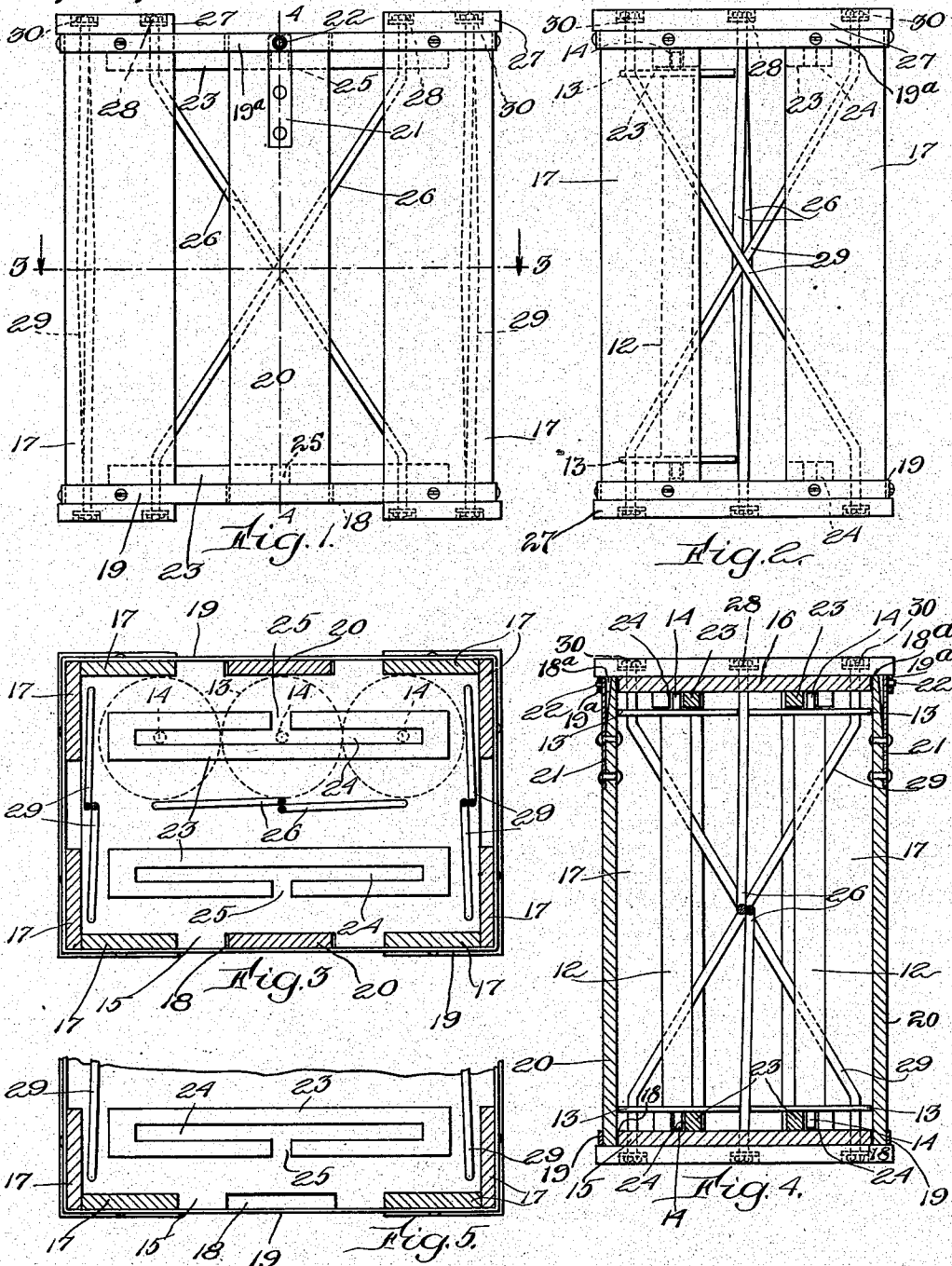


N. JENSEN.
SHIPPING CRATE.
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1,015,683.

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UNITED STATES PATENT OFFICE.

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SHIPPING-CRATE.

1,015,683.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, NIELS JENSEN, a citizen of the United States, and a resident of Lincoln, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Shipping-Crates, of which the following is a specification.

