Sept. 14, 1926. 1,599,953

R. C. CLAPP

CARGO HANDLING SLING

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Fig. 1

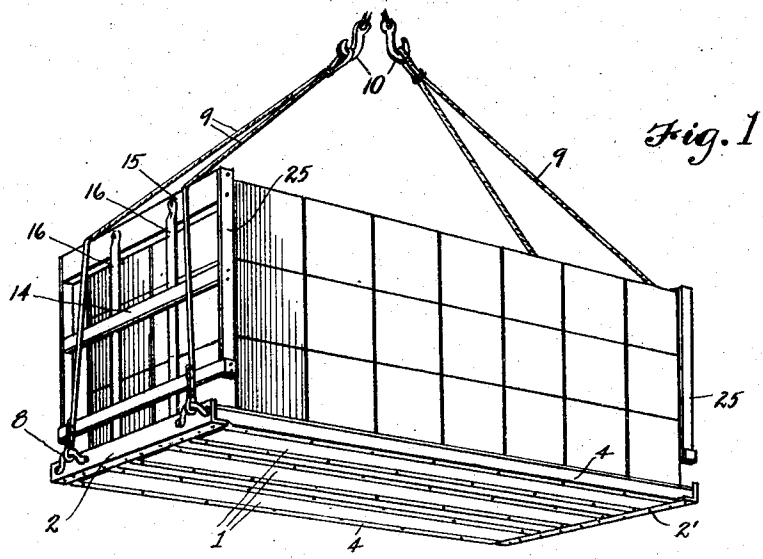
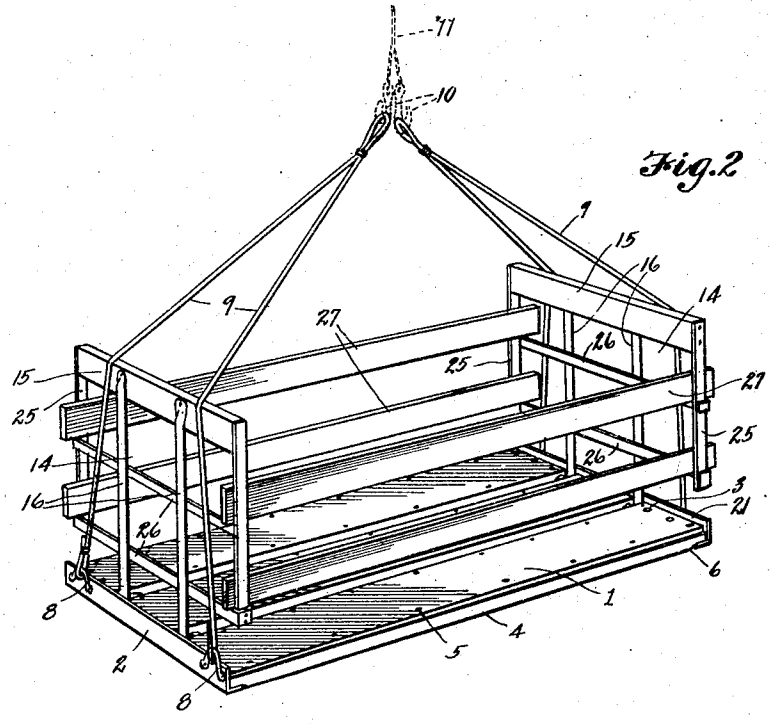


