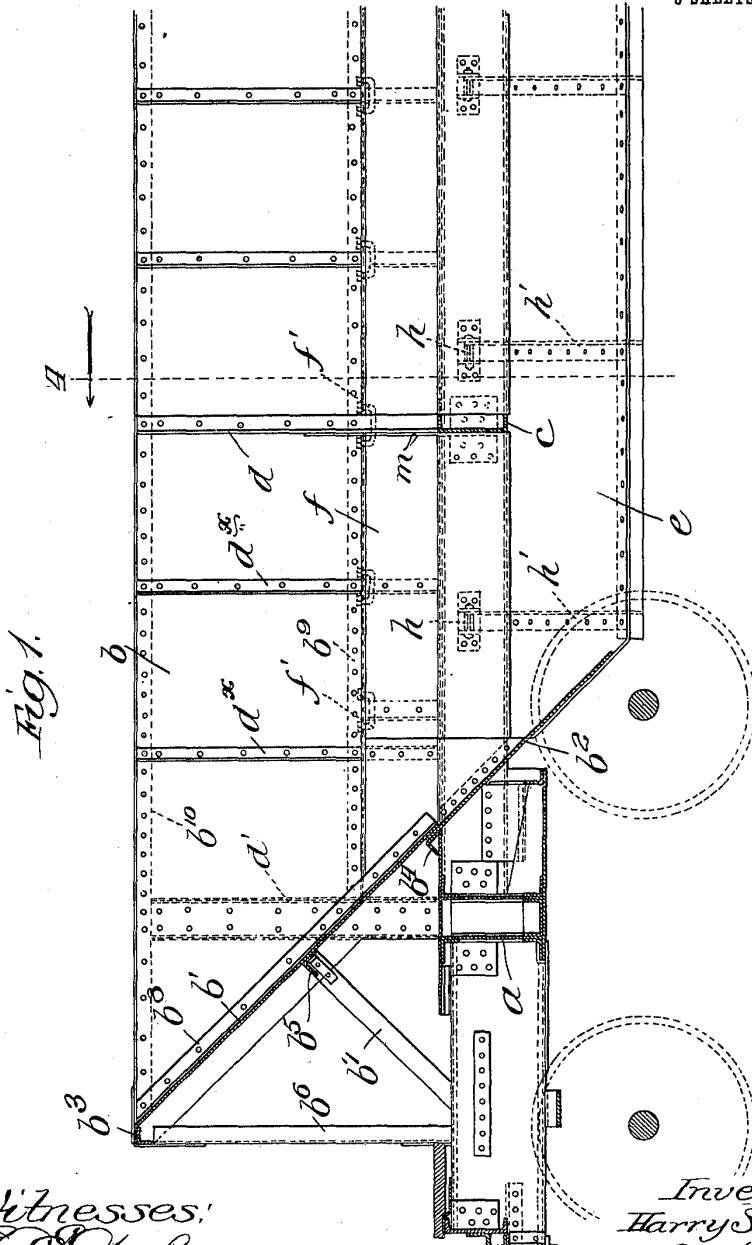


H. S. HART & J. O. NEIKIRK.
 DUMP CAR.
 APPLICATION FILED OCT. 13, 1906.

992,192.

Patented May 16, 1911.

5 SHEETS—SHEET 1.



Witnesses:
Ed. O. Chylord.
John Enders.

Inventors:
Harry S. Hart,
John O. Neikirk.
 By *Thomas F. Sheridan,*
Att'y.

