May 1, 1934. H. PAXTON 1,956,808

METHOD FOR SECURING COVERS TO CROWN PACKED SHIPPING CASES

Filed Jan. 20, 1933

FIG. 1

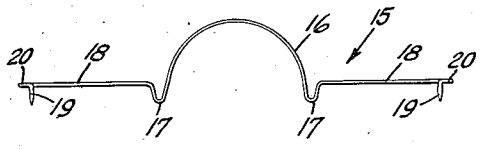


FIG. 2

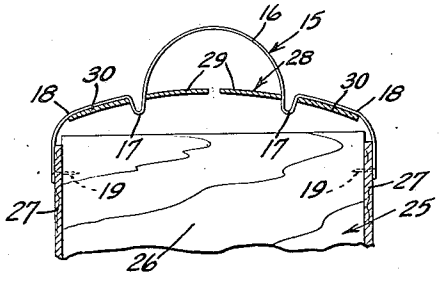


FIG. 5

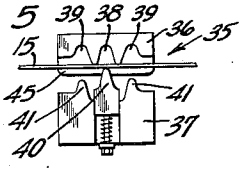


FIG. 3

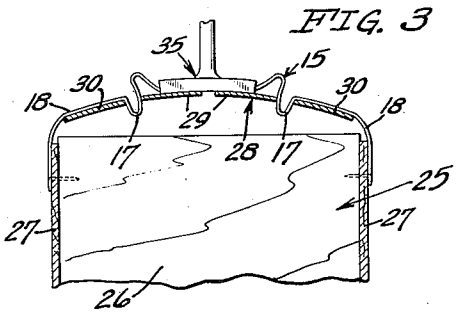


FIG. 6

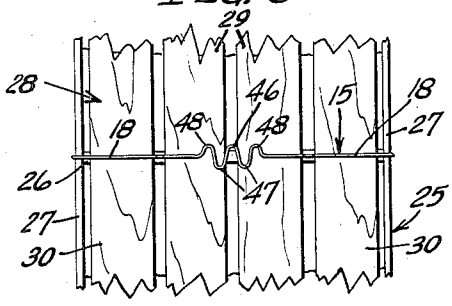


FIG. 4

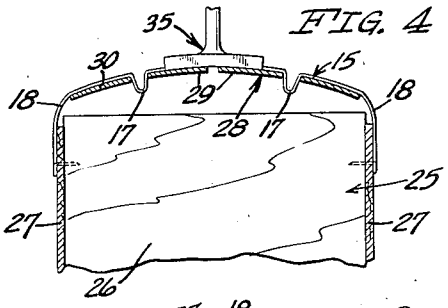


FIG. 7

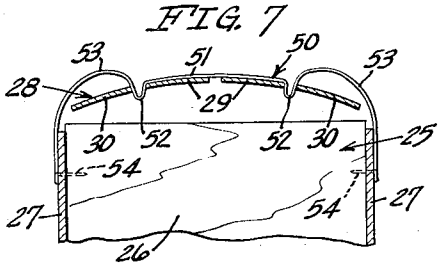
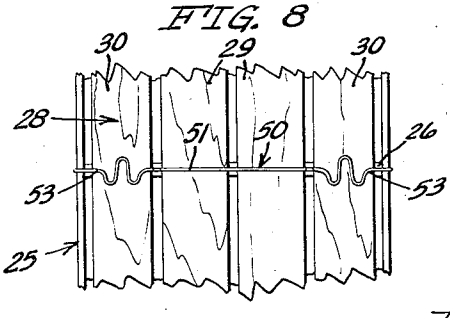


FIG. 8



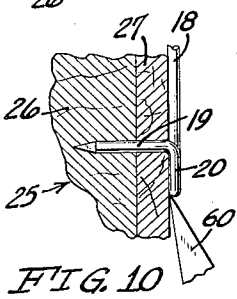


FIG. 10

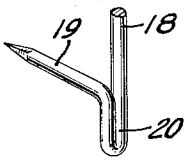


FIG. 9

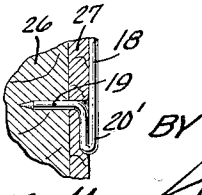


FIG. 11

INVENTOR:
HALE PAXTON

BY

ATTORNEY

Patented May 1, 1934 1,956,808

UNITED STATES PATENT OFFICE

1,956,808

METHOD FOR SECURING COVERS TO CROWN PACKED SHIPPING CASES

Hale Paxton, Redlands, Calif., assignor, by mesne assignments, to Acme Steel Company, Chicago, Ill., a corporation of Illinois

