

No. 689,583.

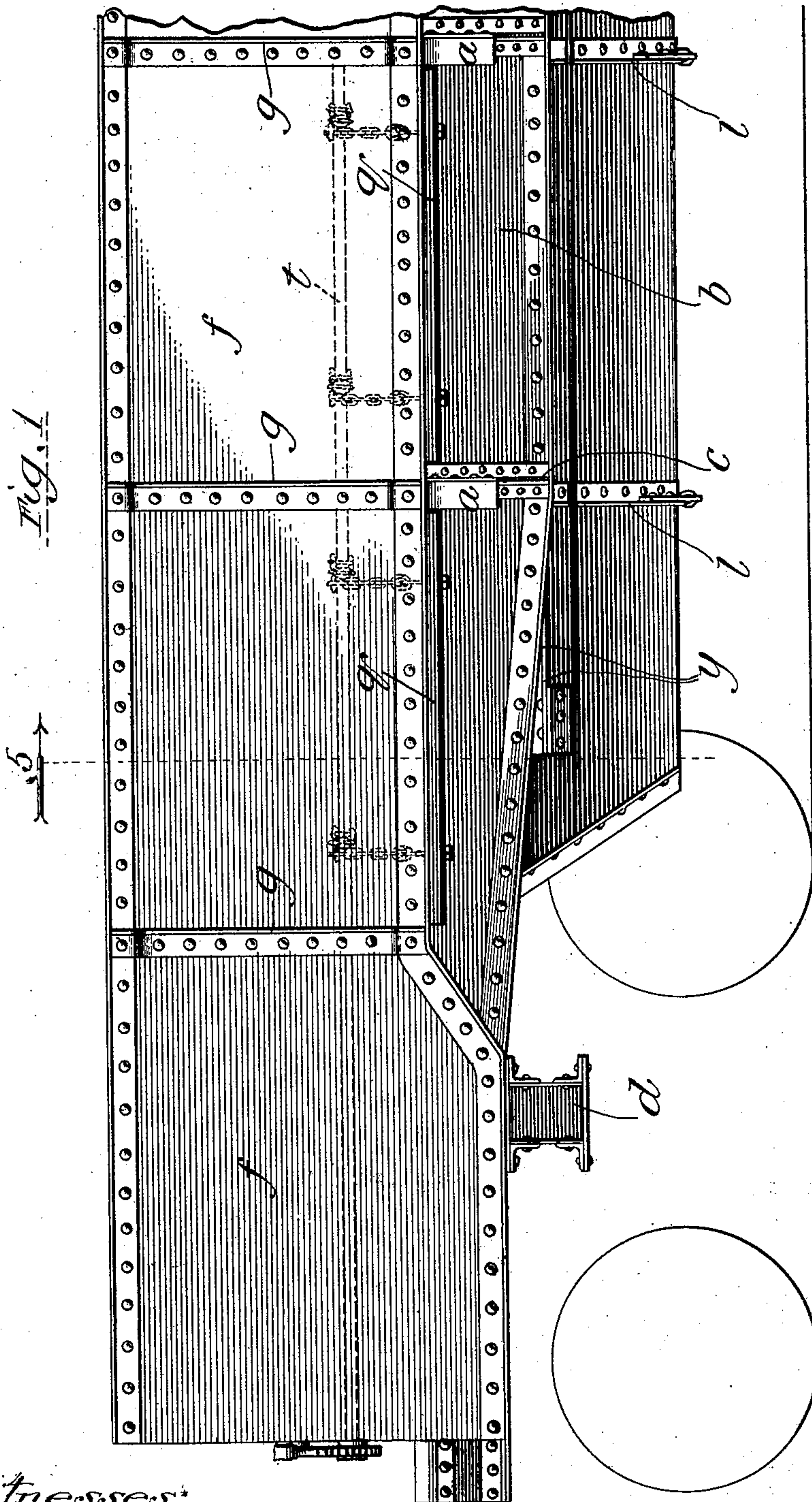
Patented Dec. 24, 1901.

H. S. HART.  
CONVERTIBLE DUMP CAR.

(Application filed June 8, 1901.)

(No Model.)

5 Sheets—Sheet 1.



Witnesses:

Harold M. Bant  
Letcher V. Day

Inventor  
Harry S. Hart

By Thomas F. Sheridan  
Atty

No. 689,583.

