

May 10, 1938.

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2,116,807

UNLOADING MEANS FOR HOPPER CARS

Filed July 6, 1936

2 Sheets-Sheet 1

Fig. 1.

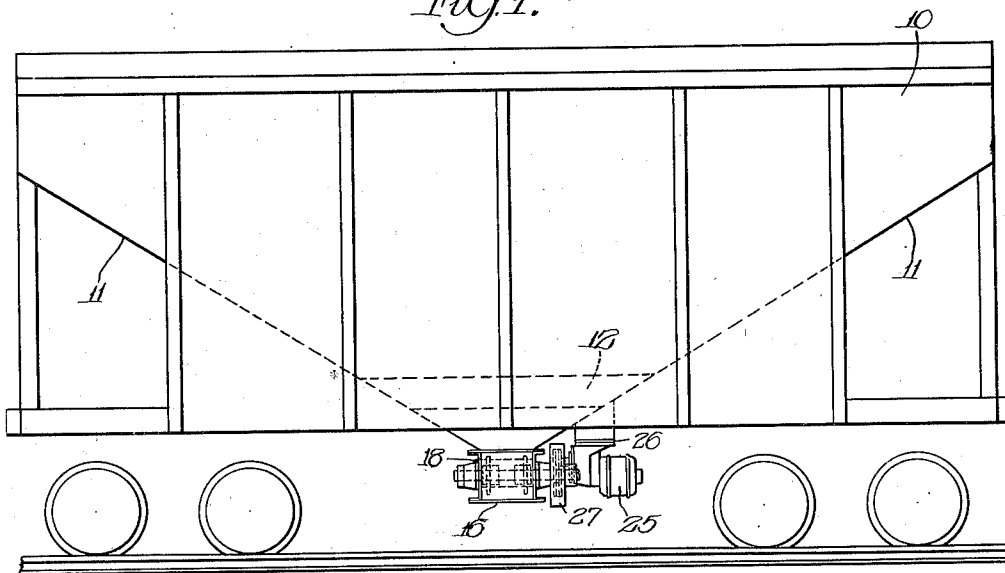
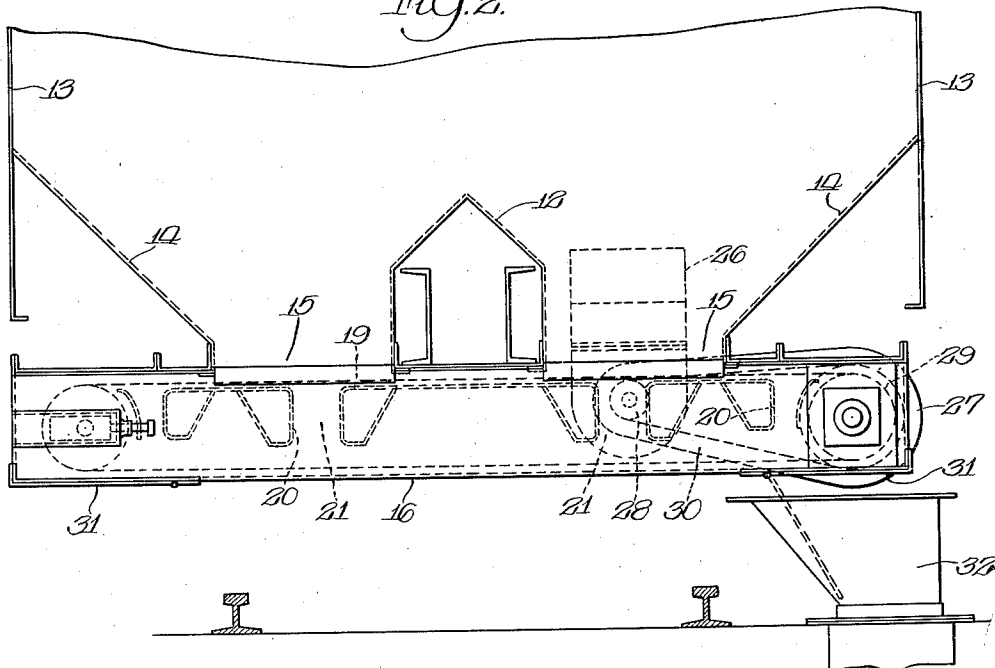


Fig. 2.



