

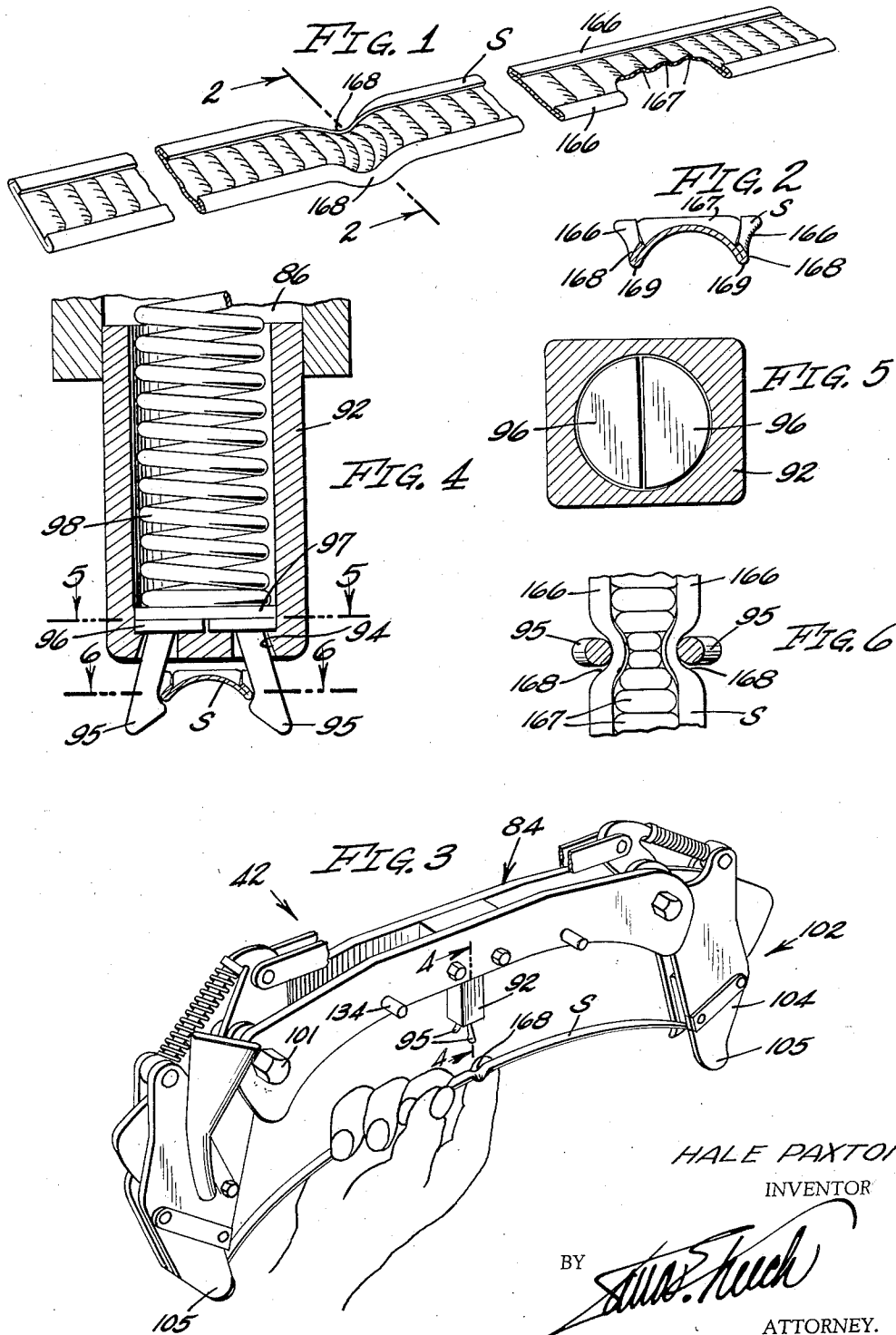
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H. PAXTON

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STRAP FOR OVERFILLED BOXES

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STRAP FOR OVERFILLED BOXES

Hale Paxton, Santa Ana, Calif., assignor to Acme Steel Company, Chicago, Ill., a corporation of Illinois

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8 Claims. (Cl. 217-67)

My invention relates to the box cover pressing, nailing, and strapping art and has particular utility in securing covers onto boxes overfilled with fresh farm products. This application has been divided from the copending joint application for U. S. Letters Patent Serial No. 709,176, filed January 31, 1934, on Box strap and method of and apparatus for applying the same.

In the citrus industry the boxes are overfilled with the fruit and after the ends of the lid are nailed to the ends of the box the middle of the lid is left bulging upwardly. To prevent fruit from being removed from the space between the sides of the box and the middle portion of the lid and to snug the fruit in the box the middle of the lid is tied down by a strap which passes transversely across the lid and is secured at its opposite ends to the sides of the box. For generations following the adoption of this type of pack in the citrus industry this strap was made of flat ribbon-like metal and secured at its opposite ends to the box by nails passing there-through into the center partition of the box. Subsequently a machine was introduced into the industry for applying a wire strap having pointed driving ends in the place of the flat strap formerly used, the pointed ends being driven into the sides of the box to secure the wire strap in place thereon. For numerous reasons, the wire strap did not prove as satisfactory as the flat strap, the wire strap coming into use by certain shippers merely because of the convenience of the machine provided for applying the wire strap.

