March 25, 1941. C. L. LOHNER ET AL 2,236,103

ARTICLE HANDLING MEANS

Filed Jan. 2, 1940 4 Sheets-Sheet 1

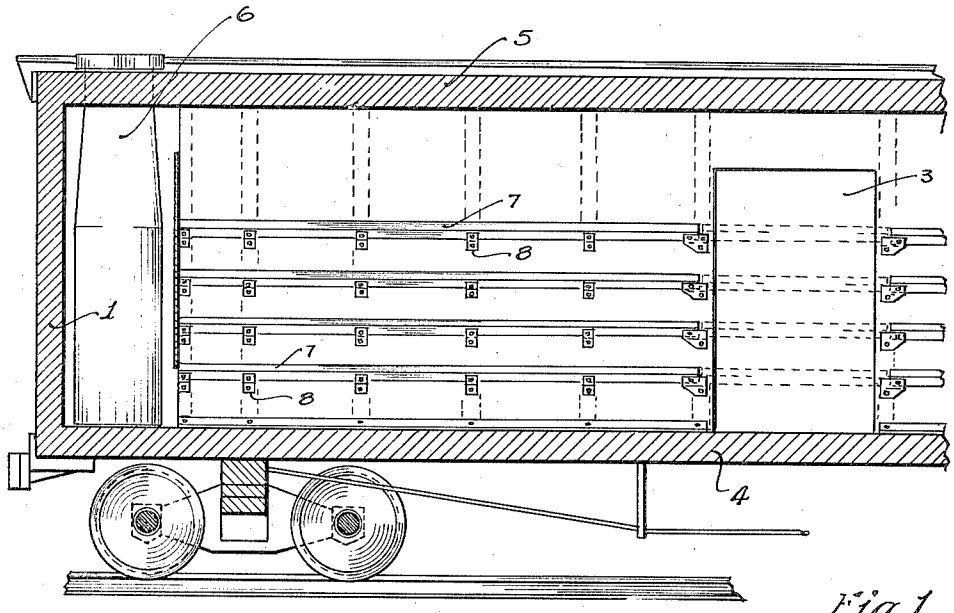

Fig. 1

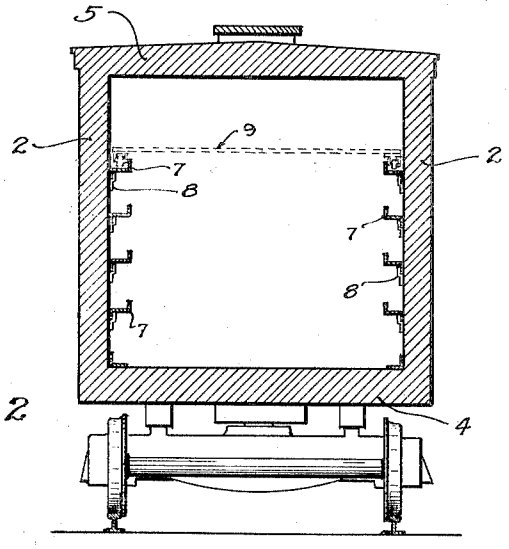

Fig. 2

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ATTORNEY

ATTEST-

Wm C. Meiser

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ARTICLE HANDLING MEANS

Filed Jan. 2, 1940 4 Sheets-Sheet 2

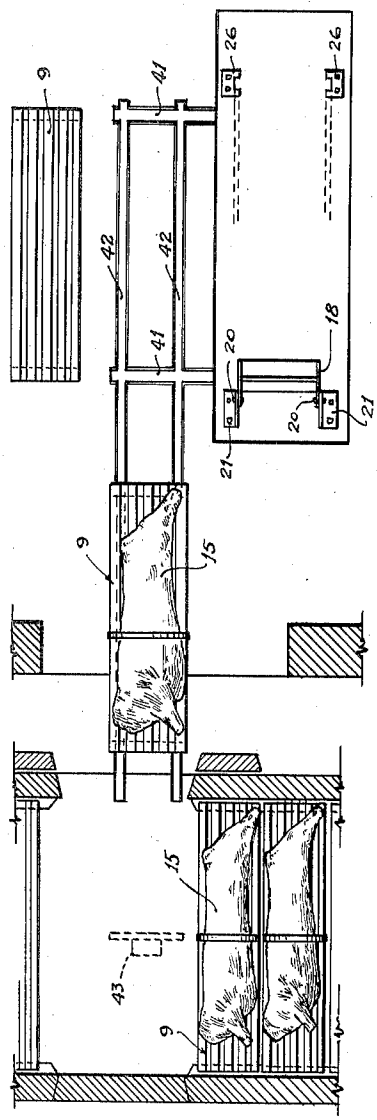

Fig. 4

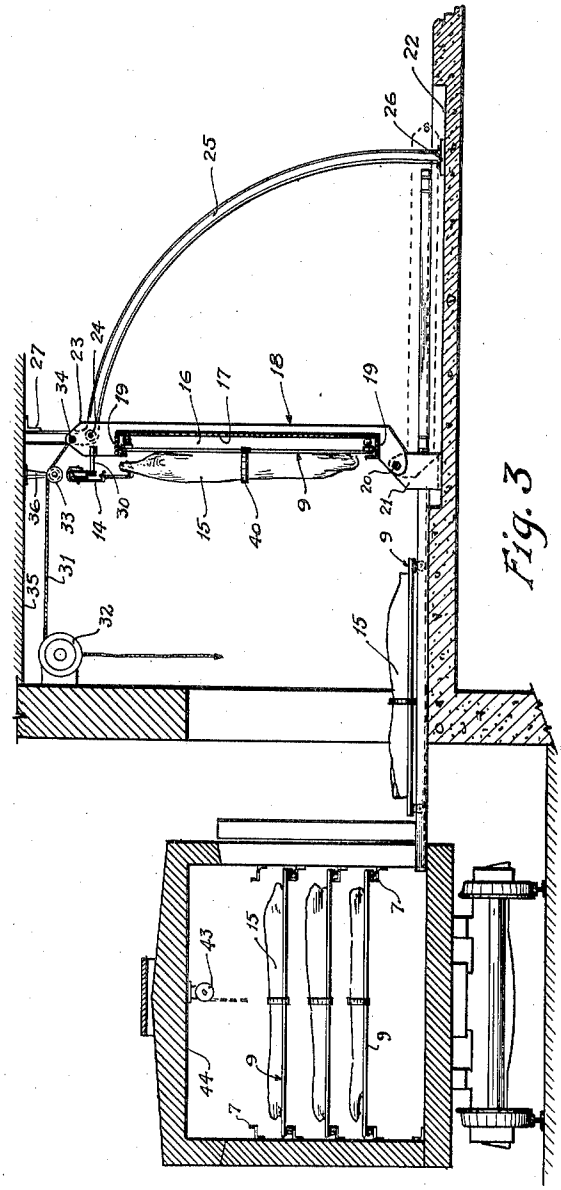

Fig. 3

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ARTICLE HANDLING MEANS

Filed Jan. 2, 1940 4 Sheets-Sheet 3

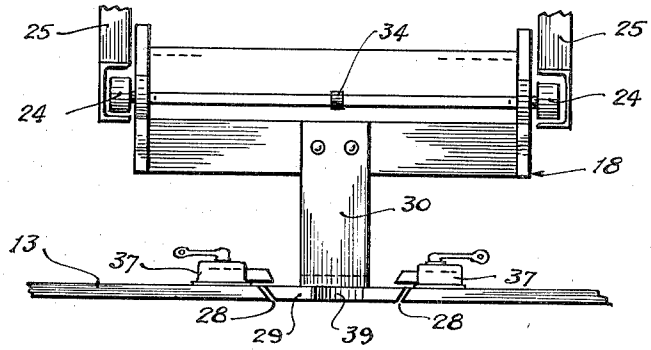

Fig. 6

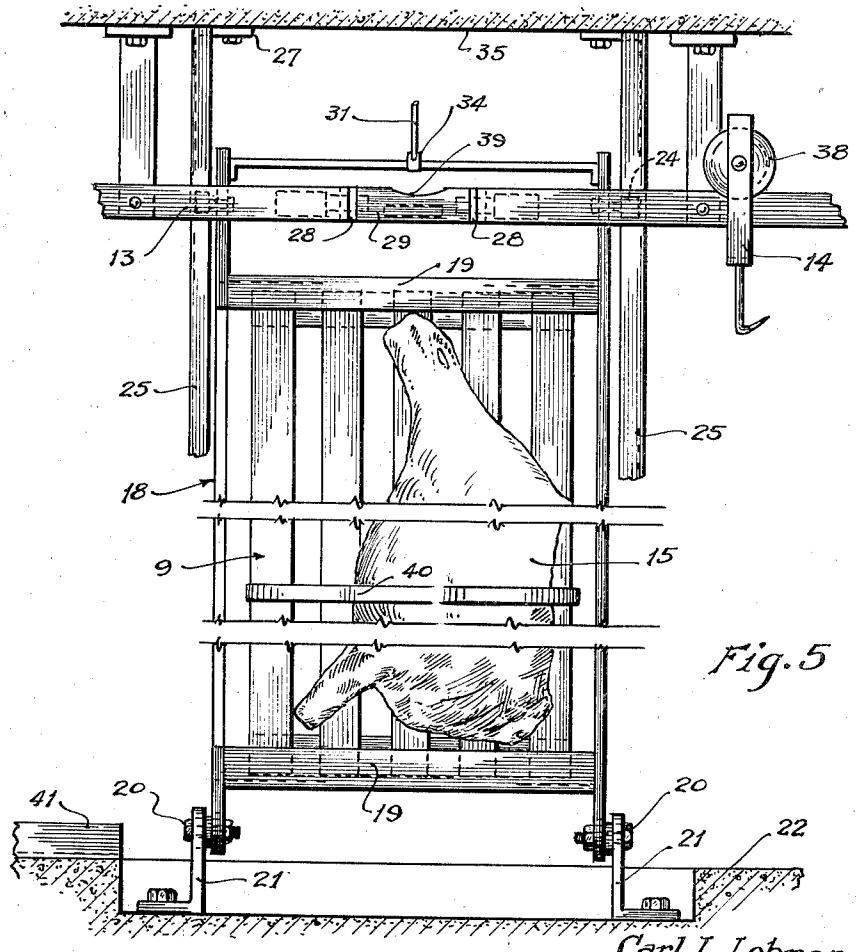

Fig. 5

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ARTICLE HANDLING MEANS

