

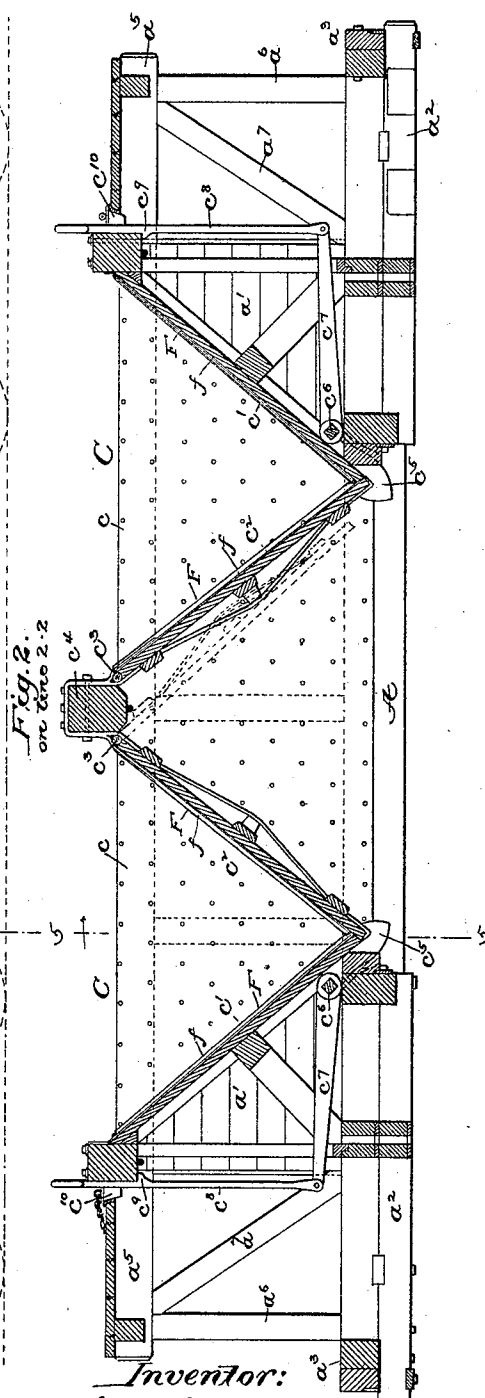
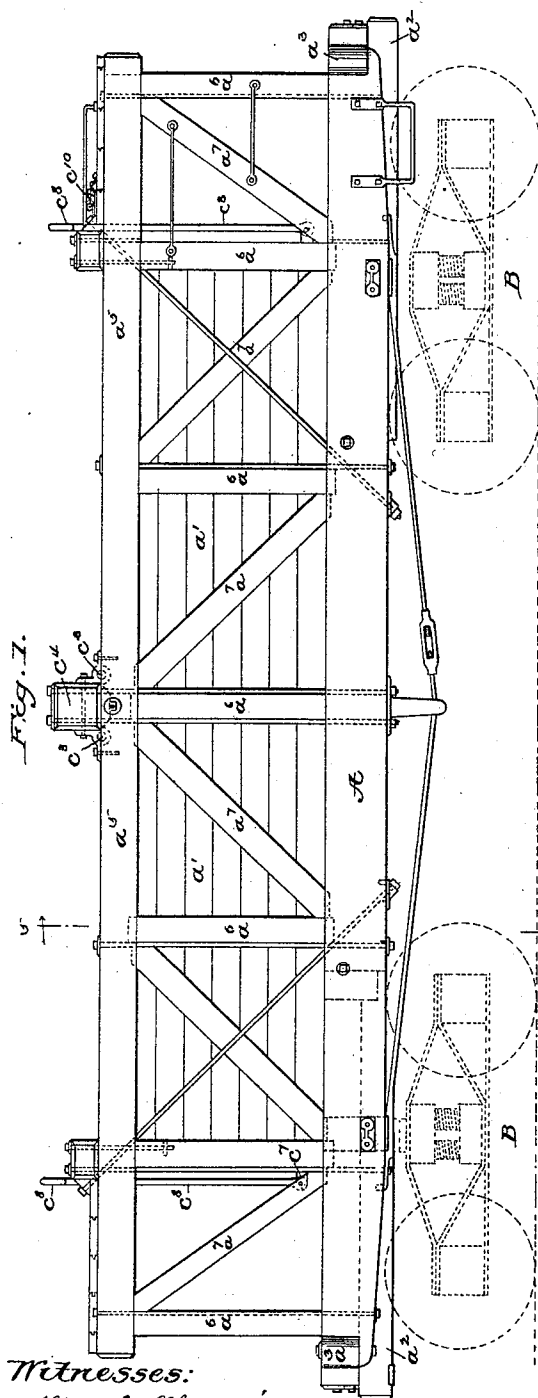
(No Model.)

