

Sept. 8, 1936.

M. OLDS

2,053,969

CARGO CONTAINER

Original Filed Oct. 26, 1927

5 Sheets-Sheet 1

Fig. 1.

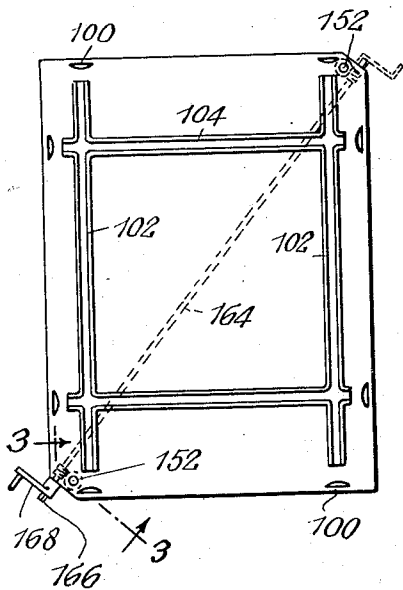


Fig. 3.

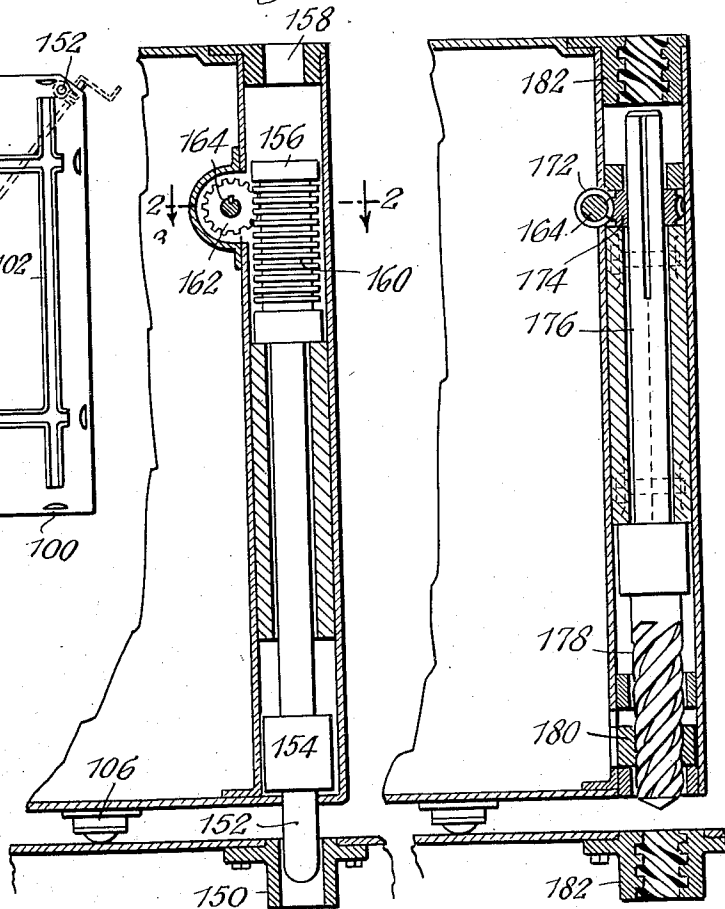


Fig. 4.

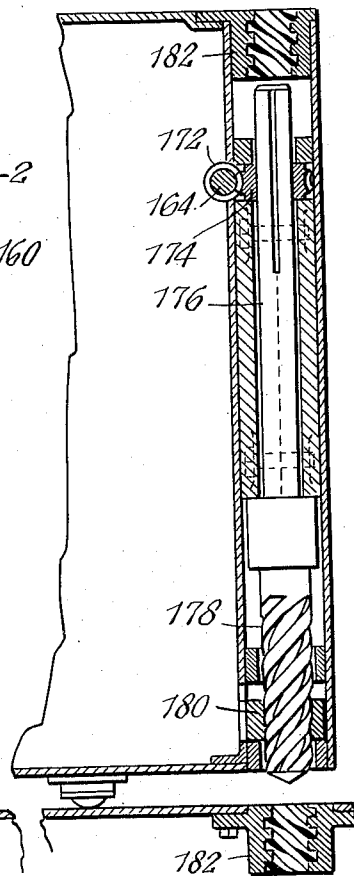


Fig. 2.

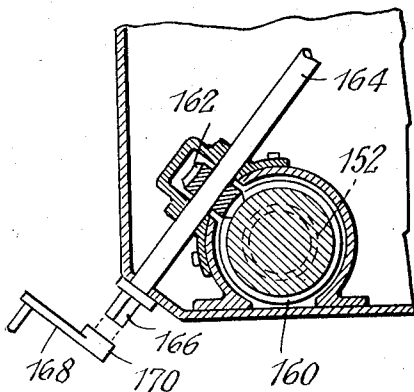
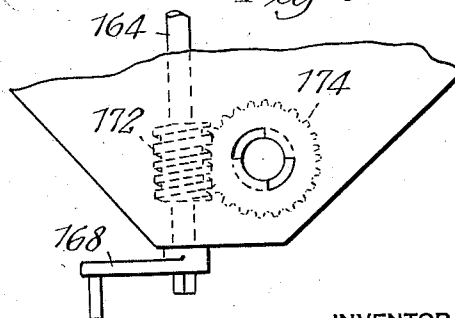


Fig. 5.



