Sept. 2, 1924. 1,506,907

A. J. JACKSON

ICE HANDLING CAR

Filed June 3, 1921 9 Sheets-Sheet 1

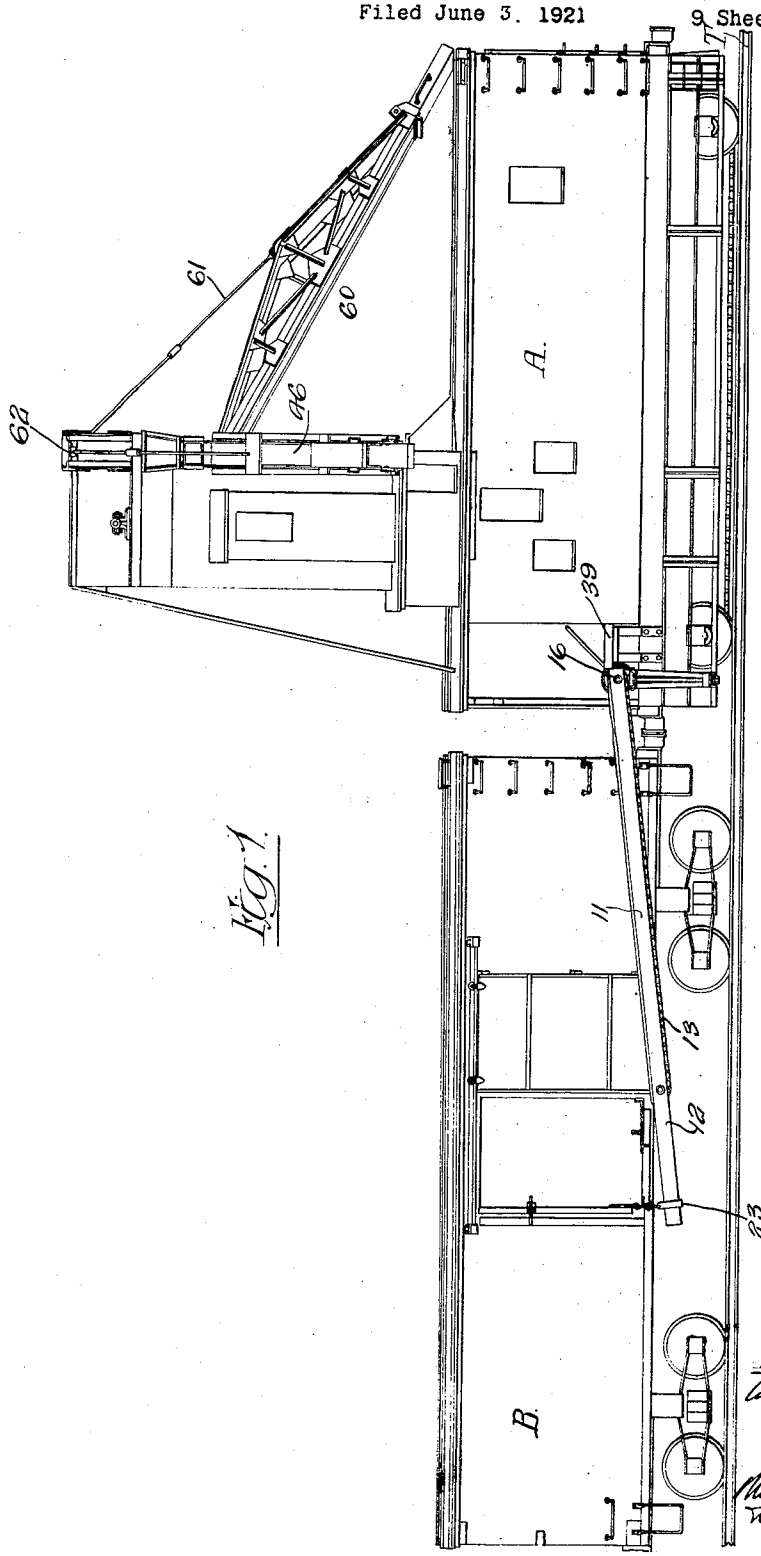


Fig. 1.

Inventor:
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Reynolds Clarke
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ICE HANDLING CAR

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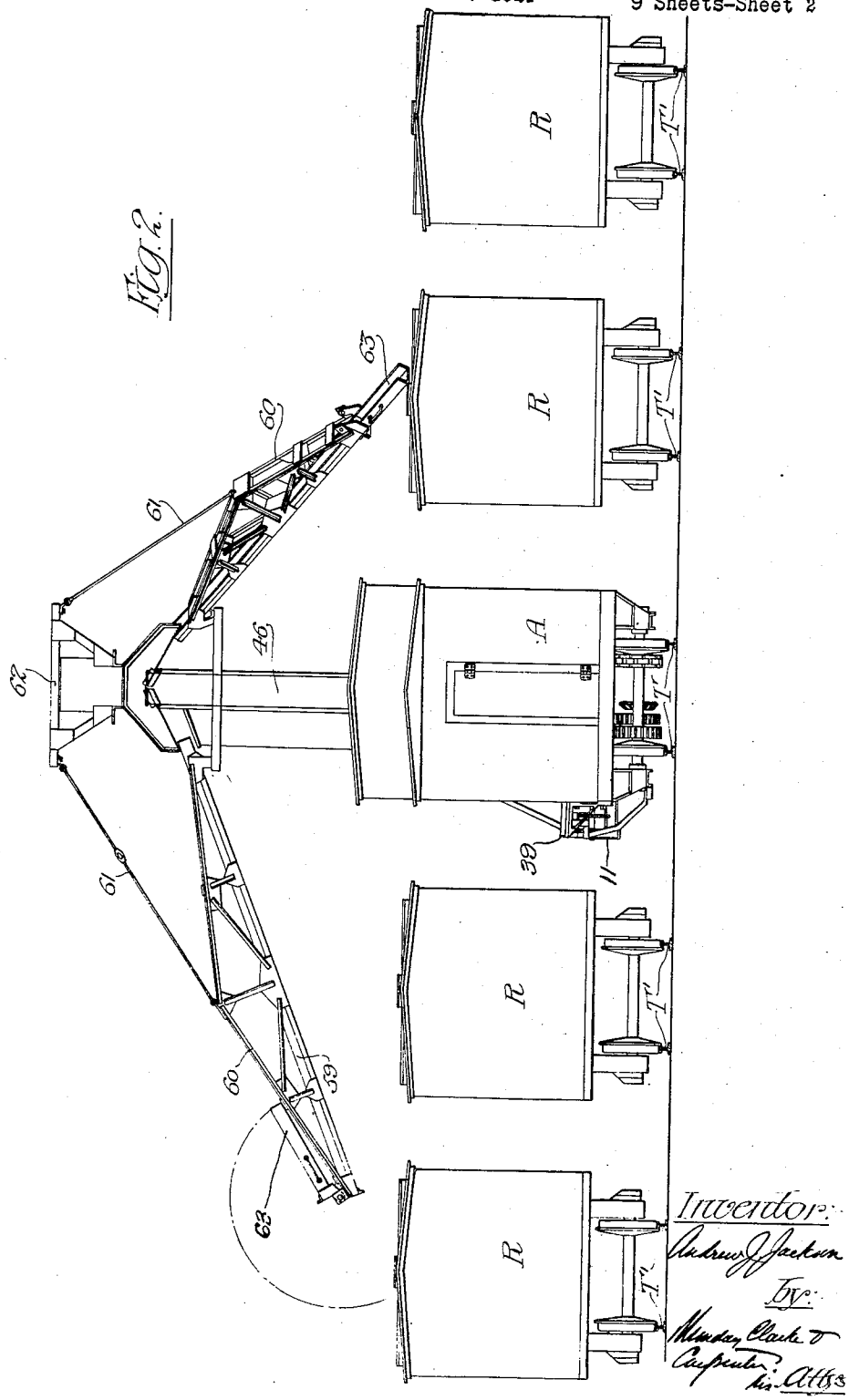


