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W. J. FRAIN ET AL

LOADING CHUTE

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Fig. 1.

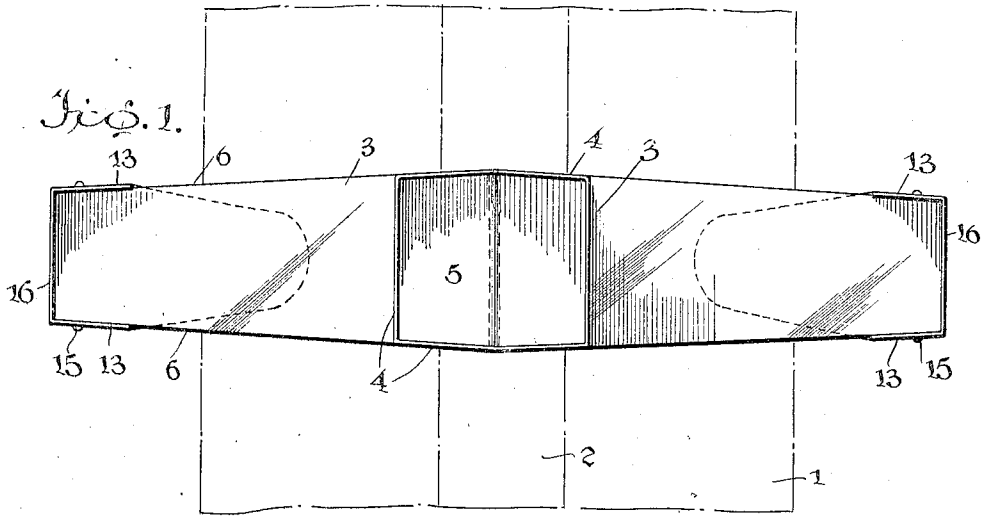
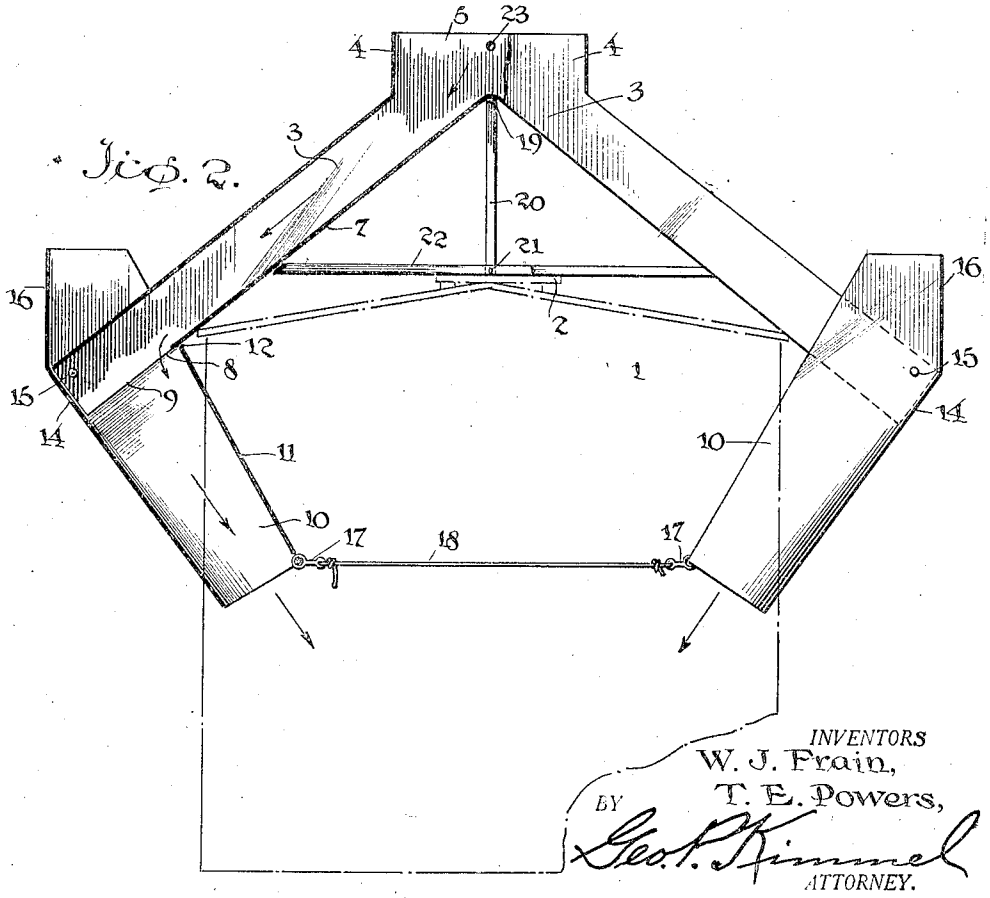