This invention relates to shipping crates intended to carry merchandise in packages from the producer to the consumer and to be returned with the holders of the packages from the consumer to the producer, the package holders being again used to support packages of the merchandise. A crate thus used is subjected to severe usage in transit and heretofore has not been constructed to withstand this severe usage for any great length of time.

My invention has for its object to provide a shipping crate which while of relatively inexpensive construction, is sufficiently strong and durable to enable it to be shipped indefinitely, and to securely hold the merchandise for which it is intended and the package holders for the merchandise, both when said holders are filled and empty.

My invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings which form a part of this specification,—Figure 1 represents a side elevation of a shipping crate embodying my invention; Fig. 2 represents an end elevation of the same; Fig. 3 represents a section on line 3—3 of Fig. 1; Fig. 4 represents a section on line 4—4 of Fig. 1; Fig. 5 represents a view similar to a portion of Fig. 3 showing one side of the crate open to permit the insertion and removal of merchandise.

Similar reference characters indicate the same or similar parts in all the figures.

The crate which I have here shown as an embodiment of my invention, is adapted to carry spools such as are used by yarn manufacturers to hold accumulations of worsted yarn, the charged spools being shipped by the manufacturer to customers, and the empty spools being returned by the customers to the manufacturer. Each spool is usually of the form represented by Fig. 4, the spool comprising a cylindrical body or barrel 12, heads 13, and trunnions 14 projecting from opposite ends of the spool.

The crate hereinafter described is constructed to detachably hold a plurality of spools, and prevent loose movement or displacement of the spools while they are in transit, the construction being such that the spools may be readily inserted in and removed from the crate and securely confined therein.

The crate comprises a bottom 15, a top 16, and fixed uprights 17 permanently attached at their ends to the bottom and top. As here shown, said uprights form the corners of the crate and are separated from each other to form openings of considerable width. The crate here shown is of oblong form, the longer faces of the crate being hereinafter termed the sides, and the shorter faces the ends. The fixed uprights 17 are spaced to form relatively wide openings in the sides of the crate and narrower openings in the ends of the crate. I desire it understood, however, that the ends of the crate may be entirely closed, and that the openings in the sides of the crate may be only of sufficient width to receive the confining pieces hereinafter described.

The bottom 15 is provided with recesses or mortises 18 which coincide with the openings in the sides of the crate. Metal straps or bars 19 extend across the mouths of the recesses 18, said bars and the walls of the recesses forming sockets adapted to receive the lower ends of movable confining pieces 20. The top 16 is provided with recesses or mortises 18^a formed and arranged like the mortises 18, and with metal bars 19^a extending across said mortises and cooperating therewith in forming sockets to receive the upper ends of the confining pieces 20. Each of the pieces 20 is provided with a spring shank 21 having a pin 22 which is forced outwardly by the resilience of the shank into an orifice in the bar 19^a, the confining piece being thus secured in position. The shank 21 is displaceable inwardly to withdraw the pin from the bar and permit the removal of the confining piece. The width of the confining piece 20 is here shown as considerably less than that of the side opening in which it is inserted, but it is obvious that either the side opening may be narrower or the confining piece here shown wider, so that when the confining piece is in place it will entirely close the opening.

To the bottom 15 and the top 16 are attached spool guiding and confining strips 23 which may be strips of wood, metal or other suitable material. The strips 23 are provided with longitudinal channels 24 and with lateral slots 25 constituting entrances to said channels, the slots being opposite the side openings in the crate. As shown by Fig. 4, the distance between the strips 23 attached to the bottom 15 and those attached to the top 16 is slightly greater than the length of the spools 12, so that the channels 24 are adapted to receive the spool trunnions 14.

When the crate is to be loaded, the confining pieces 20 are removed and the trunnions of the spools are passed one by one through the slots 25 into the channels 24 and moved along said channels until the spools are suitably distributed. The confining pieces 20 are then replaced and locked, said pieces being in such proximity to the central spools that they prevent outward movement of said spools through the slots 25. The spools are sufficiently close together to prevent them from tipping to any considerable extent from a vertical position. When the spools are to be removed, the confining pieces are again detached from the crate and the trunnions of the spools are passed successively through the slots 25.