Fig. 2.

Inventor:
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A. J. JACKSON

ICE HANDLING CAR

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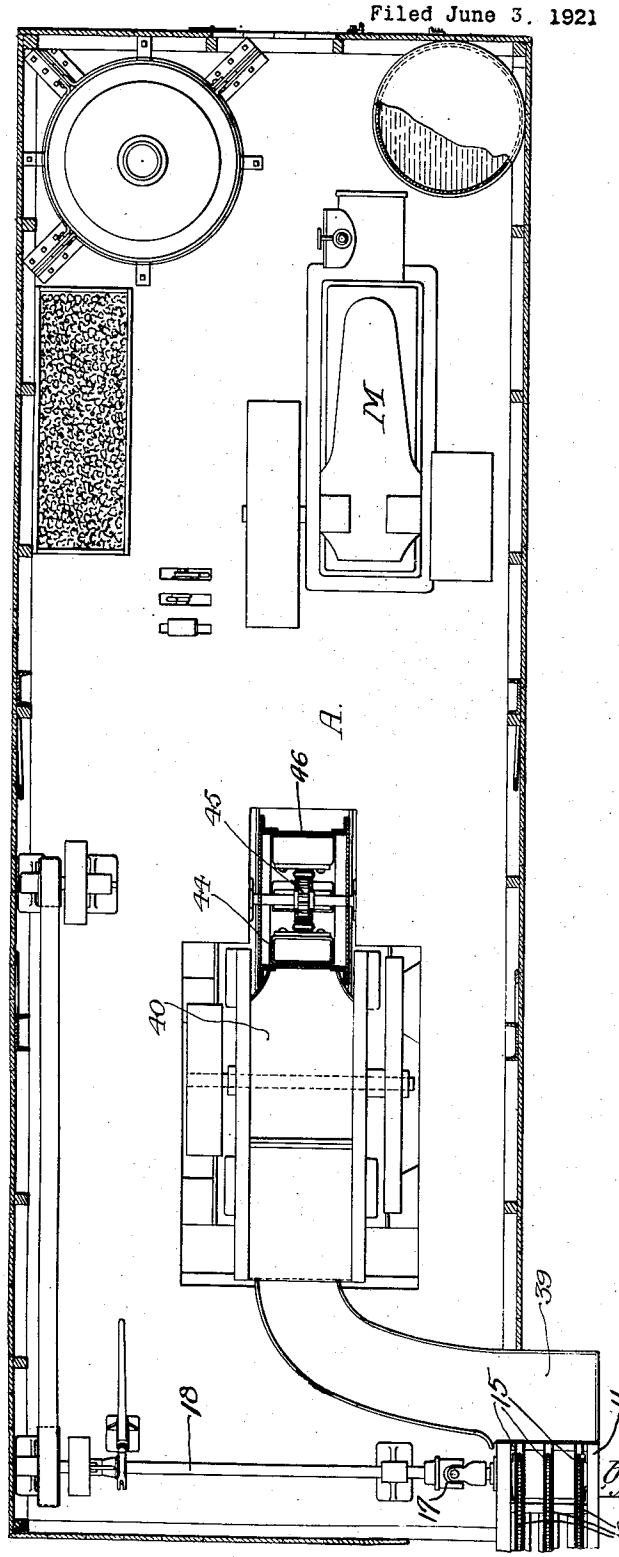


FIG. 3.

