

No. 674,087.

Patented May 14, 1901.

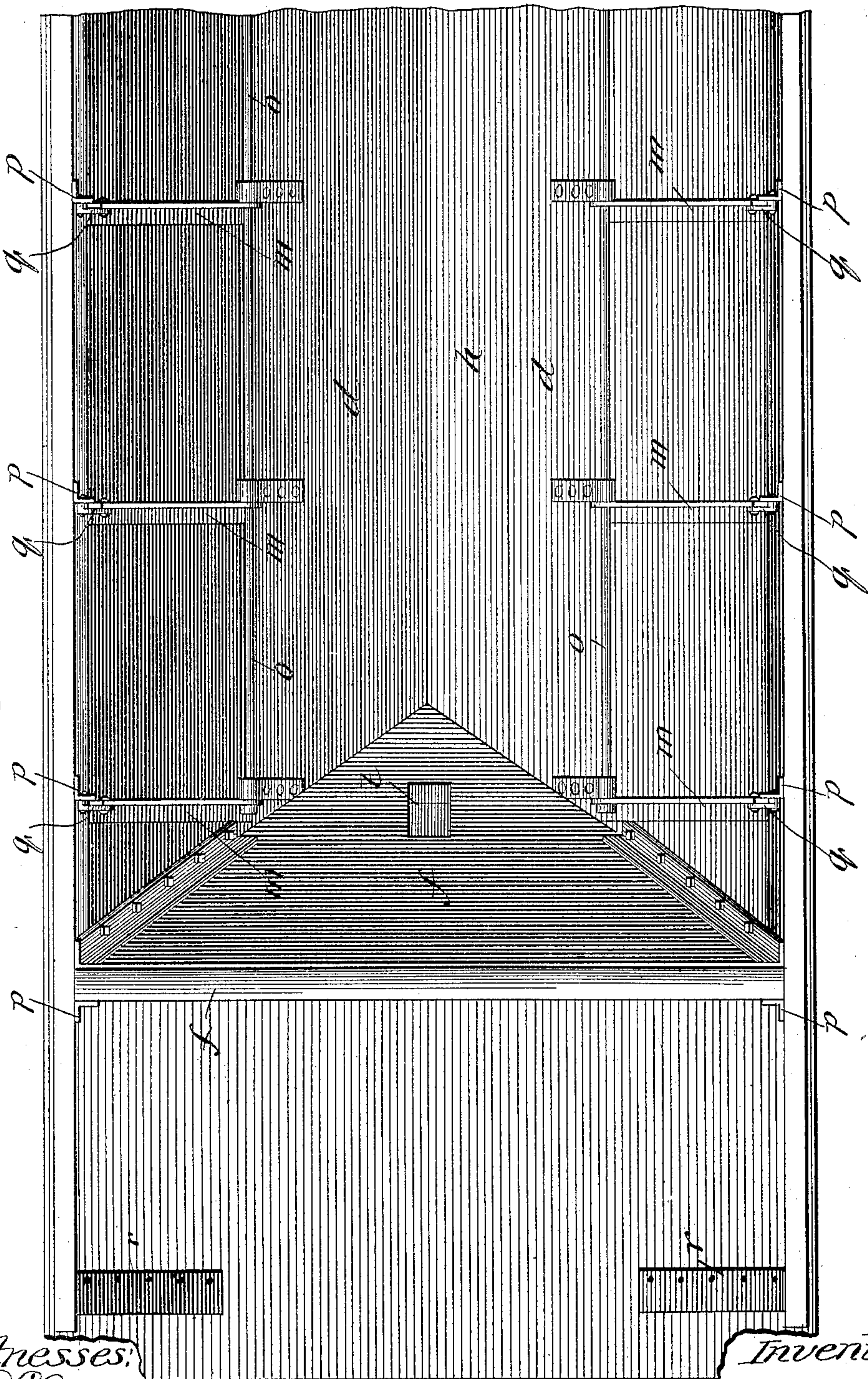
H. S. HART.
CONVERTIBLE DUMP CAR.