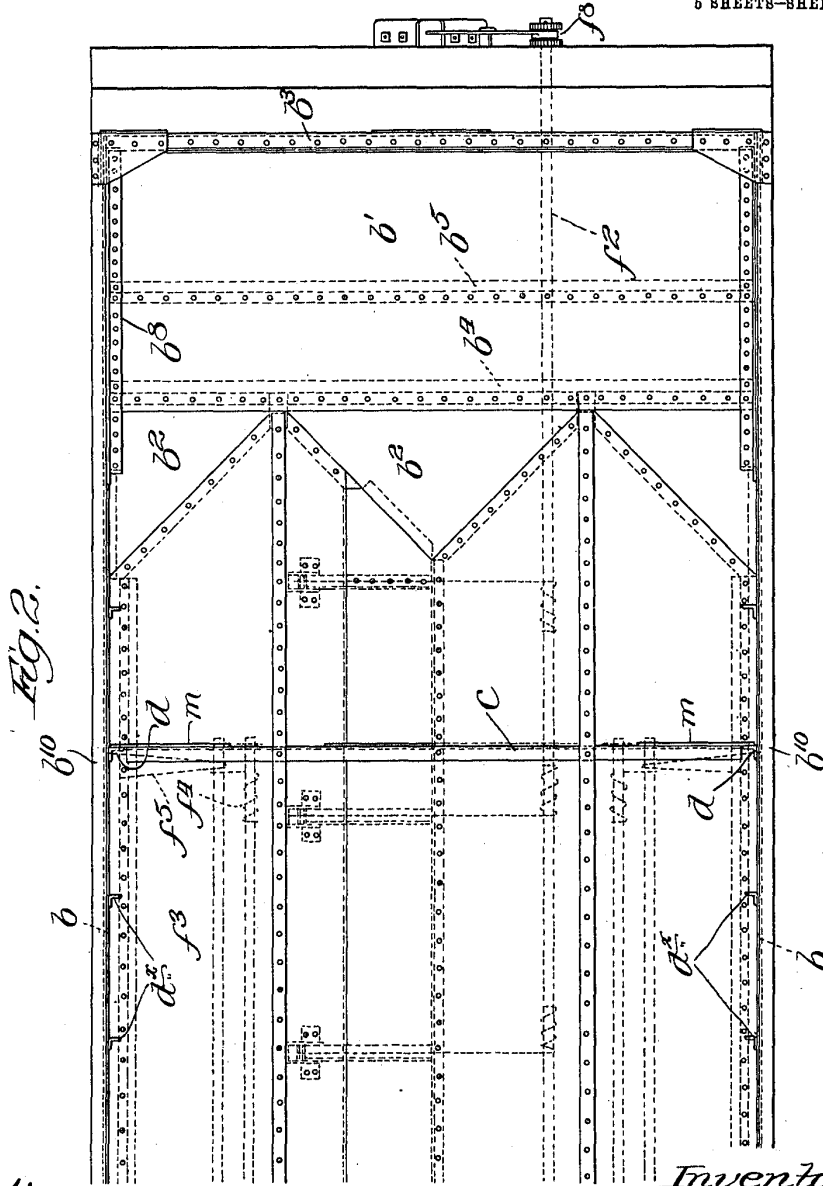
THE NORRIS PETERS CO., WASHINGTON, D. C.

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5 SHEETS—SHEET 2.



Witnesses:
 Carl Taylor,
 John Enders.

Inventors:
 Harry S. Hart,
 John O. Neikirk,
 By Thomas P. Sheridan,
 Atty.

THE NORRIS PETERS CO., WASHINGTON, D. C.