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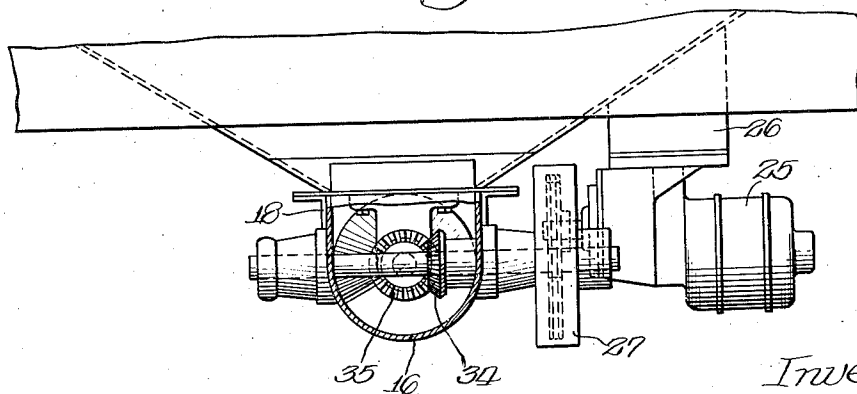
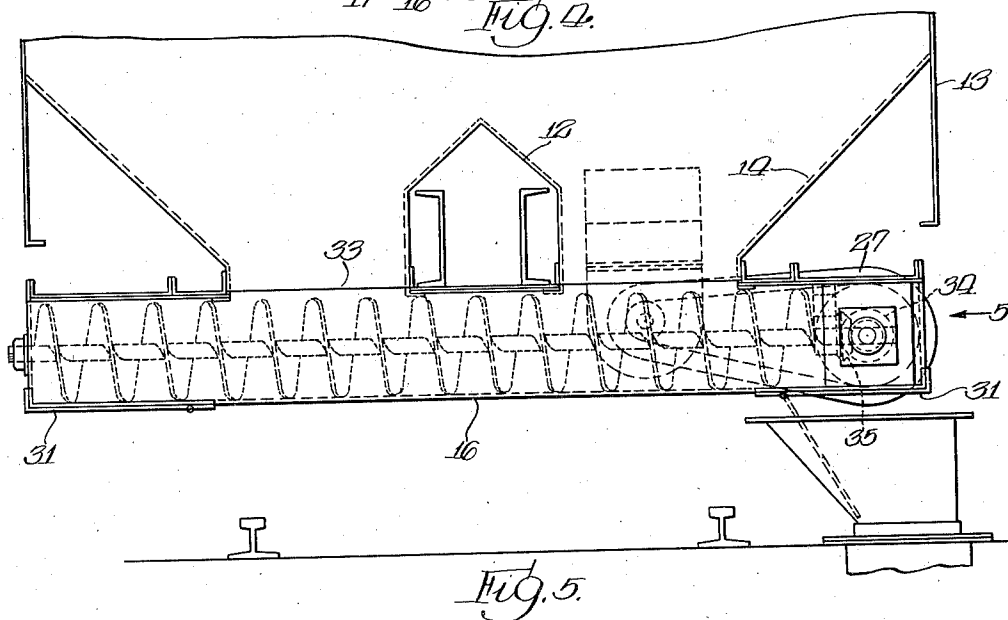
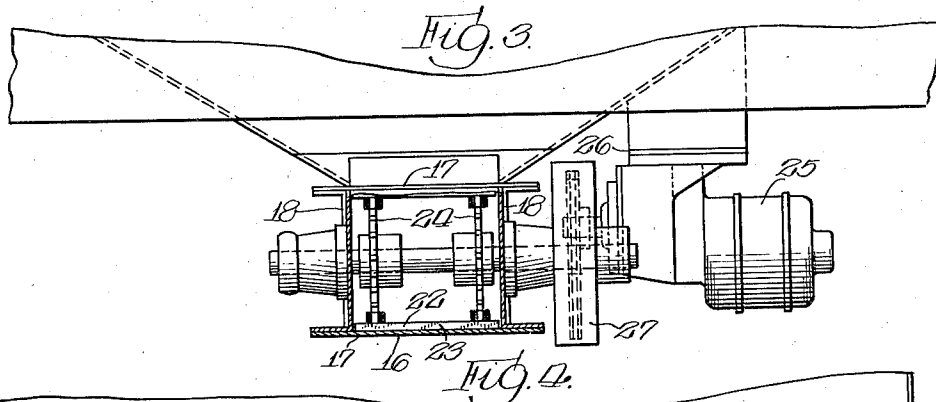
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UNLOADING MEANS FOR HOPPER CARS

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3 Claims. (Cl. 214—83)

The present invention relates to improvements in unloading means for hopper cars.

More particularly the present invention relates to means for unloading freight cars or the like of the hopper type. The invention is particularly applicable to cars for lading which must be completely enclosed to protect the lading from the weather.

An object of the present invention is to provide a device applicable to cars of the enclosed type whereby said cars may be conveniently unloaded.

A further object is to provide unloading means for cars, which unloading means may operate continuously and efficiently to deliver the lading from the car to a receiving device, while protecting the lading from the weather.

A further object is to provide improved unloading means for hopper type cars which by means of simple mechanism will unload from either side of the car.

Further objects will appear as the description proceeds.

Referring to the drawings—

Figure 1 is a view in side elevation of a hopper car embodying the principles of the present invention;

Figure 2 is a view in end elevation of the structure shown in Figure 1;

Figure 3 is a fragmentary view of a portion of the structure shown in Figure 1, the parts being shown on an enlarged scale in Figure 3;

Figure 4 is a view similar to Figure 2 but illustrating a modification; and

Figure 5 is a view taken in the direction of the arrow 5 of Figure 4, parts being broken away to better show the construction.

