

No. 820,046.

PATENTED MAY 8, 1906.

E. S. HART.
DUMP CAR.

APPLICATION FILED MAR. 14, 1904.

4 SHEETS—SHEET 2.

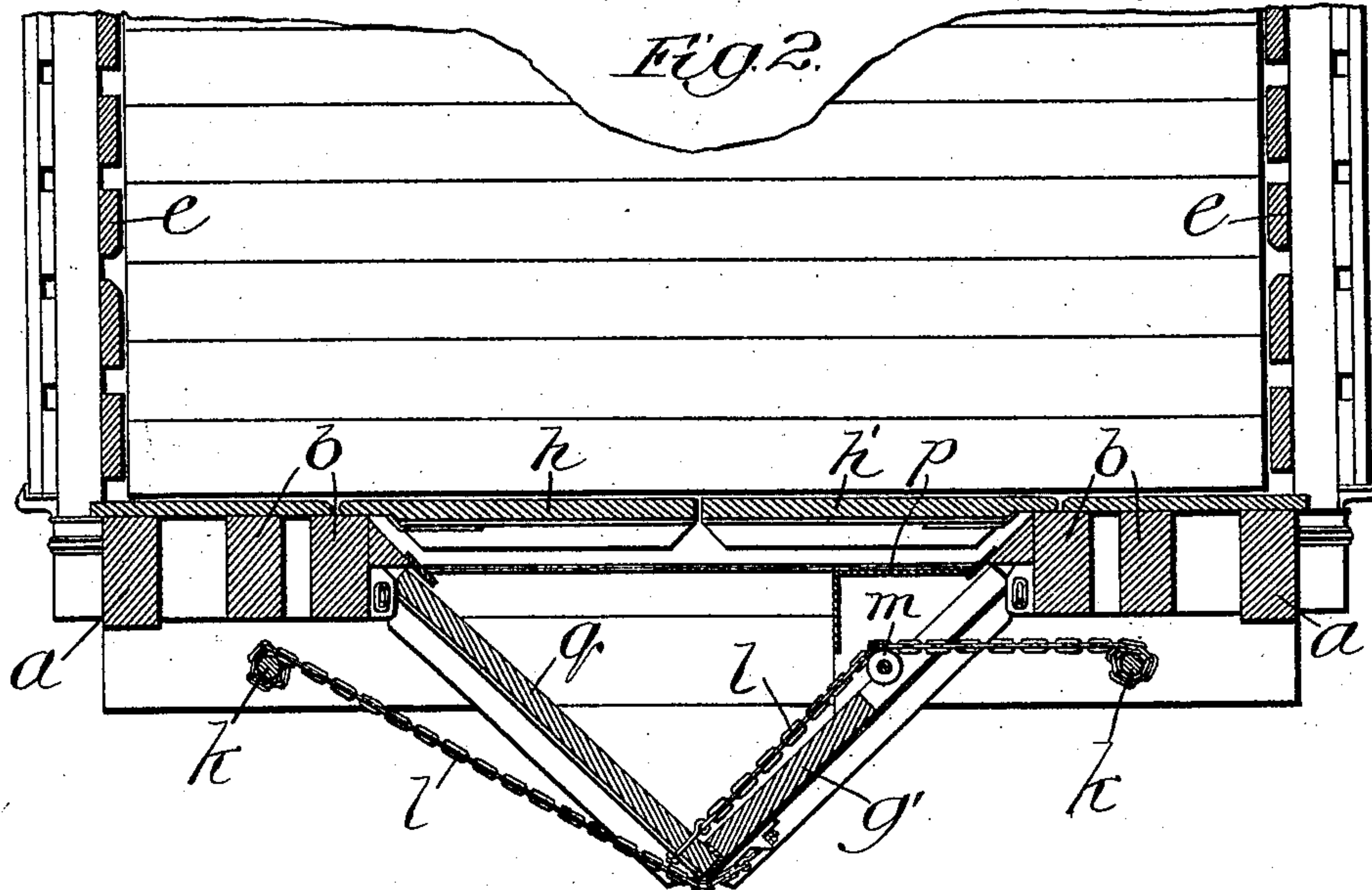
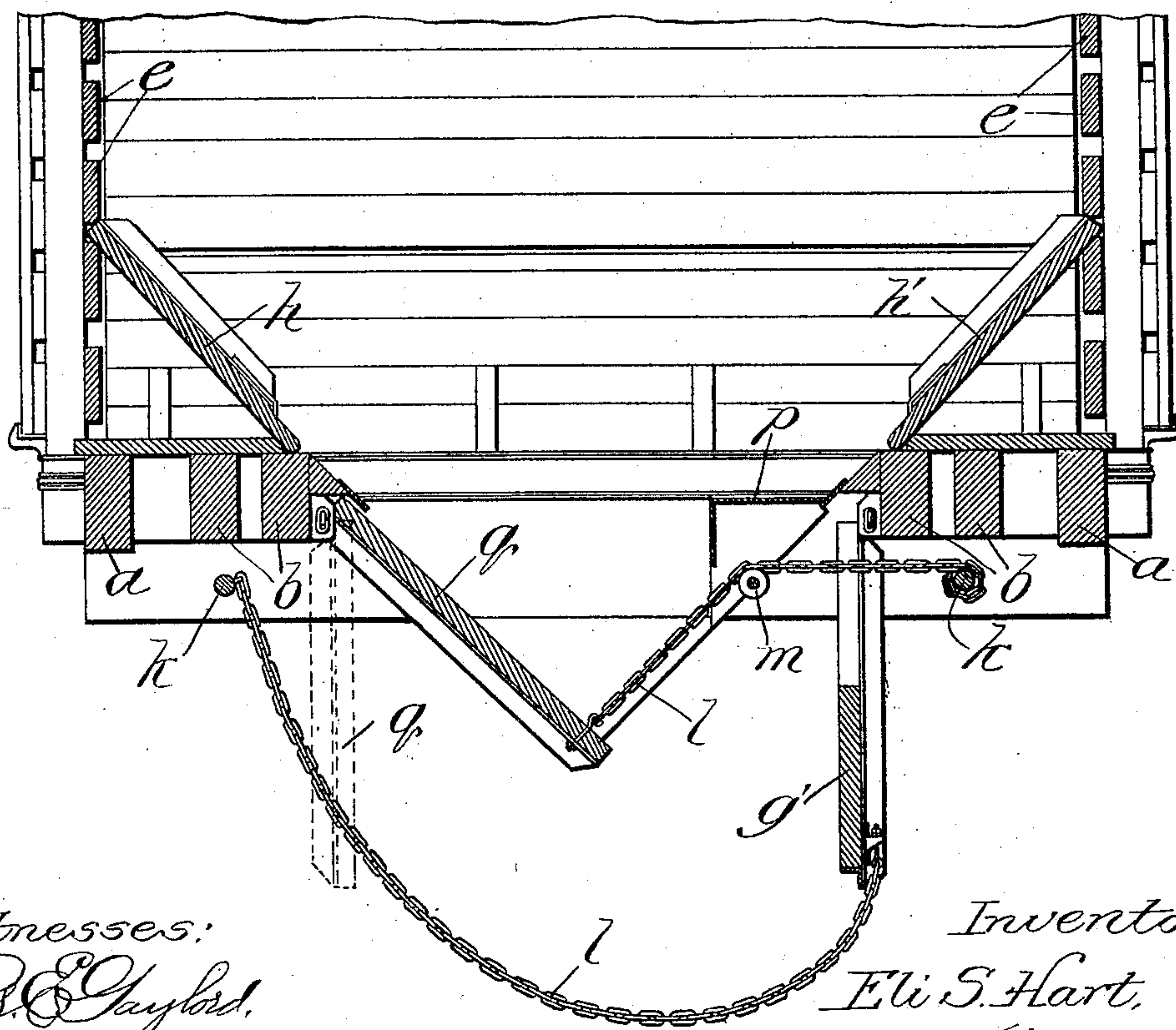


