fig. 3; and Fig. 5 is a section through the meeting edges of a belt, showing the fastener in position therein.

The stud comprises a bar 1, which is preferably curved downward at the center, as in the aforesaid patent, and T-heads or cross-pieces 2 on the ends of the bar, the same being formed by stamping or cutting out the article from a sheet of metal or otherwise and stiffening or hardening the article by swaging or other suitable treatment. The stud is applied in the usual manner to the meeting ends of a belt by first bringing the ends of the belt together back to back, inserting the heads of the studs through slits therein, so as to stand at right angles to said slits, and then straightening out the belt, whereby the curved bars and heads of the studs are brought to bear, respectively, against the inner and outer surfaces of the belt to hold the meeting ends thereof connected.

In the patented structure referred to the heads of the studs are arranged so as to have their under surfaces lie about in line with the top of the bar, with the object of making a smoother joint by causing the heads to lie flat upon the belt, thereby preventing them from projecting their full length above the surface of the belt in order to prevent interference with the pulleys or any fixed objects and obviate liability of injury to the workman when the belt is shifted by hand. This feature is an important one; but the patented device is objectionable in that the arrangement of the heads in the manner stated brings the lower angular edges of the heads into contact with the upper surface of the belt, by which in the constant passage of the belt around a pulley the said angular edges of the heads are caused, under the pressure and strain produced, to cut through the belt and cause the studs to pull, cut, or work themselves out when the belt is old or subjected to severe strain. In carrying our invention into practice the heads 2 are also bent slightly, so as to bring their under surfaces substantially in line with the top of the bar to lie flat upon the belt and make a smooth joint; but the under edges of the heads are given a beveled or curved formation, as indicated at 3, on opposite sides of the bar 1, so as to adapt the heads to conform approximately to the curvature of the meeting ends of the belt at those points and to present broadened surfaces, which increase the security of the fastening connection, while at the same time preventing the belt from being penetrated. The intermediate portion 4, between the said curved or rounded edges, is allowed to remain to form a rib which preserves and enlarges the flat bearing-surface of the under side of the head, while at the same time acting as a reinforce at the angle to make the connection between the bar and head

of maximum strength. By this construction the heads are adapted to lie in immediate contact with the upper surface of the belt without liability of cutting the belt or subjecting it to undue wear. The upper surface of each head is beveled or convexly curved in two different directions, thus giving it a peculiar formation in order to prevent the heads from being caught in a belt-tightener or other fixed object during the movement of the belt or of presenting surfaces liable to injure the hands of a workman when the belt is shifted by hand, as is commonly done. To this end the upper surface of the head is convexly curved or beveled from its upper to its lower edge, as indicated, between the points 5 and 6, and is also beveled from its center to its outer ends or edges, as indicated, between the points 7 and 8, so that during the traverse of the belt any fixed object coming in contact with the heads will ride freely over the beveled surfaces between the points 5 and 6 thereof, thus obviating all liability of the stud being pulled out of place by the catching of either head in the object or obstruction. The beveling of the head from the center to each of its end edges forms smooth surfaces, over which the hand of a workman may be passed in shifting the belt by hand without liability of injury.

The novel features of construction of the device coöperate to prevent cutting of the belt under strain, the tearing out of the studs, or injury to the hand of an operator in shifting the belt, and thus insure the firm engagement of the studs with the meeting ends of the belt at all times.

From the foregoing description, taken in connection with the accompanying drawings, it is thought that the construction, mode of operation, and advantages of our improved belt-stud will be readily apparent without requiring a more extended explanation.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

A belt-stud comprising a curved bar 1 provided at its ends with T-heads 2 whose lower bearing-surfaces lie substantially in line with the top of the bar, said heads being formed with the rounded under edges 3 and intermediate strengthening-ribs 4 and having their upper surfaces convexly curved between their upper and lower edges 5 and 6 and from their central portions 7 to their end edges 8, substantially as and for the purpose specified.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

FRANK M. LINDERMAN.
CHAS. A. BINZ.

Witnesses:
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