Aug. 17, 1954 B. H. FORD ET AL 2,686,341

BARRICADE FOR GRAIN CAR DOORWAYS

Filed Jan. 2, 1953 2 Sheets-Sheet 1

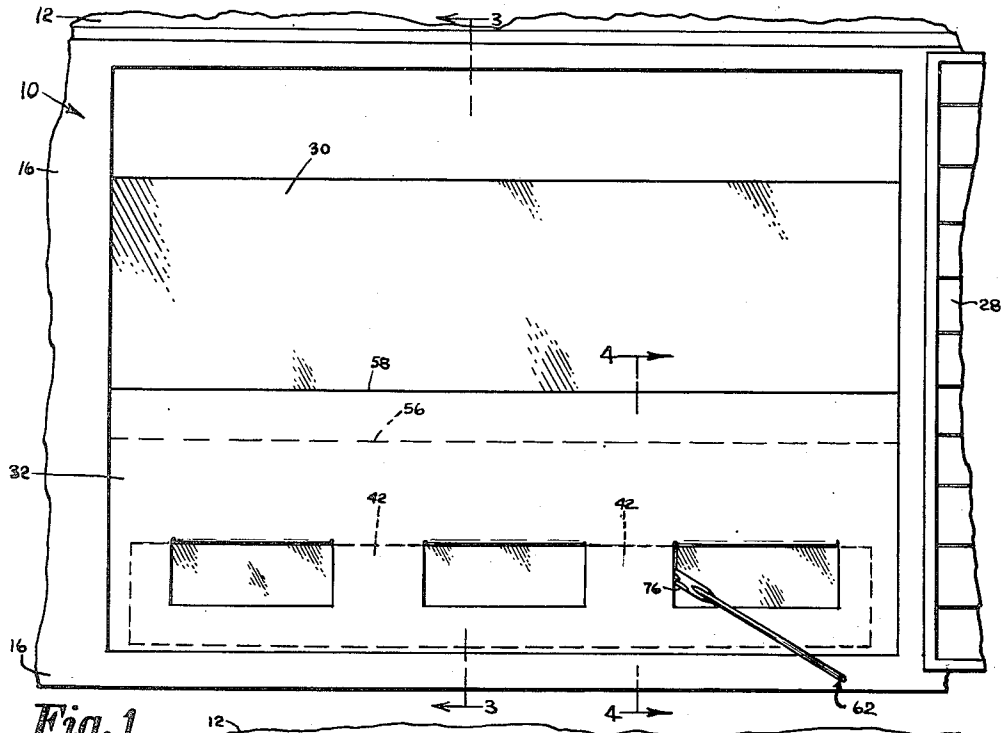


Fig. 1

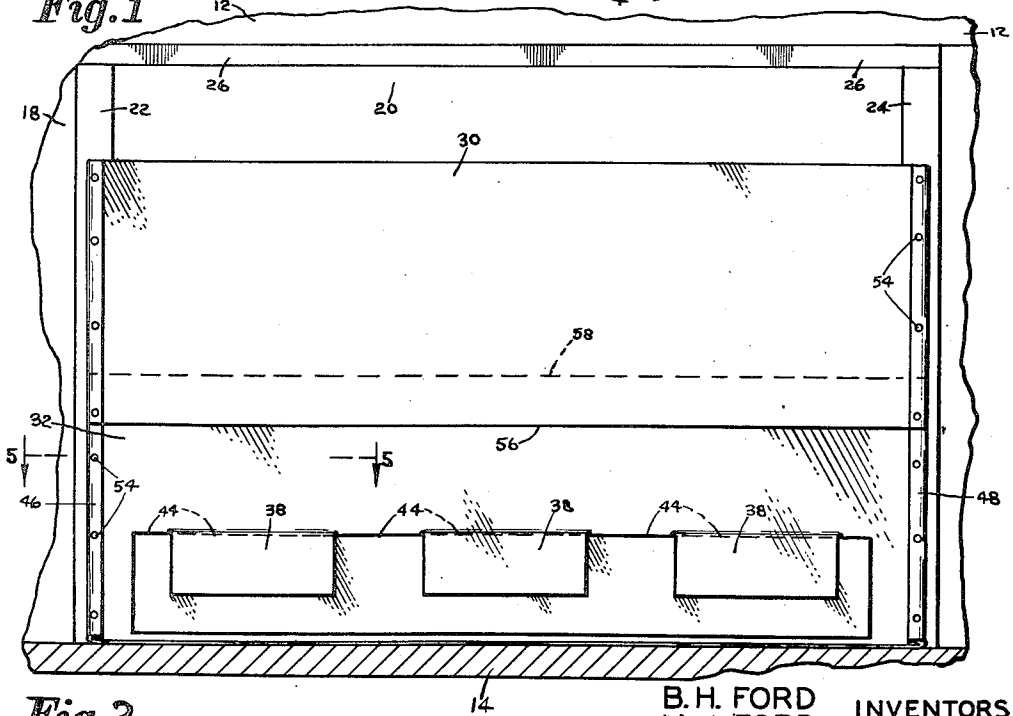


Fig. 2