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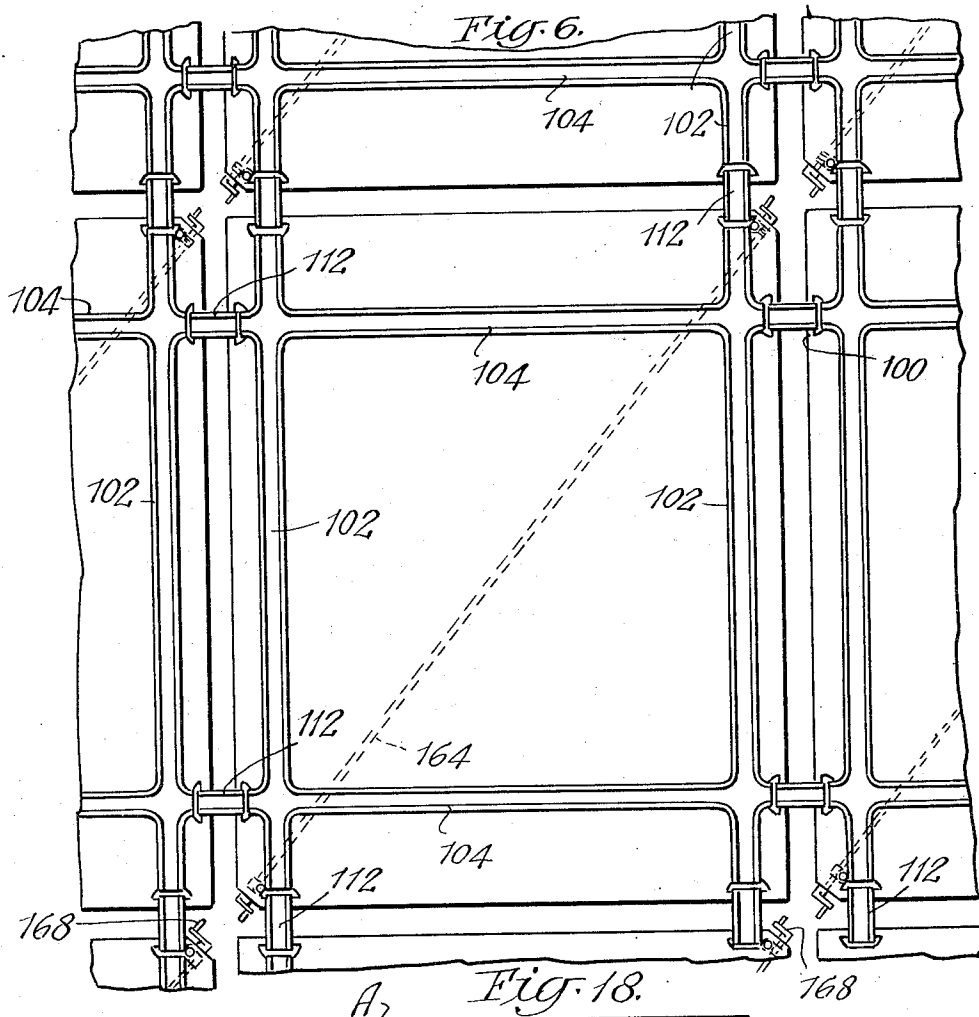
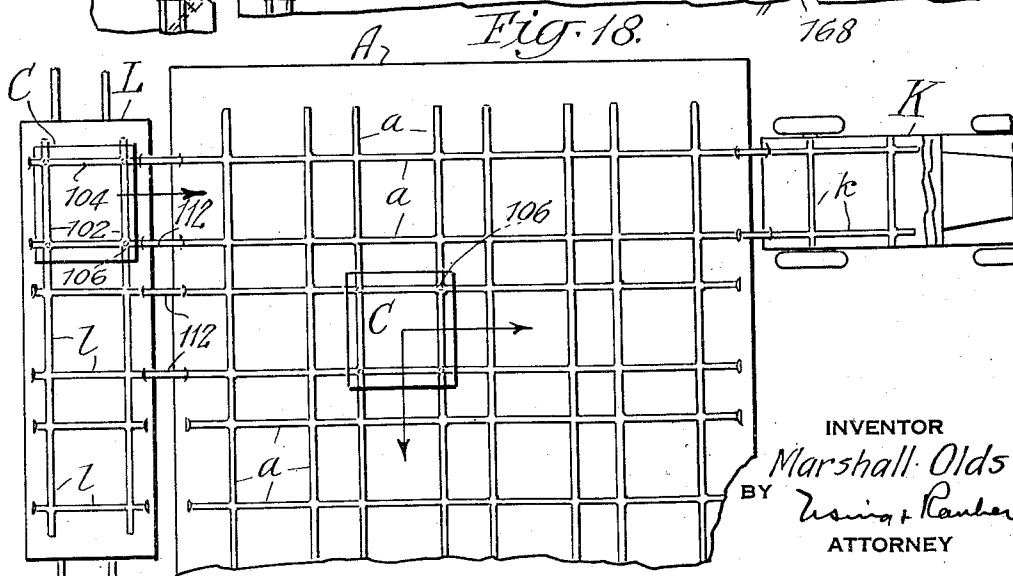
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