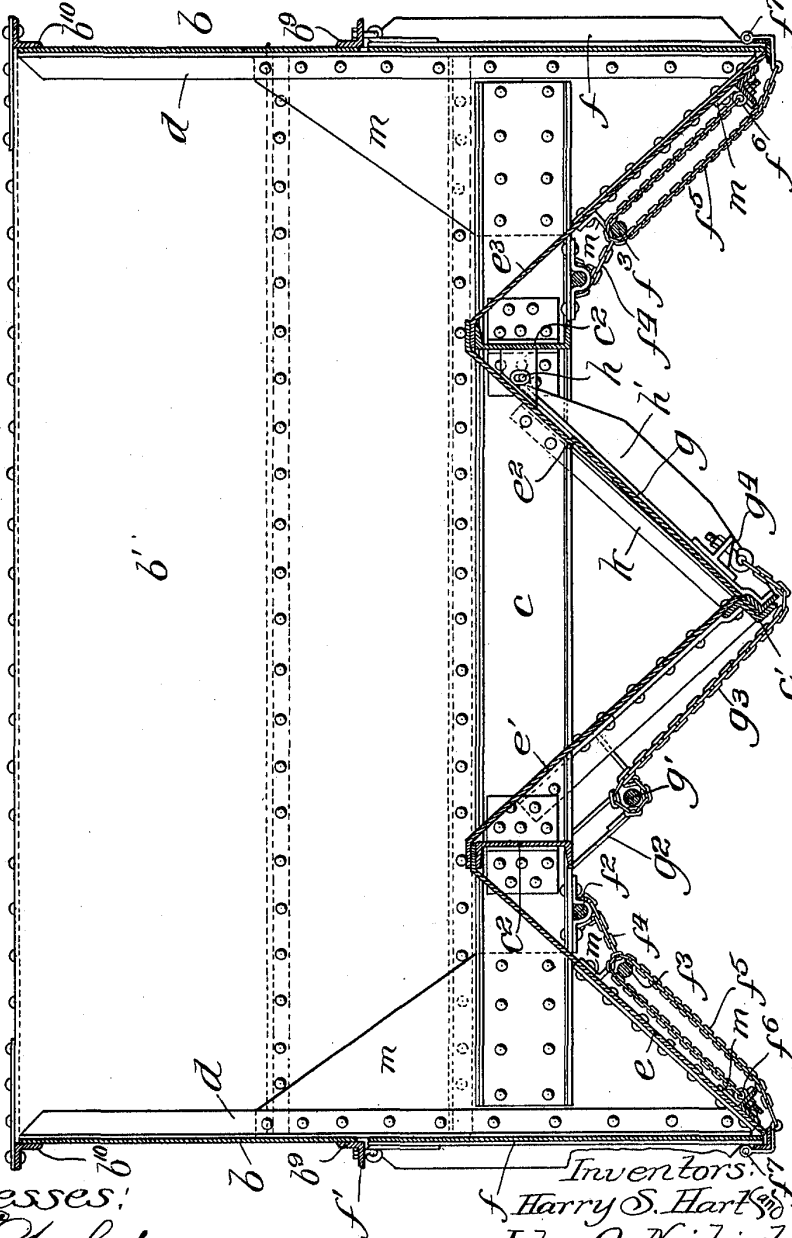
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5 SHEETS-SHEET 4

Fig. 1.



Witnesses:
 E. C. Taylor,
 John Enders.

Inventors:
 Harry S. Hart
 John O. Neikirk,
 By Thomas P. Sheridan,
 Att'y.

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6 SHEETS-SHEET 5.

Fig. 6.

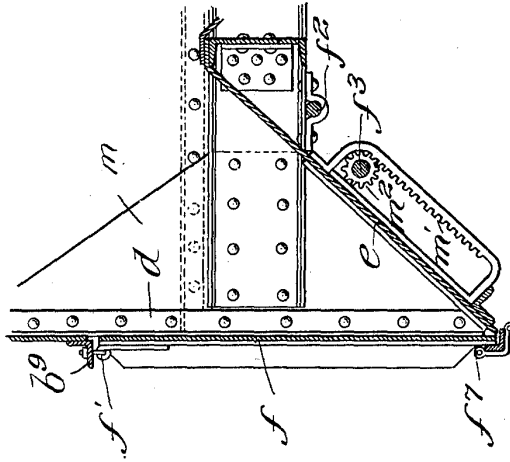
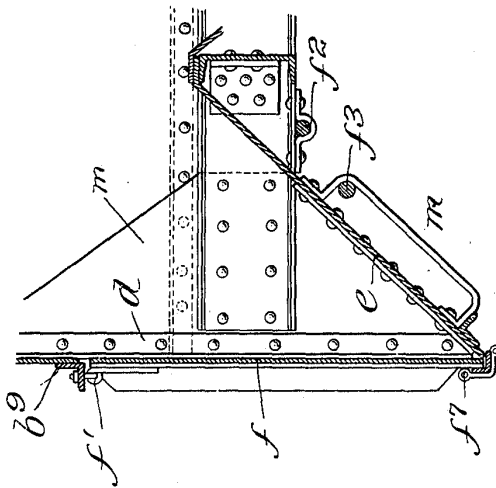


Fig. 5.