Fig. 2



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Fig. 3

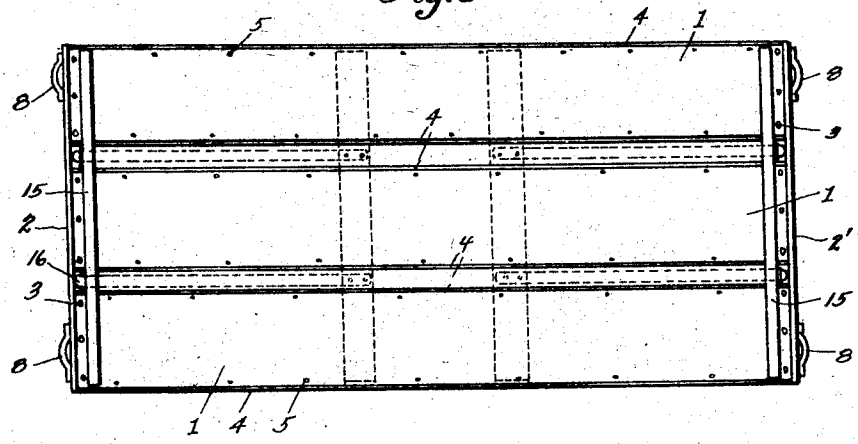


Fig. 4

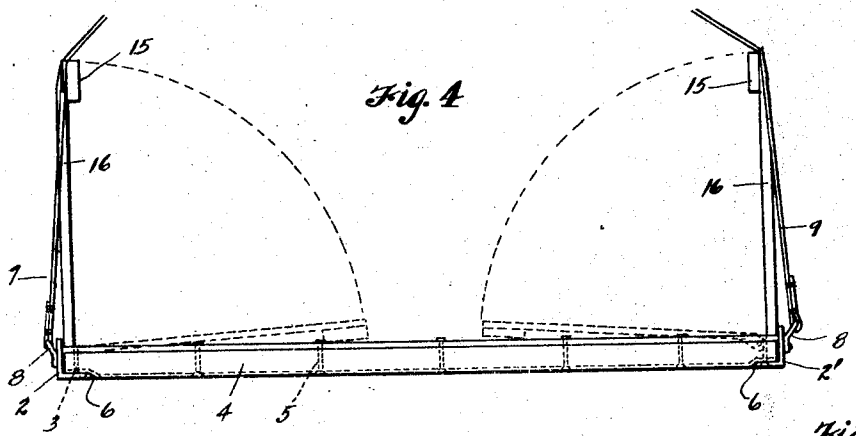


Fig. 5

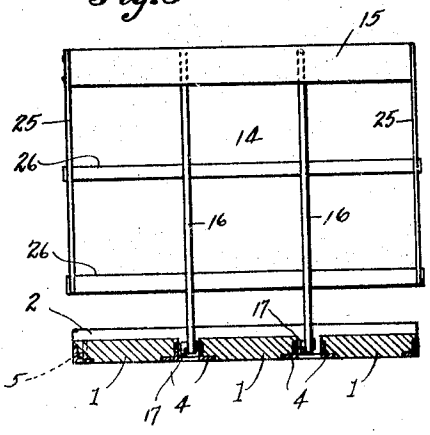


Fig. 7

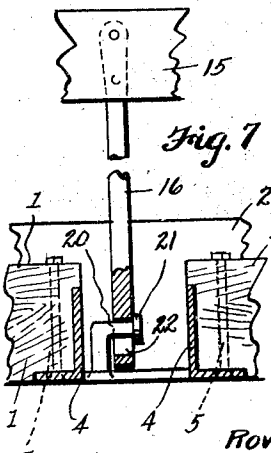
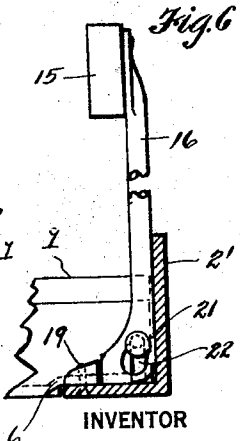


Fig. 6



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Patented Sept. 14, 1926. 1,599,953

UNITED STATES PATENT OFFICE.

ROWLAND C. CLAPP, OF PORTLAND, OREGON.

CARGO-HANDLING SLING.

Application filed November 12, 1925. Serial No. 68,555.

This invention relates to improvements in cargo handling slings and has for its principal object to provide a flat bottomed, board, sling that is designed especially for the loading and unloading of a ship's cargo; more particularly for the handling of boxed or crated goods, such as apples.

It is also an object of the invention to provide a sling of the above type that may be used to great advantage with the common types of dock trucks and which has a perfectly flat under surface that permits it when loaded to be moved about on transfer rollers and thus obviate the necessity of carrying the pieces individually from the sling to the place of storage or vice versa.