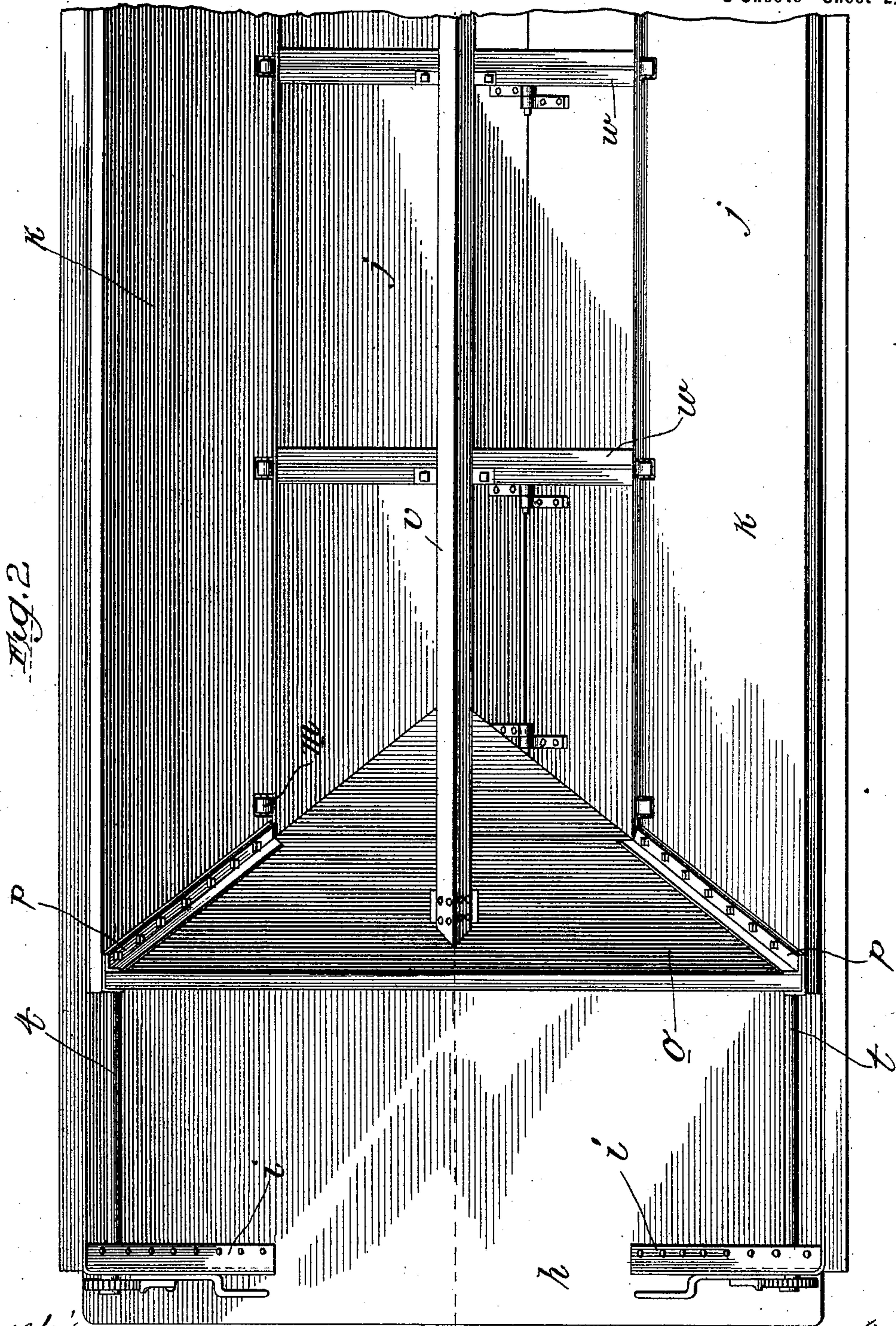
Patented Dec. 24, 1901.

H. S. HART.  
CONVERTIBLE DUMP CAR.

(Application filed June 8, 1901.)

(No Model.)

5 Sheets—Sheet 2.



*Witnesses*  
*Harold A. Bennett*  
*Leitcher V. Day.*

*Inventor*  
*Harry S. Hart*  
*By Thomas F. Fehleman*  
*Atty.*



No. 689,583.

Patented Dec. 24, 1901.