Filed Jan. 2, 1940 4 Sheets-Sheet 4

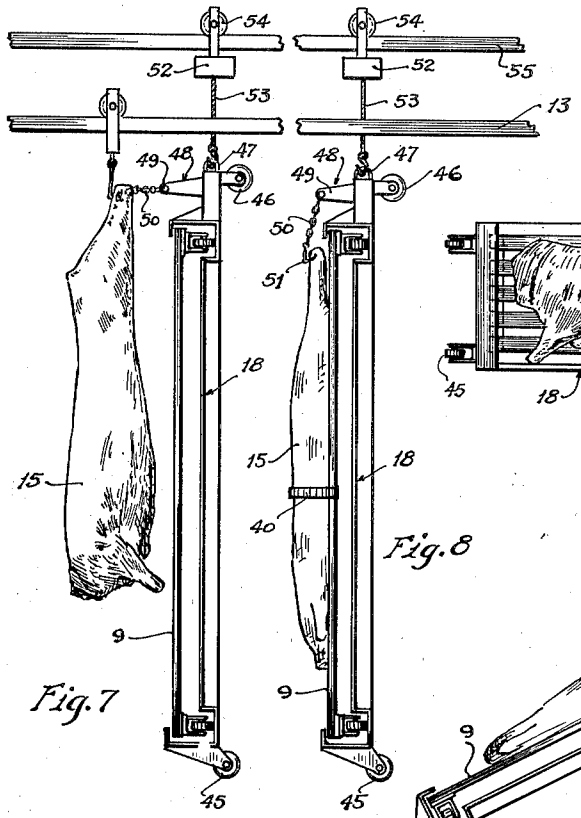

Fig. 7

Fig. 8

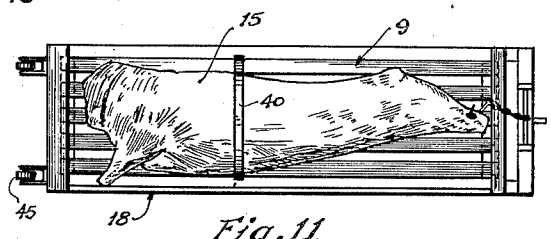

Fig. 11

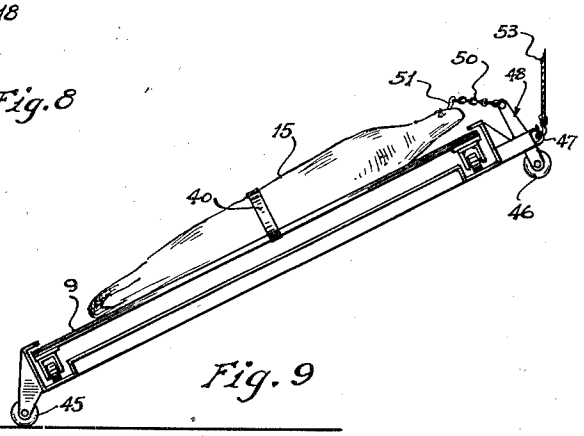

Fig. 9

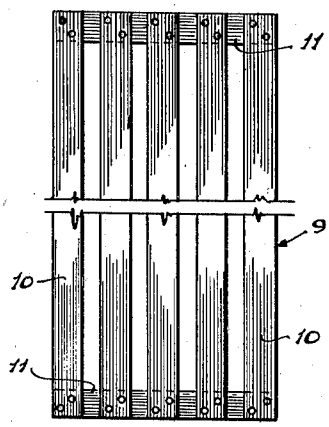

Fig. 12

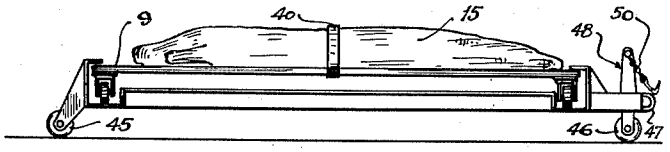

Fig. 10

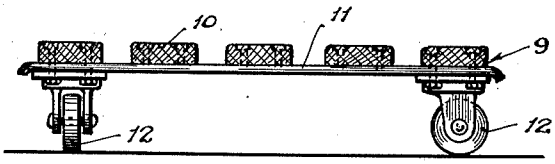

Fig. 13

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Patented Mar. 25, 1941

2,236,103

UNITED STATES PATENT OFFICE

2,236,103

ARTICLE HANDLING MEANS

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Application January 2, 1940, Serial No. 312,165

8 Claims. (Cl. 214—38)

This invention relates to an improved article handling means.

By way of illustration but not by way of limitation, the invention will be described in the handling of whole sides of meat carcasses, particularly beef carcasses.

According to conventional abattoir practice, the split half or whole side of a freshly killed beef carcass is vertically hung, that is, it is suspended at its hind leg and from an overhead trolley, within a refrigeration chamber, whence it is thoroughly chilled and so maintained until being routed to the consumer trade.

Beef sides that are shipped to distant points are ribbed or quartered to facilitate their handling and because of necessity due to the height of the conventional refrigerator car. Such handling brings about considerable loss to the packer because of trimming by reason of desiccation and discoloration, adjacent the cut surfaces of the ribbed sides.

It is possible to ship whole sides in conventional refrigerator cars by handling on specially prepared racks placed transversely of the refrigerator cars. The transfer of the beef sides from the trolley hanger to the racks to be handled horizontally, however, is fraught with difficulty. In the first place, the sides, due to their weight and shape, are difficult to handle and in the second place, the backbone is easily broken with the result, the side brings a lower price in wholesale market.

Accordingly, one of the objects of the invention is to provide an improved means for transferring the vertically suspended article onto the horizontal support.

Other objects of the invention will be apparent from the description and claims which follow.