(Application filed Feb. 4, 1901.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



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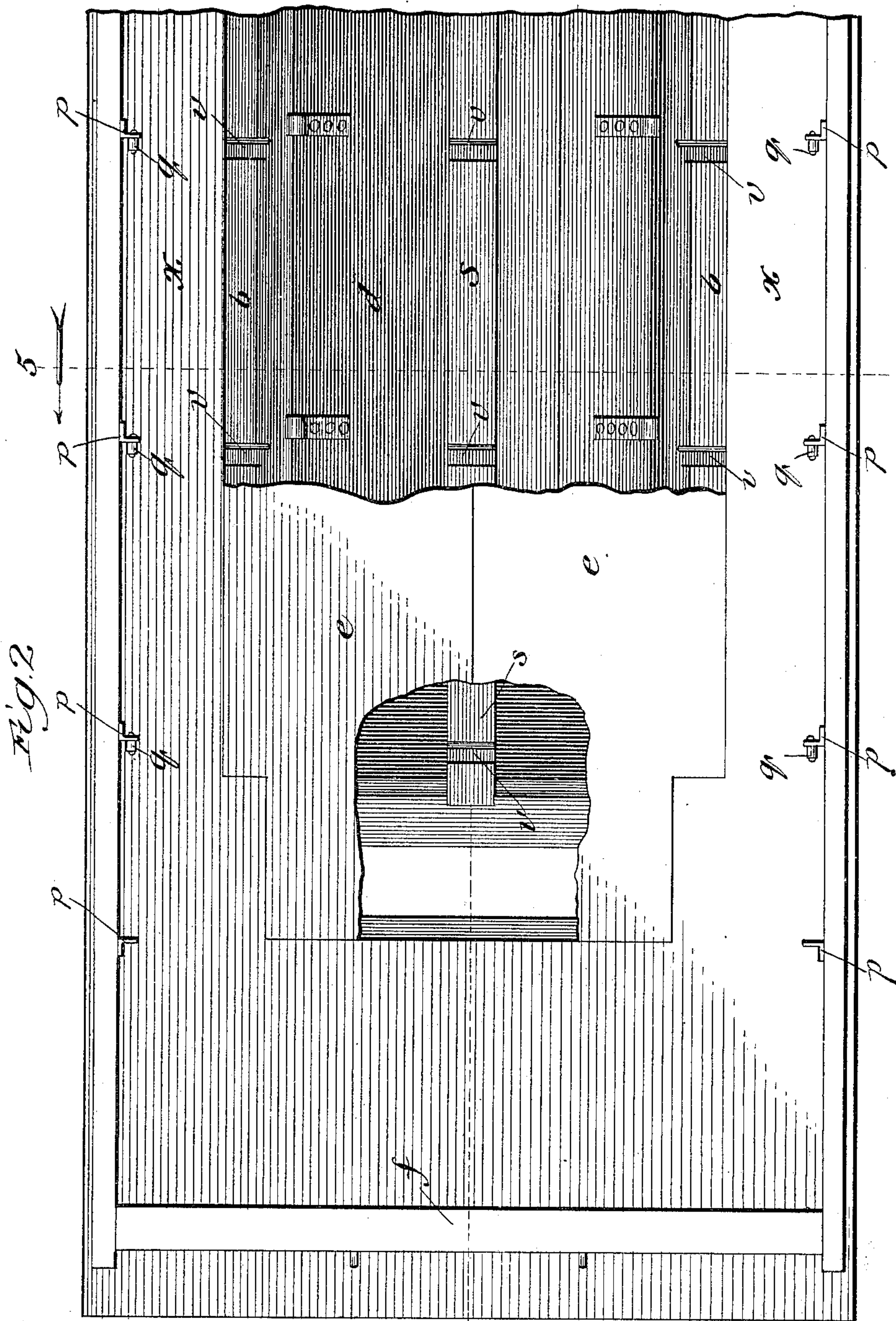
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4 Sheets—Sheet 2.