Inventor:-
Andrew J. Jackson
By:- Munday Clarke & Carpenter
His Attys:-

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A. J. JACKSON

ICE HANDLING CAR

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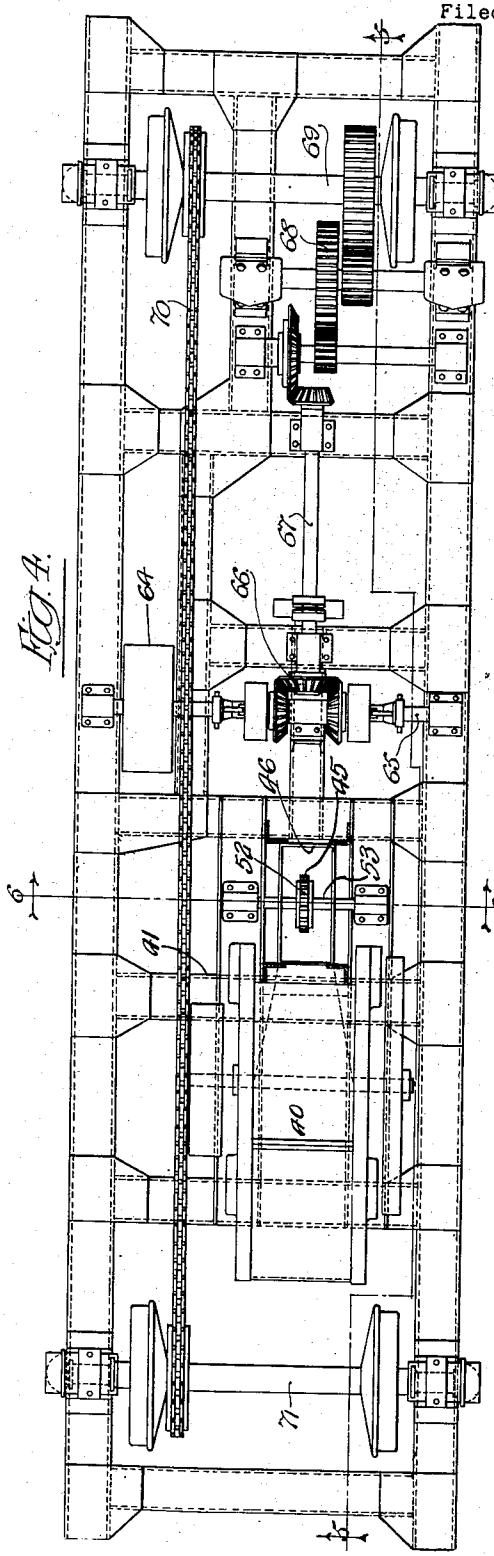


Fig. 4.

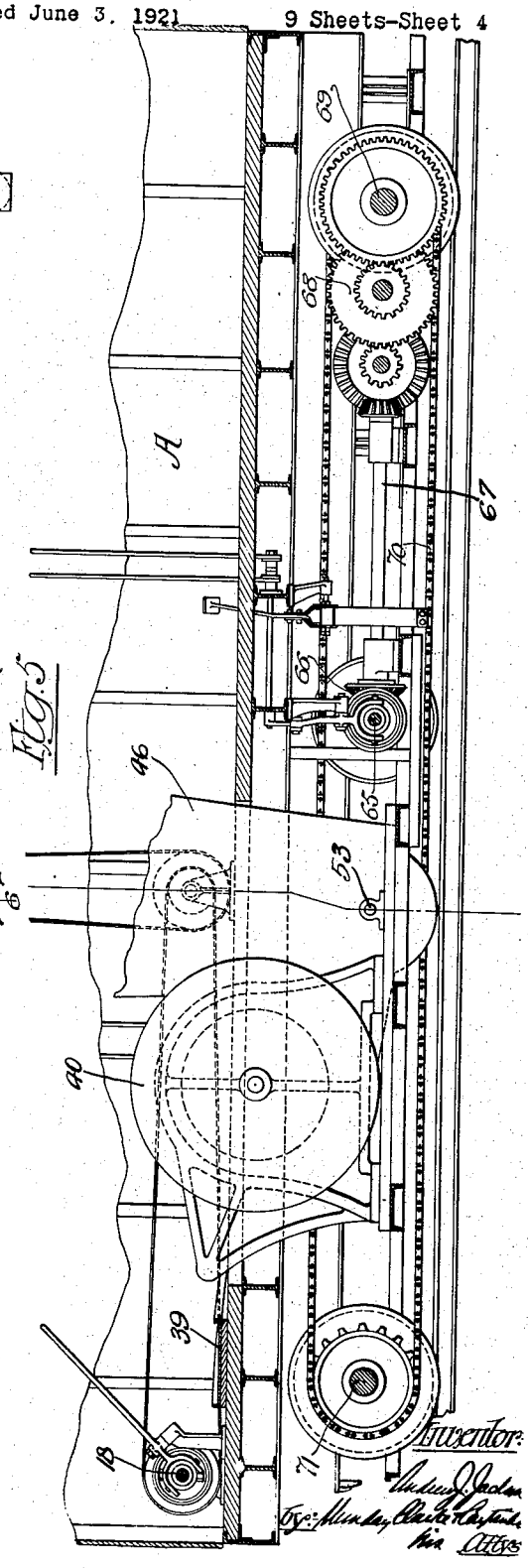


Fig. 5.

Inventor:
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Sept. 2, 1924. 1,506,907