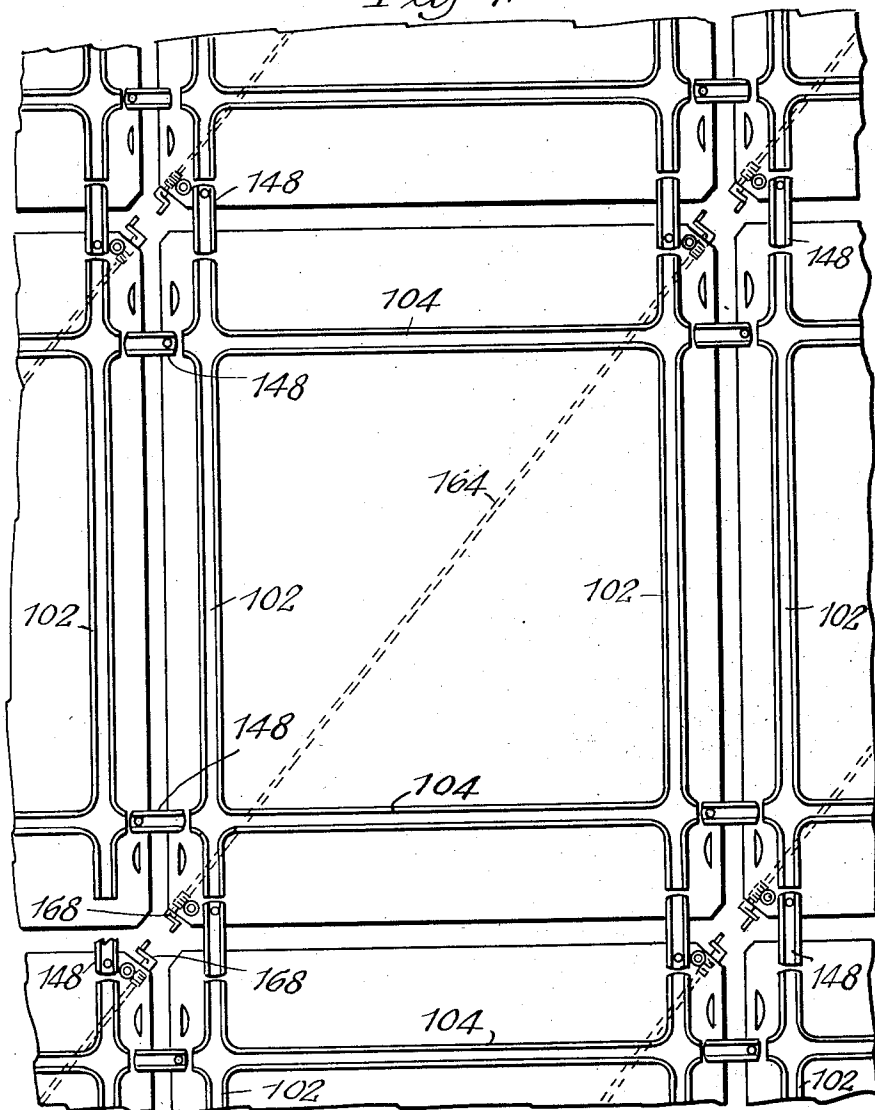
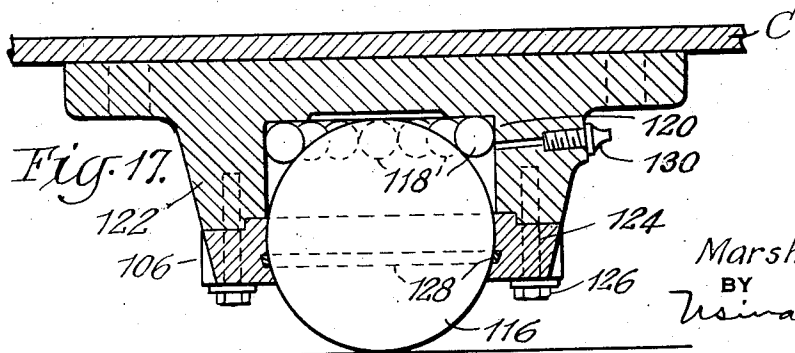
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Fig. 7.