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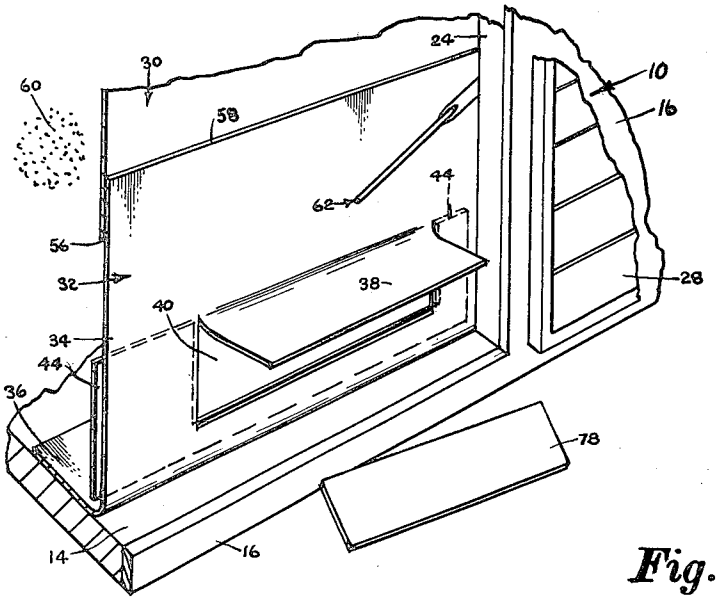


Fig. 4.

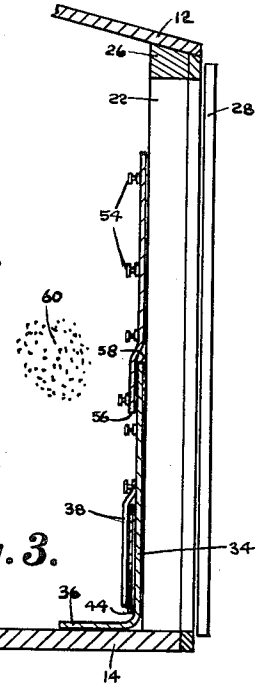


Fig. 3.

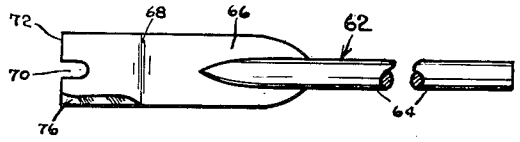
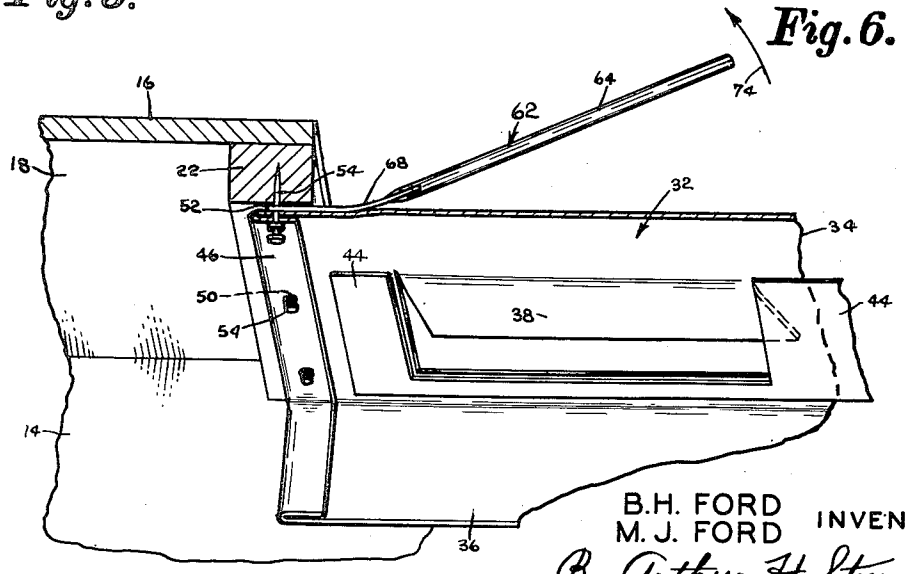