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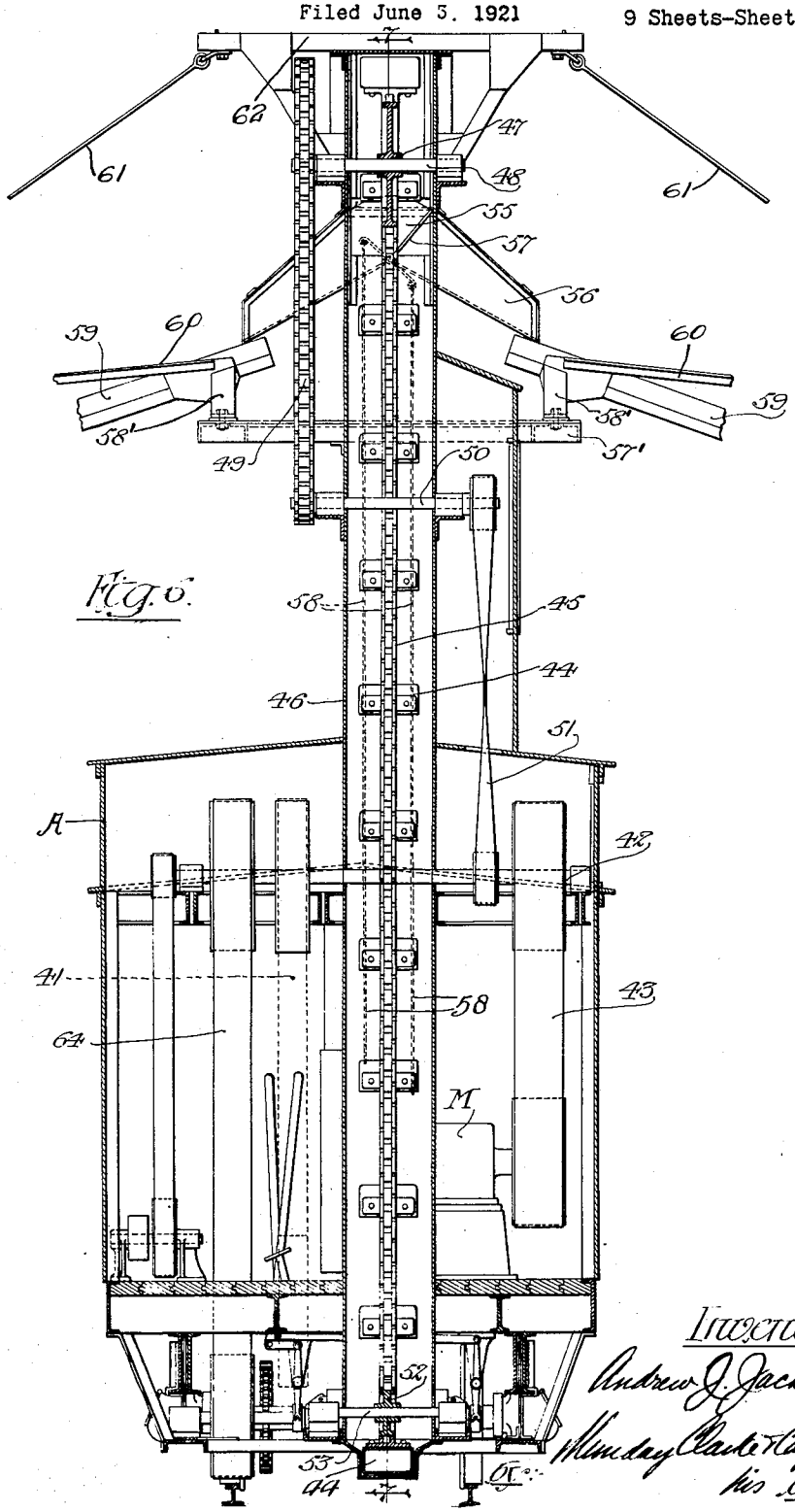


FIG. 6.

Inventor:
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his Attys.

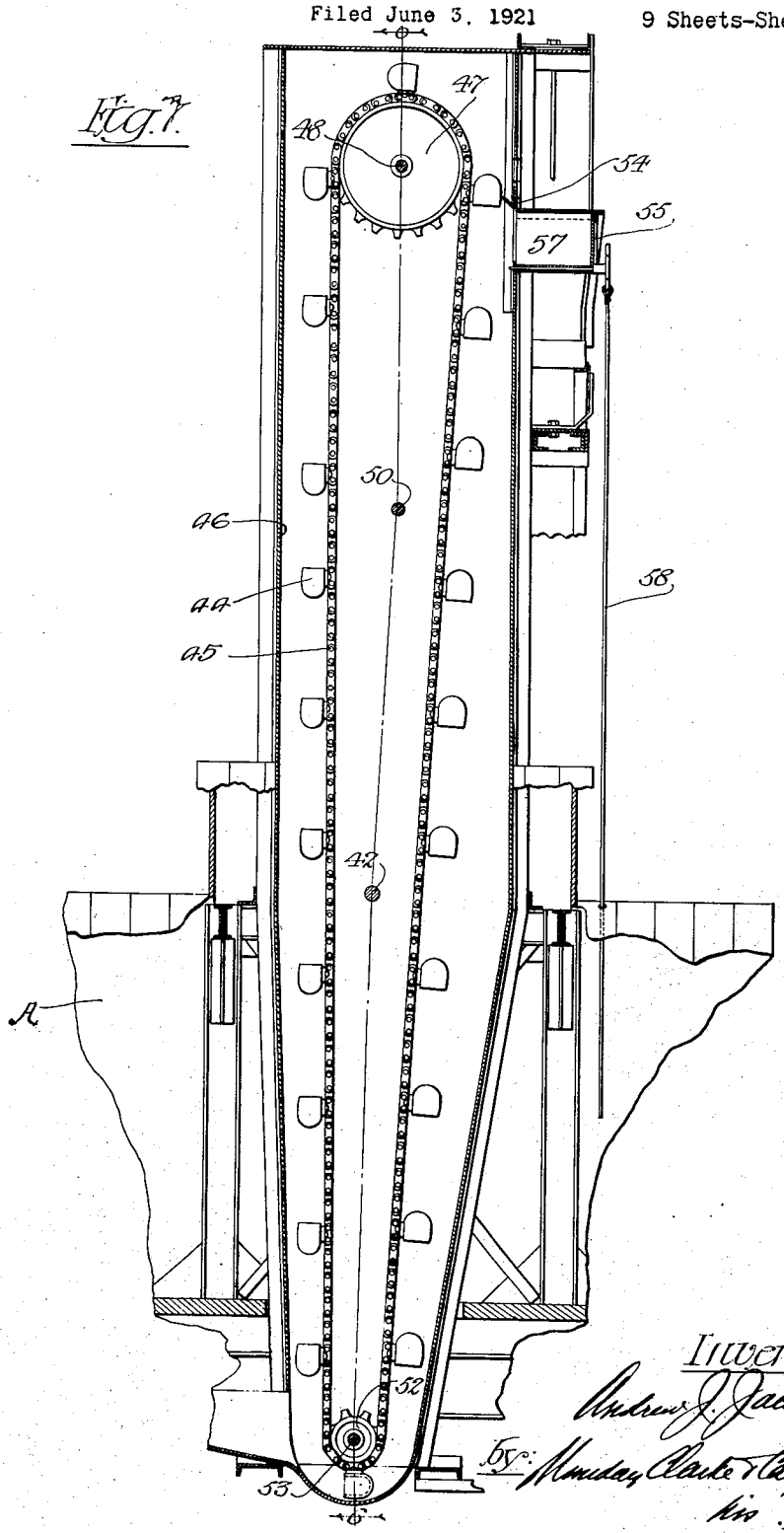
Sept. 2, 1924. 1,506,907

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ICE HANDLING CAR

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Fig. 7.