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Fig. 8.

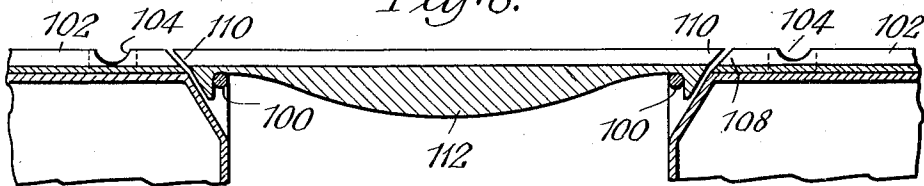


Fig. 9.

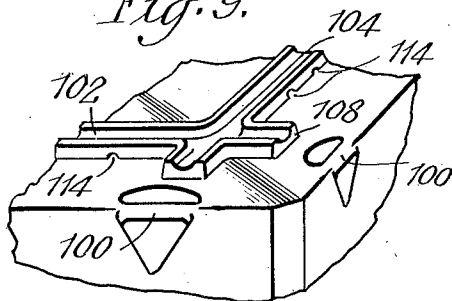


Fig. 10.

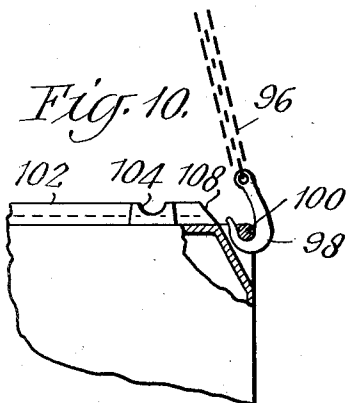
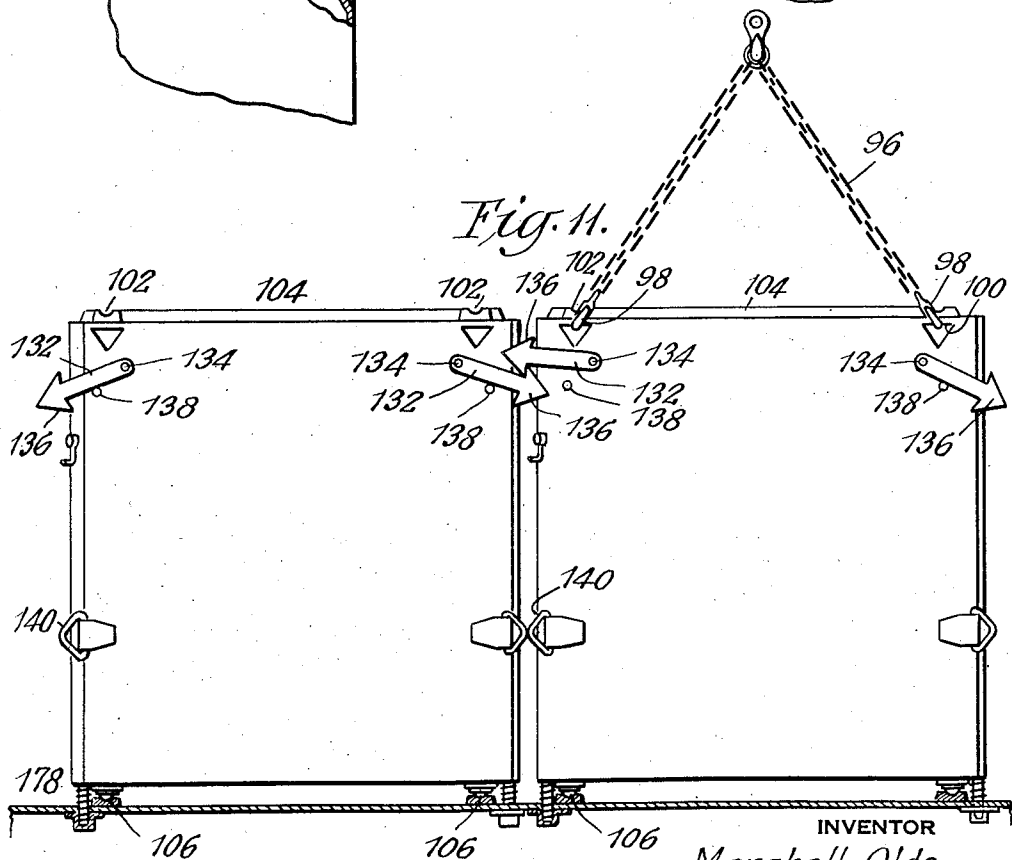


Fig. 11.



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Fig. 12.