Fig. 5.

Fig. 6.



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BARRICADE FOR GRAIN CAR DOORWAYS

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5 Claims. (Cl. 20—30)

1

The instant invention relates to a transportation of loose grain, such as kernels of wheat or corn, by a railroad and in a grain car.

It is an object of the invention to provide a barricade, which may be readily secured in a position of use across the doorway opening of a grain car, and be readily removed therefrom subsequent to a grain-transporting use thereof.

It is a particular object of the invention to provide a device for the said purpose, which may be manipulated or serviced from the exterior of the car and upon the arrival of the latter at a grain storage elevator for opening certain grain discharge ports of the new device whereby grain is permitted to flow outwardly of the car through said ports and into a grain-receiving pit of said elevator.

A further object of the invention is to provide a device which is so constructed that it may be repeatedly used without deterioration of said device.

Another object of the invention is to provide a barricade of economical construction which requires a minimum of time and labor for securing the device to a grain car for use and, subsequent to said use, a removal thereof from said car.

Other and further objects and advantages of the invention will be understood from the following detailed description thereof.

In the drawings:

Figure 1 is a view of an exterior portion of a grain car and showing a preferred embodiment of the invention applied across the doorway opening thereof in a position of use.

Figure 2 is a view similar to Figure 1 and showing the inside of said car and the opposite side of the new device with respect to the showing thereof in Figure 1, the floor of said car being in section.

Figure 3 is a vertical section taken substantially on line 3—3 of Figure 1.

Figure 4 is a fragmentary perspective sectional view, the view being taken approximately on line 4—4 of Figure 1 and showing an exterior side portion of the new device.

Figure 5 is a view similar to Figure 4 and showing a portion of the inwardly disposed vertical surface of the new device and a portion of the interior side wall of said car, together with a portion of the floor of the car, the view being taken approximately on line 5—5 of Figure 2.

Figure 6 is a plan view of a tool preferably employed during the operation of the new device, a portion of the handle of said tool being broken away.

2

Referring now to the drawings for a more particular description, 10 indicates generally a railroad grain car used in the transportation of loose grain. The car is provided with a roof 12, a horizontal floor 14, oppositely disposed vertical side walls, the outwardly disposed surface of one of which is indicated at 16 and the interior surface thereof being indicated at 18.

The car is provided with oppositely disposed doorway openings, one of which is indicated at 20, and each doorway opening is usually provided with oppositely disposed vertical side jambs 22 and 24.

A lintel or headrail 26 is usually provided between and upon the upper ends of the side jambs.

A conventional door 28, best shown in Figures 1 and 4, is disposed at the outer side of the doorway opening 20, being suspended by means of track hangers, not shown, and from a horizontally disposed rail, the latter being secured to an outer side of the car adjacent the roof 12 in a well known manner, whereby the door 28 is slidable for opening or closing the outer side of the doorway opening 20.

At times when the car is loaded with loose grain and as heretofore practiced, boards have been nailed across the inner side of the doorway opening 20 to prevent loose grain from coming in contact with the door 28 of the car since, otherwise, the pressure of the loose grain would spring the door 28 so that it could not be readily moved to an open position. Also, the loose grain would leak outwardly of the car adjacent the edges of the door 28 except for an employment of the said boards.