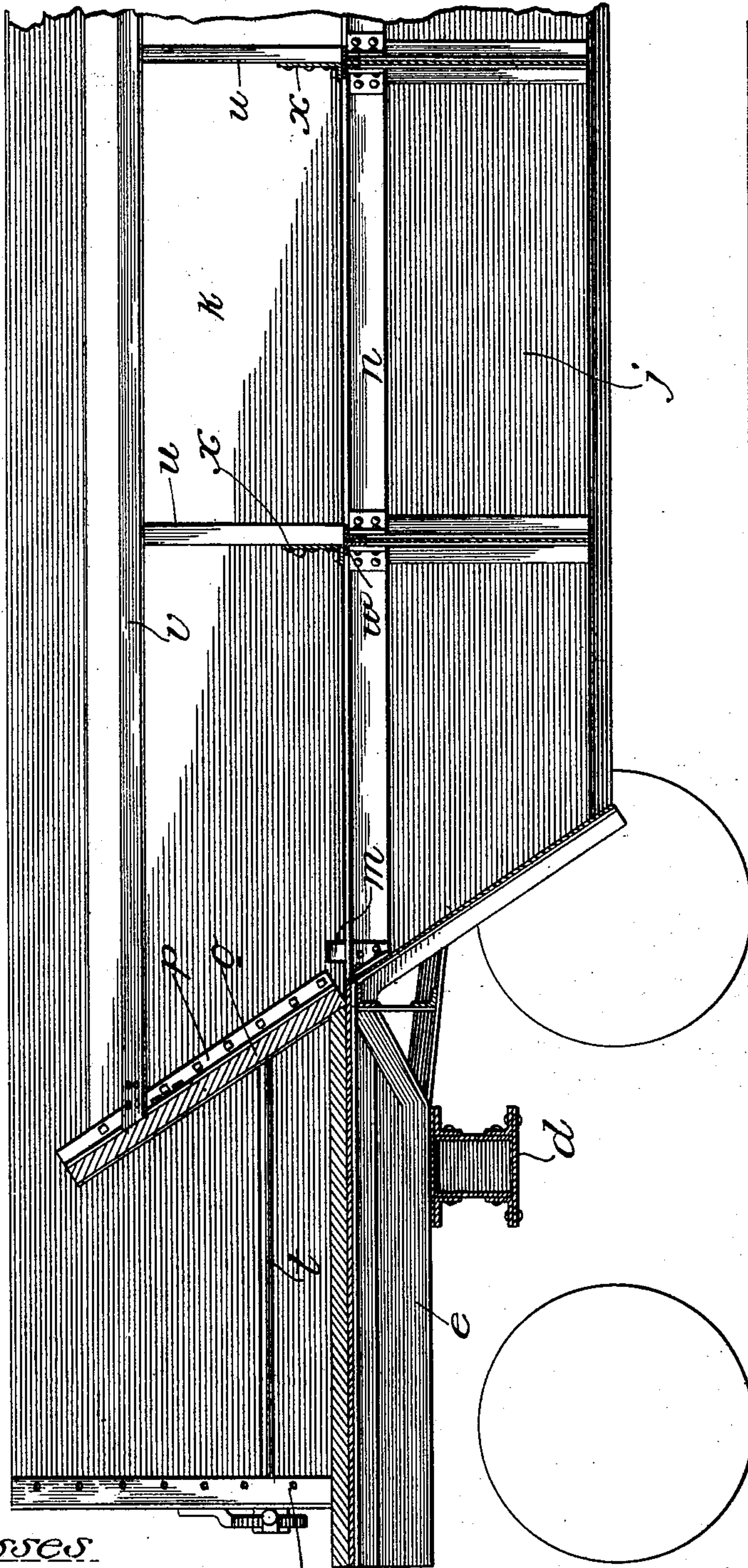
H. S. HART.  
CONVERTIBLE DUMP CAR.

(Application filed June 8, 1901.)

(No Model.)

5 Sheets—Sheet 3.

Fig. 3



Witnesses

Harold E. Barrett

Letcher V. Day

Inventor  
Harry S. Hart

By Thomas F. Shelden  
Atty

No. 689,583.

Patented Dec. 24, 1901.

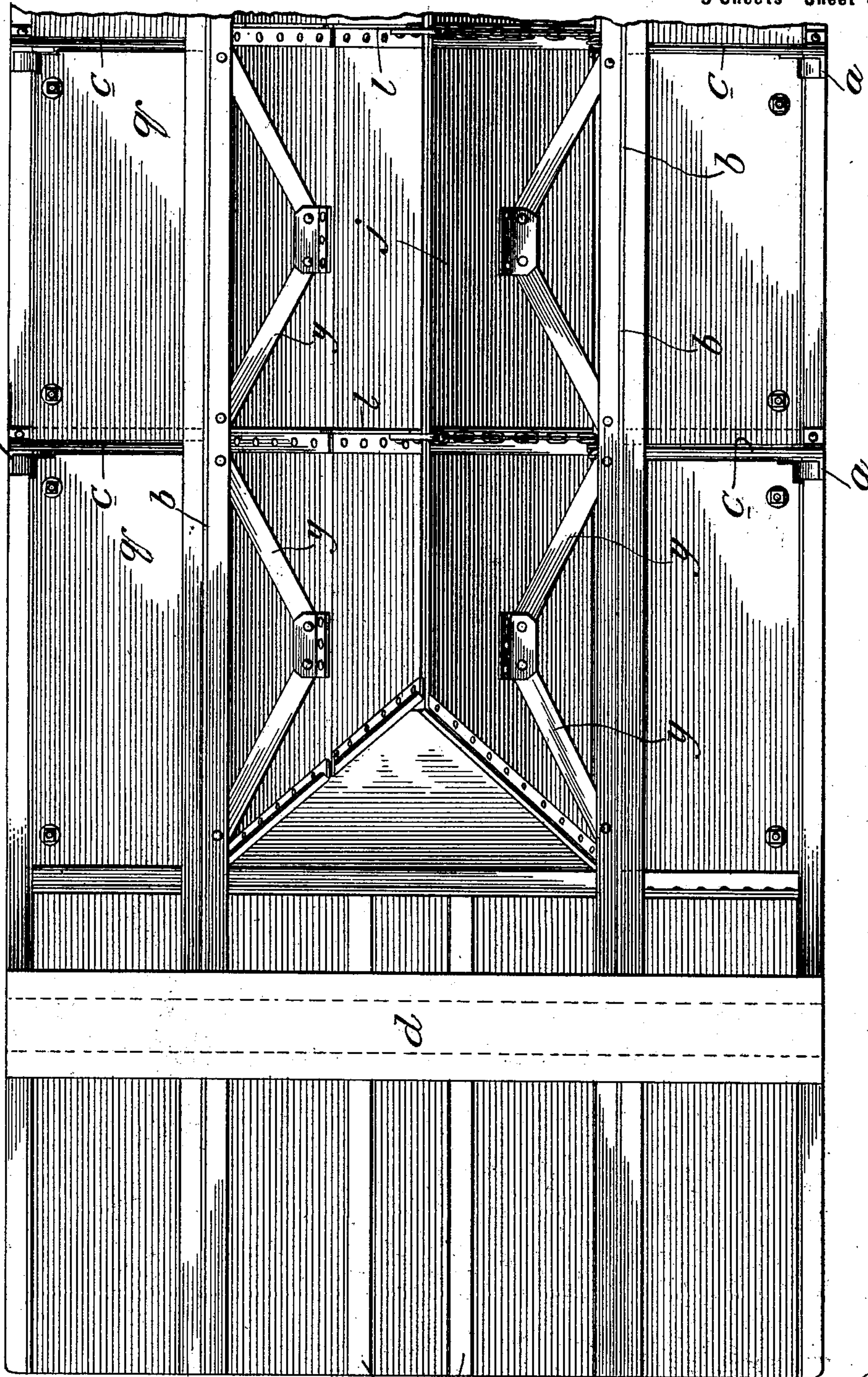
H. S. HART.  
CONVERTIBLE DUMP CAR.

