

April 2, 1963

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3,083,428

STRAP AND BUCKLE

Filed April 4, 1960

Fig. 1

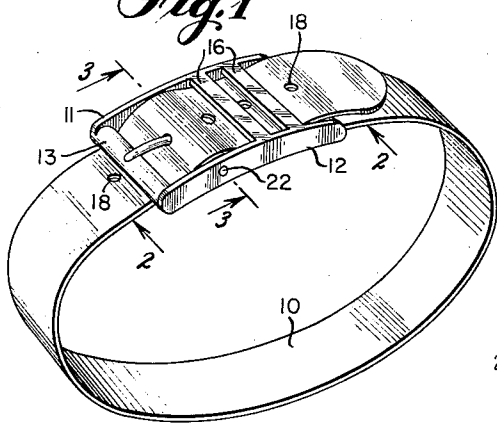


Fig. 8

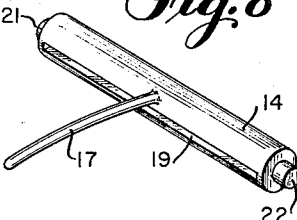


Fig. 9

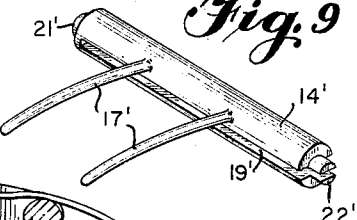


Fig. 2

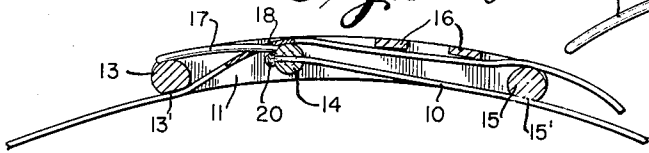


Fig. 3

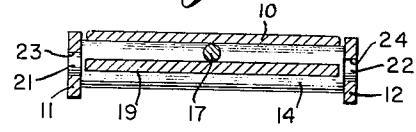


Fig. 4

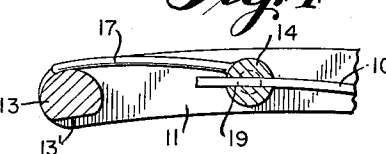


Fig. 5

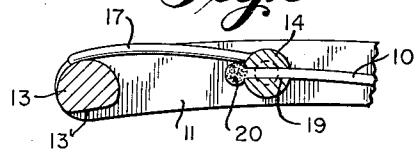


Fig. 7

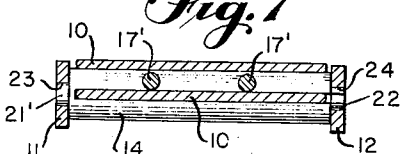
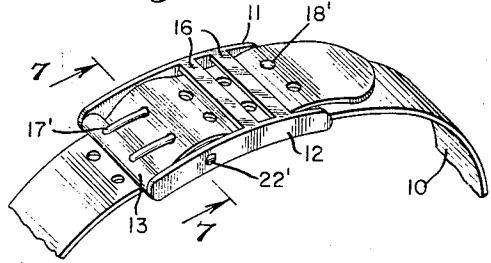


Fig. 6



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3,083,428

STRAP AND BUCKLE

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Filed Apr. 4, 1960, Ser. No. 19,696

5 Claims. (Cl. 24-178)

This invention relates to the fastening together of commodities and for securing them in such fastened relation and more particularly to binding means, one form of which may be illustrated by a strap with a fastener or buckle for fastening together opposite ends of the strap.

The invention relates specifically to a strap of plastic or other appropriate substance having the capacity to soften when subjected to heat at low temperatures and to a buckle or fastening element for securing together the ends of such strap.

Buckles and other fasteners of many kinds have been produced for use with various types of straps but the advent of straps of modern plastics which melt when subjected to heat have given rise to different types of construction due to a substantial degree to the difference in the nature of the materials of which the straps are formed.

It is an object of the invention to provide a strap and a buckle for use therewith which may be simply applied and adjusted as to length as well as one in which the characteristics of the strap can be utilized in applying and anchoring the strap relative to the buckle by the application of heat to produce an enlargement by which anchoring is facilitated and accomplished.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the drawing, wherein:

FIG. 1 is a perspective of a strap and buckle in accordance with the present invention;

FIG. 2, a section on the line 2-2 of FIG. 1;

FIG. 3, a section on the line 3-3 of FIG. 1;

FIG. 4, a fragmentary section of the structure of FIG. 2, prior to the heat forming of an abutment or enlargement on the end of the strap;

FIG. 5, a similar view after the formation of such enlargement or abutment;

FIG. 6, a fragmentary view of a buckle and strap in which the buckle includes multiple tongues instead of a single tongue as illustrated in FIG. 1;

FIG. 7, a transverse section on the line 7-7 of FIG. 6;

FIG. 8, a perspective of a cross rod having a single prong and an enclosed slot; and

FIG. 9, a perspective of a cross rod having two prongs and a slot extending through one end of the cross rod.