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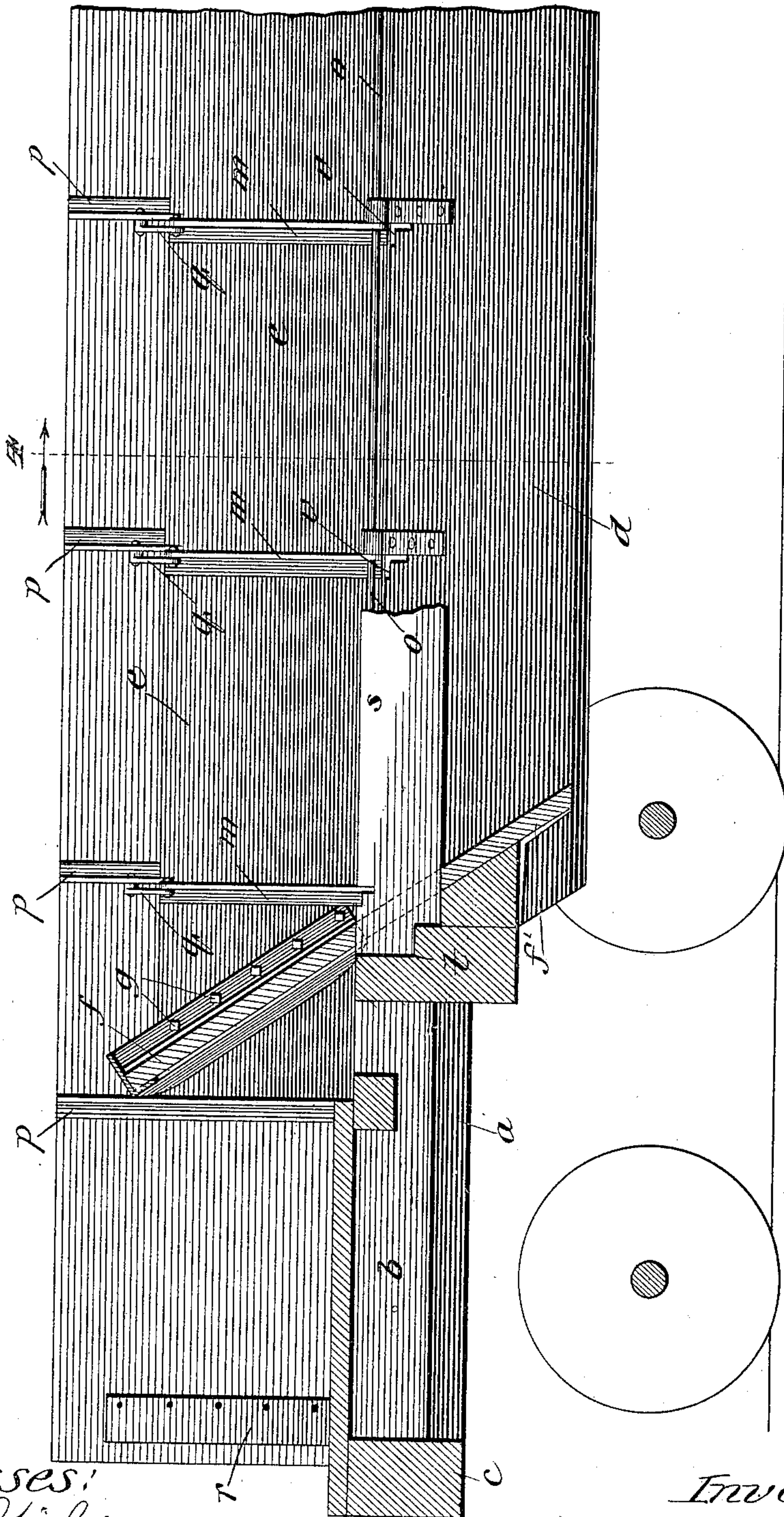
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Fig. 3.



