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BALE TIE BUCKLE

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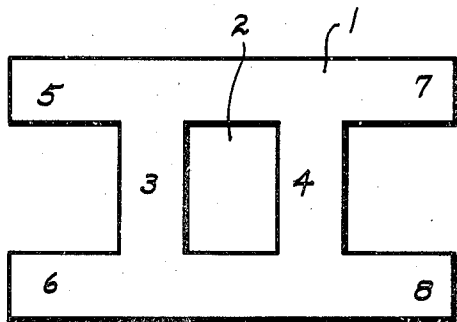


FIG. 1.

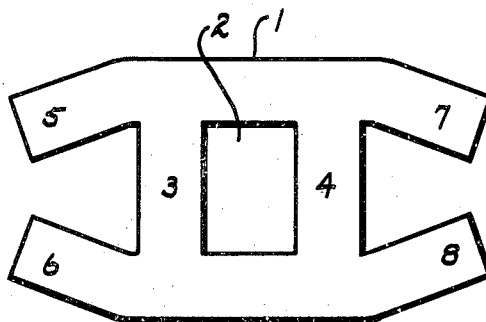


FIG. 4.

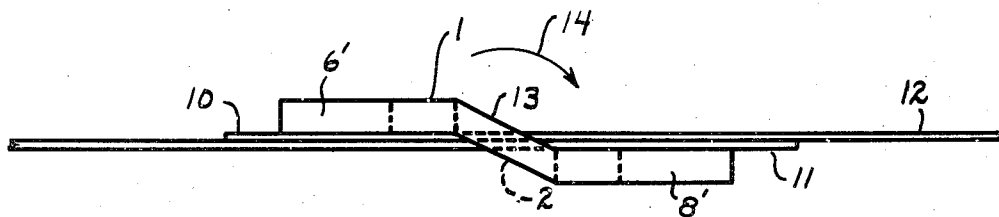


FIG. 2.

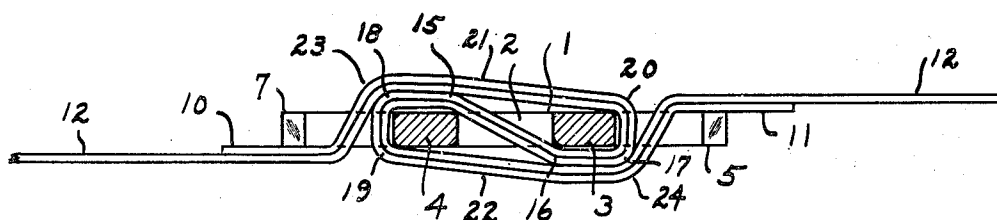


FIG. 3.

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BALE TIE BUCKLE

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2 Claims. (Cl. 24—23)

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This invention relates to a bale tie buckle formed of a plate-like material and having an opening therein, said buckle including one or more projections extending outwardly along the tie member and said projections being deformable to a position to overlie or underlie the tie member to hold securely such member in place when the buckle is in use.

An object of the invention is to provide a bale tie buckle of a construction to form an interlock with a bale tie so that slippage or other failure of the tie is avoided.

Another object is to provide a bale tie buckle that is simple and inexpensive to make and to use.

Still another object is to provide a plate-like buckle of deformable material capable of being readily applied and secured by displacement of a portion of the buckle over and/or under the tie adjacent the securing loop therein.

A further object is to provide a buckle which is adapted to receive the ends of a tie to be secured and then rotated to form a loop in the tie and at the same time to effect tightening of the tie.

The foregoing are the primary objects and, together with additional objects, will be more apparent from the following description taken in connection with the accompanying drawings, in which:

Fig. 1 is a plan view of a buckle comprising an embodiment of the invention;

Fig. 2 is a side view of a slightly modified form of buckle through which are passed the ends of a tie to be secured;

Fig. 3 is a sectional view through the buckle shown in Fig. 1 after the tie has been completed; and

Fig. 4 is a plan view similar to that shown in Fig. 1 showing the projections displaced inwardly to complete the tying operation.