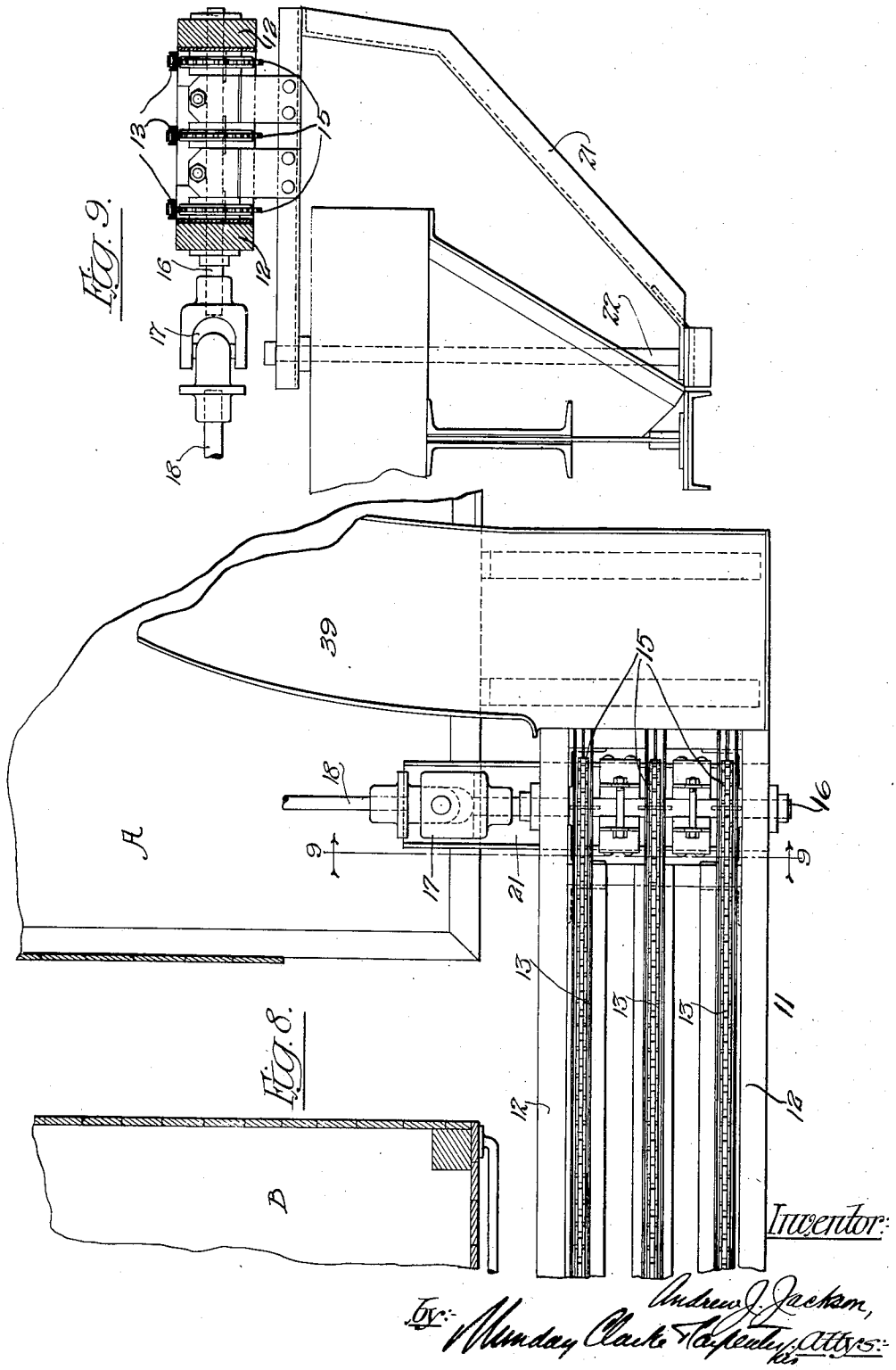
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Sept. 2, 1924. 1,506,907

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ICE HANDLING CAR

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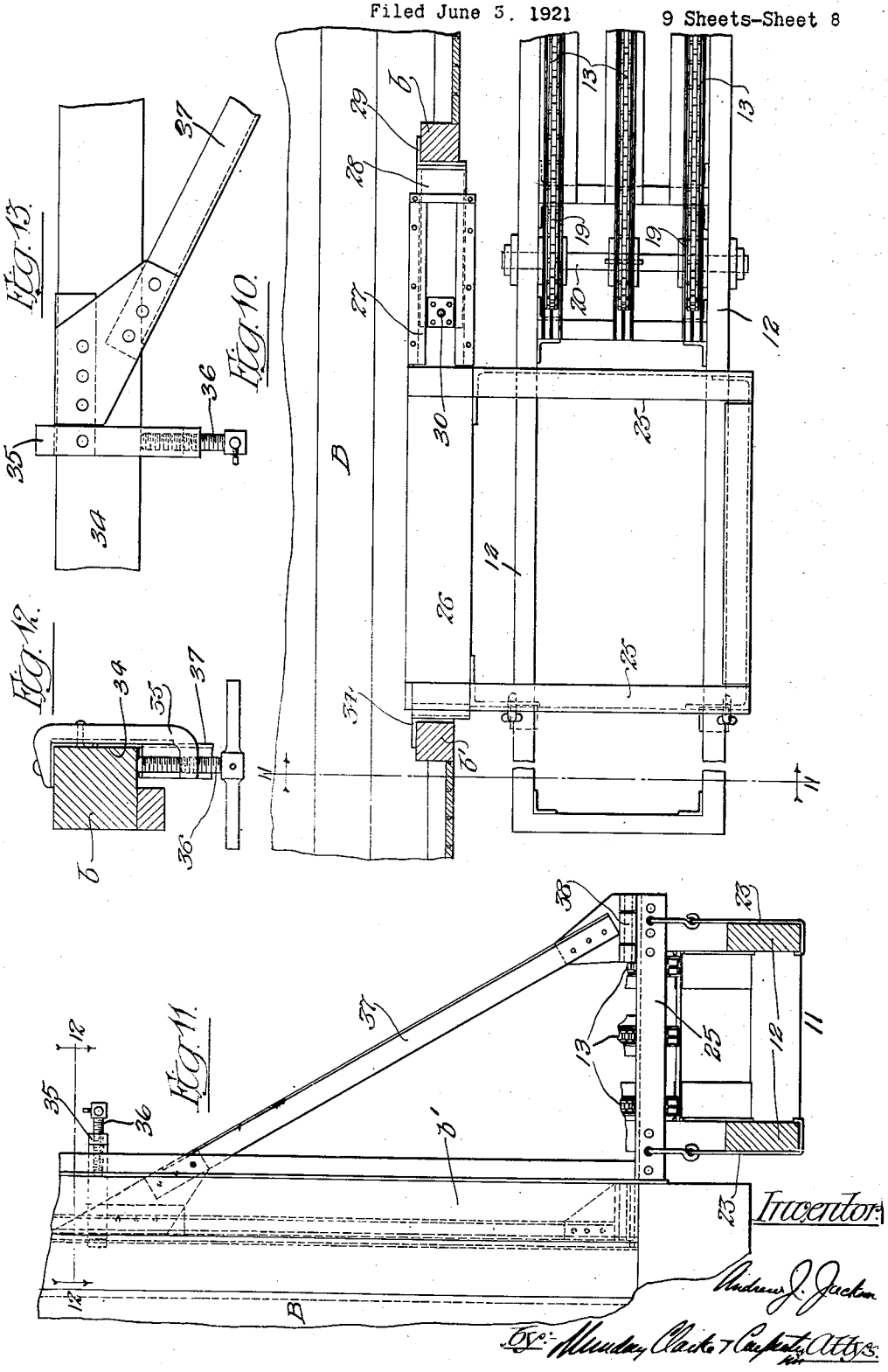