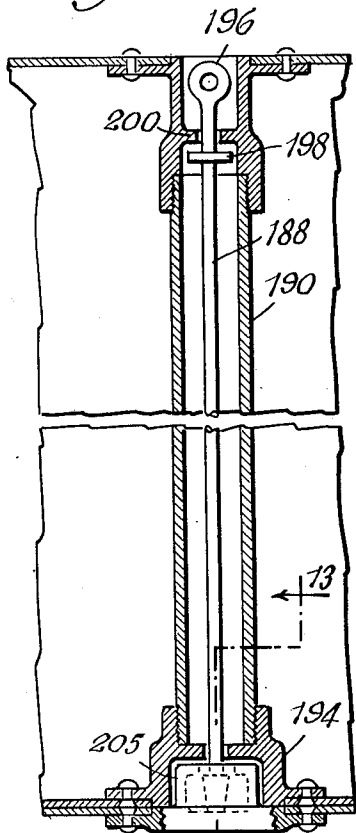


Fig. 15.

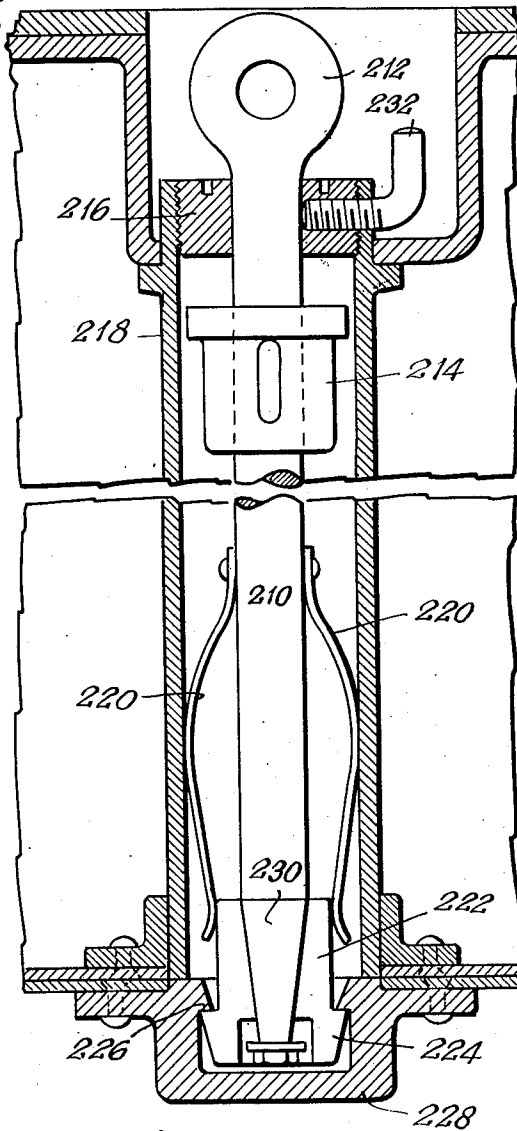


Fig. 13

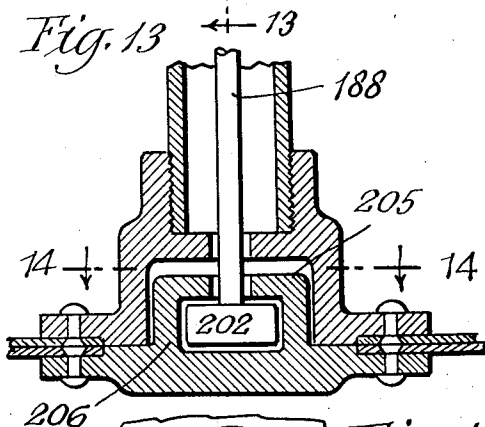


Fig. 14.

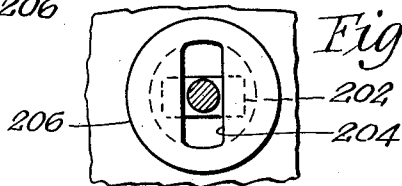
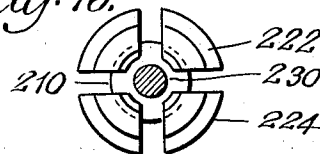


Fig. 16.



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2,053,969

CARGO CONTAINER

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Original application October 26, 1927, Serial No. 228,822. Divided and this application February 21, 1933, Serial No. 657,782. Renewed February 14, 1936

12 Claims. (Cl. 214—38)

In a copending application Serial No. 228,822, filed October 26, 1927, now Patent No. 1,900,867, March 7, 1933, I have described method and apparatus for handling cargo and among other things have disclosed therein a container having tracks on the top thereof of equal gauge extending both longitudinally and transversely and disposed at right angles to one another, such tracks being adapted to serve as guides for one or more superposed containers having rollers, casters, or other rollable anti-friction supporting means on the bottom thereof located at points corresponding to a square, whose gauge is equal to that of tracks secured to the top of the container. In the prior application, I have also disclosed a locking or positioning means located at diagonally opposite corners and means operable from any accessible corner of the container for simultaneously actuating both locking or positioning means. My prior application also disclosed means whereby a plurality of containers having tracks on their tops and anti-friction rollers on their bottoms could be bridged so as to facilitate rolling one or more upper containers either longitudinally or transversely over the tops of a plurality of juxtaposed lower containers. The four-square casters are also adapted for engagement with tracks crossing at right angles and located on ships, railway cars, motor trucks, freight platforms, etc.

