Dec. 15, 1931. S. L. BURNS ET AL 1,836,223

BOX HANDLING DEVICE

Filed Dec. 13, 1930 2 Sheets-Sheet 1

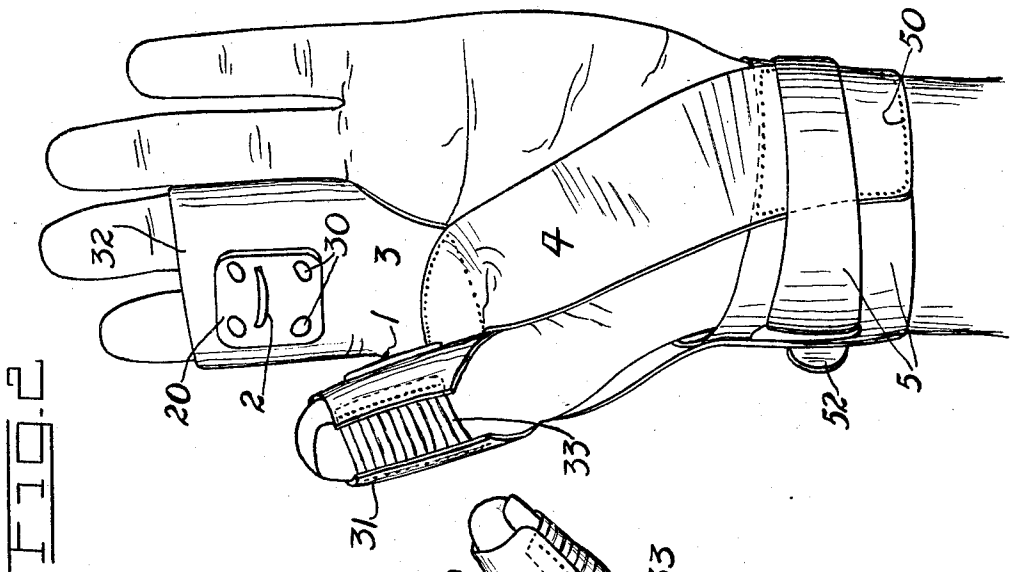


Fig. 2

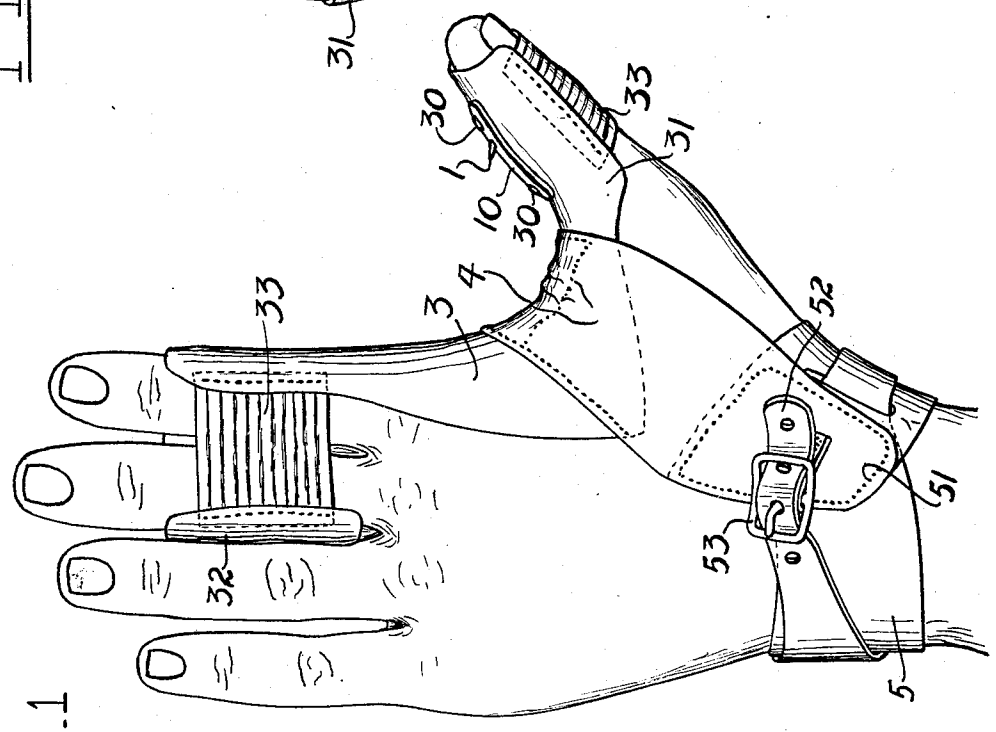


Fig. 1

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BOX HANDLING DEVICE

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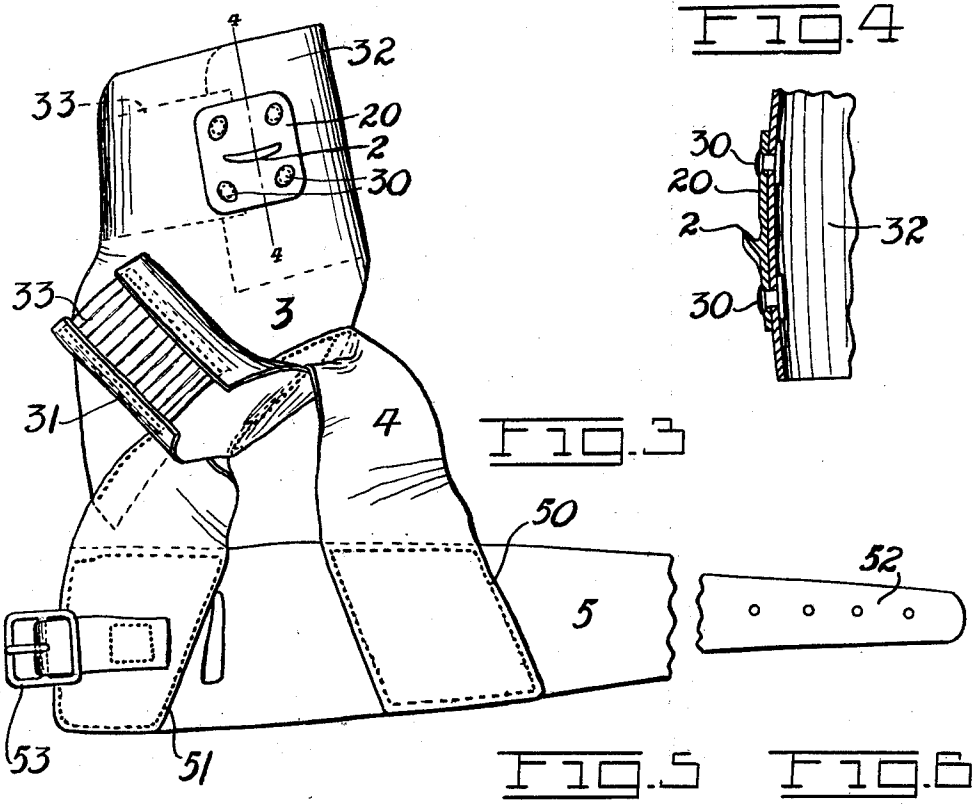


Fig. 3

Fig. 4

Fig. 5

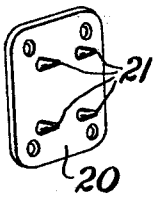
