Nov. 29, 1932. J. L. GEORGE 1,889,092

COMPRESSION STAY FOR CITRUS FRUIT BOXES

Filed Oct. 19, 1931

Fig. 1

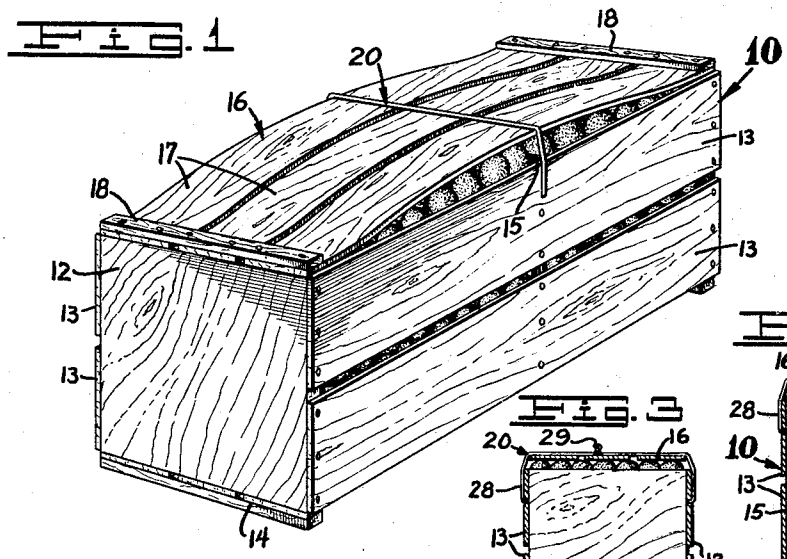


Fig. 2

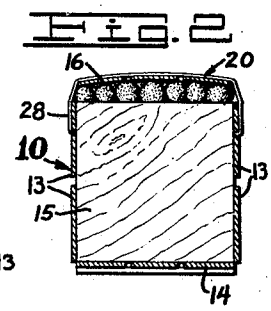


Fig. 3

Fig. 4

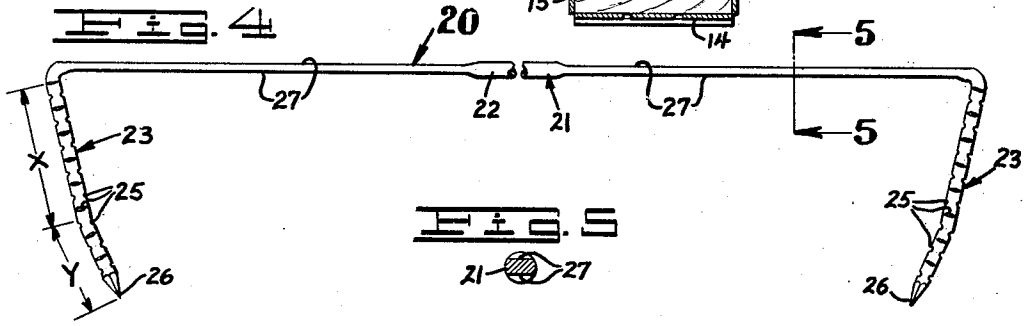


Fig. 5

Fig. 6

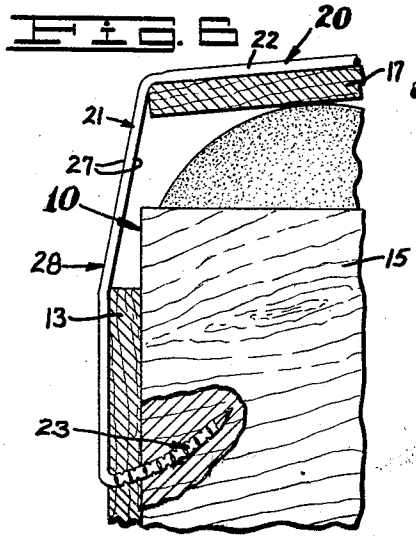
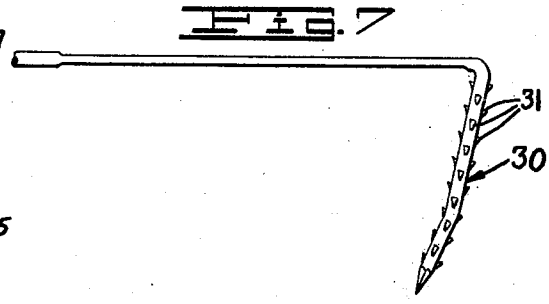


Fig. 7



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Patented Nov. 29, 1932 1,889,092

UNITED STATES PATENT OFFICE

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COMPRESSION STAY FOR CITRUS FRUIT BOXES

Application filed October 19, 1931. Serial No. 569,643.

This invention relates to improvements in compression stays or binders for citrus fruit boxes.

The general object of this invention is to provide an improved compression strap for use on orange crates or the like.

Another object of the invention is to provide a box strap including end portions which are adapted to be forced or driven into wood and which are constructed so that after being secured there is no possibility of accidental removal.

A further object of my invention is to provide a box strap including novel means to prevent the strap from catching when being handled.

A further object of my invention is to provide a box strap having driving ends including two portions angularly arranged.

Other objects and the advantages of this invention will be apparent from the following description taken in connection with the accompanying drawing wherein:

Fig. 1 is a perspective view of a citrus packing box embodying the features of my invention.

Fig. 2 is a transverse section through the box on a reduced scale.