The instant application is a division of my former application and is directed generally to the features above briefly referred to, as will be clear from a reading of the appended claims.

For a more detailed disclosure of the present invention, reference is to be made to the accompanying drawings in connection with the following detailed description, which exemplifies embodiments of the invention.

In the drawings—

Fig. 1 is a plan view of one form of container embodying certain features of my invention;

Fig. 2 is an enlarged horizontal section on line 2—2 of Fig. 3 of a corner of a container illustrating features of construction;

Fig. 3 is a fragmentary detail section on line 3—3 of Fig. 1;

Fig. 4 is a sectional view showing a lock for preventing shifting of the container;

Fig. 5 is a detail plan of certain parts shown in Fig. 4;

Fig. 6 is a plan of one complete container and parts of several adjacent cargo containers showing container supporting tracks carried thereby and bridge members spanning the spaces between some of the adjacent containers;

Fig. 7 is a similar view showing modified bridge members;

Fig. 8 is a view showing a bridge track spanning the space between two adjacent containers of the type shown in Fig. 6;

Fig. 9 is a perspective view of a corner of one form of container with a container-supporting-track mounted thereon showing a connecting member adapted for co-operation with the bridge member;

Fig. 10 is a detail view illustrating the manner of lifting the container of Fig. 9;

Fig. 11 is a view in elevation of two adjacent containers showing a latch for locking them to one another when bridge members of Fig. 8 are not used;

Fig. 12 is a vertical section showing a combined lifting stanchion and locking device for a container;

Fig. 13 is an enlarged view of the lower end of the locking device of Fig. 12 illustrating how it coacts with a socket member provided on a common carrier or on another container;

Fig. 14 is a section on line 14—14 of Fig. 13;

Fig. 15 is a detail view in vertical section showing a modified form of locking coupling adapted to prevent shifting of the container;

Fig. 16 is a plan of part of the locking device shown in Fig. 15;

Fig. 17 is an enlarged detail illustrating a roller bearing caster with which my improved container is provided;

Fig. 18 is a diagram illustrating the manner in which my improved container is adapted to be transferred over tracks carried by freight platform and different types of carriers such as railway cars and motor trucks and the like.

Referring in detail to the drawings, the container of my invention is adapted in some cases to be grappled or lifted by a chain, sling or tackle, such as indicated at 96 and having hooks 98 which engage members 100 secured to the container (Figs. 10 and 11). It is also contemplated, however, that the container may be slid along on its supporting casters by means of suitable pulling tackle adapted to be engaged with suitable fittings 140, shown for example in Fig. 11.

The container is substantially rectangular in plan and is provided on top with tracks 102 extending longitudinally thereof and tracks 104 extending transversely. The spacing between the two tracks 102 and tracks 104 is the same gauge so that regardless of which way the container is stowed away, the track gauge will be uniform. On the underside, the container is provided with

four roller bearing casters 106 which are located at points corresponding to corners of a square defined by the center lines of the tracks 102 and 104 on top of the container. As thus arranged, it is apparent that the spacing of the rollers 106 on one container will be of a proper gauge to ride on either transverse or longitudinal tracks 102 or 104 of another container. The tracks 102 and 104 are of substantially U or channel shape in cross-section as indicated in Figs. 8 to 10. These tracks terminate short of the ends of the container and are preferably bevelled as indicated at 108 to coact with the bevelled portions 110 of the bridge members 112 which are adapted to engage the members 100 so as to span the spaces between adjacent containers and to furnish a continuation of the container track over which another container may be moved, for example, when storing the same on board ship or in a warehouse.

The roof or top of each container is preferably slightly pitched or canted so as to shed water, the highest point of the roof preferably not being higher than the upper surface of the rails or tracks 102 and 104. Suitable openings 114 will be provided in the tracks to permit drainage or escape of water while the containers are in transit either on railway or motor truck.

The containers and their contents will weigh from approximately six to twelve tons, hence, it is desirable to support the same on free running casters. For this purpose, I have designed a caster such as illustrated in Fig. 17, which includes a hardened steel ball 116, the upper part of which coacts with a series of bearing balls 118 carried in a cage 120 formed in the caster housing 122 which is bolted or otherwise secured to the underside of the container C. A cap 124 is fitted to the lower part of the housing 122 by means of cap screws 126. A suitable gasket 128 of felt or similar yieldable material is fitted to the cap 124, so as to exclude dirt and moisture and other foreign matter from the ball cage. The interior of the ball cage may be packed with grease or other lubricant forced, for example, through a fitting 130 by means of a suitable grease gun. Means are preferably provided for locking the containers against movement relative to the common carrier on which they are being conveyed such as motor truck, railway car or water craft. It is also preferable to provide suitable latch or latches on each container whereby several adjacent containers can be locked against movement relative to one another when they are not interlocked by the bridge members 112.