The latter are comparatively expensive since boards must be employed which are free of knotholes and which are of sufficient strength to withstand the pressure of the loose grain. Also, time and labor costs are appreciable for installing the said boards.

The instant invention aims to provide a device formed primarily of metal for repetitious use and which may be readily installed with a minimum of labor, and which may be readily detached from the inner surface of the vertically disposed wall of the car by an operator while the latter is positioned at the exterior side of said car.

In the practice of this art, a grain car, being loaded with loose grain, is hauled by the railroad to a concentration point for storage of said loose grain in an elevator. Railroad tracks adjacent an elevator are provided with pits underneath and alongside said tracks whereby a grain car, upon becoming "spotted," namely positioned by the switchman of the railroad above one of the said

pits, it is then desired to permit the grain to flow outwardly of the car into a pit, from which the grain is elevated by means of conveyors. Certain portions of the railroad tracks above said pits are often constructed tiltable, together with a carload of grain positioned thereon, whereby, at the time a car is so tilted, an appreciable portion of the grain will flow outwardly of the car by operation of gravity and into a pit.

Since, as above described, a tilted grain car may be rapidly unloaded of grain, it is essential that a starting of a flow of grain outwardly of a car be rapid so as not to delay the switch engine crew in the operation of substituting a loaded grain car for an unloaded grain car. For this reason, it is essential to provide a device which is serviceable or manipulatable from the exterior of a grain car for starting a flow of grain rapidly and outwardly of said car at elevators which employ the above outlined equipment and as soon as a carload of grain is spotted above a pit. The present invention aims to provide such a device which is particularly adapted to be serviced or manipulated from the exterior of a carload of grain for an early discharge of grain or as soon as a grain car is spotted.

The new device may include an upper section 30 at times when the lower section 32 is not high enough to provide a barricade for a fully loaded grain car and in this connection, as is well known, sheet metal of conventional size is usually four feet wide and six to twelve feet long. However, it is contemplated that the lower section 32 of the new device will be manufactured from specially rolled sheets having a sufficient transverse width so that when a sheet is vertically disposed it will cover a grain car doorway opening to a sufficient extent such that the upper section 30 may be dispensed with.

The said sections may be formed of any suitable metallic sheets, such as ferrous metal or aluminum.

During the manufacture of the lower section 32, the sheet of metal is of sufficient length to span across the doorway opening 20 and overlap the jambs 22 and 24 thereof. The distance between the said jambs is conventional and with respect to practically all box cars.

The lower section 32 is of an L-shape configuration in end elevation, whereby the arm 34 of the sheet 32 is disposed at a right angle with respect to the other arm 36 thereof. During use, the arm 36 rests horizontally upon the floor 14 of the box car and extends inwardly of said car a sufficient distance to receive thereon a mass of loose grain, the weight of the latter being sufficient to anchor the medial portion of the arm 36 to the floor 14 by the weight of the grain above the arm 36.

It will be understood that, at times when a car is not fully loaded, whereby the weight of grain on the arm 36 is insufficient to anchor said arm that, if desired, an operator may place a few nails through the arm 36 and into the floor 14 of the car for preventing a movement of said arm 36, said nails being placed adjacent to the junction of said arms.

During the said manufacture, the arm 30 of said sheet of metal is provided with a plurality of spaced apart incisions adjacent to the junction of said arms 34 and 36. The incisions preferably are of approximately C-shape in plan to provide flaps or doors 38, the upper edge portions of which are integral with the sheet 32, the lower edges, together with the ends thereof, being free of said sheet, whereby the doors of flaps 38 are hingedly

attached to said sheet and swingable to either side of said sheet through their respective openings or grain discharge ports 40.

As shown in Figures 4 and 5, the door 38 there shown is depicted swung outwardly with respect to the interior of the car. As shown in Figure 3, the door 38 there shown is disposed toward the interior of the car and toward the arm 36 of said L.

Referring to Figures 1 and 2, the said ports are spaced apart and the portions 42 of the arm 34 are wide enough in a horizontal direction to have sufficient tensile strength to resist the pressure of grain within the car during use.