Fig. 2.



Witnesses:
Eas. Gaylord,
John Enders.

Inventor:
Eli S. Hart,
By Thomas F. Sheridan,
Att'y.

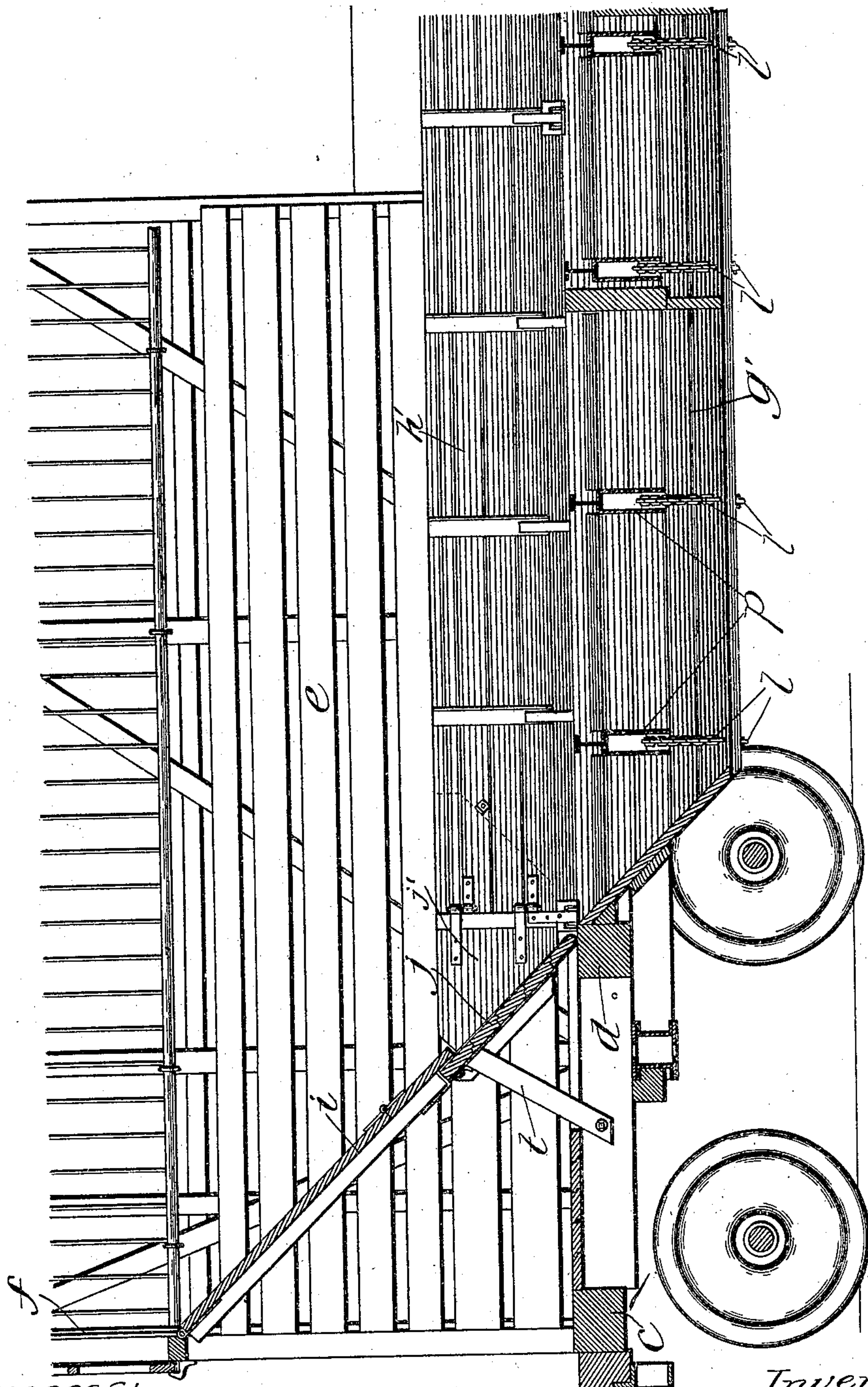
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4 SHEETS--SHEET 3.



Witnesses:
Eas. Gaylord,
John Enders.

Fig. 3.