In Fig. 11, I have shown arrow-shaped hooks 132 pivoted at 134 having teeth 136 adapted to engage similar teeth on a hook carried by an adjacent container. Stop pins 138 are provided to limit the downward movement of the hooks. This form of hook is desirable because after one container has been located in place, for example, on a freight car, another container may be lowered down alongside of it and the teeth 136 of the respective hooks will engage so as to prevent relative lateral movement between two adjacent containers.

The containers when located side by side and end to end as indicated, for example, in plan in Fig. 6, may be additionally locked against relative movement by the bridge members 112. These bridge members 112 as shown constitute track extensions which will enable other containers to be pushed or pulled about on their roller casters, it being understood that when the containers are to be stowed away on board ship, suitable

winches or drums not shown may be employed to furnish the power. The containers are provided with convenient pulling shackles 140. Adjacent containers are adapted to be interlocked or coupled to one another by means of removable bridge-like members 112, as shown in Fig. 8.

Instead of bridging the space between the adjacent containers by removable bridge sections 112, I may provide each container with a plurality of pivotally mounted extension bridge sections, such as indicated at 148 in Fig. 7. These pivoted bridge sections 148 are located tangentially adjacent the four corners of rectilinear tracks 102 and 104 and the arrangement is such that regardless of the manner in which the containers are oriented, the bridge members 148 will when swung outwardly align with the U-shape tracks 102 and 104 of an adjacent container.

When the containers are being transported either by motor truck, freight car or ship, it is desirable to lock them against movement relatively to such common carrier. It is advantageous to lock the container at a plurality of points so as to prevent the same from pivoting or shifting around the locking member. It is also desirable to provide means for simultaneously operating the locks from a single point. To these ends, I have devised suitable locking devices shown in Figs. 2 to 5 and 12 to 16.

Referring first to Fig. 3, the motor truck, railway car or ship is provided with a socket 150 and at diagonally opposite corners, the container is provided with vertically movable locking members 152, the lower ends of which are adapted to coact with sockets 150. The locking member 152, as illustrated in detail in Fig. 3, is in the form of a rod having a stop collar 154 near the lower end thereof and having an enlarged head 156 at the upper end thereof. Each head 156 is provided with a number of circular rack teeth 160 which mesh with a corresponding pinion 162 carried on the diagonally extending shaft 164. This shaft 164 is formed with a square end 166, as indicated in Fig. 2 for coaction with a hand crank 168 having a socket portion 170 by means of which the shaft 164 can be turned so as to simultaneously disengage both of the locking members 152. One end of the shaft 164 will always be readily accessible from the space between the adjacent containers. Socket members 158 will be provided on the upper surface of each container for coaction with locking portions 152 of superposed containers so that when several containers are stacked one over the other they can be readily locked against relative movement.

In Figs. 4 and 5, I have shown a modified arrangement of container lock in which the shaft 164 carries a worm 172 which meshes with a worm wheel 174 splined on a locking shaft 176 having a worm thread 178 secured to the lower end thereof. This thread works in a nut 180 secured to the lower corner of the container. When the shaft 164 is turned, worm wheel 174 will turn the member 176 and cause the threaded member 178 to travel endwise and into engagement with a threaded socket 182 secured to the truck car, ship or other carrier, or to the top of another container. In the locking device of Fig. 4, the nut 180 performs the double function of providing means for forcing the locking member longitudinally when the same is turned and also insures that the threads of the locking member will properly line up with the threaded socket of a mating container or carrier.

The containers above described are adapted

to be lifted by a suitable sling engaging the suspension members 100 near the four top corners of the same. This requires that there be a considerable head-room above the container for accommodation of the sling or other overhead tackle. The amount of head-room required can be materially lessened if the container is grappled at one point instead of at four points.

Fig. 12 illustrates a container having a central combined suspension rod and locking member. The suspension rod, indicated at 188, is located in the center of the container and is housed in a suitable tubing 190 secured at the top and bottom to casings 192 and 194 suitably fastened to the top and bottom walls of the container. At the top, the member 188 is provided with a lifting eye 196 adapted to be engaged by a tackle. A collar 198 secured to the member 188 is adapted to engage shoulders 200 when the container is lifted. At its lower end, the member 188 carries a locking head 202 of substantially rectangular form in plan, as shown in Fig. 13, this locking head being adapted to be inserted through a substantially rectangular opening 204 in a bracket 206 secured to a truck, railway car or other carrier. When the rod 188 is given a quarter turn, the parts will be locked against upward movement. The boss or hub 205 of the bracket 206 forms sort of a dowel for engagement with the socket 208 formed in the casing 194.