Application January 20, 1933, Serial No. 652,620

6 Claims. (Cl. 140—93)

My invention relates to the art of securing covers to containers, and is particularly useful where the cover is formed of a plurality of wooden slats and is applied to a shipping case overfilled with fresh fruit, vegetables, or similar farm products.

In such a package the contents shrink somewhat en route to market so that frequently the cover becomes loose before the package reaches its destination, thereby giving a poor appearance when offered for sale.

It is accordingly an object of my invention to provide a method and means for securing covers to crown packed shipping cases which will maintain a relatively snug pack in the package in spite of a certain amount of shrinkage.

In my copending application for U. S. Letters Patent Serial No. 566,822, filed October 3, 1931, on a "Method of and apparatus for applying covers to crown packed shipping cases", I have disclosed the method of spreading the slats in a multi-slat cover while shaping the latter transversely and then holding the cover in shaped form by applying a strap thereacross and securing its ends to sides of the case. When, due to shrinkage, a package put up according to the method shown in said application becomes slightly loose, the side slats tend to shift back to their original relation to the other slats of the cover.

It is an object of my invention to provide a method for securing covers to crown packed shipping cases which results in retaining the side slats in spread relation to the balance of the cover after shrinkage occurs in the contents of the case.

It is often necessary to inspect cases of fresh farm produce while these are en route to market, and where the box is strapped across the middle it is necessary to remove this strap temporarily to permit the lid to be lifted and the contents of the case to be inspected. Where the strap has driving ends formed on end portions thereof it is extremely difficult to withdraw the driving ends from the sides of the box.

It is a still further object of my invention to provide a strap for securing a cover to a crown packed shipping case, the strap having driving ends formed thereon, in which it is relatively easy to withdraw the driving ends of the strap from the box in removing the strap from the box.

Further objects and advantages will be made manifest in the following description taken in connection with the accompanying drawing, in which:

Fig. 1 is a side elevational view of a preferred embodiment of the strap of my invention.

Fig. 2 is a diagrammatic cross-sectional view of a shipping case illustrating an initial step in the application of the strap shown in Fig. 1 to said case.

Fig. 3 is a view similar to Fig. 2 illustrating the next step in applying said strap.

Fig. 4 is a view similar to Fig. 3 illustrating the final step in applying said strap.

Fig. 5 is a bottom plan view of a mechanism suitable for effecting the step illustrated in Figs. 3 and 4.

Fig. 6 is a plan view of a middle portion of a shipping case illustrating the strap of my invention completely applied thereto.

Fig. 7 is a view similar to Fig. 2 and illustrating an initial step in the application of a modified form of the strap of my invention to a shipping case.

Fig. 8 is a plan view of Fig. 7 with the strap illustrated therein completely applied to the shipping case.

Fig. 9 is a perspective view of one of the driving ends of the strap of my invention.

Fig. 10 is a diagrammatic fragmentary sectional view illustrating one of these driving ends embedded in a shipping case and showing the manner in which a pry is used to remove the driving ends from the case.

Fig. 11 is a fragmentary view similar to Fig. 10 showing a slight modification in the formation of the end of the strap of my invention.

Referring specifically to the drawing, Fig. 1 shows a strap 15 which is preferably formed of wire and includes a bowed middle section 16, a pair of tongues 17, and end sections 18. The end sections 18 of the strap 15, as shown in Fig. 9, are bent to provide driving ends 19 and shoulders or lugs 20 which lie substantially in the plane of the strap end sections 18 and extend beyond the points of juncture between the driving ends 19 and the strap. The purpose of these lugs 20 will be explained hereinafter.

The manner of applying the strap 15 to a shipping case is shown in Figs. 2, 3, and 4 which diagrammatically illustrate a case 25 having a central partition 26, side slats 27, and a cover 28 formed of a number of individual slats including middle slats 29 and outer slats 30.

