

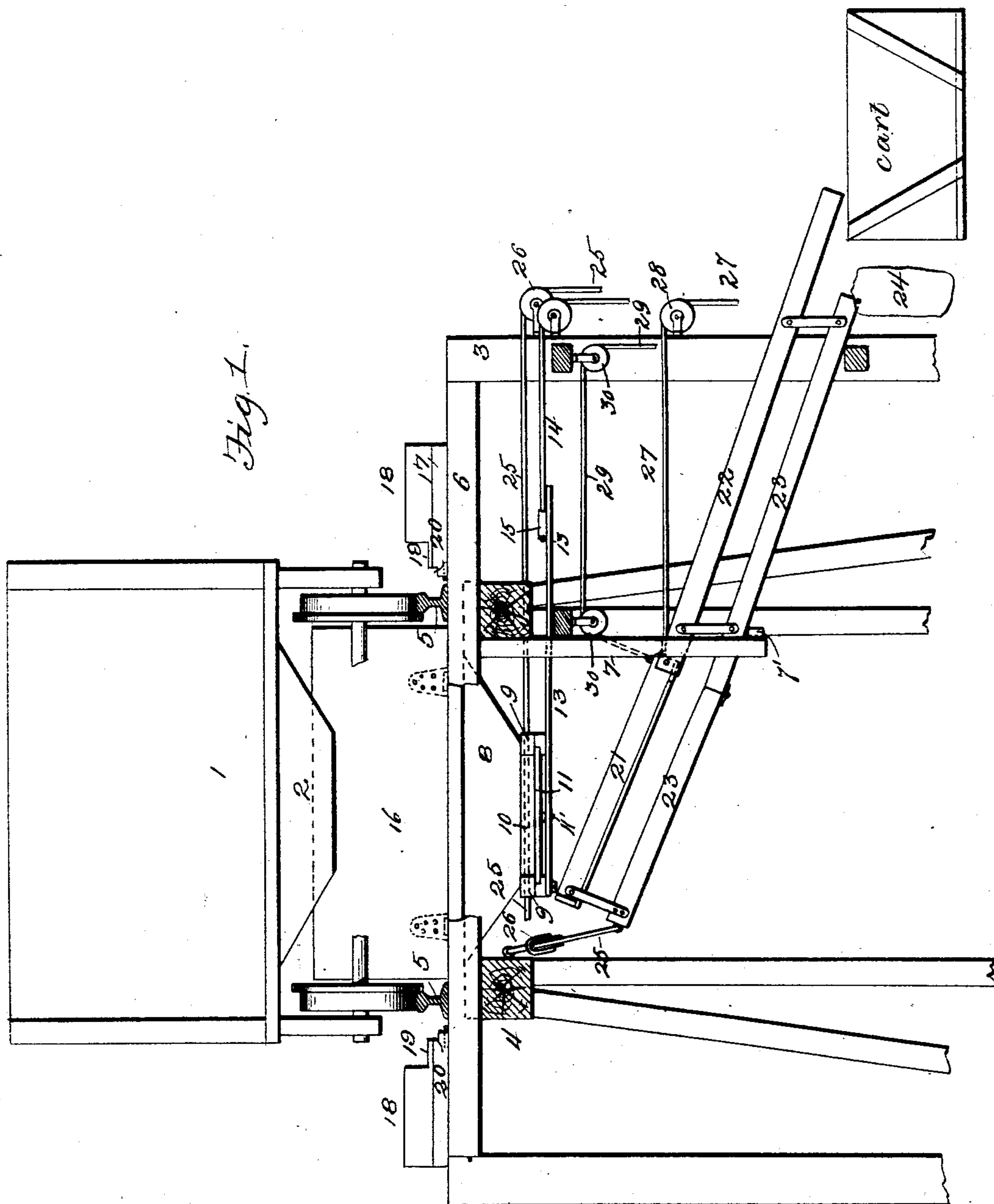
(Model.)

5 Sheets—Sheet 1.

H. L. CARSTEIN.
COAL CONVEYER.

No. 520,133.