Fig. 15 shows a further modified form of lock employing a container suspension rod 210 having a lifting eye 212 at one end and having a collar 214 secured thereto which is adapted to strike a block 216 secured in the casing member 218 when the container is lifted. The rod 210 carries springs 220, which press against jaw members 222 having teeth 224 adapted in locked position to engage shoulders 226 of a socket member 228 secured to a motor truck, railway car, or other carrier. The lower end of the rod 210 is tapered, as indicated at 230 and when the rod is in the lower position illustrated, the teeth 224 are forced outwardly into engagement with the shoulders 226. The rod 210 may be locked in this lower position by means of a hand clamp screw 232. Thus, the jaws 222 are locked in engagement with the socket. By releasing the clamp 232 and lifting the rod 210, springs 220 will collapse the jaws and permit the container to be lifted.

The cooperative relationship described between the gauge or spacing of the casters or rollable supports on the underside of the container and the longitudinal and transverse tracks of equal gauge on the top of the container is of importance. With such an arrangement, a multiplicity or group of containers of the character described provide their own trackage system. The longitudinal and transverse tracks, which cross one another at the tops of the containers, provide means whereby upper conveyors can be conveniently moved over lower containers into ranks and files by imparting rectilinear movement to the upper containers.

The containers can of course be similarly shifted over a similar four-way track system secured to warehouse, wharf, or freight station platform and they can also be shifted from such a platform to a motor truck or from railway car and vice-versa. The tracks crossing at right angles to one another and being of the same gauge, which is equal to the square spacing of the container supporting casters, provide means whereby the containers can be shifted in directions at right

angles to one another without turning the container about the vertical axis.

Fig. 18 illustrates the manner of shifting the container over four-way tracks *a* on a platform A and onto the crossing tracks *l* secured to a railway car L. Similarly, the motor truck K can be provided with similar tracks *k*. To facilitate the transfer from the platform tracks to the tracks on the truck, railway car or like carrier, the bridge tracks 112 will be used in much the same manner as described in connection with the tracks on the juxtaposed containers or various locations on board ship. The container described, while not limited thereto, is extremely well suited for stowing away cargo in between decks or in different compartments of the ship structure. Such application of the invention is more specifically claimed in my companion application Serial No. 656,252, filed February 11, 1933.

Various modifications may be made by those skilled in the art without departing from the invention as defined in the following claims.

What I claim is:—

1. A shipping container of the character described including locking or positioning devices located at opposite corners of the container and means operable from one corner of the container for simultaneously actuating both locking devices.

2. A shipping container of the character described substantially rectangular in plan, locking devices located adjacent diagonally opposite corners, a diagonally extending shaft operatively connected with each of said locking devices and adapted to simultaneously actuate them.

3. A shipping container of the character described having at least two positioning members located adjacent diagonally opposite corners, means for supporting each member for vertical sliding movement and means for simultaneously moving each of said members vertically.

4. A shipping container of the character described having a vertically movable locking member having a multiple quick acting locking thread secured to one end thereof, a nut member coacting with said locking thread, worm gearing operable from one corner of the container for rotating said locking member so as to cause a longitudinal movement thereof.

5. A shipping container of the character described having a longitudinally movable locking member located adjacent the opposite corners thereof, locking threads secured to said members, worm wheel splined on said locking members, worms co-operating therewith and means operable from a corner of said container for simultaneously actuating said worms.

6. In combination with a plurality of containers of the character described having tracks on the top thereof, bridge track members arranged to span the space between adjacent containers and to couple the tracks thereof.

7. A container of the character described having container supporting tracks on the top thereof and track members adapted to bridge the space between adjacent containers.

8. In combination with a plurality of containers with casters on the bottom and tracks on the top thereof, bridge tracks for spanning the spaces between said containers.

9. In combination, a plurality of containers one supported directly on top of the other, each of the containers having rollable supports on their bottoms, located at points corresponding to the corners of a square and longitudinal and transverse tracks on their tops crossing at right angles

to one another and whose gauge corresponds to the square spacing of said rollable supports, so that upper containers are shiftable either longitudinally or transversely while supported on the tracks of lower containers.

10. A container of the character described having grooved caster tracks on the top thereof adapted to cooperate with casters secured to the bottoms of other containers, the roof of said container being pitched to shed water and said tracks being apertured to provide water outlets.

11. A container of the class described having longitudinal and transverse tracks of equal gauge secured to the top thereof, and a supplemental extension track adjacent each of the four corners adapted to be positioned in coacting alinement

with tracks on other similar containers regardless of the rectilinear direction in which the several containers are oriented.

12. A container of the class described having longitudinal and transverse tracks of equal gauge disposed at right angles secured to the top thereof, and movable extension tracks located beyond the four track rail corner intersections, each extension track being adapted to extend tangentially outward from a different corner so as to come into proper cooperating register with tracks on adjacent containers regardless of the rectilinear direction in which the several containers are oriented.

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