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A. J. JACKSON

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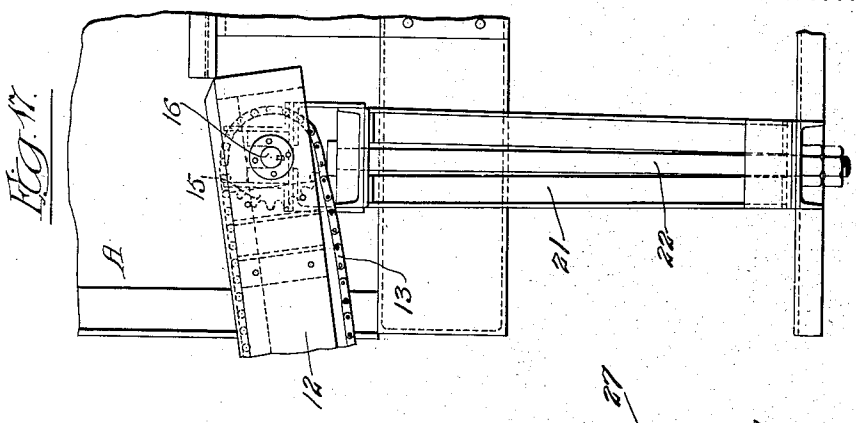


FIG. 17.

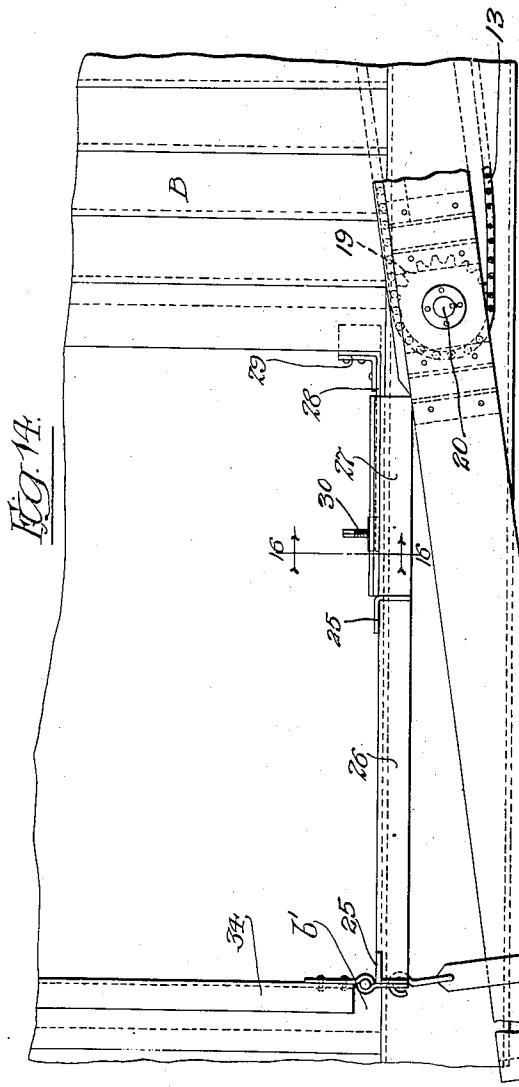


FIG. 14.

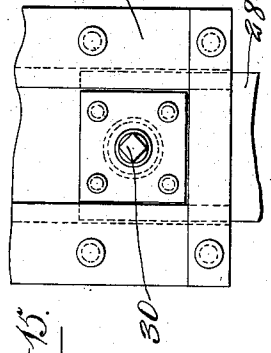


FIG. 15.

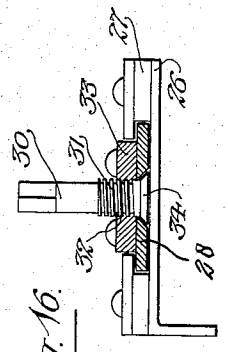


FIG. 16.

Inventor:
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His Attys.

Patented Sept. 2, 1924. 1,506,907

UNITED STATES PATENT OFFICE.

ANDREW J. JACKSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE ALLBRIGHT-NELL COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

ICE-HANDLING CAR.

Application filed June 3, 1921. Serial No. 474,830.

To all whom it may concern:

Be it known that I, ANDREW J. JACKSON, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Ice-Handling Cars, of which the following is a specification.