Referring first to the structure illustrated in Figures 1, 2 and 3, the numeral 10 indicates the body of the car having the bottom walls 11—11, which walls slope from the end regions of the car toward the mid region thereof. Disposed longitudinally of the car is the center sill construction, indicated as a whole by the numeral 12, which center sill construction has a gable formation which intersects said bottom walls 11—11. The side walls of the car include the vertical walls 13—13 and the sloping walls 14—14, which sloping side walls 14—14 extend to a region spaced from the center sill construction 12. The space between each sloping side wall 14 and the center sill construction 12 provides a throat 15 through which material may be discharged from the car.

Extending transversely of the car is the box construction or enclosure indicated as a whole by

the numeral 16. As indicated in Figures 1 and 3, the box construction 16 may be made up of top and bottom plates 17—17 connected together by means of channels 18—18. The top plate 17 of the box construction 16 has openings communicating with the throat 15, whereby material from the car may pass into said box construction 16.

Disposed interiorly of the box construction 16 are a plurality of barriers, indicated by the numerals 19 and 20, which barriers restrict the areas of the throats 15—15. The restricted throats between the barrier 19 and the adjacent barriers 20—20 are indicated by the numerals 21—21. Also disposed within the box construction 16 is the conveyor 22, which conveyor includes a plurality of scrapers 23—23 adapted to scrape along the bottom plate 16. The conveyor 22 is shown as being carried by sprockets 24—24, a pair of sprockets being disposed at each side of the car.

The conveyor 22 is adapted to be driven by the motor 25, carried by a bracket 26 attached to the car. Said motor is provided with a shaft extending into the chain box 27. Within said chain box 27 is the sprocket 28 connected to the shaft of the motor 25 and the sprocket 29 fast with a pair of sprockets 24 cooperating with the conveyor 22. Said sprockets 28 and 29 are connected together by means of the sprocket chain 30.

Each end of the box structure 16 is closed, but the bottom wall of the box structure 16 at each end thereof is provided with the drop door 31, which may be securely latched in closed position, or which may be swung down to open position, whereby to allow the delivery of lading to a receptacle such as the one indicated by the numeral 32 in Figure 2.

In the modification shown in Figures 4 and 5, the barriers 19 and 20—20 are eliminated and a screw conveyor 33 is provided for moving the lading along the box structure 16. In the modification shown in Figures 4 and 5, the box structure 16 may take a cylindrical form, whereby to cooperate efficiently with the screw conveyor 33.

Power is communicated from the chain box 27 to the bevel pinion 34 meshing with the bevel pinion 35 connected to the screw conveyor 33.

The mode of operation of the above described embodiments of the present invention will be clear without detailed explanation.

In the embodiment illustrated in Figures 1 to 3, the lading which tends to pass through the throats 15—15 will have its flow restricted by the barriers 19 and 20—20. The lading will pass

down between the top scrapers 23 of the conveyor 22. The motor 25 will, of course, be a reversible motor, and when it is desired to discharge the car, said motor will be operated in a direction to scrape lading along the bottom plate 17 of the box structure 16 toward that side of the car at which unloading is to be done. The corresponding door 31 will be opened, and material will be delivered therefrom into any receptacle positioned to receive it.

In the embodiment illustrated in Figures 4 and 5, the motor 25 will, of course, be reversible and the lading will be directed toward one side of the car or the other, depending upon the direction of rotation of the rotor of said motor 25 delivering said lading past the corresponding door 31.

The present invention has the advantage that lading such as will be affected by exposure to the weather may be amply protected during shipment, and may be discharged from the car into receptacles with very little exposure to the weather.

Though certain embodiments of the present invention have been described in detail, many modifications will occur to those skilled in the art. It is intended to cover all such modifications that fall within the scope of the appended claims.

What is claimed is—

1. In a car, in combination, sloping walls, a center construction disposed longitudinally of said car, said center construction and said sloping walls being disposed relative to one another in position to direct lading within said car to spaced throats, an enclosure carried by said car below said throats, said enclosure having an opening communicating with said throats, said enclosure being an elongated member extending trans-

versely of said car, barriers disposed transversely of said enclosure for restricting said throats, said enclosure at the two sides of said car having drop doors for the discharge of lading, a conveyor within said enclosure, and a motor for driving said conveyor.

2. In a car, in combination, sloping walls, a center construction disposed longitudinally of said car, said center construction and said sloping walls being disposed relative to one another in position to direct lading within said car to spaced throats, an enclosure carried by said car below said throats, said enclosure having an opening communicating with said throats, said enclosure being a longitudinal member extending transversely of said car, said enclosure at the two sides of said car having doors for the discharge of lading, a conveyor within said enclosure, and a motor for driving said conveyor, said conveyor including scraping means adapted to scrape along the bottom of said enclosure toward said doors.

3. In a car, in combination, sloping walls, a center construction disposed longitudinally of said car, said center construction and said sloping walls being disposed relative to one another in position to direct lading within said car to spaced throats, an enclosure carried by said car below said throats, said enclosure having an opening communicating with said throats, said enclosure being a longitudinal member extending transversely of said car, said enclosure at the two sides of said car having drop doors for the discharge of lading, a conveyor within said enclosure, and a motor for driving said conveyor, said conveyor including scraping means adapted to scrape along the bottom of said enclosure toward said drop doors.

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