Witnesses:
Edw. J. Taylor,
John Enders.

Inventors:
Harry S. Hart,
John O. Neikirk,
By Thomas P. Sheridan,
Att'y.

UNITED STATES PATENT OFFICE.

HARRY S. HART AND JOHN O. NEIKIRK, OF CHICAGO, ILLINOIS, ASSIGNORS TO RODGER BALLAST CAR COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF MAINE.

DUMP-CAR.

992,192.

Specification of Letters Patent. Patented May 16, 1911.

Application filed October 13, 1906. Serial No. 338,840.

To all whom it may concern:

Be it known that we, HARRY S. HART and JOHN O. NEIKIRK, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dump-Cars, of which the following is a specification.

Our invention relates to dump cars, especially to cars of the type known as the "Hart convertible car;" and has for its object to provide an improved car of this type in which provision is made for the efficient and rapid unloading of the car and for distributing the load throughout the load sustaining members of the car.

In the accompanying drawings—Figure 1 is a longitudinal elevation, partly in section, of a car embodying our invention. Fig. 2 is a plan view of a portion of one end of our improved car. Fig. 3 is a plan view of a portion of our car, certain parts being removed to show the construction of the underframe. Fig. 4 is a transverse sectional view on the line 4 of Fig. 1. Fig. 5 is a detail view of a part of the door operating mechanism. Fig. 6 is a modified form of the structure shown in Fig. 5.

In carrying out our invention we provide a car the underframe of which comprises bolsters *a*, intermediate cross members *c* and suitable longitudinal sills *e*² connected to the bolsters and to the cross members, as shown. Suitably secured to the bolsters at each side of the car are posts or stakes *d*¹ shown in Figs. 1 and 3 as formed of channel beams and to these posts are connected the plate girder sides *b*, these plate girder sides having a lower longitudinal member *b*⁹ and an upper member *b*¹⁰ formed of channel iron. It will be observed that the lower member *b*⁹ of the plate girder side is supported a suitable distance above the floor level of the car. The plate girder sides are further supported by stakes *d* of angle iron, these stakes extending downwardly below the level of the transverse members, as shown in Fig. 4, and the stakes *d* are suitably connected to the transverse members of the underframe by gusset plates *m*, as shown in Fig. 4. Angle iron brace members *d*^x further serve to brace the plate girder sides, these members extending between the top and bottom longitudinal angle irons of the sides. The upper angle iron of the plate

girder sides extends beyond the bolster to an upright *b*⁶ hereinafter described.

The bottom of the car is shown as formed of hopper portions comprising a central hopper portion formed by the downwardly and inwardly extending plates *e*¹, *e*² secured at their upper ends to the longitudinal members *e*² of the underframe, one of the plates *e*¹ being secured to the longitudinal bar *c*¹ extending the entire length of the central hopper portion. The other side of the central hopper portion is formed of a similar downwardly and inwardly extending plate *e*² connected at its upper end to the longitudinal member *e*² of the underframe, and by braces *h* to the opposite member of the central hopper portion. The central hopper is provided with doors *g* provided upon their under sides with braces *h*¹. The braces *h*¹ extend above the upper edges of the doors *g* and are hinged to brackets *z* secured to two longitudinal members *e*². By this means the hinges *h* lie beneath the stationary hopper plate *e*² where they are protected from being clogged by the lading transported in the car. Suitable hopper portions are also formed at each side of the central hopper portion by downwardly and outwardly extending plates *e* and *e*³ attached at their upper ends to the longitudinal members *e*² of the underframe and at their lower ends to the lower ends of the stakes *d*—clearly shown in Fig. 4. Suitably hinged, as at *f*¹, to the sides of the car, are doors *f* so hinged as to swing outwardly when released. It will be observed that the upper member *b*¹⁰ of the plate girder side extends beyond the end of the supporting post *d*¹ and has connected to its outer end a support *b*⁶, this support *b*⁶ being in turn connected to a short side sill *b*²⁰ extending from the bolster toward the end of the car, and the end sill *e*³ is in turn connected to the short side sills. It will be seen that the end sills are carried or hung from the extension of the side plate girders. Suitable draft beams *c*⁴ are connected to the end sill and to the bolster, as will be readily understood.