The use of the device of the present invention involves vertically raising the horizontal support adjacent one side surface of the vertically suspended article, transferring suspension of the article to the support and thereafter, substantially pivotally lowering the support with the supported article thereon to a horizontal position.

For a better understanding of the present invention, reference is had to the accompanying drawings in which like characters of reference are used to designate similar elements.

Figure 1 is a side sectional view showing one end of a refrigerator car equipped for mounting horizontally a supporting means with a beef carcass side thereon.

Figure 2 is a transverse sectional view of the refrigerator car shown in Figure 1.

Figure 3 is a side elevational view of one embodiment of the article handling means of the present invention.

Figure 4 is a top plan view of Figure 3.

Figure 5 is an enlarged detail front view of the article handling means shown in Figure 3.

Figure 6 is a plan view showing the upper part of the article handling means shown in Figure 5.

Figures 7, 8, 9 and 10 are side views showing a modified form of the article handling means of the present invention.

Figure 11 is a plan view of Figure 10.

Figure 12 is an enlarged plan view, partly broken away, showing the supporting platform.

Figure 13 is an end view of the platform shown in Figure 12.

The refrigerator car shown in Figures 1 and 2 comprises conventional end walls 1, side walls 2 provided with side openings 3, bottom 4, top 5 and end ice bunkers 6. Vertically spaced trolley rails 7 are rigidly secured as by brackets 8 in corresponding relationship against opposite side walls 2. Rail portions 7 traversing openings 3 are removable.

Platform 9, shown in detail in Figures 12 and 13, comprises a series of spaced beams 10 rigidly secured as a unit, as by cross members 11, and mounted at each of its ends on swivel rollers 12. Platforms 9 are adapted for horizontal mounting within the refrigerator car in the manner shown in dotted lines in Figure 2, in which it is seen that rollers 12 engage trolley rails 7 and provide roller movement of platforms 9 between openings 3 and the ends of the car.

Figures 3 and 5 show a conventional overhead trolley rail 13 and trolley hanger 14 from which is suspended a whole side 15 of a beef carcass. According to the invention, the supporting surface of platform 9 is raised to a vertical position relative to the bone side of side 15 whence the suspension of side 15 is transferred relative to platform 9 and thereafter platform 9 with side 15 supported thereon is lowered to a horizontal position.

As shown in Figure 3, platform 9 is slidably inserted within void 16 in the surface 17 of rack 18. Platform 9 is fixedly supported within void 16 and between the ends of rack 18 as by angle brackets 19 rigidly secured adjacent the ends of void 16. Rack 18 is pivoted, as at 20, to uprights 21 rigidly secured in any suitable manner to floor 22. Rack 18 adjacent its free end 23 is provided with lateral guide posts or rollers 24 slid-

able within grooved tracks 25. Tracks 25 are circular and are rigidly secured concentrically with pivot 20. Tracks 25 are rigidly affixed at their base ends as by angle brackets 26 rigidly affixed in any suitable manner to floor 22 and at their raised ends, as by angle brackets 27, against ceiling 35.

As shown in Figure 5, rail 13 within the area of rack 18 is provided with void 28 in which may be fitted, trolley rail segment 29, which is rigidly affixed, as by arm 30, adjacent the free end of the supporting surface of rack 18. Lifting cable 31 controlled by lifting means 32 travels over pulley 33 and is rigidly secured to the free end of rack 18, as at 34. Pulley 33 is suspended from ceiling 35 as by bracket 36.

Rack 18 normally is in a horizontal position. Upon suitable power from a source not shown being applied to lifting means 32 and through the medium of cable 31, rack 18 with platform 9 inserted therein is pivoted as at 20 to a vertical position as shown in Figure 3. In this position, trolley segment 29 is automatically fitted within void 28 of trolley rail 13. Through the medium of latches 37, rack 18 is temporarily, automatically locked in a vertical position. Latches 37 are bolted or otherwise rigidly secured against trolley rail 13 and to either side of void 28.