3 Sheets—Sheet 1.

G. GIBBS.
DUMPING CAR.

No. 461,607.

Patented Oct. 20, 1891.



Witnesses:

N. W. Mortimer
N. R. Kennedy.

Inventor:

Geo. Gibbs
By Phil. T. Dodge, Atty.

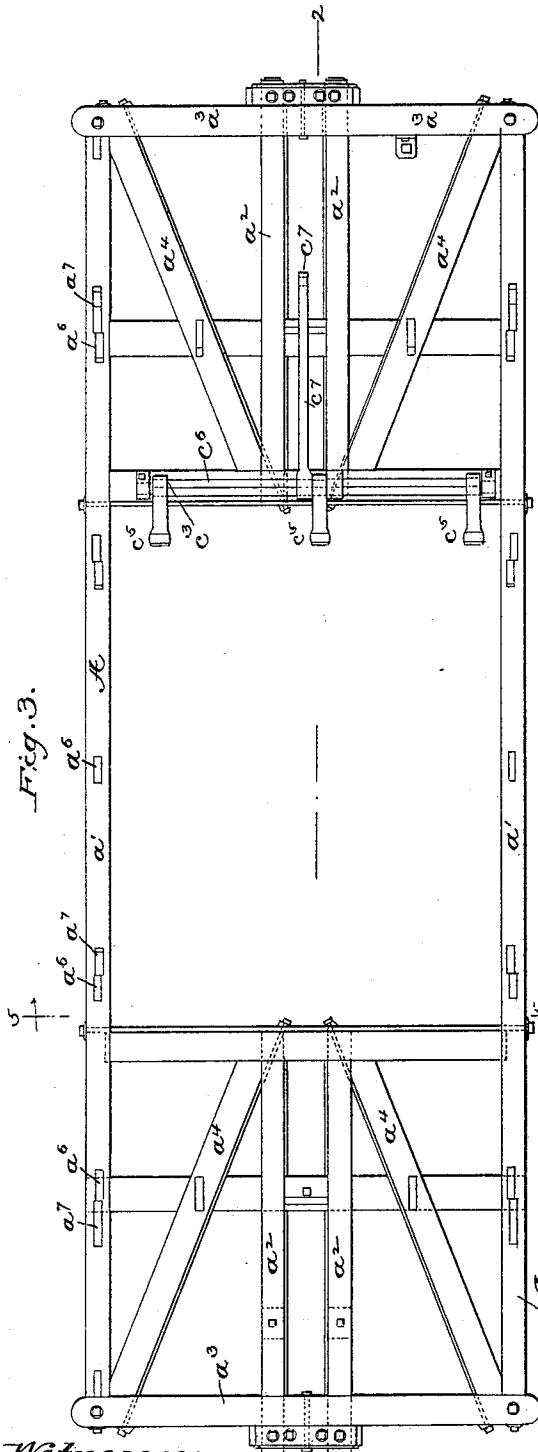
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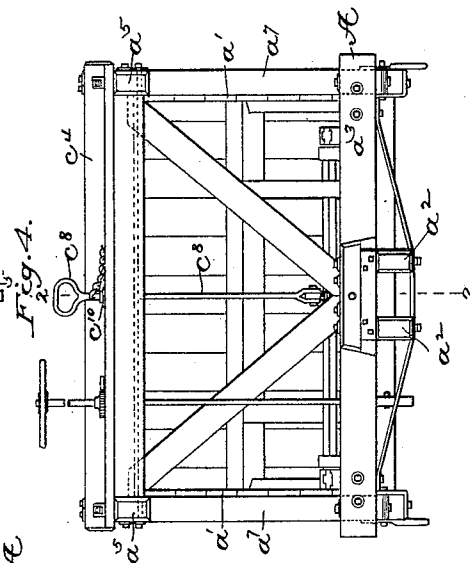
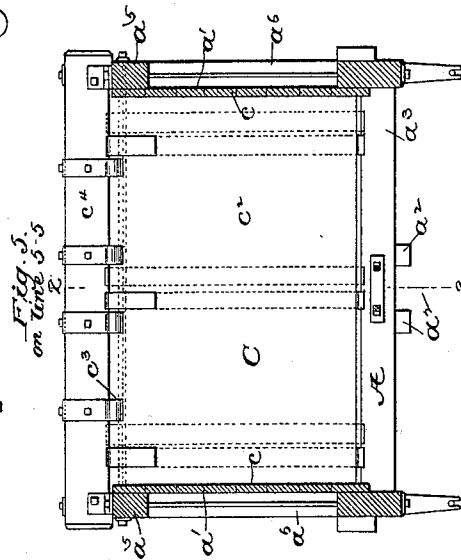
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Witnesses:
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M. R. Kennedy.