 Inventor:
Eli S. Hart,
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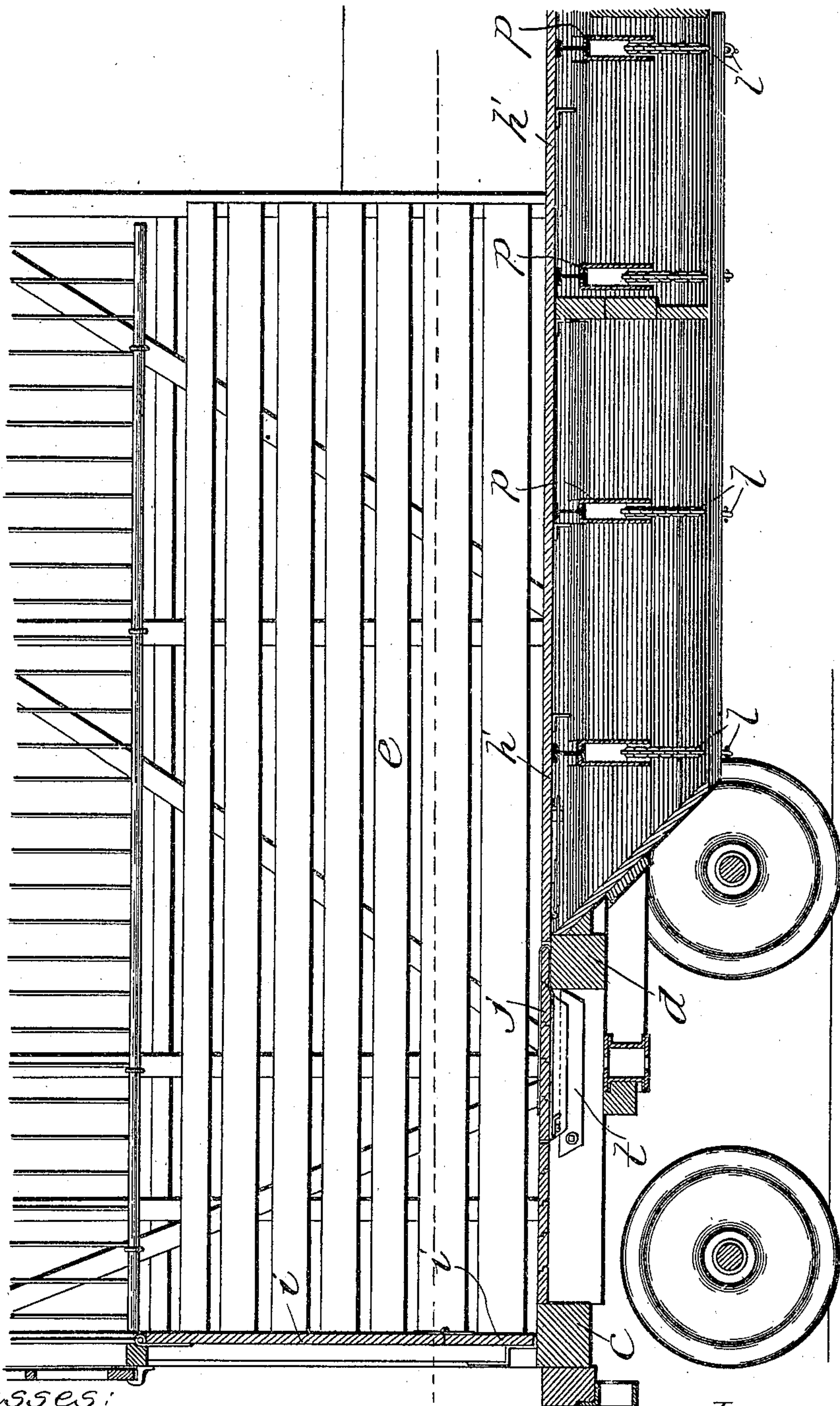
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4 SHEETS—SHEET 4.



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Fig. 4.

Inventor:
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UNITED STATES PATENT OFFICE.

ELI S. HART, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO NATIONAL DUMP CAR COMPANY, A CORPORATION OF MAINE.

DUMP-CAR.

No. 820,046.

Specification of Letters Patent.

Patented May 8, 1906.

Application filed March 14, 1904. Serial No. 197,938.

To all whom it may concern:

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

My invention relates to that class of dump-cars which are provided with a V-shaped
10 dumping-hopper bottom arranged longitudinally of the car and with its apex at or near the longitudinal center thereof, and especially to the means by which the dumping-doors are opened and closed, all of which will more
15 fully hereinafter appear.

The principal object of the invention is to provide a simple, economical, and efficient V-shaped dumping-car formed of swinging sections with mechanism for operating the same.

20 The invention consists principally in a dumping-car in which there are combined a supporting-frame portion provided with a V-shaped dumping-bottom portion extending longitudinally of the car and having two
25 swinging dumping-sections and mechanisms for operating such swinging sections independently, so that either or both of them may be opened and closed.