(Application filed June 8, 1901.)

(No Model.)

5 Sheets—Sheet 4.

Fig. 4



Witnesses:  
Harold H. Bant  
Letcher V. Day.

Inventor:  
Harry S. Hart.  
By Thomas E. Pearson  
Attorney



No. 689,583.

Patented Dec. 24, 1901.

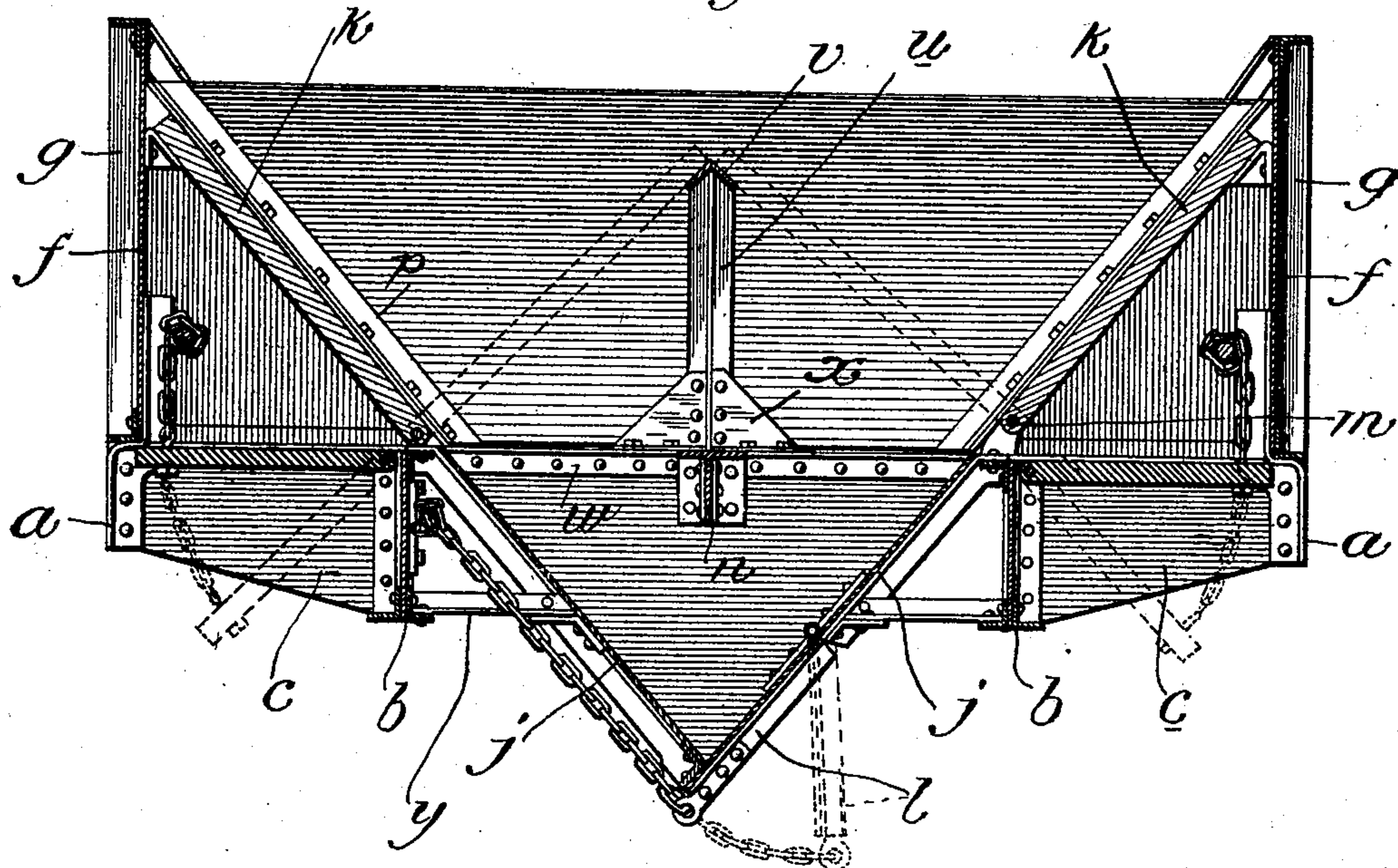
H. S. HART.  
CONVERTIBLE DUMP CAR.