Patented May 22, 1894.



Inventor.

Hans L. Carstein,
by Howe & Kellogg,
Attorneys

Attorneys

Witnesses

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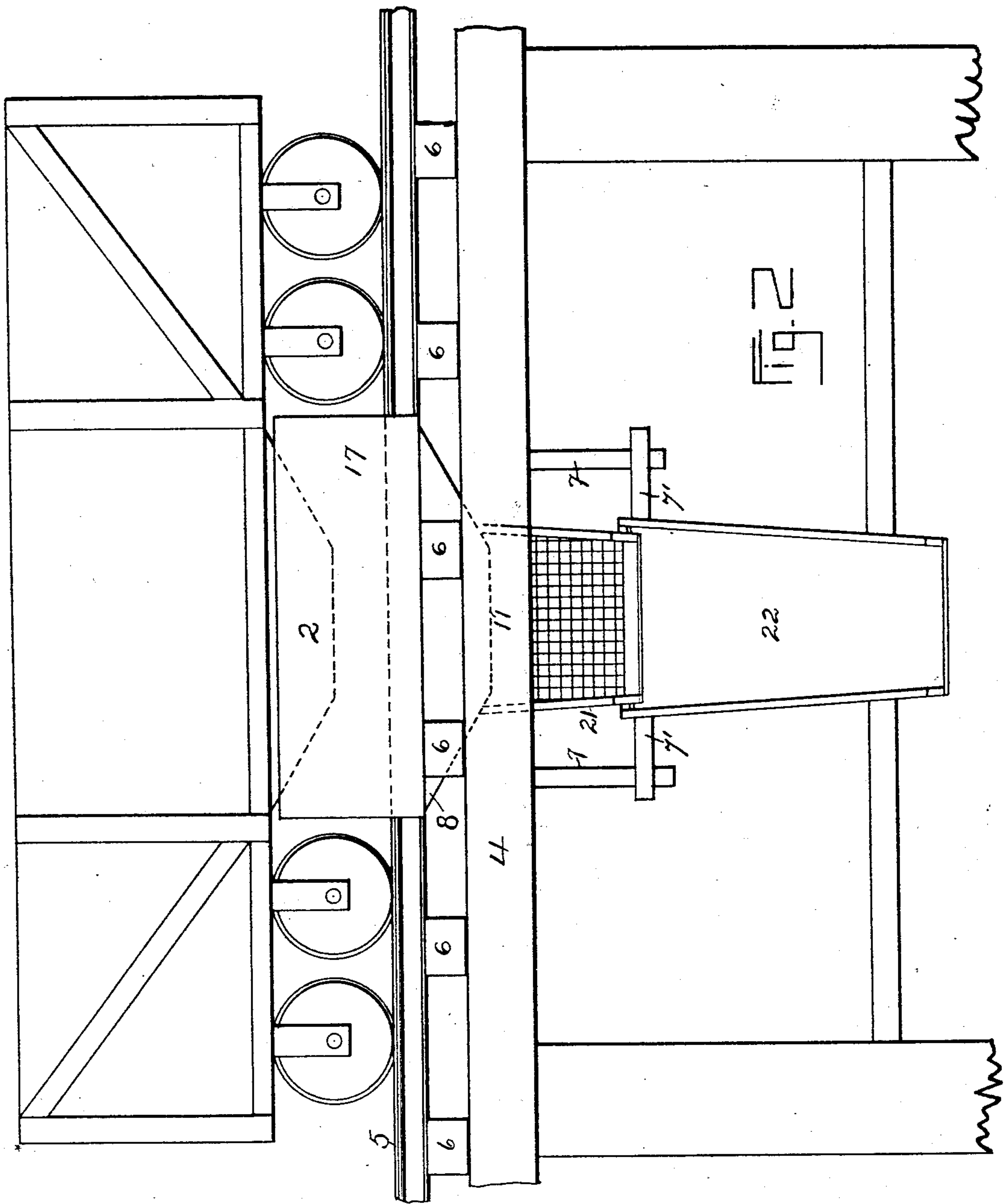
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A. C. Hudge-

