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2,490,072

BALE TIE AND HOLDER

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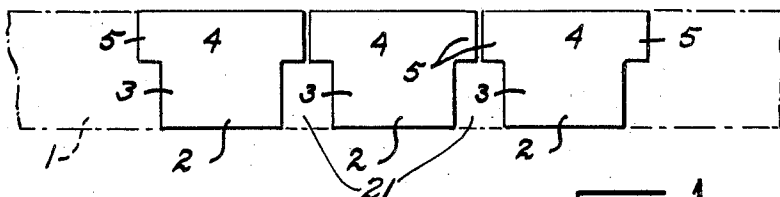


Fig. 1.

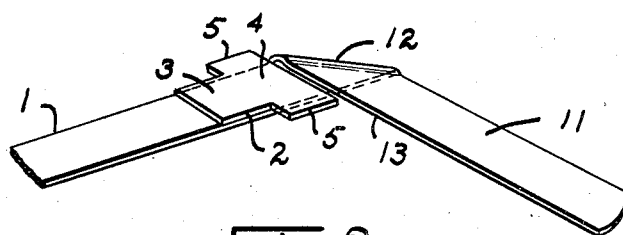


Fig. 2.

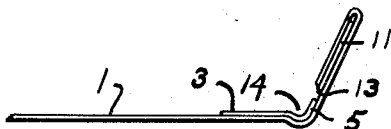


Fig. 3.

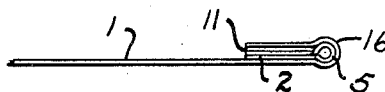


Fig. 4.

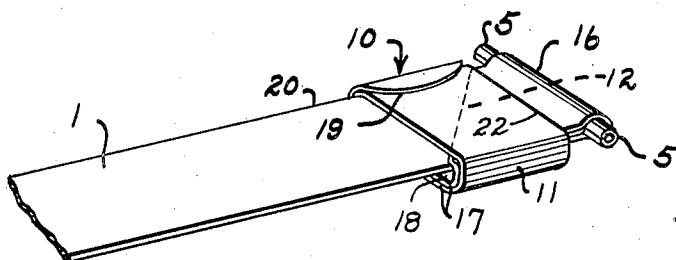


Fig. 5.

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BALE TIE AND HOLDER

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3 Claims (Cl. 24-20)

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This invention relates to bale ties and more particularly to new and useful improvements in a combination bale tie and holder in which the holder comprises an integral part of the tie.

The invention comprises an improvement over the combination bale tie and holder disclosed in Taylor Patent Number 2,291,773 issued August 4, 1942.

The invention is of particular utility in connection with the use of bale ties which are removed from low density cotton bales and reused upon high density cotton bales, a portion of the excessive length of the previously used tie being used to form the holder or buckle when the tie is used upon the smaller high density bale. It is to be understood of course that the foregoing is only exemplary as it is intended that the improved tie may be used for the confinement of any type of material or container, and may utilize either new or used tie material.

The primary object of the invention is to provide a combination bale tie and holder which is so constructed that the possibility of failure under stress is minimized.

Another object is to provide a combination bale tie and holder which is made entirely of tie material.

Still another object is to provide a holder which includes an insert folded therein to strengthen the structure and also to minimize the possibility of tearing of either the tie material or the socket formed thereon.

A still further object is to provide a holder insert that is formed from a section of tie material and that is incorporated as an integral portion of the socket.

It is also an object to provide a reinforcing insert which is integrated into the socket or holder in a manner that such insert cannot be displaced and also provides sideward extensions or projections which are adapted to engage a portion of the socket and prevent failure thereof by creeping of the metal under stress.

The foregoing objects together with additional objects and advantages of the invention will be more fully apparent from the following description considered in connection with the accompanying drawings in which:

Fig. 1 is a view illustrating the manner in which reinforcing inserts are obtained from a section of tie material;

Fig. 2 is a perspective view showing the initial step in the fabrication of the holder of the invention;

Figs. 3 and 4 are side elevational views showing

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successive steps of fabrication following that indicated in Fig. 2;

Fig. 5 is an enlarged perspective view showing the completed holder of the invention.

In the respective drawings a strip of tie material is shown generally at 1. In Fig. 1 there is shown the manner of obtaining a plurality of inserts 2 from a short piece of tie material, such inserts being blanked from the tie material and generally of T-shape of which the lower portion 3 is of the same or approximately the same width as the tie material 1 while the upper portion 4 comprises sideward projections 5. Such method uses all of the tie area as insert material except the small sections 21.