Fig. 3 is a view similar to Fig. 2 showing the box strap crimped to compensate for the shrinkage of the oranges.

Fig. 4 is an enlarged fragmentary view of my improved box strap.

Fig. 5 is an enlarged section taken on line 5—5 of Fig. 4.

Fig. 6 is an enlarged fragmentary section through a box showing the strap shown in Fig. 3 operatively secured thereto and

Fig. 7 is an enlarged fragmentary view of a box strap having a modified form of spur.

Referring to the drawing by reference characters I have indicated a citrus fruit box generally at 10. The box 10 is of the type having ends 12 connected by side members 13 and a bottom 14 and includes a transverse partition 15 intermediate the ends. The box cover 16 is also of the type including a plurality of longitudinal slats 17 connected at each end by a cleat 18.

As is well known, oranges when packed in a box such as the box 10, are piled higher adjacent the partition 15 than at the ends so that when the lid 16 is nailed in position it bulges upward in the center and retains a pressure on the oranges. If the oranges remain in storage in the crate for an extended period they will shrink to a certain extent whereupon the lid ceases to exert sufficient pressure thereon and should the crate be moved about the oranges will bump together and bruise one another and become spoiled.

My improved strap which I have indicated generally at 20 is designed to cause the lid of a box to retain a pressure on the oranges as they shrink. As shown the strap 20 includes a single length of wire 21 which is preferably round in cross section. The wire 21 includes straight portions 22 and end portions or spur portions 23. These spur portions 23 are bent at more than a right angle relative to the straight portions 22 as shown in Fig. 4 and converge towards each other. The spur portions 23 each include a straight portion X and a second straight portion Y arranged at a slight angle to the portion X. The portions 23 are provided with a plurality of transverse indentations indicated at 25 and the ends of the portions 23 are pointed as indicated at 26.

The straight portion 22 of the wire 21 is preferably ground flat on opposite sides as indicated at 27 with the flat faces at right angles to the axis of the spurs 23 (see Figs. 4 and 5). This flat face extends from adjacent the spurs 23 towards the center a predetermined distance depending upon the size of the box 10.

When using my improved box strap 20 the filled crate 10 is placed in the lidding machine, the lid 16 arranged over the crate and a strap 20 arranged over the lid 16 in line with the center partition 15. A portion of the strap 20 extends beyond the sides of the crate and is bent downwardly as indicated at 28 and after the lid is secured the spurs 23 are pushed through one of the box side members 13 and into the center partition as clearly shown in Fig. 6. As the spurs 23 are pushed through the side members 13 and into the center partition 15 the portions X and Y

being inclined cause the spurs 23 to move upward at a greater angle than the inclinations of the portions thereby making it extremely difficult to dislodge the embedded members. The corrugations 25 on the spurs also assist in retaining the spurs in position. The spurs 23 take a somewhat curved position when in set position.

After the spurs 23 have been secured in position the crate is removed from the lidding machine whereupon the oranges cause the lid 16 to bulge transversely against the resiliency of the strap 20 as shown in Fig. 6. The spurs 23 are firmly held in place and only with difficulty can a spur be withdrawn.

If the oranges shrink to such an extent that the strap 20 does not retain the lid 16 in contact with the oranges an operator may press downwardly on the lid 16 and with a pair of plyers or other suitable tool grasp the wire 21 and kink it or twist it into a loop as indicated at 29 in Fig. 2. Whereupon when the pressure on the lid is released the strap 20 will again resiliently retain the lid in contact with the oranges. With my improved spurs this action will not pull out the spur.

In shipping oranges the boxes are packed into the car in which they are shipped in tight engagement so that they cannot move and jam against each other which makes it extremely difficult to remove the boxes when unloading.

By flattening the strap 20 as previously described and indicated at 27 one crate may be slid by another in unloading more readily than if the flattened portions were not provided. As shown in Fig. 6 the flattened portions 27 preferably extend from the spurs 23 to a point a distance inwardly from the edge of the lid.

In Fig. 7 I have shown my improved box strap 20 as provided with a modified form of spur 30. The spur 30 is shaped the same as the spur 23 but instead of the indentations 25 I provide a plurality of raised prongs 31 on the spur which when the spur 30 is embedded in a center partition of an orange crate assist to prevent dislodgment of the spur. Instead of flattening both sides of the stay I may make it substantially half round to secure the same effect.

From the foregoing description it will be apparent that I have provided a compression box strap which is simple in construction and highly efficient and economical in use.

Having thus described my invention, I claim:

1. A compression stay for citrus fruit boxes comprising a single length of metal, bent to form two end portions, each of which terminates in a point, said end portions each comprising a single end section which is straight and a second single end section which is straight and is a continuation of and is arranged at an angle to said first single end section.

2. A compression stay for citrus fruit boxes comprising a single length of metal, the central portion of which is cylindrical with flattened portions arranged at each side of said central portion, said stay including roughened end portions terminating in a sharpened point, said roughened end portions each comprising a single section which is straight and a second single section which is straight and is a continuation of and is arranged at an angle to said first single section, said first section being bent at an angle to said flattened portion.

3. The combination of a citrus box having end members, a central partition member, sides engaging said end members and said central partition member, and a lid, and a stay, said stay comprising a length of wire engaging said lid and having end portions engaging said sides, said end portions terminating in a point, said end portions extending in an inclination upwardly into said partition and including two portions arranged out of a straight line whereby they may not be easily withdrawn.

In testimony whereof, I hereunto affix my signature.

JAY L. GEORGE.