It is to be noted in Fig. 2 that the cover 28 is arched transversely. This may be accomplished by inserting the tongues 17 between the cover slats 29 and 30, drawing the end sections 18 of the strap outwardly and downwardly, and driv-

ing the driving ends 19 of the strap into the sides of the case. If the contents of the box are very bulky and tend to resist the transverse arching of the cover 28, as shown in Fig. 2, with a considerable force, additional pressure means may be provided for accomplishing the arching indicated. The insertion of the tongues 17 between the slats 29 and 30 and the drawing laterally of the strap end sections 18 tend to separate the slats 30 a greater distance from the slats 29 than the latter are separated from each other, this resulting in drawing the outer slats 30 nearer to the sides of the box and considerably decreasing the size of the opening between the upper edges of the box sides and the outer edges of the cover after the strap ends have been driven into the sides of the box.

At the conclusion of the step shown in Fig. 2 a tool 35, such as shown in Fig. 5, is applied to the bowed center section 16 of the strap as shown in Fig. 3. The tool 35 includes a pair of shaping members which, for convenience, may be termed a die 36 and a punch 37. The die 36 has recesses 38 and 39 and the punch 37 has projections 40 and 41 which are adapted to extend into the recesses in the die 36 disposed there-opposite. The projection 40 extends towards the die 36 beyond the projections 41 and is spring-mounted on the punch 37.

When the tool 35 is applied to the center section 16 of the strap 15, as shown in Fig. 3, the strap lies between the die 36 and punch 37 as shown in the bottom plan view of Fig. 5. The strap 15 is held downward against the top of the cover 28 by a plate 45 provided on the die 36. The die 36 and the punch 37 are now moved together by suitable mechanism (not shown). During the first part of this motion the projection 40 extends into the recess 38 and forms a bend 46 in the strap 15, as shown in Fig. 6. As the punch 37 moves closer to the die 36 the projections 41 extend into the recesses 39 in the die so as to form additional bends 47 and 48 in the strap 15. This results in taking up all the slack in the center section 16 of the strap 15 between the tongues 17, as shown in Fig. 4.

If desired, an excessive pressure may be applied to the two middle slats 29 of the cover 28 during the forming of the bends 46, 47, and 48 in the center section 16 of the strap so that when the tool 35 is removed the overpressed contents of the box will expand and place the bent center section 16 of the strap under a substantial contractile tension.

In Fig. 7 I have shown a modified form of the strap of my invention indicated by the numeral 50. The strap 50 has a central section 51, tongues 52, and arched end sections 53, the latter having driving ends 54 formed thereon in the same manner as the driving ends 19 of the strap 15. The manner of applying the strap 50 to a shipping case 25 is to apply the central section 51 to the slats 29 of the cover 28 with the tongues 52 extending downwardly between the slats 29 and the outer slat 30 of the cover. This is correctly shown in Fig. 7 where it is noted that the central section 51 of the strap now snugly contacts the upper surface of the slats 29. It is also to be noted that the cover 28 is transversely arched in this view, this being accomplished by suitable pressure means applied to the top of the cover, such as an arcuate shaping tool or the like (shown in my companion application above identified).

The end portions 53 of the strap 50 are now bent downwardly to bring the driving ends 54 of the strap alongside the box, and these ends are now driven into the sides of the box. As shown in Fig. 7, considerable slack remains in the end portions 53 of the strap after the driving ends thereof are driven into the sides of the box. With the strap 50 applied as shown in Fig. 7, strap deforming tools (not shown) similar to the tool 35 are applied to opposite end sections 53 of the strap so as to take up the slack in the strap end sections and provide these with bends so as to invest the strap with a substantial degree of contractile resiliency.

While I have shown a tool 35 which forms a plurality of bends in the strap in a single operation, it is to be understood that I may prefer to use a tool which forms a plurality of bends successively so that the bends first formed are placed under a substantial contractile resilient strain owing to the formation of the bends last formed.