It will thus be seen that we have provided a car with hopper portions and doors so arranged as to deposit the load of the car at the sides or at the center, or both, as may be desired.

By supporting the plate girder sides above the floor level of the car, it will be seen that

we provide a suitable space between the lower member of the sides and the floor of the car. We thus provide a wide opening through which the material may be dumped from either side of the car, as will be readily understood from an inspection of Fig. 4. We also provide a car having high sides, which serve to retain the load efficiently and transmit this load to the bolsters by which it is ultimately carried.

In order to operate the side doors, we provide the following mechanism: Winding shafts f^2 are arranged longitudinally of the car and extend through the end sills, where they are provided with any suitable operating device f^3 . We also provide what we term a drop shaft f^3 mounted in suitable inclined guides m . The drop shaft f^3 is connected by a chain f^4 to the winding shaft, and the chain f^5 passes around the drop shaft and is secured at its ends to the hopper bottom and to the side door, respectively, the connection to the door being shown at f^7 and to the hopper bottom at f^6 . By unwinding the chain f^4 the drop shaft is allowed to travel downwardly in its guides, thus permitting the door to open, and it will be observed that as the chain connected to the winding shaft is unwound twice the length of the chain, which is connected to the door, will be released, thus permitting the door to open to that increased extent.

It will be readily understood that the winding shaft and its connection to the drop shaft may be omitted and the drop shaft operated directly by any suitable means. For example, the shaft may be provided with pinions engaging racks upon the guides, as clearly indicated in Fig. 6, the shaft in this instance being, of course, provided with a suitable operating means at its ends.

In order to operate the central door g , we show a winding shaft g^1 mounted in suitable bearings g^2 in the underframe of the car and connected by the chain g^3 to the door, the connection being shown at g^4 . b^1 represents the inclined ends of the car and b^2 the inclined ends of the hopper bottom, the ends of the car being suitably supported by upper and lower transverse brace members b^3 and b^4 , respectively, the upper brace member being supported from the sides of the car and suitably braced by an upright b^5 . The lower portion of the end of the car is secured to a transverse member b^4 , which also serves to support the upper portion of the end of the hopper. Transverse braces b^5 and inclined braces b^7 serve to further strengthen the ends of the car. Suitable metallic pieces b^8 , which may be of angle bar—as shown—serve as supports for the sides of the car ends, as will be readily understood.

It will be seen that we have provided an all-metal ballast or dump car, providing therein means for dumping the load from the

hopper bottom either at the sides or the center of the car in which the load is carried by the plate girder sides and the bolsters.

We claim:

1. A dump car of the class described, having a frame, the load carrying members of which consist of bolsters and plate girder sides, a bottom comprising a series of three hoppers secured to the frame, swinging doors hinged to the sides and forming part of the car side, a swinging door secured to the intermediate hopper, and means for operating the doors.

2. In a car of the class described, the frame of which comprises bolsters and cross ties placed at what is ordinarily the floor level of the car, longitudinal articulated members connecting said bolsters and cross ties, hopper portions supported by said articulated members on each side thereof, and load carrying plate girder members extending longitudinally of the car in a vertical plane and supported at or about the end of the bolsters and having their lower edges disposed above the plane of the bolsters.

3. A car of the class described, having bolsters, supports or posts suitably connected to the bolsters at the ends thereof, side plate girders extending between the posts and supported above the plane of the bolsters, side sills extending from the bolster toward the end of the car, said side sills being hung from an extension of the plate girders, end sills supported by the side sills, stakes secured to said side plate girders projecting below the lower edge thereof, cross members secured to the lower ends of said stakes, and a floor supported by said cross members and stakes.