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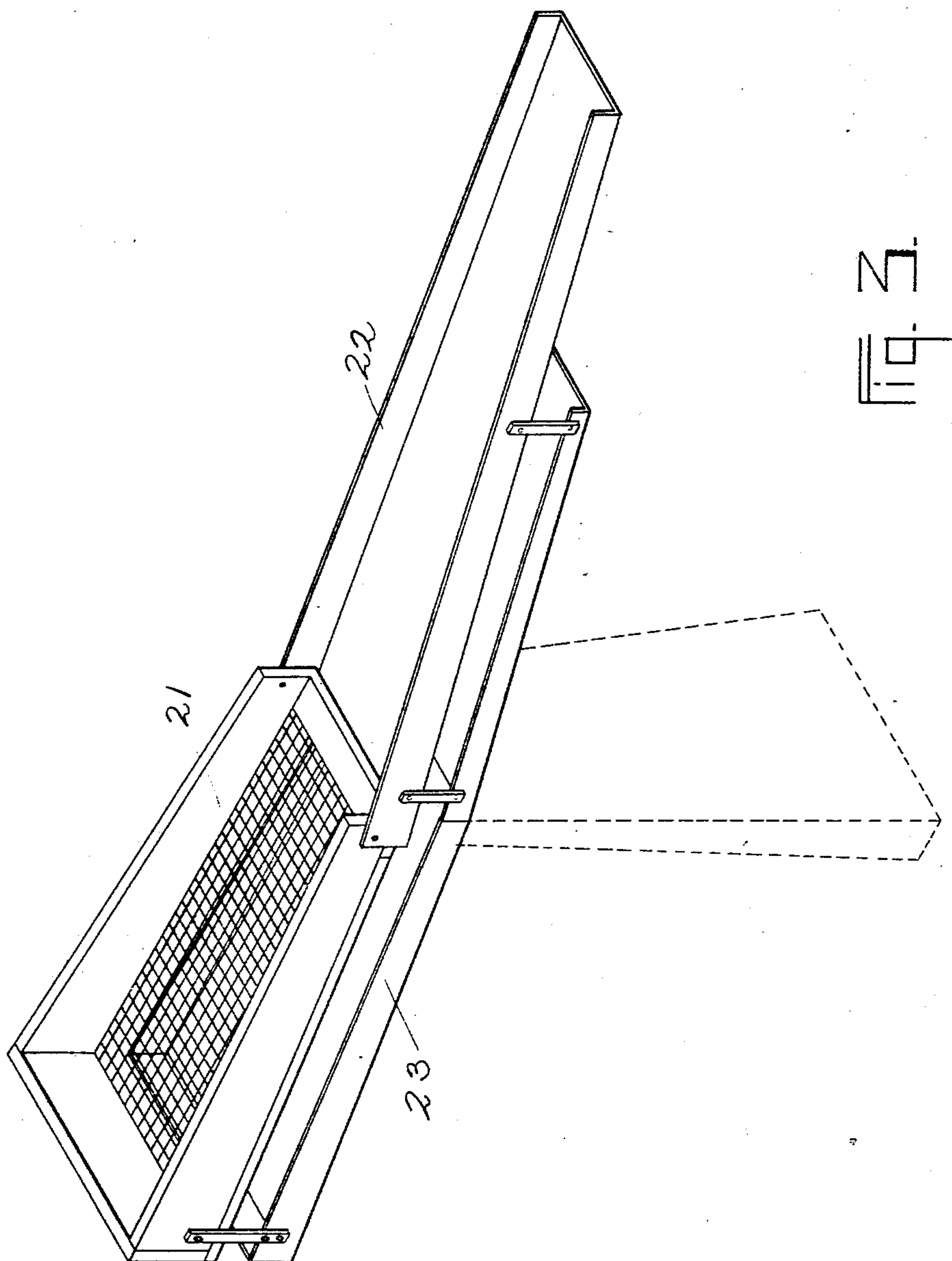