Owing to the contractile resiliency with which the strap of my invention is invested in the novel method with which it is applied to a shipping case, the cover 28 is progressively drawn downwardly into snug contact with the contents of the case as the latter shrink during the delays inevitably incidental to transportation of these products to market. Thus, a case of fresh farm products strapped by my strap and according to the method set forth hereinabove is bound to arrive at the market in better shape than if it had been strapped in the method hitherto employed in which the strap has no contractile resiliency whatever.

It is also to be noted that the strap of my invention spreads the outer slats 30 of the cover 28 and retains these slats in spread position even after a shrinkage of the fruit which tends to loosen up the pack in the strapping method hitherto employed. This insures the maintaining of a relatively small opening between adjacent edges of the box side and the cover, thus preventing the escape of small particles of farm produce and maintaining a good appearance in the pack as a whole.

As before stated, the lugs 20 are provided for the purpose of making it easier to remove the strap from the cases, and the manner in which this is accomplished is shown in Fig. 10. Here a sharp pointed tool 60 is diagrammatically shown which may be a screw driver or the claw of a hammer, or the like. The tool 60 is directed underneath the lug 20 so that this lug is pried outwardly, this causing the withdrawal of the driving end 19 from the case 25. The advantages of thus making it easier to remove the strap from the shipping case when the latter arrives at its destination or where it is necessary to inspect the fruit enroute are understood when it is realized that over forty-five million boxes of citrus fruits alone are shipped to market each year in the United States in cases in which the cover is held on by a strap applied across the middle thereof with the strap ends secured to the sides of the case.

In Fig. 11 I have shown a slightly modified form of strap end, a lug 20' thereof being formed as shown so as to be partially pressed into the side of the box 25 as shown. The lug 20' can be conveniently gripped by the claws of a claw hammer so as to remove the driving ends of the strap from the box as aforedescribed.

While I have shown but two embodiments of the strap of my invention and but two different types of my method of applying such a strap, it is to be understood that various modifications may

be made in the form of the strap or the method of applying the same without departing from the spirit of the present invention or the scope of the appended claims.

I claim as my invention:

1. A method of holding a muti-slat cover on a crown packed fruit shipping case during shipment which consists in applying said cover to said case, forming a strap with tongues intermediate its ends, applying said strap transversely across a middle portion of said cover with said tongues extending into spaces between said slats, and securing ends of said strap to opposite sides of said case.

2. A method of holding a muti-slat cover on a crown packed fruit shipping case during shipment which consists in applying said cover to said case, forming a strap with driving ends and with tongues intermediate its ends, applying said strap transversely across a middle portion of said cover with said tongues extending into spaces between said slats, and driving said strap ends into opposite sides of said case.

3. A method of holding a multi-slat cover on a crown packed fruit shipping case during shipment which consists in applying said cover to said case, forming a strap with tongues intermediate its ends, applying said strap transversely across a middle portion of said cover with said tongues extending into spaces between said slats, placing said strap under linear tension so as to spread outer slats of said cover, and securing ends of said strap to opposite sides of said case.

4. A method of holding a multi-slat cover on a crown packed fruit shipping case during shipment which consists in applying said cover to said case, forming a strap with tongues intermediate its ends, applying said strap transversely across a middle portion of said cover with said tongues extending into spaces between the slats of said cover, securing ends of said straps to sides of said case with a part of said strap in slack condition, and deforming said slack part of said strap to invest it with a substantial degree of contractile resiliency.

5. A method of holding a multi-slat cover on a crown packed fruit shipping case during shipment which consists in applying said cover to said case, forming a strap with tongues intermediate its ends, applying said strap transversely across a middle portion of said cover with said tongues extending into spaces between the slats of said cover, securing ends of said strap to sides of said case with a part of said strap disposed between said tongues in slack condition, and deforming said slack part of said strap to invest it with a substantial degree of contractile resiliency.

6. A method of holding a multi-slat cover on a crown packed fruit shipping case during shipment which consists in applying said cover to said case, forming a strap with tongues intermediate its ends, applying said strap transversely across a middle portion of said cover with said tongues extending into spaces betwen the slats of said cover, securing ends of said strap to sides of said case with parts of said strap between the tongues and ends thereof in slack condition, and deforming said slack parts of said strap to invest it with a substantial degree of contractile resiliency.

HALE PAXTON.