Inventor:
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Atty

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Fig. 6.

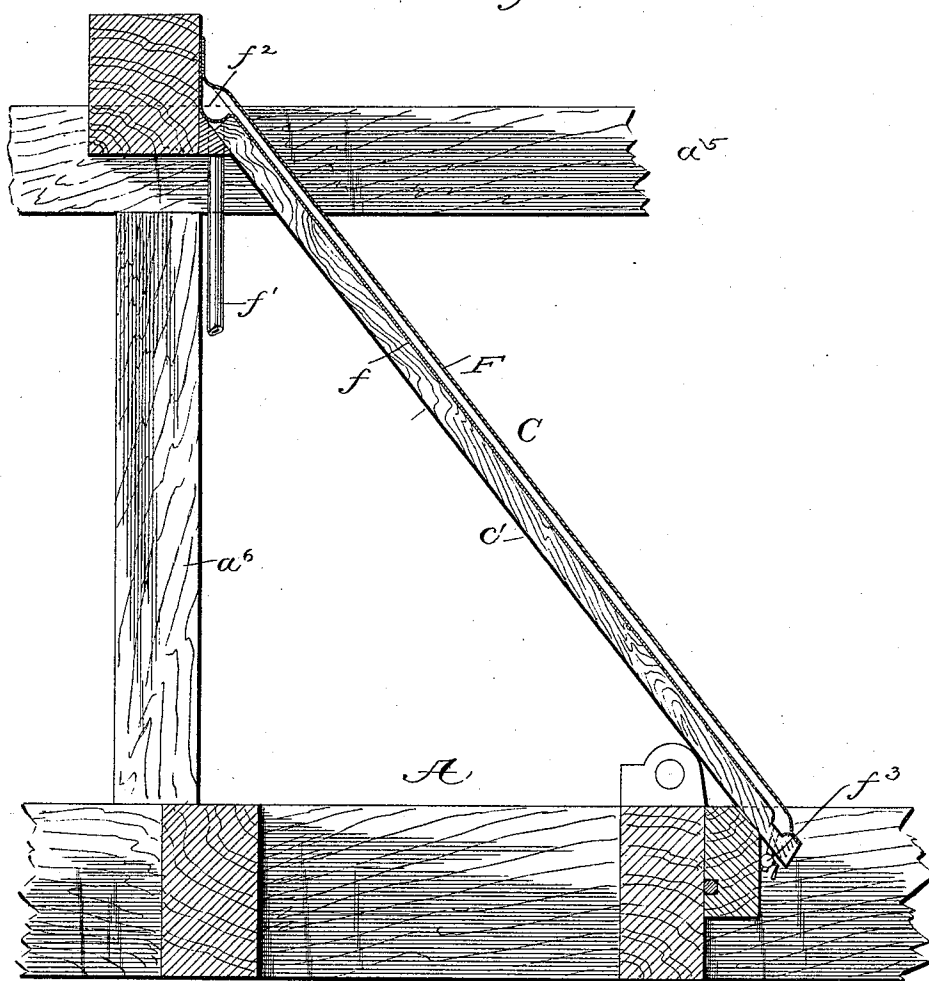
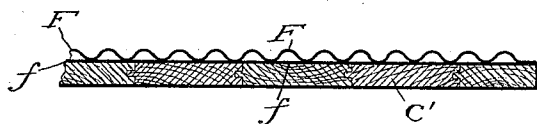