(Application filed June 8, 1901.)

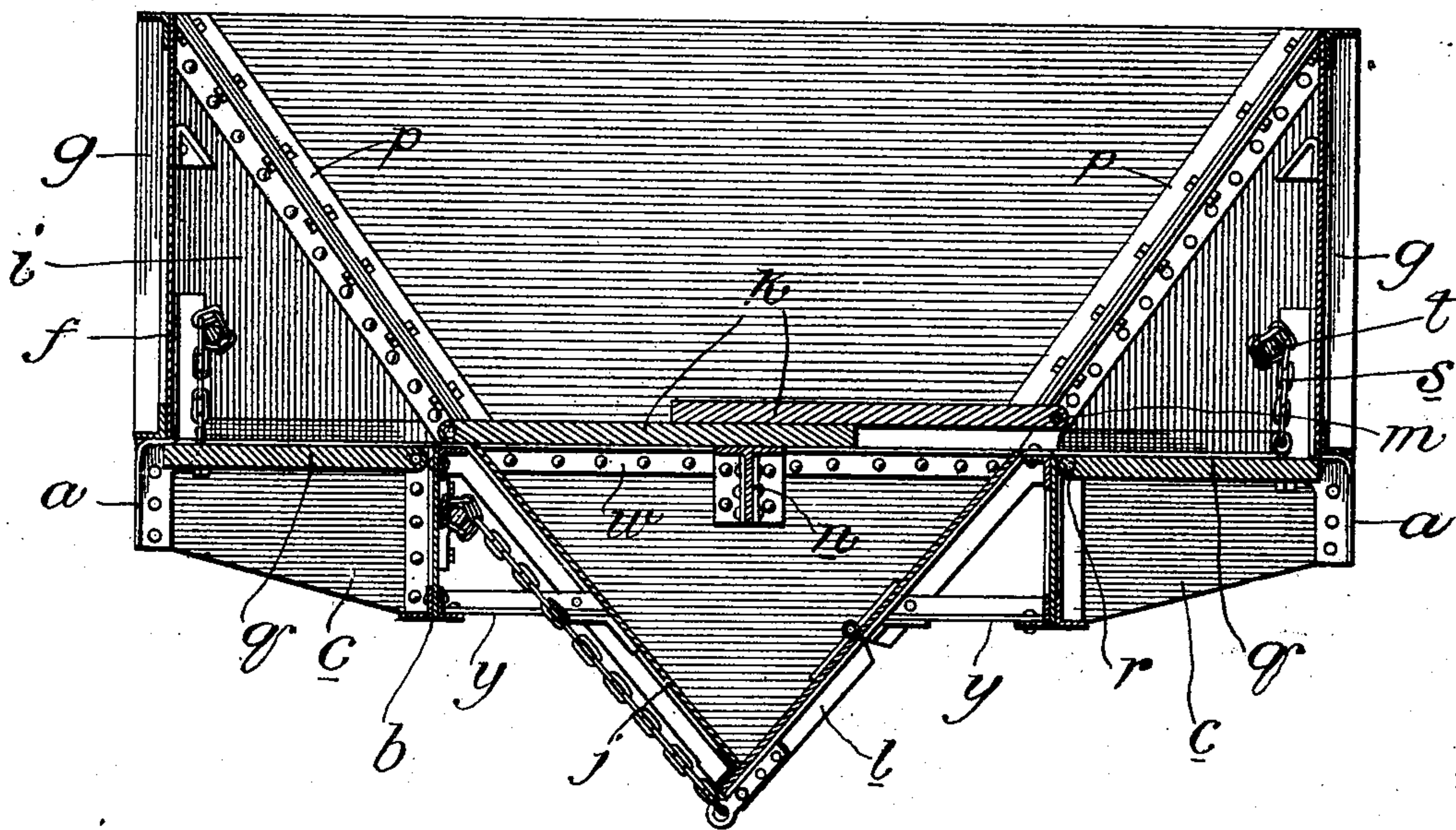
(No Model.)