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

In the accompanying drawings, Figure 1 is a plan sectional view of a portion of a car
35 when constructed in accordance with these improvements looking at it from above and taken on line 1 of Fig. 4; Fig. 2, an enlarged cross-sectional view taken on line 2 of Fig. 1 looking in the direction of the arrow, both
40 upper dumping-sections being lowered; Fig. 2^a, a similar view showing the upper dumping-sections in raised position and one of the lower dumping-doors opened; Fig. 3, a longitudinal sectional elevation taken on line 3
45 of Fig. 1 looking in the direction of the arrow and showing the parts in position to form a dumping stock-car; and Fig. 4 a similar view to that shown in Fig. 3, showing the parts in position to form a flat-bottom stock-car.

50 In illustrating and describing these improvements I have only illustrated and will herein describe that which I consider to be new, taken in connection with so much as is

old as will properly disclose the invention to others and enable those skilled in the art to
55 practice the same, leaving out of consideration other and well-known elements, which, if set forth herein, would only tend to confusion, prolixity, and ambiguity.

In constructing a car in accordance with
60 these improvements I make a supporting-framework formed of longitudinal sills *a* and *b* and cross and end sills *c* and *d*, secured together in any well-known or desired manner and preferably provided with a superstructure
65 or upper framework of the ordinary stock-car type, having side walls *e* and end walls *f*.

It is very desirable in the present state of the art that this type of car should not only
70 be capable of being used as a stock-car to carry stock or cattle in one direction or at one season of the year and coal, coke, or similar bulky material during other seasons of the year. For this purpose I provide a V-
75 shaped hopper portion extending longitudinally of the car with its apex at or near the longitudinal center thereof and formed of two sets or sections, a lower set formed of two swinging dumping-doors *g* and *g'*, pivotally secured to the framework of the car and
80 extending below the same, and an upper set formed of two swinging sections *h* and *h'*, pivotally secured or fulcrumed on the framework of the car and extending above the
85 same, so as to form the upper inclined side walls of the hopper when in one position, as shown at the top of Fig. 1, or a portion of the flat floor of the car when in a second position, as shown at the bottom of Fig. 1. This type
90 of car is also preferably provided with a plurality of movable end sections secured thereto, one set *i* pivotally secured at its upper edges to the superstructure of the car and forming, as shown in Fig. 4, a portion of the
95 vertical end walls of the car when in one position and a portion of the inclined end walls of the hopper when in a second position, as shown in Fig. 3, and a second movable set of end sections *j*, forming when in one position
100 a portion of the floor of the car, as shown in Fig. 4, and when in a second position a portion of the inclined end walls of the hopper, as shown in Fig. 3. Flaps *j'*, forming triangular gusset-plates, are hinged to each end of
105 the swinging bottom sections *h* and *h'* and

are folded against the under sides thereof when such sections are in flat position and extend at an incline from the swinging sections, when in raised position, to the inclined movable end portions *j*, closing the opening therebetween.

By this construction and arrangement it will be seen that the car can be used for the carrying of stock or other freight requiring a flat-bottom stock-car at certain times or seasons or which can be used as an inclosed dumping-car, such as a stock or dump car, which will dump all the material contained therein from end to end and from side to side thereof, all of which will be thoroughly understood and appreciated by those skilled in the art.

When used as a dumping-car, it is very desirable that mechanism be provided and so constructed and arranged that one or both of the lower dumping-doors of the V-shaped hopper may be opened or closed whenever desirable or necessary. With certain kinds of freight—such as small ballast, broken ore or rock, hard coal, and the like—it is only necessary to operate one dumping-door—as, for instance, the section *g'*; but when large bulky freight is carried, such as blocks of soft coal, &c., it is necessary in order to quickly discharge the same that both dumping-doors may be opened. For this purpose a rock-shaft *k* is provided for each set or section of these lower portions of the hopper, one arranged at each side of the longitudinal center of the car and opposite the particular dumping doors or sections which it is to operate. Each of these rock-shafts is provided with a plurality of chain mechanisms *l*, wound therearound and connected with the free edges of the swinging dumping-doors on the opposite side of the car. Idler-pulley mechanism *m* is also provided and rotatably mounted in the framework of the car, so that the chain mechanism is passed thereover in such manner that the dumping-doors may be operated without disturbing the relative positions of the chains—in other words, that the dumping-doors *g* may be operated without disturbing the chain mechanism which operates the dumping-door *g'*. Each of these chain mechanisms, which extend from one side of the car into the hopper-bottom, as shown at the right hand of Fig. 2^a, is provided with a hood *p*, which covers the same, as well as the idler-pulleys, so as to prevent the loose freight from contacting or disturbing the same, all of which will be understood and appreciated by those skilled in the art. Each of the rock-shafts may be provided at one or both ends with lever mechanism *q*, as shown to the left of Fig. 1, for operating the same. When the movable end sections *g* are arranged at an incline, struts *t*, which are pivoted to the supporting-framework of the car, are raised to the position shown in Fig. 3