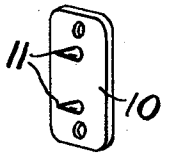


Fig. 6



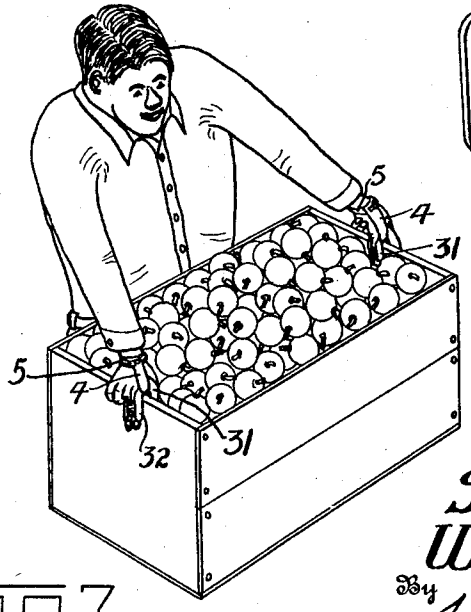


Fig. 7

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Patented Dec. 15, 1931 1,836,223

UNITED STATES PATENT OFFICE

STERL L. BURNS AND WARREN F. BURNS, OF TIETON, WASHINGTON, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO CLIFFORD CASE, OF TIETON, WASHINGTON

BOX HANDLING DEVICE

Application filed December 13, 1930. Serial No. 502,148.