Fig. 7.



Witnesses:

W. W. Mortimer
N. R. Kennedy

Inventor:

Geo. Gibbs
By Phil. T. Dodge
Att'y

UNITED STATES PATENT OFFICE.

GEORGE GIBBS, OF MILWAUKEE, WISCONSIN.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 461,607, dated October 20, 1891.

Application filed May 20, 1891. Serial No. 393,412. (No model.)

To all whom it may concern:

Be it known that I, GEORGE GIBBS, of Milwaukee, county of Milwaukee, and State of Wisconsin, have invented a new and useful Improvement in Dumping-Cars, of which the following is a specification.

This invention relates to that class of cars for transporting ore and similar materials which are constructed to discharge or dump the contents through the bottom. Many ores, particularly iron ores, when first mined contain a large percentage of moisture, so that when loaded in this condition into cars in cold climates the entire contents become frozen and solidified into a solid mass, which it is impossible to discharge from cars of ordinary construction except at great expense and by destructive processes, it being necessary to employ a great amount of manual labor to break up the mass and frequently to employ blasting-powder, with, of course, destructive effects upon the car.

The aim of this invention is more particularly to provide a strong and simple car of such construction that the entire contents may be readily discharged without the necessity of breaking it up. To this end I construct the body of the car and its discharge-openings in such manner that the entire mass may escape without change of form, and in order to free the mass that it may thus escape I provide a false bottom through which steam may be circulated to loosen the hold of the material upon the car.

In the accompanying drawings, Figure 1 represents a side elevation of my improved car. Fig. 2 is a longitudinal vertical section of the same on the line 2 2 of Figs. 3, 4, and 5. Fig. 3 is a plan view of the frame-work. Fig. 4 is an end elevation of the car-body. Fig. 5 is a transverse section on the line 5 5 of Figs. 1, 2, and 3. Figs. 6 and 7 are detail views of the false bottom.

My car is constructed with a body having at opposite ends two V-shaped hoppers, the inner or adjacent walls of which are formed by doors, each hinged to swing downward toward and beyond the middle of the car. In constructing the car the first essential requisite is to build the frame in such manner that, being supported as usual, it will possess the necessary strength to carry the load, and

at the same time leave an open entirely unobstructed space between the trucks and across the entire width of the car, so that the doors or hopper-bottoms may be opened to the required extent, and that sufficient space may be left between the trucks to admit of the entire load of the hopper passing downward therethrough without change of form.

While I have represented in the drawings those details of the frame-work which I prefer to use in practice, it is to be understood that the framing may be modified at will, provided only it retains the characteristics above named.

Referring to the drawings, A represents a rigid frame-work of oblong rectangular form resting at its opposite ends upon the swiveled-wheeled trucks B B in the usual manner.