and act to support the same. These struts may be folded down, however, as shown in Fig. 4, when it is desired to use them.

I claim—

1. In a dump-car of the class described, the combination of a supporting-frame portion, a V-shaped dumping-bottom portion extending longitudinally of the car and having two swinging dumping-sections movable into and out of engagement with each other, and mechanism for operating such dumping-sections independently so that either or both may be opened or closed, substantially as described.

2. In a dump-car of the class described, the combination of a supporting-frame portion, a V-shaped hopper extending longitudinally thereof with its apex arranged at or near the longitudinal center of the car and formed of two swinging dumping-sections, a rock-shaft and chain mechanism for each set of dumping-sections, and idler-pulleys over which the said chain mechanisms are passed, substantially as described.

3. In a dump-car of the class described, the combination of a supporting-framework, a V-shaped hopper portion extending longitudinally of the car with its apex at or near the longitudinal center thereof and having two lower swinging dumping-doors pivotally secured to the framework of the car, a rock-shaft for each of said dumping-doors rotatably mounted in the framework at each side of the car, chain mechanism leading from each of said rock-shafts to the swinging dumping-door on the opposite side of the car, and idler-pulley mechanism over which said chains are passed, substantially as described.

4. In a dump-car of the class described, the combination of a supporting-framework, a V-shaped hopper portion formed of a plurality of swinging sections—one set forming lower dumping-doors and secured to the framework of the car below the same and extending longitudinally thereof and the other set pivotally secured to the framework of the car so as to form the upper inclined sides of the hopper when in one position and a portion of the flat floor of the car when in a second position, and two movable sections at each end of the car, both of which when arranged in one position form the inclined end walls of the hopper and one forming when in another position a portion of the floor and the other a portion of the end walls of the car, substantially as described.

5. In a dump-car of the class described, the combination of a supporting-framework, a V-shaped hopper portion extending longitudinally of the car and formed of two sets of swinging sections one set forming dumping-doors pivotally secured to the framework of the car and extending below the same and the other pivotally secured to the framework of the car above the same so as to form the

upper inclined sides of the hopper when in one position and a portion of the flat floor of the car when in a second position, end walls for the car formed of swinging portions pivotally secured at their upper edges and adapted to form a portion of the inclined end walls of the hopper in one position and the vertical end walls of the car when in a second position, substantially as described.

10 6. In a dump-car of the class described, the combination of a supporting-framework, a V-shaped hopper-bottom extending longitudinally thereof and formed of a plurality of
15 movable sets or sections—one set forming dumping-doors pivotally secured to the framework of the car and extending below the same and the other set pivotally secured to the framework of the car and extending
20 above the same and forming the upper portion of the inclined sides of the hopper when in one position and a portion of the flat floor of the hopper when in another position, and two movable sections at each end of the car—
25 one set pivotally secured at its upper edges to the framework of the car so as to form the vertical end walls of the car when in one po-

sition and a portion of the inclined end walls of the hopper when in a second position and the other set movably secured in position so as to form a portion of the flat floor of the car 30 when in one position and a portion of the inclined end walls of the hopper when in the second position, substantially as described.

7. In a dump-car, the combination of a supporting-framework, a depending central 35 hopper portion provided with dumping-door mechanism, swinging bottom sections pivotally mounted on opposite sides of such hopper portion movable to horizontal position to form flat bottom portions and inclined posi- 40 tion to form hopper portions, end sections movably mounted at each end of the hopper, and hinged flaps movable into and out of inclined position between such movable end sections and the inclined side hopper por- 45 tions formed by such swinging bottom sections.

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Witnesses:

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