Fig. 2.



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UNITED STATES PATENT OFFICE.

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LOADING CHUTE.

Application filed January 14, 1924. Serial No. 686,113.

To all whom it may concern:

Be it known that we, WILLIAM J. FRAIN and THOMAS E. POWERS, citizens of the United States, residing at Savannah, in the county of Chatham and State of Georgia, have invented certain new and useful Improvements in Loading Chutes, of which the following is a specification.

This invention relates to loading chutes and is designed to be used for loading and trimming bulk cargoes such as sulphur, grain, etc., into railway box cars.

The primary object of this invention is the provision in a manner as hereinafter set forth, of a loading chute so constructed that a box car may be loaded more quickly and with greater ease than is possible with the chutes of this type at present in use. The structure of this chute is such that the cargo may be delivered through the upper portion of the doors of the box car at both sides simultaneously, through a hopper centrally positioned above the box car.

Another object of this invention is the provision in a manner as hereinafter set forth, of a loading chute so constructed that the delivery ends of the chute may be shifted to swing inwardly through both doors of a box car to deliver the cargo into the interior thereof and when delivered the delivery ends of the chute when released will swing outwardly of their own accord free of the sides of the box car to allow the chute to be raised from the top of the car.

A further and final object of this invention is the provision in a manner as hereinafter set forth, of a loading chute of simple structure, strong, sturdy, very efficient, easily handled and inexpensive to manufacture.

The invention will be best understood from a consideration of the following detail description taken in connection with the accompanying drawings forming part of this specification, with the understanding that this invention is not limited to any strict conformity with the showing of the drawings, but may be changed and modified so long as such changes and modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:—

Figure 1 is a top plan view of the device embodying this invention, and

Figure 2 is a side elevation of the same shown as in use, parts thereof being broken away to show the interior construction.

Referring now to the drawings in detail wherein like numerals of reference indicate corresponding parts throughout the views shown, numeral 1 indicates in dotted lines the outline of a box car having extending lengthwise thereof the usual treadway 2. Although it is not shown in this drawing, it is well known that box cars of this structure have a pair of oppositely disposed centrally positioned doorways at their sides, these doors when opened extending from the floor of the car to a point below the roof. It very often happens that cars of this type are used to carry grain, sulphur, coal and other commodities of this type which are transported in large quantities, and owing to the great weight of these commodities it is only possible to fill these cars one-half or two-thirds full. When these cars are used in this manner, the doorways are boarded up from the floor to about two-thirds of the way up, and the cargo is discharged into the car through the top of the doorway over this partition. These cargoes are usually discharged into the cars from a point high above the cars and the cargo is discharged into a chute which has its discharge end extended through one or the other of these doorways.

The structure disclosed herewith is such that the open upper part of both doorways can be utilized at the same time thus increasing the amount of material which can be discharged into the car at once and materially speeding up and expediting the work. This structure comprises a substantially V-shaped member of hollow construction as indicated at 3 and the arms of this double chute member are widely divergent as is clearly shown in Figure 2 of the drawings and of sufficient length to extend their outer ends well beyond the sides of the largest box cars. The converging ends of this inverted V-shaped member instead of running to a sharp apex have their outer sides extended upwardly to form the vertical side walls 4 and this portion is open at its upper side providing a hopper 5. As clearly shown in the top plan view of Figure 1 the chute is of uniform height throughout, but the sides 6 converge toward their outer ends so that the lower outer ends of the chute are of less width than the upper or hopper ends.