A still further object of the invention resides in the provision of a flat bottomed sling that is equipped with end frames of novel construction which serve as means for retaining the load in the sling and also as means for protecting the boxes, or pieces being handled, against damage by the hoisting wires or cables. Also to provide end frames that are foldable downwardly against the flat bottom of the sling so as to permit the landing of one sling on top of another.

Other objects of the invention reside in the various details of construction and combination of parts as will hereinafter be described.

In accomplishing these and other objects of the invention, I have provided the improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein—

Fig. 1 is an underside, perspective view of a carge sling embodied by the present invention; showing it as used for handling boxed goods.

Fig. 2 is a perspective view of the same as equipped with side boards for handling goods of irregular form.

Fig. 3 is a plan or top view of the sling.

Fig. 4 is a side elevation of the same showing, in dotted lines, the position of the end frames when folded against the bottom of the sling.

Fig. 5 is a central cross sectional view of the sling.

Fig. 6 is a detail view of one of the mounting devices and a part of the end frame connected thereto.

Fig. 7 is another view of the same parts.

Referring more in detail to the several views of the drawings—

The bottom of the sling, as here shown, is made up of three wooden planks, 1, that are laid flat, in parallel and slightly spaced relation, as shown best in Fig. 3, and which are seated at their opposite ends within angle iron bars 2 and 2′ to which they are permanently fixed, as by means of the bolts 3 shown which extend upwardly through the base flanges of the angle bars and through the ends of the planks. To the opposite longitudinal edges of each plank, angle iron bars 4 are secured as by means of the bolts 5 shown. The end portions of these bars 4 are offset upwardly, as shown at 6, in Figure 4, to overlie the base flanges of the bars 2 and 2′ and the bottom flanges of the bars 4 are set into the surface of the planks 1 so that their bottom surfaces and the bottom surfaces of the planks and the base flanges of the bars 2 and 2′ all lie in the same horizontal plane and present a perfectly smooth under surface which permits the sling to be moved about readily and without difficulty on transfer rollers.

Fixed to the vertical flanges of the end bars 2 and 2′ near their ends, are loops 8 to which the ends of cables 9 are attached. These cables are equipped at their upper ends with loops adapted for disconnectible application to pared hooks 10 connected with a hoisting line 11 whereby the sling may be raised or lowered for the placing of a load into or removing it from a ship's hold.

At the opposite ends of the bottom part of the sling are frames 14 which are provided for the support of the ends of a load and also as means for protecting boxed goods, or other articles on the sling, against damage by the cables 9. Each of these frames consists of a horizontal top piece 15 that is supported from the upper ends of two posts 16 which, at their lower ends, have pivoted connection with bolts 17 that are fixed in the base flanges of the cross bars 2

and 2′ and which extend upwardly therefrom between the planks 1 as shown in Figure 7. The frames may be swung downwardly from vertical position so as to lie against the bottom of the sling and in this way make possible the landing of one sling on top of another. When the frames have been swung upwardly from horizontal to vertical position they are retained against farther outward movement by contact of their lower end with stop blocks or lugs 19 that are fixed to the base flanges of the bars 2 and 2′. The posts also rest against the vertical flanges of the bars when in this position as shown in Figure 6.

The preferred method of pivotally or hingedly attaching the lower ends of the posts 16 of the end frames to the bottom of the sling is illustrated in Figures 6 and 7, which shows the bolts 17 to be equipped with horizontally turned upper end portions 20 with enlarged retaining heads 21. The lower ends of the posts are flattened and are provided with upwardly tapered slots 22 through which the horizontally turned portions of the bolts extend. The lower ends of the slots 22 are sufficiently large to receive the heads therethrough which then, by movement to the smaller ends of the slots retain the posts connected pivotally with the bolts. The end frames may be disconnected, when it is so desired, by lifting them upwardly so that the heads 21 of the bolts may be unseated through the enlarged lower ends of the slots 22.

To facilitate the handling of articles of irregular form and which are not easily retained in stacked form, I have provided the end frames with vertical end pieces 25 that are fixed to the ends of the top pieces 15 and to the ends of cross bars 26 attached to the posts 16. These pieces 25 and 26 serve as supporting means for the opposite ends of side boards 27 which may be placed lengthwise of the sling, as shown in Figure 2, to hold a load in place. The side bars may be easily removed or placed in position and greatly facilitate the handling of loose material.