In transporting apples from the orchard to the packing shed, boxes without covers are employed, in which the apples are laid loosely, and it becomes necessary to pick up these boxes at a collecting point in the orchard, to place and pile them upon trucks, and then to lift them up and set them down again at the packing shed. In the course of their movement from the pickers' buckets to the shipping box, the apples may be picked up and handled in such open boxes a number of times, and of course, a large number of these boxes are handled by every worker thus engaged throughout a day.

Such boxes are heavy, weighing in the neighborhood of fifty pounds loaded, and they cannot well be picked up by the bottom, since this would involve the expenditure of time and energy in first raising the box far enough to get the hands underneath it, and possibly bruising of the fruit as it is tumbled about in the course of such efforts. In consequence, they are generally lifted by placing the thumb of each hand inside the end, reaching down from the top, and the first two fingers of each hand then grasp the outside of the box end, the other fingers being curled up or being used merely to steady the box, and the box is then lifted by the grasp between the two first fingers of each hand and the thumb. As a result of handling many such heavy loads during a day, the worker's thumbs and fingers become extremely sore, worn and lacerated at the balls of the fingers, and this condition is aggravated by the dirt, spray residue, acids and fruit juices with which the hands come in contact in handling the fruit and the boxes full of fruit.

It is an object of our invention, therefore, to provide a device which will assist in picking up such apple boxes, which not only will protect the fingers, but which will enable the work to be done with less effort, supporting the load from the wrist rather than by the fingers alone, and using the fingers merely to press inward and hold the device in contact with the box ends.

It is a further object to provide such a device, which will not quickly wear out in service, and which is strong and rugged enough to handle loads such as those mentioned; and, further, to provide a device of this sort which is self-adjusting within reasonable limits, to fit hands and fingers somewhat differing in size.

Since such workers must frequently drive the truck in which the fruit is transported for varying distances, sometimes only a short distance, it is desirable that the device be so constructed that the workman may handle the controls and steering wheel of the truck, without the ncesessity of removing the device from his hands.

With these objects in mind, and others as will appear hereafter, our invention comprises the novel parts and the novel arrangement thereof, as shown in the accompanying drawings, described in this specification, and as will be more particularly defined by the claims which terminate the same.

In the accompanying drawings, we have shown our invention embodied in a representative form, as now preferred by us.

Figure 1 is a back side view, and Figure 2 is a front view, showing our device applied to a left hand.

Figure 3 is a perspective view of the device itself.

Figure 4 is a detail section on line 4—4 of Figure 3.

Figures 5 and 6 are detail perspective views of a modified form of dog.

Figure 7 is a perspective view showing the manner of using our device.

In order to enable the engagement of the box positively and securely by means of pressing the fingers and thumbs together, we provide two dogs 1 and 2, with means which we will describe hereafter, for supporting them, the dog 1 inside of the ball of the thumb and the dog 2 inside of the balls of the first two fingers, or perhaps somewhat nearer the palm of the hand, but still upon the finger portion toward the end of the fingers. These dogs may take various forms, but as may be seen best in Figure 4, each of them is formed as an edge upset from and upstanding above the surface of a base plate 10 or 20, as the case may be, the edge facing away

from the tip of the fingers. As may be seen in Figures 5 and 6, we may employ a series of pointed dogs, 11 and 21, in place of the edge dogs as seen in the other figures.

In order to hold the dogs in the intended position, we secure them in suitable fashion, as for instance, by means of the rivets 30, to a flexible strip 3, which preferably is of leather, since that is most durable, strong and flexible. At each end of the strip, stalls are provided, the stall 31 being intended to encircle the thumb, and the stall 32 to encircle the first two fingers of the hand. To enable them to fit fingers of different size, and to enable them to cling properly to all fingers, we prefer that the edges of the strip at each end be joined by a transversely extending elastic tape 33, this with the ends of the leather strip 3 constituting a stall.