5 Sheets—Sheet 5.

*Fig. 5*



*Fig. 6*



*Witnesses:*

*Harold E. Barrett,*  
*Leitch V. Day.*

*Inventor*  
*Harry S. Hart.*

*By Thomas F. Spencer*

*Atty.*



# UNITED STATES PATENT OFFICE.

HARRY STILLSON HART, OF CHICAGO, ILLINOIS, ASSIGNOR TO RODGER BALLAST CAR COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## CONVERTIBLE DUMP-CAR.

SPECIFICATION forming part of Letters Patent No. 689,583, dated December 24, 1901.

Application filed June 8, 1901. Serial No. 63,741. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY STILLSON HART, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Convertible Dump-Cars, of which the following is a specification.

My invention relates to that class of cars which may be converted from a flat-bottom "gondola" car into a ballast-car of the well-known "Rodger" type, or from one or the other of these types into a hopper-bottom side-dumping car—that is, a car which is substantially A-shaped in cross-section, having an inclined hopper-bottom extending from a central longitudinal line at or near the top of the car downwardly and outwardly toward the dumping sides or bottoms—all of which will more fully hereinafter appear.

The principal object of the invention is to provide a simple, economical, and efficient ballast-car—that is, a car having a hopper-bottom the apex of which extends longitudinally of the car at or near the central part thereof, and in which the discharging-door is arranged at or near the apex—which by rearrangement of certain parts may be converted into a hopper-bottom side-dumping car or a car which is A-shaped in cross-section, with dumping-doors at or near the depending leg of each side, and which by a further rearrangement may be converted from either one of those types into a gondola car—that is, a car with a flat bottom and substantially vertical side and end doors.

The invention consists in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a portion of a car constructed in accordance with these improvements; Fig. 2, a plan view of the same, showing the car as it appears when arranged to form a car of the well-known Rodger type of ballast-car, looking at it from above; Fig. 3, a longitudinal sectional elevation taken on line 3 of Fig. 3; Fig. 4, a plan view of the under side of the car shown in Figs. 2 and 3 looking at it from below; Fig. 5, a cross-sectional elevation of the body of the

car, taken on line 5 of Fig. 1, looking in the direction of the arrow, and also showing a car converted into a dumping ballast-car of the well-known Rodger type; and Fig. 6, a cross-sectional view of the mechanical elements shown in Fig. 5 with the parts arranged to form what is known as a "gondola" car—that is, a car with a flat bottom and vertical side and end boards.

In the art to which this invention relates it is well known that it is highly desirable to have a car so constructed and arranged that at certain seasons of the year, principally summer, when the elements permit, it may be used to carry ballast—that is, the car should have a hopper the inclined side portions of which should meet at an apex longitudinal of the car at or near the central portion thereof and be provided with one or more dumping-doors so arranged as to dump the ballast in a desired manner between the tracks. It is also well known that it is quite desirable at other seasons of the year or whenever desirable or necessary that these cars should be capable of a rearrangement of the elements, so as to form a gondola or other type of car to carry other freights; otherwise, it will be seen that the different railroads would require a vast quantity of special cars which would lie idle at such time or times that they were not in use for transporting the particular loads for which they were adapted. In this older way therefore it will be seen that it requires an immense investment of capital for a large number of cars, many of which would be idle for a large portion of the time and which would not earn all that it is possible for either this capital or the cars to earn, all of which will be understood and appreciated by those skilled in this particular art. The principal object therefore of this invention is to provide a car that may be arranged to carry many different kinds of freight—either ballast, coal, ore, or freight of any kind.

In illustrating and describing these improvements I have only illustrated or described those portions or parts of a car which I consider to be new, taken in connection with so much that is old as will properly dis-



close the invention to others and enable those skilled in the art to practice the same, leaving out of consideration other and well-known elements, which, if illustrated and described herein, would only tend to confusion, prolixity, and ambiguity.

In constructing a car in accordance with these improvements I make a supporting-frame of the desired size and shape and provide it with a plurality of depending posts or pieces *a* at each side of the car extending downwardly from the floor and which are braced and connected to the intermediate I-beams *b*, which form intermediate sills at different portions throughout their length by means of gusset-plates *c c*, thus acting to make a very efficient structure, as shown particularly in Figs. 1, 3, and 4, and dispensing with the ordinary side sills. Body-bolsters *d* are further provided, formed of metal or otherwise, as may seem desirable or necessary, and which are connected to the side and intermediate sills. These intermediate sills are further braced or strengthened, by means of the pieces *y*, to the hopper portion, and all of the parts taken together form a box-girder. Two longitudinal center draft-sills *e*, also formed of metal, are provided and secured to the body-bolsters and other parts in such a manner as to transmit the buffing strains and shocks incident to the use of the car throughout its entire length. While I prefer to make these members of metal, as shown in the drawings and described above, I do not desire to be limited to the use of this material, as it will be understood by those skilled in the art that the invention can be embodied in a car containing the usual wooden members.