It is an object of my invention to provide a flat ribbon strap which is suitable for being applied by a machine to a citrus box and which may be conveniently placed in the machine and registered therewith so as to be properly positioned when applied to a box.

It is a further object of my invention to provide such a strap which can be introduced into the strap applying machine by hand and so registered, the registration being effected by the sense of touch in the hand of the operator fastening the strap.

It is highly desirable, in order to attain the maximum strength in the strap when applied, that a certain side of the strap face upwardly. This is also desirable from the standpoint of uniformity of the appearance of the packages.

It is accordingly another object of my invention to provide such a strap having means by which it is readily indexed in the machine so that the strap uniformly presents a certain face upwardly when the strap is applied.

It is a still further object of my invention to provide such a strap in which the registering means is provided merely by deformation of the material of the strap.

A yet further object is to provide such a strap in which the deformation of the strap to produce said registering means does not materially reduce the tensile strength of the strap.

The manner of accomplishing the foregoing objects as well as further objects and advantages will be made manifest in the following description taken in connection with the accompanying drawing, in which:

Fig. 1 is an enlarged perspective view of a preferred embodiment of the box strap of my invention.

Fig. 2 is a transverse sectional view taken on the line 2-2 of Fig. 1.

Fig. 3 is a diagrammatic perspective view of a portion of the machine of my invention shown in my aforesaid copending application and illustrating the manner in which the box strap is placed into the machine.

Fig. 4 is an enlarged vertical sectional view taken on the line 4-4 of Fig. 3 and illustrating the manner in which the strap is indexed or registered with said machine.

Fig. 5 is a horizontal sectional view taken on the line 5-5 of Fig. 4.

Fig. 6 is a horizontal sectional view taken on the line 6-6 of Fig. 4.

For the purpose of uniformity between this application and the aforesaid copending application the same reference numerals will be used herein as used in said copending application.

Referring now specifically to the drawing, and particularly to Fig. 3, it is noted that this shows in perspective a portion of a strap applying and nailing mechanism 42 which includes a saddle bar 84 having plates 85, the latter being held in spaced relation by a spacing member 86.

Supported pivotally between opposite extremities of the plates 85 are strap guiding and nailing jaws 102, these jaws having plates 104, the lower ends 105 of which are bent outwardly to form guide wings, the purpose of which will be made manifest hereinafter.

Slidable vertically between the plates 85 and within an opening 87 formed in the spacer 86 is a hollow plunger 92 having a pair of outward extending lugs 93 on the upper end thereof as shown in Fig. 4. Extending downward through suitable openings 94 in the lower end of the plunger 92 is a pair of fingers 95 having semi-circular heads 96 formed thereon as shown in

Figs. 4 and 5. Resting on top of the heads 96 within the plunger 92 is a circular disc 97. The plunger 92 is urged to its downwardmost position by a compression spring 98, the movement of the plunger 92 being limited by contact of the lugs 93 thereof with the shoulders 90 of the spacing member 86. It will be noted that the pressure of the spring 98 against the disc 97 and heads 96 causes the fingers 95 to be yieldably held in the position in which they are shown in Fig. 4. The lugs 93 rest upon suitable shoulders provided in the opening 87 in the spacer 86, this limiting the downward movement of the plunger 92 under the impulse of the spring 98.

The foregoing description relates entirely to the machine with which the strap of my invention is preferably to be used, but it is to be understood that this strap may be used with different forms of machines than that shown herein. One of the features of this machine is an indexing or locating means capable of being located by the sense of touch of the hand of the operator which places the strap in the machine. In the strap applying and nailing mechanism 42 this indexing means is comprised in the fingers 95 which are adapted to be engaged by the finger of the operator as indicated in Fig. 3 as the operator places a strap S into the machine.

The strap S of my invention preferably comprises a flat ribbon of sheet metal having the longitudinal edges thereof folded over against the body thereof to provide beads 166 and having the central portion of the ribbon crimped to form transverse corrugations 167. These beads are preferably for the purpose of strengthening the strap and preventing its edges cutting the hands of the operator, while the transverse corrugations are for the purpose of strengthening the strap and resisting the tearing of the ribbon by a nail piercing the central portion thereof in securing a strap to the sides of a box.