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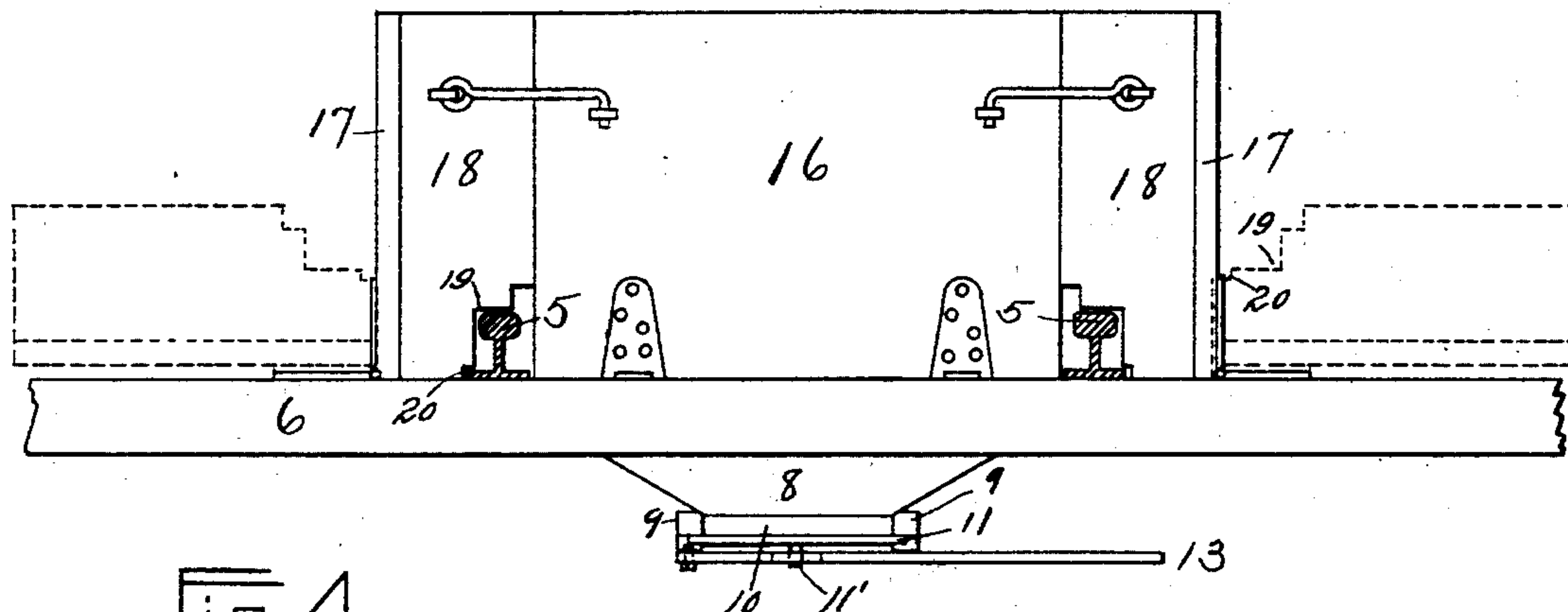