In order to furnish the necessary elements for the convertible car, two vertical side boards *f* are provided and secured to the depending posts by means of the vertical stakes *g* and further braced to the flooring *h* of the car, as shown in Figs. 2 and 3, by means of the angle-blocks *i*, which are vertically arranged at or near each end and on the inside of the side boards, as shown at Fig. 6, and form a portion of the end walls, as will be more fully hereinafter described. These side boards when made of steel form side girders and are arranged as shown in Fig. 1 and supported on the body-bolster, thus acting to sustain a large portion of the load.

It is desirable first to describe and show the elements that are used in forming the ballast-car of the well-known Rodger type, and to provide the necessary elements for this type of car inclined hopper sides are formed, each of which is made in two sections *j* and *k*, arranged longitudinally, the apex of which is substantially coincident with the longitudinal center, as shown clearly in Figs. 2 and 4. The lower section of this hopper-bottom is substantially immovable—that is, it is rigidly secured to the frame of the car, so that the position of such elements is never changed,

but remains substantially the same. One of such lower sections is provided with a dumping-door *l*, (shown particularly in Figs. 5 and 6,) out through which the material may be discharged at the correct angle to form a pile of ballast between the tracks. The inclined upper sections of this hopper-bottom are pivoted at their lower portions to the frame of the car, as shown at *m*, so that they may be inclined at one time, as shown in Fig. 5, over and outwardly against the side walls of the car to form in connection with the lower portion a ballast-car of the Rodger type, or, as shown in Fig. 6, down upon a removable center supporting-beam *n* to form in connection with other elements hereinafter described a flat-bottom gondola car. When the parts are in the position shown in Figs. 1, 2, and 5, it is necessary that inclined end boards be provided, so that all the material may be easily discharged. In order to provide for this arrangement, inclined end boards *o* are provided and secured to the inclined hopper sides by means of the angle-plates *p*, thus completing the hopper-bottom ballast-car.

To form a flat-bottom gondola car, two side floor-sections *q* are provided, on which when the inclined side hopper-sections are folded downwardly to form a flat bottom, as shown in Fig. 6, these side floor portions complete the floor of the car. The inclined ends *o* are next removed, together with their "angle-plates," which are bolted thereby to the flanged portions of the angle-blocks *i*, thus completing the vertical end boards of the car and thereby the gondola car. It is also desirable that the same car should be capable of being converted into a car for carrying ore, a car for carrying coal, or a car for carrying any kind of material which it may be desirable to dump at each side of the tracks. In order to provide for this result, these side floor portions *q* are pivoted or otherwise hinged to the frame of the car and held in their up position by means of the chains *s*, which are secured to the free edges of the dumping-floor and to rock-shafts *t*, which hold such floor-sections in position. The removable supporting center beam is further provided with upwardly-extending center posts *u*, inclined at the upper portion and tied together by means of an angle-beam *v*, so that the upper inclined hopper sides *k* may be swung from the position shown in full lines in Fig. 5 over and inwardly, so as to rest upon the angle-plate on the center supporting-beam, as shown in dotted outline, thus providing a hopper portion substantially A-shaped in cross-section and having the dumping floor-sections at or near each end thereof, through which the material may be dumped to either or both sides of the track. This center supporting-beam when desirable or necessary is braced to the frame of the car by means of cross-pieces *w*, which are secured thereto and to the frame of the car, as shown particularly in Figs. 2 and 3, and to which and the vertical posts gusset-pieces *x* are secured.



From the foregoing description of construction and operation it will be seen that there are many advantages incident to a car constructed in accordance with these improvements, the principal one being that for practically the same amount of money that it would cost to build one type of car a railroad company can have a car adapted to carry many different kinds of freight, thus saving a tremendous outlay in cars and capital and requiring less yard room, all of which will be thoroughly appreciated by those skilled in the art. Further, the lines of a ballast-car can be exactly followed, and, finally, a dumping-car is provided which may dump between the tracks when desired or carry freight of the desired kind and dump it on either or both sides of the track.

I claim—

1. In a car of the class described, the combination of a supporting-frame portion, a hopper portion having its apex arranged longitudinal of and at or near the center of the car and provided with a discharging-door at or near the central portion thereof, the inclined side portions of which are made in movable and immovable sections—the movable sections arranged to be folded downwardly to form the flat bottom of a car and upwardly and outwardly to form the inclined side of the hopper portion to discharge material through the center of the car, and inwardly and upwardly to form a dumping-car substantially A-shaped in cross-section, substantially as described.

2. In a car of the class described, the combination of a supporting-frame portion, a hopper portion having its apex arranged longitudinal of and at or near the center of the car and provided with a discharging-door to dump material between the tracks, the inclined sides of which are made in two sections—one rigidly secured to the frame portion and the other foldably secured thereto so that it may be laid in a flat plane to form the bottom of a gondola car, inclined upwardly and outwardly to form the inclined sides of a central-dumping-hopper car and inclined inwardly and upwardly to form the inclined bottom of a side-dumping car, and dumping floor-sections pivotally secured to the car at or near each side thereof, through which material may be dumped at either or both sides of the car, substantially as described.