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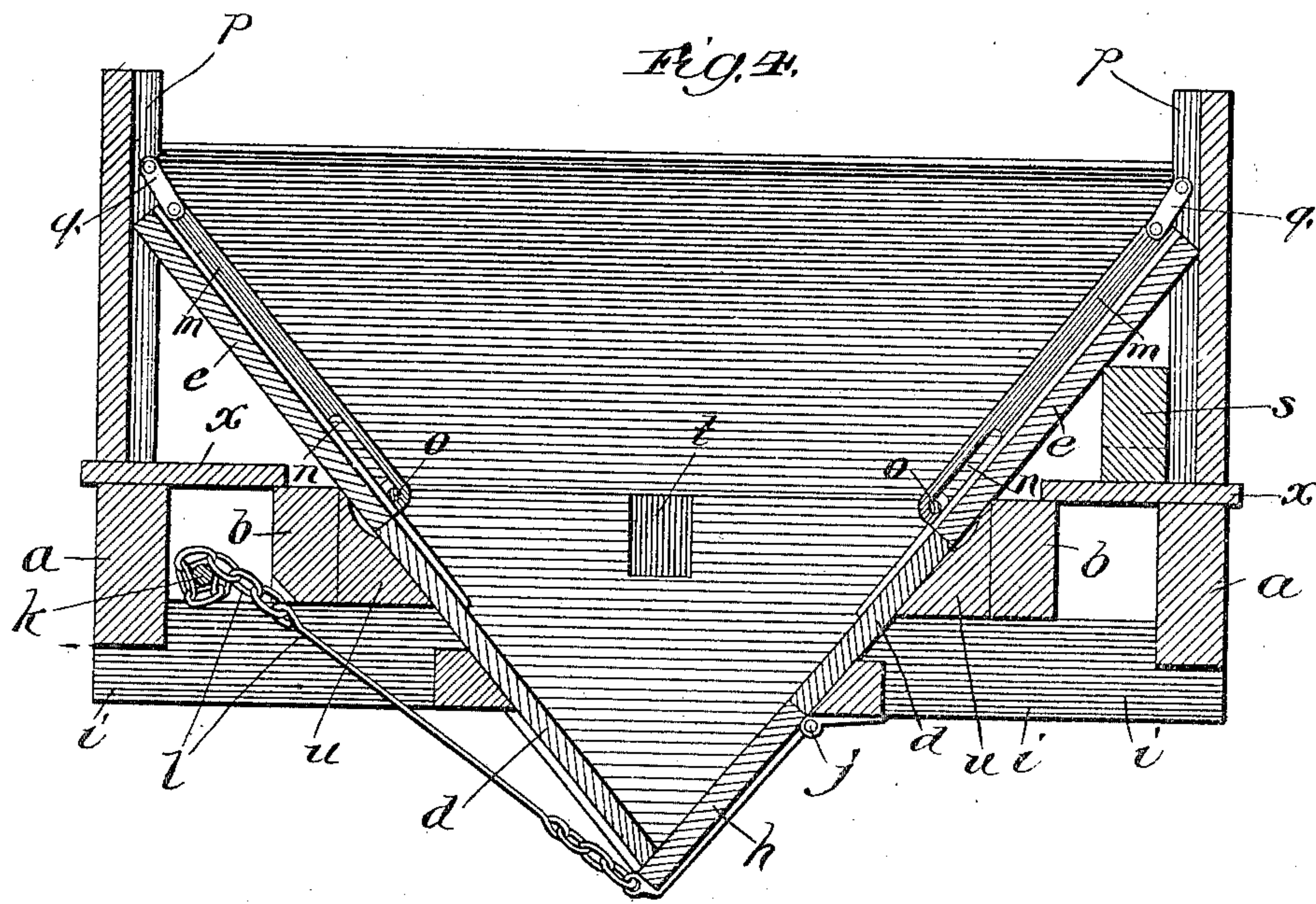
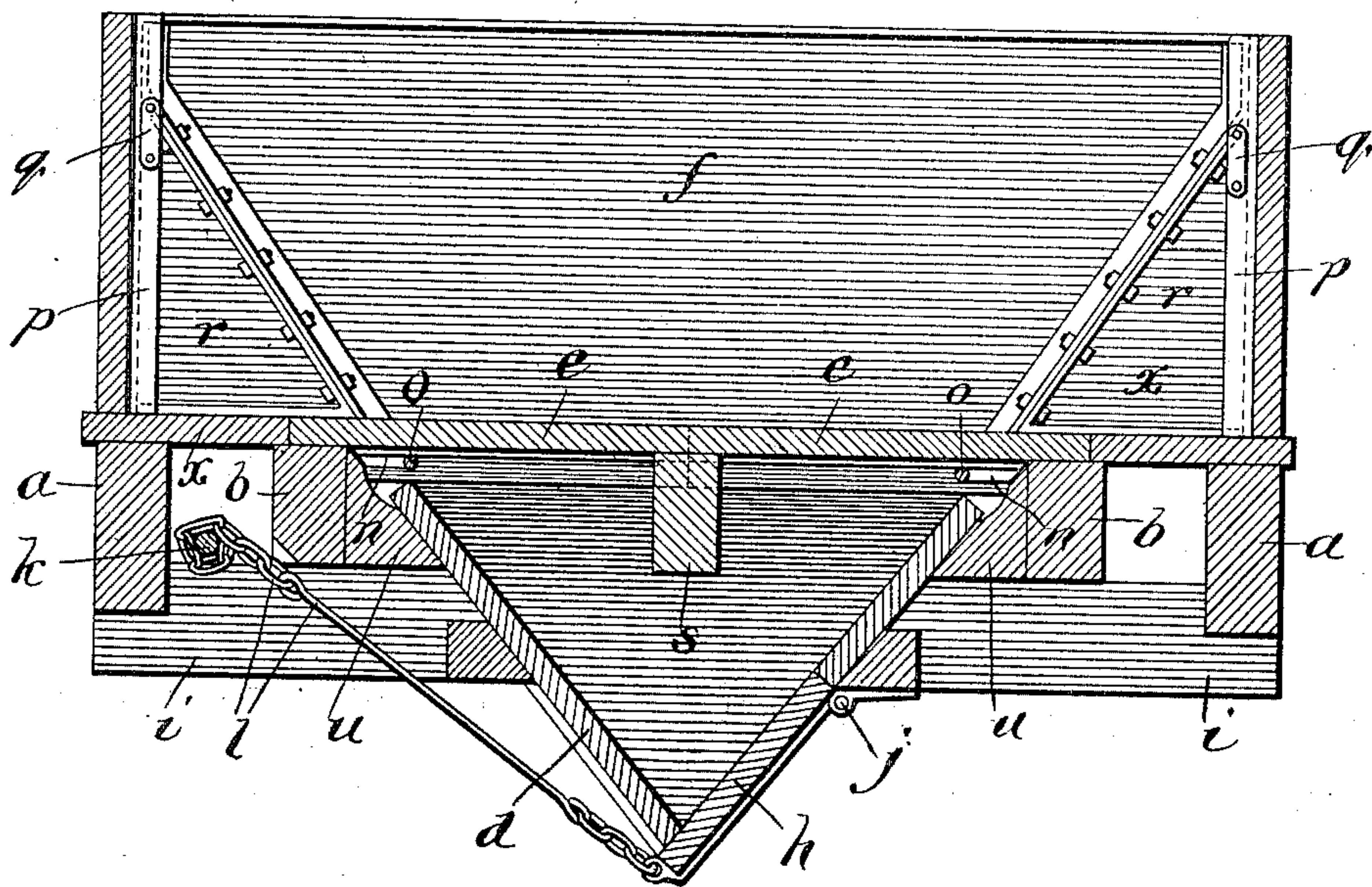