The outer end of each of the chutes is open as is clearly shown in Figure 2 and the bottom 7 of each terminates inwardly of the discharge end as at 8, thus providing the opening 9 in the bottom of the chute at the outer end thereof.

Pivotally secured to the outer end of each of the chutes 3 is a down spout 10, the discharge end of which is circular in cross section, and widened toward its upper end where it is formed of rectangular cross section. The inner side or wall 11 of each of the down spouts 10 does not extend all the way to the upper end of the down spout but terminates at the point 12, and into this open portion between the sides walls 13 of the down spout the discharge end of one of the chutes 3 extends, and terminates near the opposite or outer wall 14 of the spout. A pivot means, such as a bolt or rivet or other appropriate means is extended through the side walls 13 of the down spout and through the side wall 6 of the chute to pivotally secure the two members together as at 15. The outer wall 14 of each of the down spouts at the point adjacent to or on a line with the pivot point 15 instead of continuing outwardly at a divergent angle with respect to the inner wall 11 as the portion 14 does, extends upwardly to form the substantially vertical upper outer wall 16. It can thus be seen that when the apparatus is in position the side walls 13 at the upper portion of the chute are always vertical and the outer wall 16 is practically vertical at all times when the down spouts are directed inwardly through the doors of the box car.

The projecting portion 16 of the wall 14 and the extended portions 13 of the sides of the chutes act as counterbalances for the lower portion or spout of the chute 10, to cause the spout to maintain a vertical position when the connecting cable 18 is released. Owing to the eccentric pivoting of the chutes they would, if not counterbalanced by the portions 13 and 16, swing outwardly until extending in substantially the same directions as the chutes 3 from the end of which they are supported, thus making it difficult for one to regain them when it is desired that they be swung into the car door to be connected by the cable 18.

Connected at the lower end of each down spout 10 at the inner side thereof is a double eye member 17, one eye of which is permanently secured to the lower portion of the down spout, and the other eye is adapted to receive therethrough a cord or cable 18 to draw inwardly toward one another the lower portion of the down spout when positioning the device to discharge material into the box car. Upon release of this cord 18 which holds the down spout inwardly as described, the spouts will gravitate outwardly of their own accord, thereby vertically positioning the outer side or wall 14 of each spout, thus causing it to automatically remove itself from the interior of the box car.

Secured at the under side of the divergent spout 3 is a supporting frame which comprises a transverse bar 19 which extends across the under side of the hopper 5 and there is connected therewith a vertical supporting post 20 which has one end positioned and secured to the central portion of the transverse bar 19 and has its other end secured as at 21 to a laterally extending brace rod 22, the outer ends of which engage the under side 7 of each spout or chute. This member also serves to support the entire device upon the roof of the box car as the transverse member 22 rests across the foot walk 2 which runs longitudinally of the car and thus supports the apparatus at three points.

Formed through either side of the chute 5 near the upper edge thereof is a pair of oppositely positioned apertures 23 by means of which the discharge pipe, not shown, which extends from the storage receptacle from which the commodity is taken, may be secured.

From the foregoing it may be seen that a very efficient and original device is provided whereby the loading of box cars in the manner described and with the commodities mentioned will be made much easier and can be effected much more speedily than with other types of loading chutes.

Having thus described our invention what we claim is:—

1. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of the car, and shiftable spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded.

2. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of the car, and shiftable spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, and means for releasably retaining said shiftable spouts in said inwardly directed position.

3. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of the car, and shiftable spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, and means at the apex of said chute to provide a filling hopper.

4. A loader for feight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of the car, and shiftable spouts at the lower ends of said chute for directing inwardly

through the sides of the car the material to be loaded, means at the apex of said chute to provide a filling hopper, and means for detachably connecting the lower ends of the spouts together.

5. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, and a pair of counterbalanced spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded.

6. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, and a pair of counterbalanced spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, said spouts having their upper portions enclosing and extended above the lower terminal portions of said chutes.

7. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, and a pair of counterbalanced spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, and means at the apex of said chute to provide a filling hopper.

8. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, and a pair of counterbalanced spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, said spouts having their upper portions enclosing and extended above the lower terminal portions of said chutes, and means at the apex of said chute to provide a filling hopper.

9. A loader for freight cars, comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, and a pair of counterbalanced spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, and means for releasably retaining said shiftable spouts in inwardly directed position.

10. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, and a pair of counterbalanced spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, said spouts having their upper portions enclosing and extended above the lower terminal portions of said chutes, and means detachably connecting the lower ends of the spouts together.

11. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of the car, and shiftable spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, and an inverted T-shaped brace member having each of its ends engaging the bottom of the chute.

12. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of the car, and shiftable spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, and means for releasably retaining said shiftable spouts in said inwardly directed position, and an inverted T-shaped brace member having each of its ends engaging the bottom of the chute.

13. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of the car, and shiftable spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, and means at the apex of said chute to provide a filling hopper, and an inverted T-shaped brace member having each of its ends engaging the bottom of the chute.

14. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of the car, and shiftable spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, means at the apex of said chute to provide a filling hopper, means for detachably connecting the lower ends of the spouts together, and an inverted T-shaped brace member having each of its ends engaging the bottom of the chute.

15. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, and a pair of counterbalanced spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, and an inverted T-shaped brace member having each of its ends engaging the bottom of the chute.

16. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, and a pair of counterbalanced spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, said spouts having their upper portions enclosing and extended above the lower terminal portions of said chutes, and an inverted T-shaped brace member having each of its ends engaging the bottom of the chute.

17. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of the car, and a pair of counterbalanced

spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, means at the apex of said chute to provide a filling hopper, and an inverted T-shaped brace member having each of its ends engaging the bottom of the chute.

18. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, and a pair of counterbalanced spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, said spouts having their upper portions enclosing and extended above the lower terminal portions of said chutes, means at the apex of said chute to provide a filling hopper, and an inverted T-shaped brace member having each of its ends engaging the bottom of the chute.

19. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, and a pair of counterbalanced spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, means for releasably retaining said shiftable spouts in inwardly directed position, and an inverted T-shaped brace member having each of its ends engaging the bottom of the chute.

20. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, and a pair of counterbalanced spouts at the lower ends of said chute for directing inwardly through the sides of the car the material to be loaded, said spouts having their upper portions enclosing and extended above the lower terminal portions of said chutes, means detachably connecting the lower ends of the spouts together, and an inverted T-shaped brace member having each of its ends engaging the bottom of the chute.

21. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, said chute having the bottom of each if its arms terminating inwardly with respect to the lower end of the top thereof to form a discharge opening, the lower terminus of each arm of the chute being open, a pair of spouts, each of the arms of said chute having its lower terminal portion extending into a spout below the top thereof, and each of said spouts enclosing a discharge opening and an open lower terminus of an arm of the chute, and means for pivotally connecting the spouts to the arms of the chutes.

22. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, said chute having the bottom of each of its arms terminating inwardly with respect to the lower end of the top thereof to form a discharge opening, the lower terminus of each arm of the chute being open, a pair of spouts, each of the arms of said chute having its lower terminal portion extending into a spout below the top thereof, and each of said spouts enclosing a discharge opening and an open lower terminus of an arm of the chute, means for pivotally connecting the spout to the arms of the chutes, and detachable means connecting the lower ends of the spouts together.

23. A loader for freight cars comprising, an inverted substantially V-shaped chute adapted to straddle and seat upon the top of a car, said chute having the bottom of each of its arms terminating inwardly with respect to the lower end of the top thereof to form a discharge opening, the lower terminus of each arm of the chute being open, a pair of spouts, each of the arms of said chute having its lower terminal portion extending into a spout below the top thereof, and each of said spouts enclosing a discharge opening and an open lower terminus of an arm of the chute, and means for pivotally connecting the spouts to the arms of the chutes, and means at the apex of said chute to provide a filling hopper.

In testimony whereof, we affix our signatures hereto.

WILLIAM J. FRAIN.
THOMAS E. POWERS.