With rack 18 and platform 9 locked in a vertical position, beef side 15 through the medium of trolley hanger 14 may then be rolled onward on trolley track 13 onto trolley segment 29 whence roller 38 of trolley hanger 14 will seat within depression 39 provided in the trolley edge of trolley segment 29. At this point, beef side 15 is immediately adjacent the supporting surface of platform 9 and if desired, may be further fixedly secured to platform 9, as by passing strap 40 thereabout.

Rack 18 now supporting platform 9 together with beef side 15, is ready to be lowered to a horizontal position. This is accomplished by release of latches 37 and normal gravity movement of rack 18. To this end, lifting means 32 should be provided with suitable drag means to compensate for the load weight of rack 18. Following lowering of rack 18 with platform 9 and beef side 15 thereon, trolley hanger 14 may then be easily removed first from the rail segment 29 and thence from the hind leg portion of side 15. Thereafter, platform 9 with beef side 15 thereon may be rolled sidewise from rack 18 onto aligned tracks 41, thence onto tracks 42 and into the refrigerator car as shown in Figures 3 and 4.

Within the refrigerator car, conventional block and fall hoist 43, fixedly attached to ceiling 44, may be used for lifting platform 9 with its supported beef side 15 relative to the desired trolley rails 7, whence it may be pushed rearwardly into the car.

In the modified form of the article handling means illustrated in Figures 7 to 11, inclusive, rack 18 is provided at one end with forwardly extended rollers 45 and at its opposite end with rollers 46, lifting eye 47 and suspension means 48. Suspension means 48 comprises bracket 49 rigidly secured to rack 18, chain 50 and hook 51. In the use of this form of the invention, rack 18 is raised to a vertical position as by lifting means 52 through the medium of cable 53 rigidly secured within lifting eye 47. Lifting means 52 is mounted as by roller 54 onto trolley rail 55 directly above trolley rail 13. Following raising of rack 18 relative to the bone surface of beef side 15, hook 51 is inserted within the hind leg of beef side 15 and thereafter, suspension of beef side 15 is manually transferred from trolley hanger 14 to suspension means 48. Rack 18 together with platform 9 and beef side 15 then is lowered to a horizontal position in the manner shown in Figures 8, 9 and 10, whence hook 51 may be removed from the hind leg of carcass 15. Thereafter, platform 9 together with the beef side supported thereon may be removed from rack 18 for horizontal handling in any suitable manner.

We claim:

1. In combination with means for vertically suspending an article, transfer means comprising a truck providing a supporting surface and mounted upon trolley wheels, a rack adapted to fixedly mount the truck, the rack at one end being provided with surface engageable means and at its opposite end with a lifting means, the lifting means being operable in one movement to pivot the rack and truck mounted thereon from a horizontal position to a vertical position whereby the supporting surface of the truck and one surface of the suspended article may be brought adjacent one another and suspension of the suspended article transferred to the truck surface, and in a second movement to pivot the rack and mounted truck and article from their vertical position to a horizontal position whereby upon release of the truck from the rack the article may be handled horizontally thereon.

2. In combination with means for vertically suspending an article, transfer means comprising a platform providing a supporting surface, a rack provided with means for fixedly mounting the platform, between its ends, the rack at one end being pivoted to a fixed surface and at its free end provided with lifting means, the lifting means being operable in one movement to pivot the rack and platform mounted thereon from a horizontal position to a vertical position whereby the supporting surface of the platform and one surface of the suspended article may be brought adjacent one another and suspension of the article transferred to the platform surface, and in a second movement to pivot the rack and mounted platform and article from their vertical position to a horizontal position whereby upon release of the platform from the rack the article may be handled horizontally thereon.

3. In combination with means for vertically suspending an article, transfer means comprising a platform providing a supporting surface, a rack provided with means for fixedly mounting the platform between its ends, the rack at one end being pivoted to a fixed surface and at its free end provided with lifting means, lateral guide means adjacent the free end of the rack and circular guide rails concentric with the rack pivot and mounting the lateral guide means, the vertical suspension means being operable in one movement to pivot the rack and platform mounted thereon from a horizontal position to a vertical position whereby the supporting surface and one surface of the suspended article may be brought adjacent one another and suspension of the suspended article transferred to the platform surface and in a second movement to pivot the rack and mounted platform and article from their vertical position to a horizontal position whereby upon release of the platform from the rack the article may be handled horizontally thereon.