The new device further includes cardboard, strawboard or a like readily cuttable board or boards 44 which, as shown in Figure 3, are disposed between the outwardly disposed side surface of each door 38 and the inwardly disposed surface of the arm 34. An individual cardboard may be employed for each door 38. Preferably the cardboard includes an integral sheet of cardboard having sufficient length to cover all of the grain discharge ports employed and to extend beyond said ports adjacent each end of the sheet, as best shown in Figure 5, for preventing a swinging of the doors 38 from their normal position of use, as shown in Figure 3, toward the outer side of the car, as shown in Figure 4, for maintaining said doors and grain discharge ports closed.

As shown in Figure 3, adjacent the junction of the door 38 with the sheet 32, the upper portion of the door 38 overlaps the upper edge 43 of the cardboard 44 for preventing a leakage of grain outwardly of the car from between the cardboard and the main body portion of said sheet during use.

At times when the sheet 32 is comparatively thin and, therefore, of a lesser tensile strength than a thick sheet, and at times when the sheet 32 is formed of comparatively thin aluminum, the end edge portions of said sheet are each provided with loop portions 46 and 48 respectively, as best shown in Figure 2. The said loop portions are provided with nail holes 50, said holes being disposed in alignment with like holes or apertures 52 formed through the main body portion of the sheet. At times when a heavier metal sheet is employed, the loops 46 and 48 may be omitted and only the nail holes 52 employed.

During an installation of the device across the doorway opening 20 of the car, like nails 54 are employed which are disposed through the said nail holes and into the jambs 22 and 24 of the car. At times when the car is not provided with said jambs, said nails are driven directly through the inner vertical surface of the side wall of the car. At times when the sheet 32 is provided with the said loops, the number of nails employed may be less since the loops cause the edges of the sheet to be comparatively sufficiently stiff for preventing a leakage of grain outwardly of the car and between the inwardly disposed surfaces of the jambs and the outwardly disposed surface of the arm 34 of the sheet 32.

Preferably, the nails 54 are double-headed, as shown in the drawings, although a plain small nail may be employed if desired.

At times when the new device includes an upper section or sheet 30, said upper section may be provided with loops at the vertically disposed ends thereof, or be plain, as may be desired, complemental to the tensile strength of the sheet or upper section 30. The latter is provided with a plurality of nail holes disposed through vertically disposed edge portions thereof for securing the

ends of the sheet respectively to the said jambs, as best shown in Figure 2.

As shown in Figure 4 and at times when an upper sheet or section **30** is employed, the lower edge **56** of the sheet **30** overlaps the upper edge **58** of the lower sheet **32**. The said overlap is sufficient in a vertical direction to prevent the grain indicated at **60** from leaking outwardly of the car between the confronting surfaces of the sheets **30** and **32** adjacent said overlap.

A tool is preferably employed during the practice of the invention, said tool being shown in Figure 6. The said tool **62** includes an elongated handle **64**, one end of which is attached to a chisel-like blade **66**. The latter preferably is offset, as at **68**, as best shown in Figure 5. The chisel portion **66** of the tool is provided with a notch **70** at the terminal end edge **72** thereof. The notch **70** is of a slightly greater transverse width between the oppositely disposed walls thereof than the diameter of any of the nails **54**.

The chisel **66** is provided with a corner **76**, which is ground to a sharp knife-like edge. The said chisel portion **66** is comparatively thin, as shown in Figure 5, whereby it may be inserted or driven between the inner surface of the jamb **22** and the outer surface of the sheet **32** in a manner whereby the shank of the arrow **74** for prying the nail engaged by the tool loose from the jamb **22** and for purposes later described.

Operation

The normal condition and the relative position of the parts of the new device during a grain transporting use thereof are as shown in Figures 2 and 3, the grain discharge ports being maintained closed at said time by means of the cuttable cardboard **44** which prevents the doors **38** from swinging outwardly from the closed position thereof shown in Figure 3 to an open position as shown in Figures 4 and 5.

Upon arrival of a carload of grain at a terminal elevator, the operator first opens the door **28** of the grain car and before the car is "spotted" above a grain-receiving pit.

At the time the car is "spotted" above a pit, the said operator or another operator employs the tool shown in Figure 6 by placing the cutting edge or corner **76** thereof against the cardboard, as shown in Figure 1, whereupon the operator employs the tool for cutting the cardboard, using the edges of the grain discharge port provided through the sheet **32** as a guide, whereby the oblong portion **78** of the cardboard **44**, shown in Figure 4, is removed from the main body portion of the cardboard thereby permitting the door **38** to swing outwardly for opening the grain discharge port of the said door, whereby grain flows outwardly of the car and into the said pit.