Fig. 5.



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UNITED STATES PATENT OFFICE.

HARRY STILLSON HART, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE RODGER BALLAST CAR COMPANY, OF SAME PLACE.

CONVERTIBLE DUMP-CAR.

SPECIFICATION forming part of Letters Patent No. 674,087, dated May 14, 1901.

Application filed February 4, 1901. Serial No. 45,939. (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 when arranged in one position may be used for ballast-cars—that is, a class of cars adapted to carry broken stone and similar material and dump it between the tracks in such a pile as not to overflow the tracks and which is adapted to be converted by the rearrangement of the parts into a second position to form a gondola car, all of which will more fully hereinafter appear.

The principal object of the invention is to provide a simple, economical, and efficient hopper or dump car which by the rearrangement of certain parts may be converted into a gondola car—that is, a car with a flat bottom and vertical side and end portions.

A further object of the invention is to provide a dump-car with a hopper-bottom the apex of which is arranged longitudinally of the car and at or near the center thereof and with inclined sides made in two or more sections, one a stationary section forming the bottom of the hopper and the other a movable section pivotally secured to an immovable portion and adapted to be folded over to occupy a horizontal plane and form the bottom of a gondola car whenever desired and be returned to an inclined position and form a portion of the hopper-bottom when desired.

Further objects of the invention will appear from an examination of the drawings and the following description and claims.

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

In the accompanying drawings, Figure 1 is a plan view of a portion of a car constructed in accordance with these improvements, showing it as it appears when the parts are arranged in position to form a ballast-car; Fig. 2, a similar view of the car as it appears when the parts are arranged in position to form a gondola car—a car having a flat bottom and vertical sides and ends; Fig. 3, a longitudinal

sectional elevation taken on line 3 of Fig. 2 looking in the direction of the arrow; Fig. 4, a cross-sectional elevation taken on line 4 of Fig. 3 looking in the direction of the arrow, and Fig. 5 a cross-sectional elevation taken on line 5 of Fig. 2 looking in the direction of the arrow.

In the art to which this invention relates it is well known that it is desirable to have a hopper-car so constructed and arranged that it may be used as a ballast-car in summer or during such weather as it is possible to ballast railroad-tracks and at other times to rearrange the elements of which the car is composed to form a gondola car—that is, a car having a flat bottom and vertical side and end portions. There have, however, heretofore been many difficulties in the way of constructing a simple, economical, and efficient car for this purpose, for the reason that the apex of the hopper of a ballast-car must meet in a line coincident with the longitudinal center of the car, and the inclined sides and bottom portion of the hopper must be arranged at such an angle that they discharge the ballast through one door at the bottom of the hopper and in a pile of such shape as not to throw any of the ballasting material on the tracks. In building a car, therefore, to conform to these prerequisites it has been found very difficult to make foldable forms and sections that could be economically and efficiently used for the purpose of converting it into a gondola car. The principal object, therefore, of my invention has been to make a car of this type which would overcome the above-noted difficulties, obviate the objections incident thereto, and encompass all of the advantages desired in such type of cars.

In illustrating and describing my improvements I have only illustrated and described those portions or parts which I consider to be new, taken in connection with so much that is old as will properly disclose 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 described herein would only tend to confusion, prolixity, and ambiguity.

In constructing a car in accordance with my improvements I make a supporting-frame

of the usual size and shape and provided with the usual side sills *a*, intermediate sills *b*, and end sills *c*, secured together in the usual manner. Of course it will be understood that this frame portion may be provided with the usual body-bolster arranged to be supported upon a truck in the usual manner, all of which will be understood by those skilled in the art and needs no further description or illustration here.

In order to furnish the necessary elements for a ballast-car, two inclined portions are provided which form the hopper sides, each of which is formed in two sections *d* and *e*, arranged longitudinally of the car, and the apex of which is arranged substantially coincident with the longitudinal center of the car, as shown clearly in Figs. 1 and 4. The car is also provided with inclined end portions triangular in contour and made in two sections, one an upper removable section *f*, secured to the inclined sides by means of bolts *g*, which are passed through angle-irons, in turn secured to and forming a portion of the inclined ends, and the other a lower section *f'*, immovably secured to the frame of the car, as shown particularly in Fig. 3. One of the inclined sides of the hopper portion, at the lower part thereof, is provided with a swinging door *h*, hinged to such side and to one of the bracing cross-beams *i* by means of a hinge *j*, as shown particularly in Figs. 4 and 5. The inclined sides, which form the hopper of this ballast-car, are arranged at about an angle of fifty degrees from the horizontal, with the apex thereof the desired distance above the ground, so that when the swinging door is open the material will pass out through such door and from this incline be impelled to a point between the tracks almost exactly central and form a pile of such shape and dimensions as not to overflow the tracks, and thereby interfere with the running of the trains. The door is held closed by means of a rock-shaft *k*, to which a chain *l* or equivalent mechanism is secured and which is also secured to the door, as shown in Figs. 4 and 5. The rock-shaft may be provided with any desired locking mechanism to prevent its rotating when the door is closed, such as a ratchet-wheel and pawl; but as such mechanism is well known to those skilled in the art and does not form any material part of the invention it is not deemed necessary to further describe it here.