To provide a rigid and durable construction without adding materially to the weight and without unduly increasing the cost of the crate, I provide inclined longitudinal and transverse tie rods arranged in pairs, these including a pair of longitudinal tie rods 26 attached at their ends to the bottom and top of the crate, and crossing each other between the bottom and top, the rods 26 being arranged in a plane substantially parallel with the sides of the box and midway between said sides, so that they are separated from the sides of the crate by storage spaces adapted to receive articles to be shipped. The rods 26 form a skeleton partition adapted to laterally support articles inserted in said spaces, as indicated by Fig. 3. The end portions of said rods are bent to extend through the bottom and top of the crate and through reinforcing strips 27 attached to the said bottom and top, each rod having a head at one end and a threaded portion at the opposite end engaging a nut 28.

In connection with the longitudinal tie rods 26 I employ two pairs of transverse tie rods 29, one pair being located near one end of the crate and the other near the opposite end. The rods 29 of each pair are inclined in opposite directions and cross each other midway between the top and bottom of the crate, the rods 29 being arranged in planes substantially parallel with the ends of the crate and at right angles to the plane of the

longitudinal rods 26. The rods 29 have their end portions bent and extended through the top and bottom of the crate, and through the reinforcing pieces 27, one end of each rod being headed and the opposite end screw threaded and provided with a nut 30.

The tie rods are preferably made from stout iron or steel wire, and their longitudinal and transverse arrangement above described imparts a great degree of stiffness and rigidity to the crate without adding materially to its weight or cost.

The bars 19 and 19^a which form the outer sides of the sockets above described are preferably parts of continuous metal straps extending entirely around the crate and screwed to the uprights 17.

I claim:—

1. A crate comprising a bottom, a top, uprights attached to the bottom and top and arranged to form one or more side openings, confining pieces adapted to guard said openings, means being provided for detachably securing said confining pieces to the crate, and inclined longitudinal and transverse tie rods attached at their ends to the bottom and top and arranged in pairs within the crate, the longitudinal tie rods being separated from the sides of the crate by storage spaces and adapted to laterally support articles inserted in said spaces.

2. A crate comprising a bottom, a top, uprights attached to the bottom and top and arranged to form one or more side openings, confining pieces adapted to guard said openings, means being provided for detachably securing said confining pieces to the crate, a pair of oppositely inclined longitudinal tie rods attached at their ends to the bottom and top and arranged in a plane substantially parallel with the sides of the crate, said rods being separated from the sides of the crate by storage spaces and adapted to laterally support articles inserted in said spaces, and two pairs of oppositely inclined transverse tie rods attached at their ends to the bottom and top at opposite ends of said spaces, each pair being arranged in a plane substantially parallel with the ends of the crate.

3. A crate comprising a bottom, a top, uprights attached to the bottom and top and arranged to form one or more side openings, confining pieces adapted to guard said openings, means being provided for detachably securing said confining pieces to the crate, and means attached to the bottom and top for positioning articles inserted through said openings.

4. A crate comprising a bottom, a top, uprights attached to the bottom and top and arranged to form one or more side openings, confining pieces adapted to guard said openings, means being provided for detachably securing said confining pieces to the crate, and

channeled strips attached to the bottom and top and having slots communicating with their channels, said slots being opposite the side openings.

5 5. A crate comprising a bottom, a top, said bottom and top being provided with recesses in opposite edges, uprights attached to the bottom and top and arranged to form side openings coinciding with said recesses, 10 metal straps attached to said uprights and cooperating with said recesses to form sockets at the upper and lower ends of the side openings, said straps being provided with orifices, and confining pieces, the ends 15 of which are adapted to enter said sockets, and are provided with spring-pressed pins adapted to engage said orifices and detachably secure the confining pieces in the sockets.

20 6. A crate comprising a bottom, a top, said bottom and top being provided with

recesses in opposite edges, uprights attached to the bottom and top and arranged to form side openings coinciding with said recesses, 25 metal straps attached to said uprights and cooperating with said recesses to form sockets at the upper and lower ends of the side openings, confining pieces, the ends of which are adapted to enter said sockets, 30 means being provided for detachably securing the confining pieces in the sockets, and channeled strips attached to the bottom and top, and having slots communicating with the channels, said slots being guarded by the 35 confining pieces.

In testimony whereof I have affixed my signature, in presence of two witnesses.

NIELS JENSEN.

Witnesses:

C. F. BROWN,
JAMES F. PILLON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."