A pocket knife or any suitable knife may be employed in lieu of the corner **76** of the said tool for incising the cardboard.

The operator then similarly services the remaining doors **38** for permitting grain to flow through their respective grain discharge ports until the grain adjacent the lower portion of the doorway opening **20** of the car has moved outwardly through said ports. The operator now employs the tool shown in Figure 6, as above described, for loosening the nails which secure the barricade of the instant invention to the jambs and prior to a removal of the said barricade, whereby workmen or power-actuated wormscrews or suction-actuated appliances may be employed for removing grain from the ends of the interior of the car in a well known manner.

From the foregoing description it is thought to be obvious that a barricade for grain car doorway constructed in accordance with our invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that our invention is susceptible of some change and modification without departing from the principles and spirit thereof, and for this reason we do not wish to be understood as limiting ourselves to the precise arrangement and formation of the several parts herein shown in carrying out our invention in practice, except as claimed.

We claim:

1. A barricade for a grain car doorway having a vertically disposed jamb at each side of the opening of said doorway comprising: a sheet of metal of L-shape in end elevation, said sheet having a length greater than the horizontal distance between said jambs, portions at the side edges of said sheet each being provided with a plurality of holes for receiving nails therethrough during an attachment of one arm of said L to said jambs by said nails and at times when the other arm of said L is disposed horizontally on the floor of said car, the vertical arm of said L having incisions adjacent to the junction of said arms providing a plurality of spaced apart flaps having their lower portions free with respect to said sheet and upper portions integral with said sheet, whereby the lower portions of said flaps are each swingable toward said horizontal arm; and readily cuttable cardboard disposed between said flaps and said sheet for preventing a swinging of said flaps away from said horizontal arm during use.

2. A barricade as described in claim 1 in which the cardboard thereof is an integral piece having a length approximately equal to the horizontal length of the sheet of metal thereof.

3. A barricade for a grain car doorway having a vertically disposed jamb at each side of the opening of said doorway comprising: a sheet of metal of L-shape in end elevation, said sheet having a length greater than the horizontal distance between said jambs, portions at the side edges of said sheet each being provided with a plurality of holes for receiving nails therethrough during an attachment of one arm of said L to said jambs by said nails and at times when the other arm of said L is disposed horizontally on the floor of said car, said side edge portions each being in the form of a loop for providing a double thickness of said sheet adjacent to each side edge of said sheet and in which the nail holes thereof are disposed through said loops, the vertical arm of said L having incisions adjacent to the junction of said arms providing a plurality of spaced apart flaps having their lower portions free with respect to said sheet and upper portions integral with said sheet, whereby the lower portions of said flaps are each swingable toward said horizontal arm; and readily cuttable cardboard disposed between said flaps and said sheet for preventing a swinging of said flaps away from said horizontal arm during use.

4. A barricade as described in claim 3 in which the cardboard thereof is an integral piece having a length approximately equal to the horizontal length of the sheet of metal thereof.

5. A barricade for a doorway opening of a grain car comprising: a sheet of metal of L-

shape in end elevation; one arm of said L being provided with a plurality of grain discharge ports adjacent the junction of said arms; doors for said ports hingedly attached to said one arm of said sheet, said doors being arranged to swing through their respective ports to either side of said one arm, the latter having a plurality of nail holes at each end thereof for facilitating a vertical attachment of said one arm to an inner side wall of said car and across said doorway opening prior to said grain being loaded into said car; the other arm of said L being disposed on the floor of said car at said prior time for receiving the weight of a mass of loose grain thereon for anchoring said other arm; and a length of cardboard disposed at that side of said sheet which confronts said grain during use, said cardboard being disposed between said doors and said sheet

for maintaining said ports closed during said use, said cardboard being readily cuttable from the outer side of said car by an operator for providing an opening through which a selected one of said doors may swing to the outer side of said car through its port, whereby said grain flows outwardly from said car through the selected port and the opening provided for the port selected during use.

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