3. In a car of the class described, the combination of a supporting-frame portion, a hopper portion having its apex arranged longitudinally thereof and at or near the center, the inclined portions of which are made in two portions—the lower rigidly secured to the frame of the car and provided with a discharging-door forming a portion of the inclined bottom and the upper foldably secured thereto so that it may be laid in a flat plane to form the bottom of a gondola or flat-bottom car, inclined upwardly and outwardly to form a portion of the hopper sides of a cen-

tral-discharging car, inclined inwardly and upwardly to form the inclined bottom of a side-discharging-hopper car, dumping floor-sections pivotally secured to the car at or near each side and longitudinal thereof through which material may be dumped from either or both sides of the car, and a removable center sill for supporting the inclined upper movable portions of the hopper in an inclined plane, substantially as described.

4. In a car of the class described, the combination of a supporting-frame portion, a hopper portion with its apex arranged longitudinal thereof at or near the center of the car, the side portions of which are made in two sections—one a lower immovable section secured to the frame of the car and provided with a discharging-door forming an inclined portion thereof, the upper portion pivotally secured in position so as to form in one position an inclined portion of the hopper in another position the flat bottom of a gondola car, and in still another position to form the inclined hopper-bottom of a side-discharging car, dumping floor-sections arranged at each side of the car longitudinal thereof forming a part of the flat bottom of the car out through which material may be dumped to either or both sides of the track, and end portions arranged in one position to form an inclined portion of the central-dumping hopper and in another position to form the vertical end walls of a gondola car, substantially as described.

5. In a car of the class described, the combination of a supporting-frame portion provided with vertical side boards and hinged dumping floor portions arranged at or near each side of the car, a hopper portion with its apex arranged longitudinal of the car at or near the central portion thereof and made in two sections—a lower immovable section secured to the car-frame and provided with a discharging-door forming an inclined part at the lower portion thereof, the upper sections pivotally hinged in position at or near the floor-level to complete a flat floor in one position, inclined to form a portion of the central-discharging hopper in the second position, and inclined inwardly and upwardly to form the bottom of a side-discharging hopper, and end portions arranged to be inclined in one position to complete the central-discharging hopper and in another position between the side boards of the car to complete the vertical end walls for a gondola car, substantially as described.

6. In a car of the class described, the combination of a supporting-frame portion provided with vertical sides and hinged dumping floor portions arranged at or near each side of the car, a hopper portion with its apex arranged longitudinal of the car at or near the central portion thereof and made in two sections—a lower immovable section secured to the car-frame and provided with a discharging-door forming an inclined part at the



lower portion thereof, the upper sections pivotally hinged in position at or near the floor-level to complete a flat floor in one position, inclined upwardly and outwardly to form a  
 5 portion of a central-discharging hopper in the second position; and inclined inwardly and upwardly to form a side-discharging-hopper bottom, end portions arranged to be inclined in one position to complete the central-dis-  
 10 charging hopper and arranged vertically between the side boards of the car to form end walls for and complete a gondola car in the second position, and a central removable supporting member interposed between the end  
 15 walls of the car longitudinal thereof to support the inclined hopper-bottom when arranged to form a side-discharging car, substantially as described.

7. In a car of the class described, the combination of a supporting-frame portion, a hop-  
 20 per portion having its apex arranged longitudinal of the car at or near the center thereof, the upper inclined portion of which is adapted to be moved and laid in a horizontal  
 25 plane to complete the flat bottom of a gondola car, and side-dumping floor-sections at each side of the car longitudinal thereof arranged to be operated to dump material at either or both sides of the car, substantially  
 30 as described.

8. In a car of the class described, the combination of a supporting-frame portion, a hop-

per portion having its apex arranged longitudinal of and at or near the center of the car and provided with a discharging-door at  
 35 or near its apex, the inclined side portions of which are made in movable and immovable sections—the movable sections arranged to be folded downwardly and laid in a horizontal  
 40 plane to complete the flat bottom of a gondola car; and dumping floor-sections arranged parallel and outside of the movable hopper-sections and out through which material can be discharged to either or both sides of the car, substantially as described. 45

9. In a car of the class described, the combination of a supporting-frame portion, a hop-  
 per portion having its apex arranged longitudinal of and at or near the center of the car, the upper portion of which is pivotally  
 50 secured to the car-frame and arranged to be moved into one position to form an A-shaped dumping-car and into a second position to complete the flat bottom of a gondola car,  
 55 and dumping floor-sections arranged parallel and outside of such hopper-sections through which material may be dumped to either or both sides of the car, substantially as described.

HARRY STILLSON HART.

Witnesses:

THOMAS F. SHERIDAN,  
 HARRY IRWIN CROMER.