4. In a car of the class described, a suitable frame, plate girders supported above the plane of the bolsters and carrying said frame, bolsters carrying the plate girders, and three longitudinal hoppers supported by the frame.

5. A dump car of the class described, provided with a swinging door, means for operating the swinging door, comprising a bodily movable shaft and a flexible connection secured at one end to a fixed portion of the car frame and at the other end to the swinging door and engaging the movable shaft at an intermediate point, and means for operating the movable shaft.

6. A dump car of the class described, provided with a swinging door, means for operating the door, comprising a bodily movable shaft supported in the car frame, a flexible connection passing around the shaft and attached at one end to the door and at its other end to the car frame, and means for guiding and operating the shaft.

7. A dump car of the class described, provided with a swinging door, means for operating the door, comprising a bodily movable

shaft supported in the car frame, a winding shaft also journaled in the car frame, a flexible connection secured at one end to the winding shaft and at the other end to the

5 bodily movable shaft, and a flexible connection between the bodily movable shaft and the swinging door.

8. A dump car of the class described, provided with a swinging door, means for operating the door, comprising a bodily movable shaft supported in the car frame, a winding shaft, a flexible connection between the winding shaft and the bodily movable shaft, and a flexible connection secured at one end to the car frame and at the other end to the swinging door and engaging the bodily movable shaft at an intermediate point, substantially as described.

9. In a car of the class described, a central longitudinal hopper, side longitudinal hoppers having downwardly and outwardly inclined bottoms, and plate girder side members supporting said hoppers.

10. In a car of the class described, bolsters, end walls inclining downwardly above said bolsters, draft sills lying wholly outside said end walls, plate girder sides supported by said bolsters, a cross member between said bolsters and supported by said plate girder sides, longitudinal sills intermediate the center and sides of the car and supported by said cross beam, and hoppers sloping downward from said longitudinal sills toward the center and sides of the car, said hoppers being supported by said intermediate longitudinal sills, cross member and plate girder sides.

11. In a car of the class described, bolsters, end walls inclining downwardly above said bolsters, draft sills located wholly outside of said end walls, stakes extending upwardly from the ends of said bolsters, plate girder sides supported by said stakes, a cross beam between said bolsters and supported by said sides, longitudinal sills intermediate the center and sides of the car, said intermediate sills being supported by said cross beam, and a longitudinal central hopper sloping downwardly toward the center of the car between said intermediate sills and supported thereby and by said cross beam.

12. In a car of the class described, bolsters, end walls inclining downwardly above said bolsters, draft sills wholly outside of said end walls, stakes extending upwardly from said bolsters, plate girder sides supported by said stakes above the plane of the bolsters, a cross member supported by said sides, longitudinal sills intermediate the center and sides of the car and supported by said cross member, hopper bottoms between said intermediate sills and between said intermediate sills and the car sides.

13. In a car of the class described, bolsters, end walls inclining downwardly above said bolsters, draft sills wholly outside of said end walls, stakes extending upwardly from said bolsters, plate girder sides supported by said stakes above the plane of the bolsters, a cross member supported by said sides, longitudinal sills intermediate the center and sides of the car and supported by said cross member, hopper bottoms between said intermediate sills and between said intermediate sills and the car sides, and doors hinged to the lower edge of said plate girder sides.

14. In a car of the class described, bolsters, ends sloping downwardly above said bolsters, draft sills wholly outside said ends, plate girder sides supported by said bolsters, longitudinal central and side hoppers, cross members supported by said plate girder sides, longitudinal sills at the junction of said central and side hoppers, said longitudinal sills being supported by said cross members.

15. In a car of the class described, a central longitudinal hopper having sides inclining toward the center of the car, side hoppers each having a bottom section inclining toward the side of the car, bolsters, plate girder sides supported by said bolsters, an underframe between the bolsters supported by said plate girder sides, and doors hinged to the lower edges of said plate girder sides.

HARRY S. HART.
JOHN O. NEIKIRK.

Witnesses:

CHARLES F. TUTS,
WILLIAM T. JONES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."