It is extremely desirable for the purposes of economy that the car above described be so arranged that it can be used as a ballast-car in the summer season and as a gondola car in the winter, when it is usually practically impossible to ballast tracks. To accomplish this result, immovable floor-sections *x* are provided and the inclined hopper-bottom is made in two sections, as above described, the lower section *d* being practically rigid or immovable in the ordinary sense of the word, while the upper section is foldable, so that it can be laid in a flat plane and in connection

with the immovable sections *x* complete the floor. The upper sections *e* are provided with angle-irons *m*, as shown in Figs. 1 and 4, the lower part of which is provided with an elongated slot *n*, engaging with a pin or hinged stud *o* on the lower part of the hopper-bottom. It will be noticed that these side hopper-sections are hinged together at or near the floor-level (which has hitherto been deemed impossible) and retain the desired inclination of hopper sides. The upper ends of these angle-irons are secured to the angle-irons *p* on the car sides by means of links *q*. The inclined end portions of the hopper, as shown in Figs. 1 and 3, are also bolted to the hopper sides, so as to make such portions of the hopper side when in use practically immovable or rigid to stand the strains incident to its use as a ballast-car.

When it is desired to use the car as a gondola car, the bolts securing the inclined upper end and side portions of the hopper together are removed and such end portions placed at the end of the car in a vertical position, while the bolts *g* are passed through the flanges which are secured to the fillet *r*, thus securing the ends in a vertical position and providing for the ends of the gondola car. The removable center sill *s*, which is shown under one of the inclined sides in Fig. 4, is next placed in position in the longitudinal center of the car, as shown in Figs. 3 and 5, with its end portions resting in the recesses *t*. (Shown in Figs. 1 and 4.) The links *q*, which secure the upper edges of the upper side portions to the sides of the car, are next removed and the upper portion of the inclined sides folded over into a horizontal plane, as shown in Fig. 4, so as to complete the floor portion, the intermediate sills, in connection with the removable center sill *s*, being used to support such parts in position.

From the foregoing description of construction and operation it will be seen that the upper parts of the side portions are hinged or foldably secured to the lower part of the hopper at or near the floor-level, so that all that is necessary is to close them in very much the same way as a cellar-door is closed, while the slot in the hinges permits the foldable parts to be held in position and at the same time provides for sufficient leeway to accommodate the different positions which the foldable parts have to assume. The center sill *s* and the intermediate sills *u* and *b* are slotted at *v* (see Fig. 2) to permit the angle-irons on the inclined sides to rest therein while occupying a flat plane.

The principal advantages incident to a car constructed in accordance with my improvements are, first, the car is very economical to construct, simple to understand, and efficient in operation; second, the lines of a ballast-car can be exactly followed, while the inclined portions may be secured together in a foldable manner, so as to permit of easy convertibility, and, third, the parts are secured

together in a thorough and workmanlike manner, all of which will be readily understood by those skilled in the art.

I claim—

5 1. In a car of the class described, the combination of a supporting-frame portion, a hopper portion having its apex provided with a single opening door and arranged longitudinally of the car and at or near its center portion and with the inclined sides thereof made in sections foldably secured together and arranged when closed to form the flat bottom of a car, substantially as described.

15 2. In a car of the class described, the combination of a supporting-frame portion, a hopper portion having its apex provided with a single opening door and arranged longitudinally of the car and at or near its center portion with the inclined sides thereof made in two sections—one section rigidly secured to the frame portion and the other foldably secured thereto at or near the floor-level of the car so that it may be laid in a flat plane to form the bottom of a car or inclined to form a portion of the hopper, substantially as described.

30 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 of the car with its side portions made in two sections, the lower being rigidly or immovably secured to the car and provided with a discharging-door forming a portion of the incline and the upper foldably secured thereto at or near the floor-level so that it may be laid in a flat plane to form the bottom of the car or inclined to form a portion of the hopper, substantially as described.

40 4. 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 of the car with its sides made in at least two sections, one—the lower—being immovably secured to the frame of the car at or near the lower portion thereof and provided with a discharging-door forming an inclined part thereof, the upper portion pivotally secured to the lower portion and removably secured to the sides of the car so as to form part of a hopper-bottom in one position and a part of the flat bottom in the other position, substantially as described.

55 5. In a car of the class described, the combination of a supporting-frame portion provided with vertical sides and immovable floor-sections, a hopper portion having its apex arranged longitudinally of the car at or near its central portion with its sides made in two sections, the lower section immovably secured to the car-floor and provided with a discharging-door forming an inclined part at the lower portion thereof, the upper sections pivotally secured to the lower sections at or near the floor-level to complete the flat floor in one position and inclined to form a portion of the

hopper in a second position, substantially as described.