4. In combination with an overhead trolley rail having an intermediate void and a trolley hanger thereon, transfer means comprising a truck mounted upon trolley wheels and providing a supporting surface, a rack provided with means for fixedly mounting the truck intermediate its ends, the rack at one end being pivoted to a fixed surface for pivotal movement vertically relative to the rail, and at its free end provided with lifting means, lateral guide means adjacent the free end of the rack, circular guide rails concentric with the rack pivot and mounting the lateral guide means, and a trolley segment rigidly secured adjacent the free end and transversely of the rack, the trolley segment being adapted to fit within the void of the trolley rail and to form a continuous rail therewith.

5. In combination with an overhead trolley rail having an intermediate void and a trolley hanger thereon, transfer means comprising a truck mounted upon trolley wheels and providing a supporting surface, a rack provided with means for fixedly mounting the truck intermediate its ends, the rack at one end being pivoted to a fixed surface for pivotal movement vertically relative to the rail, and at its free end provided with lifting means, lateral guide means adjacent the free end of the rack, circular guide rails concentric with the rack pivot and mounting the lateral guide means, a trolley segment rigidly secured adjacent the free end and transversely of the rack, the trolley segment being adapted to fit within the void of the trolley rail and to form a continuous rail therewith for transfer of the trolley hanger and a supported article from the trolley rail to the trolley segment, the trolley segment being provided with a depression in its trolley edge to withhold movement of the trolley hanger thereon.

6. In combination with an overhead trolley rail having an intermediate void and a trolley hanger thereon, transfer means comprising a truck mounted upon trolley wheels and providing a supporting surface, a rack provided with means for fixedly mounting the truck intermediate its ends, the rack at one end being pivoted to a fixed surface for pivotal movement vertically relative to the rail, and at its free end provided with lifting means, lateral guide means adjacent the free end of the rack, circular guide rails concentric with the rack pivot and mounting the lateral guide means, and a trolley segment rigidly secured adjacent the free end and transversely of the rack, the trolley segment being adapted to fit within the void of the trolley rail and to form a continuous rail therewith for transfer of the trolley hanger and a supported article from the supported rail to the trolley segment, and latch means rigidly secured to the trolley rail and to either side of the trolley void for fixedly securing the trolley segment rail during transfer of the trolley hanger and supported hanger from the trolley relative to the trolley segment.

7. In combination with an overhead trolley rail having an intermediate void and a trolley hanger thereon, transfer means comprising a truck mounted upon trolley wheels and providing a supporting surface, a rack provided with means for fixedly mounting the truck intermediate its ends, the rack at one end being pivoted to a fixed surface for pivotal movement vertically relative to the rail, and at its free end provided with lifting means, lateral guide means adjacent the free end of the rack, circular guide rails concentric with the rack pivot and mounting the lateral guide means, and a trolley segment rigidly secured adjacent the free end and transversely of the rack, the trolley segment being adapted to fit within the void of the trolley rail and to form a continuous rail therewith for transfer of the trolley hanger and a supported article from the supported rail to the trolley segment, latch means rigidly secured to the trolley rail and to either side of the trolley void for fixedly securing the trolley segment rail during transfer of the trolley hanger and supported hanger from the trolley relative to the trolley segment, and a depression in the trolley edge of the trolley segment withholding movement of the trolley hanger thereon.

8. In combination with means for vertically suspending an article, transfer means comprising a platform, a rack provided with means for mounting the platform between its ends and adjacent one surface thereof rollers supporting the opposite surface of the rack, the roller at one end of the rack being extended forwardly of the rack, the rack at its opposite end being provided with a lifting means and adjacent the same end being provided with hanger means for suspending an article against the supporting surface of the platform mounted on the rack, the lifting means in one movement being operable to vertically raise the rack and platform mounted thereon whereby the supporting surface of the platform and one surface of the suspended article may be brought adjacent one another and suspension of the article transferred to the platform surface and in the second movement to lower the rack and supported platform and article to a horizontal position for release of the platform and article from the rack.

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