Briefly stated, the strap and buckle of the present invention are constructed for the anchoring of both ends of the strap after adjustment, one end of the strap being adapted to be provided with an enlargement as for example by the application of heat and the melting and hardening of the end thereof and with the other end of the strap provided with openings for receiving the prong or tongue of a buckle. A suitable buckle is composed of a pair of parallel side members, three cross rods connecting the extremities and an intermediate portion of said side bars, and with prong or tongue retaining bars located between the intermediate bars and one of the cross rods for retaining the prong or tongue elements generally in the plane of the buckle. The intermediate cross rod has a slot extending substantially from end to end and of a thickness to receive one end of the strap and with an enlargement on the strap to prevent its being pulled through the slot in the cross rod and with such intermediate cross rod having prongs or tongues adapted to be received in openings in the opposite end

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of the strap. The slot in the intermediate cross rod may be such that it is entirely between the extremities of the cross rod or if desired the slot may extend completely through one end of the cross rod.

With continued reference to the drawing, a strap 10 of a modern plastic is adapted to have its ends fastened together by means of a buckle composed of side bars 11 and 12 connected by cross rods 13, 14 and 15 with a pair of substantially parallel strap retaining bars 16.

If preferred, the cross rods 13 and 15 and the strap retaining bars 16 may be integral with the side bars 11 and 12, and, if preferred, the intermediate cross rod 14 may be separately formed.

The cross rod 14 is provided with one or more prongs or tongues 17 adapted to extend through one or more openings 18 in the strap 10. The intermediate cross rod 14 also may have a slot 19 through which the strap 10 may extend, the thickness of the slot being sufficient to accommodate the strap but of a size to prevent an enlargement 20 on the end of the strap from pulling through the slot, such enlargement being provided in any desired manner, as for example by subjecting the end of the strap to fusion by heat.

The strap 10 may be of any appropriate material with an enlargement of any particular kind thereon sufficient to prevent the strap with the enlargement from being pulled through the slot in the intermediate cross rod 14.

In order to maintain maximum thickness of the assembled strap and buckle the under side of the cross rods 13 and 15 of the buckle may have flat surfaces 13' and 15'. The cross rod 14 may have reduced ends 21 and 22 of a size to fit within openings 23 and 24 of the side bars 11 and 12 of the buckle.

If desired, instead of the cross rod 14 having a slot terminating short of each of the ends of the cross rod such slot may extend through one end as illustrated in FIG. 9. In this figure a cross rod 14' having reduced ends 21' and 22' is provided with a slot 19' and a pair of prongs 17'. The slot 19' extends through the reduced end 22' of the cross rod to provide a pair of substantially semicylindrical end portions adapted to fit within the opening 24 in the side member 12 of the buckle. Where the cross rod 14 is provided with dual prongs 17' it is, of course, necessary for the strap to have dual openings 18'.

It will be apparent from the foregoing that a simple strap buckle combination is provided which can be readily assembled and the strap adjusted to the desired size and held in such adjusted position.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof, and that the invention is not limited by that which is described in the specification and shown in the drawing, but only as set forth in the accompanying claims.

What is claimed is:

1. The combination of a strap and a buckle, said strap being of relatively thin plastic and having a series of longitudinally spaced prong receiving openings in one end portion and the other end portion of said strap having an end provided with a fused enlargement providing an anchoring abutment, said buckle being relatively flat and including side members and a series of spaced connecting members, one of said connecting members being pivotally carried by said side members and having a slot extending therethrough substantially from end to end in which said strap is adapted to be disposed, said member having an integral prong for disposition in one of the openings in the opposite end of the strap and located in a manner to engage another of said connecting mem-

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bers, so that the strap is fastened at both ends to said buckle by said slot and said prong.

2. A combination strap and buckle, said strap being of a substance which will melt when heated at a relatively low temperature to permit the formation of an enlargement and having one or more longitudinally spaced openings therein, said buckle comprising a pair of side bars, a pair of transverse end rods connecting said side bars, and an intermediate cross rod pivotally carried by said side bars, said intermediate cross rod having a slot therethrough of a thickness and width to accommodate said strap so that the end of the strap with an enlargement thereon may be prevented from being pulled through said intermediate cross rod, said intermediate cross rod having one or more prongs adapted to extend through said one or more openings in said strap and of a length to engage the adjacent end rod to prevent withdrawal of the strap from the buckle.

3. The combination of a strap and a buckle, an enlargement on one end of said strap, the opposite end of said strap having a series of spaced openings therein, said buckle including side members connected by transverse end members, an intermediate cross rod connecting said side bars, said intermediate cross rod having a slot therethrough of a size whereby the strap will pass through such slot to engage said enlargement, and one or more prongs formed integral with said intermediate cross rod adapted to extend through one or more of said spaced openings in said strap and of a length to engage the adjacent end member, said intermediate cross rod having reduced ends rotatably received within openings in said side members, so that the strap is fastened at both ends to said buckle by said slot and said one or more prongs.

4. The structure of claim 3 in which the slot in said intermediate cross rod extends through one of said re-

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duced end portions whereby the strap can be inserted laterally in the intermediate cross rod before said rod is placed in said buckle.

5. A buckle for use with a strap having an enlargement at one end and a series of spaced openings in the opposite end, said buckle comprising side members connected by transverse end members, an intermediate cross rod pivotally connected to said side members and having a horizontal slot extending substantially its full length, at least one integral prong on said cross rod, said prong being of a length to engage at least one of said end members whereby the strap is received within the horizontal slot of the cross rod and prevented from passage therethrough by the enlargement at one end and the openings in the opposite end receive said integral prong to fasten the strap at both ends to said buckle.

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