The object of this invention is to provide an ice handling and distributing car having provision for receiving ice in block form from ordinary railway box cars, and for feeding the blocks of ice to a crusher in which the ice is converted to relatively small pieces, combined with conveyer mechanism for feeding the crushed ice to a delivery trough or troughs through which the ice may be fed directly from the car in which it is crushed either to one or simultaneously to a plurality of refrigerator cars. The ice handling and distributing car of the present invention is further characterized by a capability of being propelled by its own power from place to place, whereby it may be moved successively to fill the ice compartments of refrigerator cars stationed, for example, in different parts of a railway switch yard, thereby eliminating the necessity of moving each refrigerator car to a central icing station. The invention is of particular utility for service in establishments handling large quantities of perishable articles, such as food and meat products, for example in the yards of large packing houses which ship daily many carloads of products requiring transportation in refrigerator cars.

In addition to the general objects recited above, the invention has for further objects such other improvements and advantages in construction and operation as are found to obtain in the structures and devices hereinafter described or claimed.

In the accompanying drawings forming a part of this specification and showing, for purposes of exemplification, a preferred form and manner in which the invention may be embodied and practiced, but without limiting the claimed invention specifically to such illustrative instance or instances:

Figure 1 is a side elevational view, showing the ice handling car coupled with an ordinary railway box car, and in position for receiving blocks of ice from the box car;

Fig. 2 is an end elevational view showing the ice handling car stationed between parallel tracks on which are stationed refrigerator cars in position for receiving ice from the ice handling car;

Fig. 3 is a horizontal section and plan view of the interior of the ice handling car;

Fig. 4 is a plan view of a frame work and gearing for driving the various parts and instrumentalities of the ice handling car;

Fig. 5 is a longitudinal vertical sectional elevation taken in planes indicated by the line 5—5 of Fig. 4;

Fig. 6 is a transverse vertical sectional elevation of the ice handling car taken in a plane indicated by the line 6—6 of Fig. 4;

Fig. 7 is a vertical section of the conveyer for elevating the ice from the crusher to the distributing chutes, taken in a plane indicated by the line 7—7 of Fig. 6;

Fig. 8 is a plan view of the delivery end of the ice skid for feeding the blocks of ice into the ice handling car;

Fig. 9 is a vertical section of the same taken in a plane indicated by the line 9—9 of Fig. 8;

Fig. 10 is a plan view of the receiving end of the ice skid, showing the device for supporting the receiving end of the ice skid in juxtaposition with the side door of an ordinary box car;

Fig. 11 is a vertical section taken in a plane indicated by the line 11—11 of Fig. 10;

Fig. 12 is a detailed horizontal section taken in a plane indicated by the line 12—12 of Fig. 11;

Fig. 13 is another detailed view of a portion of the supporting device for the receiving end of the ice skid;

Fig. 14 is a fragmentary side elevational view of the receiving end of the ice skid, showing the ice skid connected to the side door frame of a railway box car;

Fig. 15 is a fragmentary plan view of a portion of the supporting and connecting device for the ice skid;

Fig. 16 is a vertical section taken in a plane indicated by the line 16—16 of Fig. 14; and,

Fig. 17 is a side elevation of the delivery end of the ice skid.

The same characters of reference designate the same parts in each of the several views of the drawings.

Referring more particularly to Figs. 1 and 2, there is shown an ice handling car A adapted to move along a railway track T and having at its rear end a coupler, of ordinary type, for coupling the ice handling car A with an ordinary railway box car B, from which the blocks of ice contained in the car B are transferred to the ice handling car A for crushing and subsequent delivery to the refrigerator cars R which may be stationed on tracks T' parallel with the track T, as shown in Fig. 2. The mechanism for transferring the blocks of ice from the car B to the ice handling car A comprises an ice skid 11 constructed of longitudinal frame members 12 which support a plurality of conveyor chains 13 that pass, at the delivery end of the skid, over sprockets 15. The sprockets 15 are mounted on the ice skid drive shaft 16 that is adapted to be coupled, by means of a flexible coupling 17 with a shaft 18 driven by the motor M (Figs. 3 and 6) of the ice handling car A (Fig. 3), through the medium of suitable power connections. At the receiving end of the ice skid 11 the conveyer chains 13 pass over idler sprockets 19 mounted on a shaft 20 supported in the frame work of the skid.

As shown in Fig. 9, the delivery end of the ice skid is supported by a bracket frame 21 mounted for swinging movement on a vertical rod 22 supported by the car frame work, whereby the bracket frame 21 may be swung against the side of the car A and the skid 11 swung into vertical position, against the side of the car, in moving the car from place to place. When in the operative position shown in the drawings, the receiving end of the skid 11 is supported by hooks 23 (Fig. 11) depending from the horizontal frame of the device for connecting the receiving end of the skid with the side doorway of box car B. The supporting device comprises a horizontal frame 25 adapted to extend laterally from the sill of the side door opening of the box car B and including a frame member 26 which is positioned over the door sill and is provided at one end with a slideway 27. Movable within the slideway 27 is an extension 28 (Fig. 10) of the longitudinal frame member 26, said extension 28 having at its outer extremity an angle iron 29 for engaging respectively the inner and side vertical faces of the door post *b* of the box car. When the extension member 28 has been moved to such clamping position, it may be secured against slipping by means of a clamping bolt 30 (Figs. 14 to 16) having a squared upper end and a screw threaded shank 31 which engages a threaded socket 32 formed in a member 33 secured to the extension 28. At its lower end the bolt 30 is provided with a head 34, which, on tightening the bolt, grips the extension 28 to the main longitudinal member 26 of the horizontal frame. The supporting device is secured to the opposite door post *b'* by means of a vertical angle bar 34 hinged at its lower end to the horizontal frame of the supporting device and adapted to be fitted against the inner and side faces of the post *b'*. In order to prevent slipping the vertical bar 34 is provided near its upper end with a clamping member 35 (Figs. 11 to 13) including a screw threaded bolt 36 provided with an operating handle and adapted to be advanced into engagement with the outer face of the post *b'*. Preferably the supporting device is braced by a diagonal bar 37 connected at its upper end with the bar 34 and having, at its lower end, a hinged connection 38 with the horizontal frame of the supporting device. When the supporting device has been removed from position in the door opening of the box car opening B, the members 37 and 34 may be folded over the horizontal frame and the supporting device conveniently carried in the ice handling car.

The blocks of ice deposited at the receiving end of the ice skid 11, from the car B, are carried by said skid and delivered thereby to an ice chute 39, in which the blocks of ice travel, by gravity, into the crusher 40 within the ice handling car A. The crusher 40 may be of any preferred type adapted to reduce the chunks or blocks of ice to relatively small pieces, and is driven by a driving belt connection 41 (Fig. 6) with the power shaft 42, the latter having a driving belt connection 43 with the motor or engine M.