C C represent the two V-shaped hoppers to receive the ore located in opposite ends of the frame. The sides of these hoppers are formed by vertical side walls *c c*, fixed rigidly to the car-frame. Each hopper has its bottom formed of a rigid inclined wall *c'*, fastened to the car-frame near the end of the frame, and an inner inclined door *c²*, supported at its upper end by a hinge *c³* from a cross bar or beam *c⁴*, fixed rigidly across the top of the frame midway of its length, the edge of this swinging door being held in a closed position by means of hooks or latches *c⁵* engaging its lower edge. It will be observed that the space between the hinged hopper bottoms or doors *c²* is entirely open and unobstructed, so that when either door is released at its lower end it may swing not only downward, but also upward until it encounters the door at the opposite end, as shown by dotted lines in Fig. 2, thus entirely releasing the mass in the hopper and affording for its delivery a passage of increasing area in the direction of discharge, so that, although the contents of the hopper may be a rigid unyielding mass or block, it can pass down freely out of the hopper and through the central opening in the frame. There are several latches *c⁵* for each door, all mounted on a rock-shaft *c⁶*, controlled by an arm *c⁷* and an upright rod *c⁸*, having a locking shoulder *c⁹*, engaged under a bearing on the frame, where it is held by a wedge *c¹⁰*, or equivalent device, to prevent the parts from being accidentally unlocked.

It will be observed that in my car the contents of one hopper is discharged in a path which intersects the path of discharge from the other, so that the load can be delivered from only one end at a time.

I believe myself to be the first to construct a dump-car in such manner that the hopper door or bottom may swing downward and backward so far as to afford an outlet-passage of increasing size that the entire contents of the hopper may be delivered without change of form, and I also believe myself to be the first to construct a car with a central unobstructed opening through the frame of such character as to permit the passage of the entire load therethrough in a solid mass.

I recommend that the frame-work be constructed as represented in the drawings, in which—

a' a' represent the longitudinal side walls; a^2 a^2 , the short draft-sills; a^3 a^3 , the cross-sills at the ends; a^4 , the diagonal braces for stiffening the frame; a^5 , the longitudinal side timbers forming the top of the frame, and a^6 a^6 the posts or braces sustaining said timbers from the sills. The entire frame-work may be tied together and strengthened by truss-rods, as shown, or in any other suitable manner.

In order to overcome the adhesion of the ore to the car when frozen thereto, I propose to provide the hoppers at the bottom and also at the sides, if desired, with a false bottom or jacket of any suitable construction. The preferred construction of this bottom is represented in Figs. 2, 6, and 7, in which F represents a corrugated metal plate riveted to an underlying flat plate f , the two being seated and secured against the hopper bottom. A steam-pipe f' communicates through a transverse passage f^2 with the interior passages between the metal sheets, thus allowing steam to be introduced to heat the entire surface of the load. A drainage-pipe f^3 is provided for the discharge of the water of condensation at the lower edge.

Having thus described my invention, what I claim is—

1. In a dumping-car, a frame having an unobstructed discharge-opening between the trucks, in combination with two hoppers located at opposite ends of said opening, their inner walls formed by doors hinged at the top and each adapted to swing downward and backward in such manner as to permit the delivery of the entire contents of each hopper without change of form, whereby a mass of frozen ore or other solid material may be delivered without being broken up.

2. In a dumping-car, the combination of a frame having a bottom discharge-opening therethrough, a hopper having one of its inclined walls fixed in position and its entire opposite wall hinged to swing downward and backward to or beyond a plane parallel with that of the stationary wall, whereby a frozen or other solid load may be delivered bodily from the hopper.

3. In a dumping-car, the frame provided with sustaining-trucks at its ends and with the wholly unobstructed opening between said trucks, in combination with the fixed inclined walls forming the outer sides of the hoppers, and the two doors hinged at their upper ends and forming the entire inner walls of the hoppers, each of said doors adapted to swing downward and backward into the path of the other.

4. In a dumping-car, the frame having the unobstructed central discharge-opening through its bottom, in combination with the central cross-beam at the top and the two doors hinged to said beam and forming the bottoms of the respective hoppers.

5. In a dumping-car, a false bottom or lining applied to the inner surface of its hopper or receptacle and adapted for the passage of steam or other heating fluid therethrough.

In testimony whereof I have hereunto set my hand, this 18th day of April, 1891, in the presence of two attesting witnesses.

GEO. GIBBS.

Witnesses:

P. T. DODGE,
C. S. DRURY.