The embodiment as illustrated in the drawings comprehends a plate-like member 1 which is of generally H configuration. A transverse rectangular opening 2 is provided within the transverse portion, or central portion of the member whereby there is formed the transverse branches 3 and 4.

The member 1 may be made of any suitable material, usually metal, an essential feature being that the projections 5, 6, 7 and 8 shall be deformable so that they can be displaced in a manner generally shown in Fig. 4 whereby an interlock is formed with the tie with which the buckle is used. The projecting ends 5, 6, 7 and 8 extend laterally from the transverse branches 3 and 4 and in the same plane as shown in Fig. 1. The

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projections may, however, be offset from the plane of the central portion of the tie buckle as shown in Fig. 2.

To facilitate the introduction of tie ends 10 and 11 of the tie 12 into the buckle 1, the buckle may take the form shown in Fig. 2, in which the projections 6' and 8' are displaced to lie in two parallel planes, the central portion 13 of the buckle extending diagonally between these planes.

Whether the buckle takes the form shown in Fig. 1 or Fig. 2, the use thereof is effected by placing the buckle in a position to receive the ends 10 and 11 of the tie 12, which extends in opposite directions through the opening 2. The ends 10 and 11 will extend for such distance that the tie 12 fits snugly about the container or bale to be secured. The entire buckle is then rotated in the direction indicated by the arrow 14 (Fig. 2) whereby each end of the tie is superposed upon the adjacent portion of the tie and is reversely bent about one of the branches 3 and 4 of the buckle 1.

It is to be noted that rotation of the buckle through an angle of 180° will produce tying action, as shown in Fig. 3, in which complementary bends are formed at 15, 16, at 17, 18 and at 19, 20 whereby the tied ends surround each of the branches of the buckle 1.

The overlapping surfaces of these portions of the ends are in uniform engagement whereby desired frictional action is secured. Furthermore, this frictional action is enhanced and is supplemented by the over- and underlying portions 21, 22 which extend in opposite directions from the respective bends 20 and 19.

Preferably, rotation of the buckle is continued through an angle of approximately 180°. It is to be understood, however, that any angle which is a multiple of 180° may be used if such rotation is deemed necessary to effect the desired tightening action of the tie 12 or to obtain the necessary tying action in a given instance.

In effecting an interlock with the tie, the buckle is rotated sufficiently that the projecting ends extend diagonally from the surfaces of the tie 12 and in the direction of rotation of the buckle. While the buckle is held in this position at least one, and preferably each, of the prongs 5, 6, 7 or 8 is displaced inwardly in the manner indicated in Fig. 4 so that such displaced prong or prongs overlie and underlie the respective tie ends. The buckle is then released, whereupon the tension on the tie will effect further bending of the tie and tie ends proximate the points 23 and 24, whereby the joint formed by

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the buckle and the tie ends is completed and lies in a substantially common plane with the remainder of the tie 12.

It seems apparent that the union or connection formed between the tie ends in the manner just described is devoid of sharp bends in the tie and also that the friction between the overlying portions is enhanced so that slippage is minimized and a condition that would initiate tearing of the tie is eliminated.

What is claimed is:

1. A bale tie buckle comprising a member of substantially H-shape with four projecting ends, said member having an opening in its transverse portion to receive in overlapping relation the ends of a bale tie to be secured thereby, the member being adapted to be rotated about its transverse portion to reversely bend overlapped portions of the tie about each of the branches formed in the transverse portion of the buckle by said opening, whereby said projecting ends of said member lie substantially parallel alongside the tie, and said projecting ends being deformable inwardly substantially in the plane of the buckle to engage the surface of the tie.

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2. A bale tie buckle including a plate-like member comprising a central portion having an opening therein to receive the ends of a tie to be secured thereby, projections extending diagonally outwardly from the ends of said portion and lying in substantially parallel planes, said member being adapted to turn bodily whereby the side edges of the central portion serve as fulcrums about which the tie ends bend, and said projections being deformable to engage the tie at opposite sides of said central portion.

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The following references are of record in the file of this patent:

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