The strap is preferably straight when thus formed as indicated in Fig. 1, but a middle portion of the strap is provided with indexing means also capable of location by the touch of the hand of the operator when he grasps the strap to place it in the machine. This indexing means preferably comprises a pair of indentations 168 formed in opposite sides of the strap at directly opposite points and preferably exactly at the middle of the strap. These indentations 168 are formed in such a manner as to flex the beads 166 downwardly to provide lips 169 which project downwardly from the strap S. In placing a strap S on a box it is highly preferable that the same side of the strap face upwardly on all of the boxes. The projection of the lips 165 in one direction from the strap body accordingly makes it possible for the operator to not only locate these lips in his hand when he takes the strap up, but also permits him to locate them either downwardly or upwardly as the requirement might be so that all of the straps have the same face disposed upwardly when they are applied to the box.

It is thus seen that when the operator takes up the strap S of my invention he seizes it near the center and without the necessity of looking at the strap ascertains by the feeling of his finger against the strap whether or not the proper face of the strap is upward and turns the strap half over if this is not so as he puts the strap in the machine. This function performed, the operator lifts the strap upwardly with the opposite ends of the strap coming between the guide wings 105

and thereafter continues lifting the center of the strap until his hand engages the fingers 95 comprising the machine indexing means. As the operator already has in mind the location of the indentations 168 by contacting these with his forefinger, he lifts the strap so that the indentations 168 come between the indexing fingers 95 and spread these apart so that the strap is supported by these fingers as shown in Figs. 4 and 6. The balance of the operation of the machine for applying the strap of my invention is clearly shown in my copending application above mentioned. In applying the strap to the box, the jaws 102 and the saddle bar 84 cooperate to shape the strap over the cover and about the upper portion of the box, and the nailing means on these jaws are then actuated to drive nails through the ends of the strap and into sides of the box. As the box and the machine are separated vertically, the middle of the strap is pulled out from between the indexing fingers 95 leaving the machine emptied of the strap and free to receive another strap in the manner described hereinabove.

While I have shown only one preferred form of the flat strap of my invention and only one form of indexing means thereon, it is to be understood that various modifications might be made in this without departing from the spirit of the invention or the scope of the claims in so far as this scope may be determined by the state of the prior art.

What I claim is:

1. A prepared box element or strap ready for application to a box, comprising an elongated bendable metallic member provided with a central lateral recess engageable by a holding finger of an assembly device, the end portions of said element constituting the material for engagement with opposite sides of the box when said element is applied thereto.
2. A prepared box element or strap ready for application to a box, comprising a very thin, flat elongated bendable metallic member, said member being provided with a central lateral recess engageable by a holding finger of an assembly device, the end portions of said element constituting the material for engagement with opposite sides of the box when said element is applied thereto.
3. A prepared box element or strap ready for application to a box, comprising a very thin, flat elongated bendable metallic member, side edges of said member being bent over on the body thereof to provide smooth reinforcing beads, said member being provided with a central lateral recess formed by bending one of said beads inwardly, said recess being engageable by a holding finger of an assembly device, the end portions of said element constituting the material for engagement with opposite sides of the box when said element is applied thereto.
4. A prepared box element or strap ready for application to a box, comprising a very thin, flat elongated bendable metallic member, side edges of said member being bent over on the body thereof to provide smooth reinforcing beads, said member being provided with a central lateral recess formed by bending one of said beads inwardly and downwardly, said recess being engageable by a holding finger of an assembly device, the end portions of said element constituting the material for engagement with opposite sides of the box when said element is applied thereto.
5. A prepared box element or strap ready for

application to a box, comprising a very thin, flat elongated, bendable metallic member, side edges of said member being bent over on the body thereof to provide smooth reinforcing beads, said member being provided with a pair of recesses one of which is formed in each of said beads by bending the latter inwardly, said recesses being engageable by holding fingers of an assembly device, said recesses being symmetrically related to each other on said strap to permit said engagement of said fingers with said recesses with the strap in either of two longitudinally reversed positions, the end portions of said element constituting the material for engagement with opposite sides of the box when said element is applied thereto.

6. A prepared box element or strap ready for application to a box, comprising a very thin, flat elongated, bendable metallic member, side edges of said member being bent over on the body thereof to provide smooth reinforcing beads, said member being provided with a pair of recesses one of which is formed in each of said beads by bending the latter downwardly, said recesses being centrally located on said element and engageable by holding means of an assembly device, the end portions of said element constituting the ma-

terial for engagement with opposite sides of the box when said element is applied thereto.

7. A prepared box element or strap ready for application to a box, comprising a flat, tape-like elongated bendable metallic member provided with a pair of oppositely disposed finger guide recesses formed by bending edge portions of said member downwardly, said recesses being engageable by holding fingers of an assembly device, the end portions of said element constituting the material for engagement with different faces of the box when said element is applied to said box.

8. A prepared box element or strap ready for application to a box, comprising a flat, tape-like elongated bendable metallic member the side edges of which are bent downwardly at opposite points at a central location on said member to form recesses the bottom surfaces of which slope outwardly and downwardly, a pair of holding fingers of an assembly device being engageable by said surfaces to spread said fingers and permit the insertion of said member therebetween, the end portions of said element constituting material for engagement with different faces of the box when said element is applied to said box.

HALE PAXTON.