In the initial step of forming the socket which is shown at 10 in Fig. 5, the end portion 11 of the tie 1 is folded diagonally at 12 so that the portion 11 extends transversely of the body of the tie 1 and is displaced upwardly therefrom the thickness of the metal of the tie. An insert 2 is then placed upon the tie 1 so that the portion 4 thereof lies closely adjacent the inner edge 13 of the sideward extension 11.

As shown in Fig. 3 a depression 14 is next formed in the portion 4 of the insert 2 and also in the metal of the tie 1 underlying such portion. At the same time the folded portion of the tie is displaced upwardly as is clearly evident from the figure. This upward displacement is continued so that a reverse bend or loop 16 is formed and the fold 12 overlies the portion 3 of the insert 2. It is to be noted that in forming this reverse bend the projections 5 become arcuate and extend sidewardly from the edges of the loop 16 formed in the tie 1.

Thereafter the sidewardly extending portion 11 is wrapped about the superimposed portions of the insert and the tie to form turns 17 which lie in parallel planes below the tie 1 whereby there is left an opening 18 adapted to receive the opposite end of the tie 1 or to receive the end of an additional piece of tie material. The upper face of such opposite tie end or additional piece of tie material is contiguous to the nether face of the tie 1 and hence the torque produced upon the socket is minimized. The uppermost portions of the turns 17 lie closely adjacent the upper surfaces of the tie 1 and the fold 12, and preferably the portion 11 is of such length that the outermost turn 17 terminates at 19 after the wrap about the edge 20 of the tie is completed. Thus, preferably, the end 11 forms substantially two complete turns and it has been found that such construction provides adequate strength in the com-

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pleted socket or holder. After the wrap of portion 11 has been completed, the end or outer edges 22 thereof fall proximate to the loop 16 and the projections 5, so as to assure that the loop 16 tightly binds against the loop of the projections 5.

It seems apparent that the insert 2 reinforces the roll 16 at the end of the socket forming the reverse bend and hence the insert serves to resist rolling action of the metal that would tend to draw the loop 16 into the socket. Furthermore the projections 5 extending sidewardly from within the loop 16 may engage with the end or outer edges 22 of the turns 17 and thereby prevent any further stretching of the tie within the socket when placed under stress.

While the projections 5 are shown as comprising sufficient material to form a cylindrical end section, it is to be understood that, if desired, these projections may comprise merely arcuately formed elements having sufficient strength to withstand the stresses to which the holder is subjected.

While a specific, and preferred, embodiment of the invention has been shown and described, it is not intended that the invention shall be confined thereto since the invention in its broadest aspect comprehends a combination bale tie and holder which includes a reinforcing insert which is so constructed and arranged as to minimize failure under stress.

What is claimed is:

1. A combination bale tie and holder comprising a tie member having a diagonal fold therein so that a portion of the tie extends transversely thereof, a reinforcing member overlying the tie and providing a section having sideward projections proximate said fold, said tie and said overlying member being bent along substantially the longitudinal axis of said section and turned backward so that the diagonal fold overlies said tie

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and said reinforcing member whereby said member forms rolled projections outwardly from the part thereof overlying the tie, the transversely extending portion of the tie being wrapped about the tie and the reinforcing member to form a socket on the tie.

2. In combination, a bale tie and holder which includes a portion of said tie bent along a line transversely of the tie to overlie the tie and a wrapped portion forming a socket on the tie, a reinforcing member bent upon itself and folded within the bent back portion whereby said reinforcing member is held in place within the socket by said wrapped portion, said reinforcing member having projections extending sidewardly from the tie proximate the outer edges of the wrapped portion.

3. In combination, a bale tie and holder which includes a portion of said tie bent along a line transversely of the tie to overlie the tie and a wrapped portion forming a socket on the tie, a reinforcing member bent upon itself and folded within the bent back portion whereby said reinforcing member is held in place within the socket by said wrapped portion, said reinforcing member having projections extending sidewardly from the tie proximate the outer edges of the wrapped portion, said reinforcing member having a portion formed arcuately within the bend and extending sidewardly therefrom to resist rolling of the metal under stress.

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REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
155,413	Boisseau	Sept. 29, 1874
2,291,773	Taylor	Aug. 4, 1942