Fig. 4.

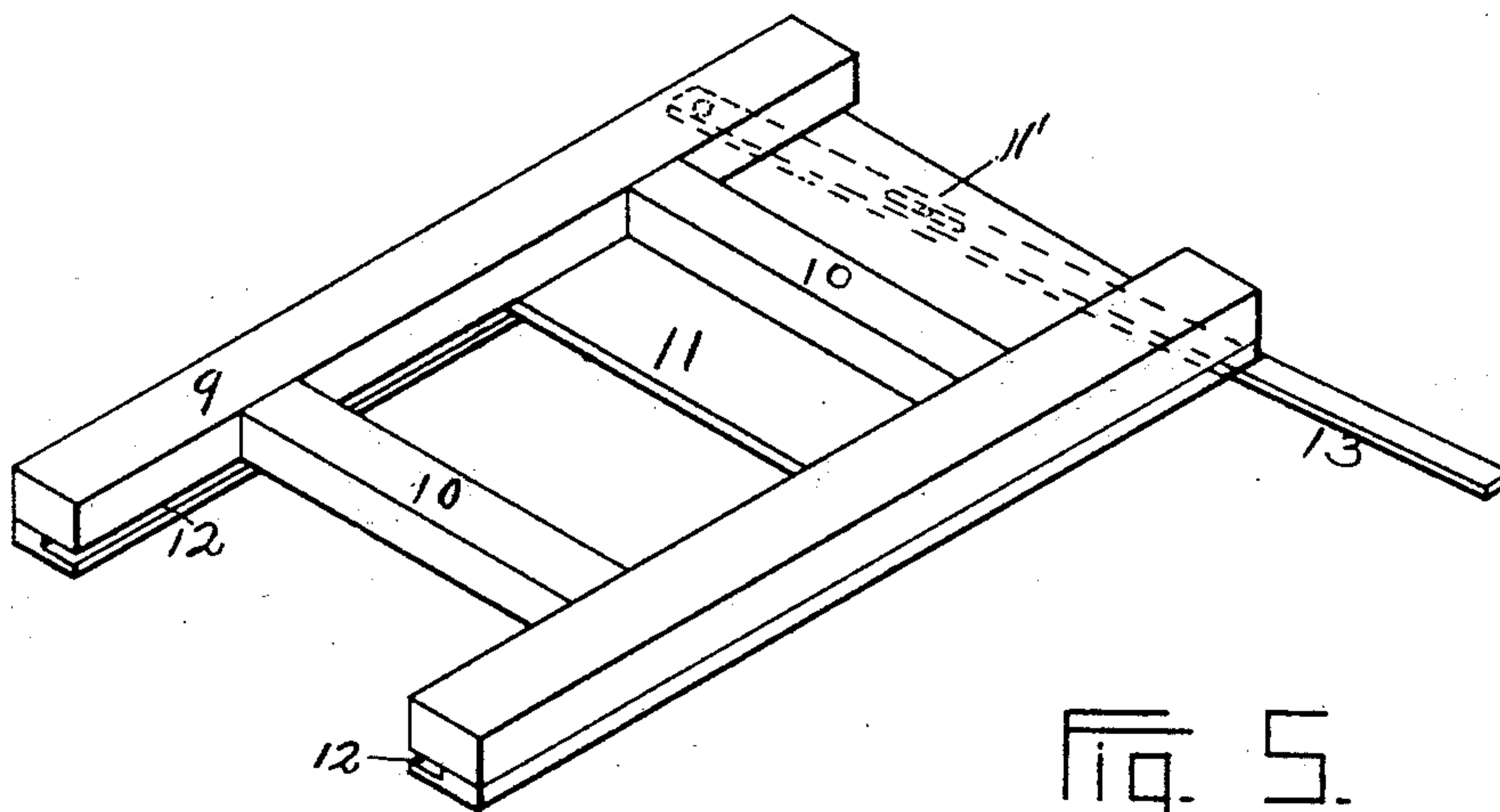


Fig. 5.