From the crusher 40 the ice, reduced to relatively small pieces, discharges into the upwardly travelling buckets 44 of an endless conveyer 45. The endless conveyer 45 is enclosed within a vertical casing 46 which extends beyond the roof of the ice handling car A, and at the top, the chain or belt of the conveyer passes over a drive sprocket 47 (Fig. 6) mounted on a shaft 48. The shaft 48 has a sprocket and chain connection 49 with a countershaft 50 and the latter is driven by a belt connection 51 from the power shaft 42. The bottom of the chain of the conveyer passes around an idler sprocket 52 mounted on a shaft 53.

The upwardly travelling buckets 44 of the endless conveyer 45 serve to elevate the crushed ice above the roof of the ice handling car A, and as the buckets 44 pass over the sprocket 47, the ice is discharged on to a deflector 54 (Fig. 7), over which the ice passes into a trough 55 having oppositely extending downwardly inclined spouts 56. Pivotally mounted within the trough 55, at the top of the spouts 56 is a gate 57 con-

trolled by pulls 58 extending downwardly into the ice handling car. By operating the pulls 58, the gate 57 may be moved into positions for shutting off either of the spouts 56 from communication with the trough 55, when it is desired to discharge ice from only one of said spouts, or may be moved to a vertical neutral position for permitting ice to discharge simultaneously into both of said spouts 56.

Supported by the vertical casing 46 below the trough 55 and spouts 56, is a horizontal frame 57', the latter having at its opposite sides uprights 58'. An ice chute 59 is pivotally mounted for swinging movement in both a vertical and horizontal plane on each of said uprights 58', and the upper end of each ice chute 59 is in position for receiving ice discharged from a spout 56, there being an ice chute co-operating with each said spout 56, as shown. The two ice chutes 59 extend respectively from the opposite sides of the car A and each chute is braced by a frame 60 (Fig. 2) connected by a stay rod 61 with a cross-head 62 mounted on the top of the casing 46. At its lower end, each ice chute 59 may be provided with a pivoted extension 63, movable into the "down" position for lengthening the ice chute, for example, when it is desired to reach the doorway of an ice compartment of a car remotely positioned from the ice handling car A, or movable into the "up" position when the doorway of the ice compartment is located nearer the side of the ice handling car.

With the above construction, ice may be discharged simultaneously, at will, into each of the chutes 59 and fed into the ice compartments of cars R stationed on tracks on the opposite sides of the car A. Or if desired, ice may be discharged through only one chute at a time. The two chutes 59 are capable of a wide range of adjustment permitting discharge successively of ice into several refrigerating cars on both sides of the ice handling car, without any necessity for moving the position of the ice handling car, inasmuch as the practically universal movement of each ice chute permits it to be swung from car to car with great facility.

Preferably, the ice handling car is propelled along its track by power derived from its own motor M. For this purpose, the power shaft 42 is connected by a belt connection 64 (Figs. 4 to 6) with a drive shaft 65 mounted in the underframe of the car. The drive shaft 65 is connected through a reversing clutch 66 with a longitudinal shaft 67 and the latter through reversing gearing 68 with the forward truck axle 69. If desired the forward truck axle 69 may be connected by means of a sprocket chain connection 70 with the rear truck axle 71.

The invention as hereinabove set forth is embodied in a particular form of construction but may be variously embodied within the scope of the claims hereinafter made.

I claim:

1. In combination with a car provided with means for crushing and delivering ice to a refrigerator car, of an ice storage car located on the same track, a longitudinally extending conveyor mounted on the side of said storage car for vertically adjustable movement for conveying ice from said storage car to said crushing and delivering car, and means for securing the delivery end of said conveyor to the car containing said crushing and delivering means in adjusted position.

2. In combination with a car provided with means for crushing and delivering ice to a refrigerator car, of an ice storage car located on the same track, a longitudinally extending conveyor mounted on the side of said storage car for vertical adjustable movement with respect to said first named car and adapted to convey ice from said storage car to the car containing said crushing and delivering means, and means for swinging said conveyor to an inoperative position along the side of said storage car.

3. In combination with a car provided with means for crushing and delivering ice to a refrigerator car, of an ice storage car located on the same track, a longitudinally extending conveyor mounted on the side of said storage car for vertical adjustable movement with respect to said first named car and adapted to convey ice from said storage car to the car containing said crushing and delivering means, and means for swinging said conveyor about a longitudinal axis to an inoperative position along the side of said storage car.

4. In combination with a car provided with means for crushing and delivering ice to a refrigerator car, of a storage car located on the same track, a longitudinally extending power conveyor mechanism mounted on the side of said storage car for conveying ice from said storage car to the car containing said crushing and delivering means, means for driving said conveyor mechanism, and a driving connection between said driving means and said conveying mechanism for permitting said mechanism to be moved to an inoperative position along the side of said storage car.

5. In combination with a car provided with means for crushing and delivering ice to a refrigerator car, of an ice storage car located on the same track, a longitudinally extending vertically adjustable power conveyor mechanism mounted on the side of said storage car for conveying ice to the car containing said crushing and delivering means, means for driving said conveyor mechanism, and a driving connection be-

tween said driving means and said conveyor mechanism adapted to permit said mechanism to be swung about a longitudinal axis to an inoperative position along the side of said storage car.

6. A conveyor for transferring articles from one freight car to another car having an ice crusher thereon located on the same track comprising a longitudinally extending frame mounted along the side of one of said cars, power conveyor mechanism carried thereby, means for driving said mechanism, means for permitting the vertical adjustment of the delivery end of said frame, and means for permitting said frame to be moved about a longitudinal axis to an inoperative position along the side of the car upon which it is mounted.

7. In combination with an ordinary standard railroad track an ice storage car and an ice delivery car thereon; said delivery car having an ice crusher and crushed ice delivery means; said delivery car being arranged on the same standard railway tracks as the storage car and being coupled to and movable with said storage car; and a conveyor for transferring blocks of ice from said storage car to the ice crusher of the delivery car.

ANDREW J. JACKSON.