Means must now be provided to support the strip 3 from the wrist of the wearer, and to this end we provide a second strip 4, which crosses the first strip and has one end extending on the front or inside of the wrist and the other end extending upon the back or outside of the wrist. There the ends are secured permanently to a third leather strip 5, as is indicated by the showing at 50 and 51, this strip 5 constituting a wrist strap having a perforated end 52 and a buckle 53, or like means whereby it can be secured upon the wrist so that it will not slip.

With the strip 5 secured around the wrist, as indicated in Figures 1 and 2, the ends of the strip 4 are securely and strongly supported from the wrist, and this strip 4 in turn passes over the strip 3 between its ends. The dogs 1 and 2 are pressed into the end of the box, the dog 1 on the inside and the dog 2 on the outside, as may be seen in Figure 7, and the strain of lifting is now taken, first by the strip 3 and then by the strip 4 which overlies the strip 3, and finally by the strip 5 passing about the wrist and held against slipping off by the larger size of the hand. Thus, not only does our device protect the hands of the worker, by reason of the provision of the leather strips and the metal dogs and base plates, but it provides a secure means to carry the load from the wrists.

We have spoken of the straps 3, 4 and 5 as made of leather, which is the preferred material, but our invention is not to be understood as restricted to the use of leather only, since other materials having similar properties may be substituted therefor,—canvas, for instance,—and where the term leather is used in the claims, it is to be understood as typical of the characteristics of the material, rather than as restricting the scope of the claims to this material alone. Similarly with respect to the dogs; whereas it seems preferable to employ edged dogs of some little transverse extent, it is conceivable that if these were placed crosswise of the grain of the wood to some extent, they might slip, and to avoid any such possibility, the pointed dogs 11 and 21, as seen in Figures 5 and 6, may be employed as a substitute.

The dogs are well toward the tips of the fingers, and the portion of the device which lies in the palm of the hand is flexible and unobstructed, hence the workman may grasp and control the levers, brake and steering wheel of the truck without difficulty, and without removing the device from his hands, so that as soon as he has reached the point where the boxes are to be loaded or discharged, he can commence immediately without taking the time to adjust the device once more.

What we claim as our invention is:

1. A device of the character described, comprising two crossed strips of leather, finger stalls at one end and a thumb stall at the other end of one strip, the other strip overlying the first strip, means for securing and supporting the ends of the second strip from the wearer's wrist, and dogs disposed upon the ball portions of the thumb and finger stalls.

2. A device of the character described, comprising three strips of leather, two strips being crossed and secured together intermediate their ends, and the third strip having secured to it, spaced to lie at front and back of the wrist, the two ends of one of the crossed strips, the other crossed strip terminating at each end in stalls to receive respectively the thumb and the first two fingers, and dogs secured upon the ball portions of the two stalls.

3. In a device of the character described, a strip of leather, means to secure one end to the thumb and the other end to the first fingers, dogs secured upon the ends of the strip, which dogs are directed toward the base of the fingers, and disposed over the ball portions thereof, and means to support and suspend the strap from the wrist.

4. A device of the character described, comprising two crossed strips of leather, finger stalls at one end and a thumb stall at the other end of one strip, an elastic portion inserted in the back of each stall, and means to support the other strip from the wearer's wrist.

5. A device of the character described, comprising three strips of leather, two strips being crossed and secured together intermediate their ends, and the third strip having secured to it, spaced to lie at front and back of the wrist, the two ends of one of the crossed strips, a transversely extending elastic tape joining the side edges of the remaining strip, at each end, to form thumb and finger stalls, and dogs secured upon the ball portions of the two stalls.

6. In a device of the character described,

a pair of dogs disposed one inside the ball of thumb and the other inside the balls of the first two fingers, and directed towards the base of the fingers, and means for suspending said dogs from the wrist, and for holding them respectively to the thumb and fingers, to flex therewith.

7. A device as in claim 1, the dogs comprising base plates and transversely extending edges upstanding from said plates, and directed away from the finger tips, to sink into the end of a box to be supported.

Signed at Tieton, Washington, this 4th day of December, 1930.

STERL L. BURNS.
WARREN F. BURNS.