It is readily apparent that a sling so constructed is especially adapted for the handling of boxed goods which should be piled thereon in rows and up against the end frames, as shown in Figure 1. It is to be noted that the cables 9 when attached to the hoisting cable 11 will overlie and will be drawn inwardly against the cross bars 15 to hold the load secure by pressure of the end frames thereagainst. The cross bars also serve as a means for protecting the boxed goods and boxes against damage by the cables.

Flat bottomed slings of this type are very desirable for the reason that they are not only operable over transfer rollers but also as they do not cause what is commonly known as invisible damage to the boxed or crated goods when loads are landed one on top of another as is the case when cleated slings are used. When a load is placed on the sling the flat bottom will spring down just sufficiently that its center portion will first come in contact with the support on which it is landed and will thus cushion the landing so that the load comes easily to rest. Another advantage resides in the fact that the end frames may be removed if necessary or desired.

Having thus described my invention, what I claim as new therein and desire to secure by Letters Patent is—

1. A sling of the character described comprising a series of planks laid in parallel relation and forming a flat supporting base, bars secured to the planks across the ends of the base, end frames hingedly secured to the opposite ends of the base and hoisting cables for the sling adapted to draw the end frames inwardly during a hoisting operation.

2. A sling of the character described comprising a series of planks laid in parallel relation and forming a flat supporting base, bars secured to the planks across the ends of the base, end frames secured to the ends of the base to swing inwardly from vertical position to lie against the base and hoisting cables attached to the end bars outside of the end frames.

3. A sling of the character described comprising a series of wooden planks laid in parallel relation to provide a flat supporting base, angle bars secured to the planks at the ends of the said base, load supporting end frames pivotally attached to the said angle bars and adapted to swing between vertical and horizontal position against the base, said frames having cross bars at their upper ends, and hoisting cables attached to the angle bars and extended upwardly along the outside of the frames and adapted to engage said cross bars and to draw inwardly against the frames when a load is being carried in the sling.

4. A sling of the character described comprising a series of wooden planks arranged in parallel relation to form a supporting base, angle bars fitted to the ends of the planks and secured thereto, angle bars fitted to the under side and longitudinal edges of the planks and cables for lifting the sling attached to the said angle bars at the ends of the base; said planks and angle bars at the ends and edges of the planks forming a perfectly flat under surface for the base to adapt the same for movement on transfer rollers or the like.

5. A sling of the character described comprising a plurality of wooden planks arranged in parallel spaced relation and form-

ing a flat supporting base, angle bars fitted to the ends of the planks and secured thereto, end frames secured to the ends of the base, hoisting cables attached to the angle bars at the ends of the base to extend upwardly along the outside of the frames, and side boards having their ends removably inserted into and supported by the said end frames.

6. A sling of the character described comprising a plurality of wooden planks arranged in parallel spaced relation and forming a flat supporting base, angle bars fitted to the ends of the planks and attached thereto across the ends of the base, end frames removably and pivotally attached to the ends of the base to swing inwardly from vertical position to position against the base, hoisting cables attached to the angle bars at the ends of the frame and adapted to draw inwardly on the end frames when a load is being lifted, angle bars fitted to the longitudinal edges of the planks and side boards having their ends removably inserted into and supported by the said end frames.

7. A sling of the character described comprising a plurality of planks arranged in parallel spaced relation to form a flat supporting base, angle bars secured to the ends of the planks across the opposite ends of the base, bolts fixed in the said angle bars and extended upwardly between the spaced planks and provided with horizontally turned portions with retaining heads thereon, end frames for the base having supporting posts provided with upwardly tapered slots in their lower ends adapted to receive therein the said horizontal portions of the bolts to thereby pivotally mount the end frames for swinging movement from vertical position inwardly against the base, stop blocks fixed to the angle bars to be engaged by the ends of the posts to prevent outward movement of the frames from vertical position and hoisting cables fastened to the angle bars at the ends of the base and extended upwardly along the outside of the frames to draw inwardly against the same when a load is being carried in the sling.

Signed at Portland, Multnomah County, Oregon, this 6th day of November 1925.

ROWLAND C. CLAPP.