6. In a car of the class described, the combination of a supporting-frame portion provided with vertical sides and immovable floor-sections, a hopper portion having its apex arranged longitudinally of the car at or near its central portion with its sides made in two sections, the lower section immovably secured to the car-floor and provided with a discharging-door forming an inclined part at the lower portion thereof, the upper sections pivotally secured to the lower sections at or near the floor-level to complete the flat floor in one position and inclined to form a portion of the hopper in a second position, and mechanism for securing the upper sections to the vertical sides of the car, substantially as described.

7. In a car of the class described, the combination of a supporting-frame portion provided with vertical sides, a hopper portion having its apex arranged longitudinally of the car and at or near its central portion with its side made in at least two sections, one—the lower—immovably secured to the frame of the car and provided with a discharging-door at the apex thereof, and angle-irons forming hinges on the upper sections and pivotally secured to the lower sections, substantially as described.

8. In a car of the class described, the combination of a supporting-frame portion provided with vertical sides, a hopper portion having its apex arranged longitudinally of the car and at or near its central portion with its side made in at least two sections, one—the lower—immovably secured to the frame of the car and provided with a discharging-door at the apex thereof, angle-irons forming hinges on the upper sections and pivotally secured to the lower sections, and link mechanism securing the upper sections to the vertical sides of the car, substantially as described.

9. In a car of the class described, the combination of a supporting-frame portion provided with vertical sides, a hopper portion having its apex arranged longitudinally of the car and at or near its central portion with its side made in at least two sections, one—the lower—being immovably secured to the frame of the car and provided with a discharging-door at the apex thereof, angle-irons forming hinges in the upper hopper-sections and pivotally secured to the lower sections, link mechanism securing the upper sections to the sides of the car, inclined end portions secured to the hopper sides to form part of the hopper, and means for securing such ends to the upper portion of the hopper or vertically to the side portions, substantially as described.

10. In a car of the class described, the combination of a frame portion provided with vertical sides, angle-irons on the interior of the sides, a hopper portion having its apex arranged longitudinally of the car and at or near the center thereof made in at least two sections, the lower immovably secured to the

frame of the car and provided with a door at or near the lower portion or apex thereof, the upper portions provided with angle-irons on the interior surface forming hinges and pivotally secured to the lower sections, link mechanism secured to the angle-irons of the vertical and hopper sides to removably hold such hopper sides in position, and inclined end portions provided with angle-irons by which they may be secured to the upper hopper-side portions and form end portions of the hopper or to the vertical sides to form the ends of a gondola car, substantially as described.

11. In a car of the class described, the combination of a supporting-frame portion provided with vertical sides, a hopper portion having its apex arranged longitudinally of the car and at or near its central portion with the sides made in at least two sections, the lower sections immovably secured to the frame of the car and provided with a door at or near the apex thereof, the upper part hinged to the lower section and removably secured to the vertical sides, and a removable center sill for supporting the movable portion of the hopper sides when laid in a horizontal plane to form the floor of a gondola car, substantially as described.

12. In a car of the class described, the combination of a supporting-frame provided with vertical side portions and immovable floor-sections, angle-irons on the inner surface of

such sides, angular fillet-blocks *r* arranged on the inside of such side portions and secured to the inner portion of the vertical sides and to the frame portion of the car at or near each end of the car, a hopper portion having its apex arranged longitudinally of the car and at or near the central portion thereof with its sides made in at least two sections, the lower immovably secured to the car-frame and provided with a single discharging-door at or near the apex thereof, the upper portion provided on its inner surface with angle-irons slotted to form hinges and engage with projections on the immovable portion of the car, link mechanism removably securing the angle-irons of the upper hopper portions to the angle-irons of the vertical sides, a removable center sill for sustaining the movable hopper sides in a horizontal plane to complete the car-floor, and inclined end portions provided with flanges removably secured to the ends of the hopper sides to complete the hopper and adapted to be secured in a vertical position to the vertical sides and the angular fillets *r* to form the ends of a gondola car, substantially as described.

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