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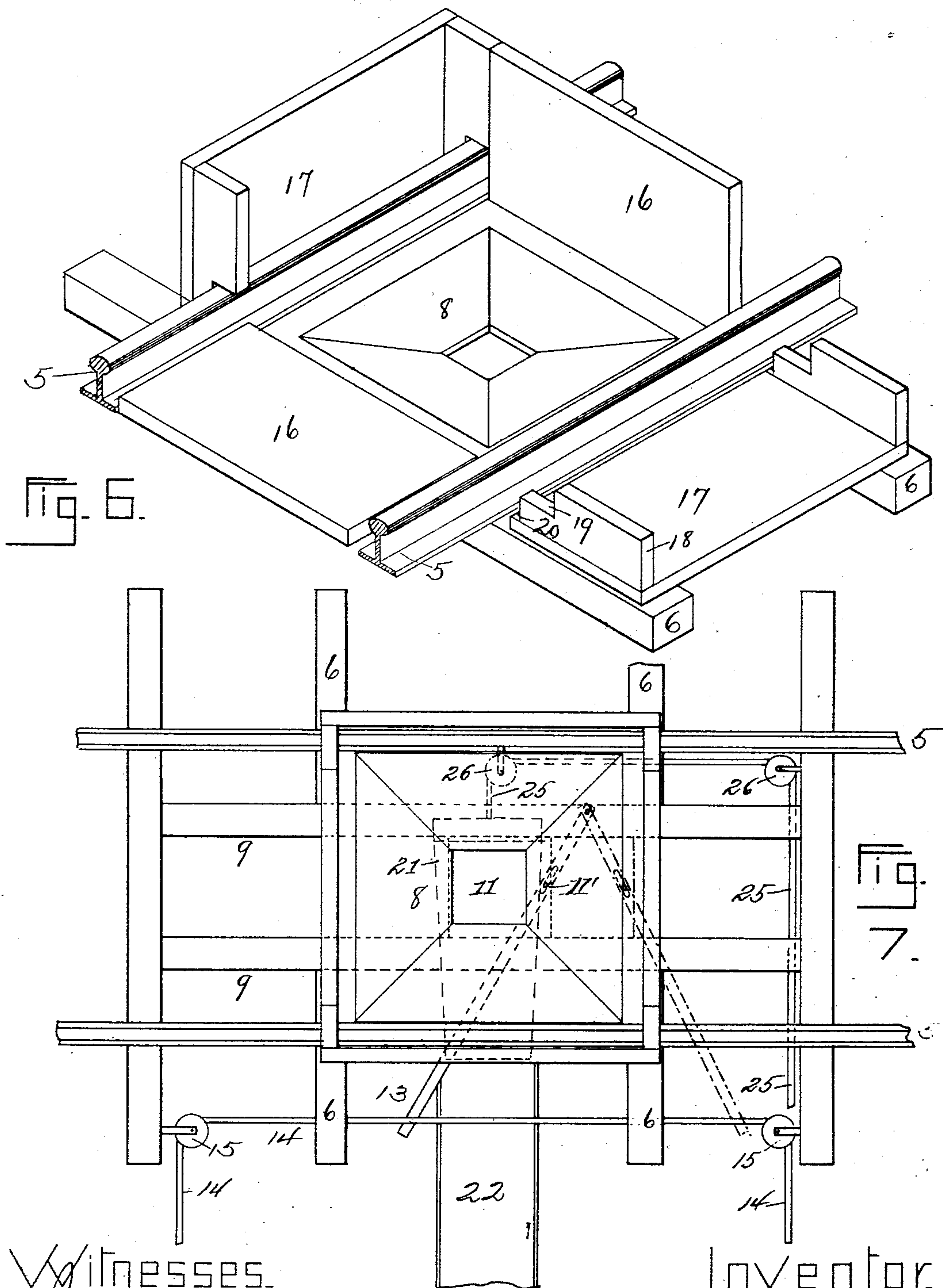
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UNITED STATES PATENT OFFICE.

HANS L. CARSTEIN, OF CAMBRIDGE, MASSACHUSETTS.

COAL-CONVEYER.

SPECIFICATION forming part of Letters Patent No. 520,133, dated May 22, 1894.

Application filed October 16, 1893. Serial No. 488,286. (Model.)

To all whom it may concern:

Be it known that I, HANS L. CARSTEIN, a citizen of the United States, residing in Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Coal-Conveyers, of which the following, taken in connection with the accompanying drawings, is a specification.

10 This invention is intended to be used in those coal yards in which the coal is delivered in suitable bins from a railroad car moving upon a track on a trestle above the bins, and its object is to secure the direct delivery of
15 the coal in a screened condition and in such quantities as may be desired, to carts in front of the bins, and also to enable the coal to be directly delivered to the bins in case it may be desired to do so in order to relieve the
20 track from the obstruction caused by the railway car.

To this end the invention consists in the combination, substantially as and for the purpose hereinafter more fully set forth, of a
25 fixed chute supported on the trestle between the tracks and below the level of the road-bed; hinged wings surrounding said chute of a height nearly equal to the distance between the track and the bottom of the car, normally
30 horizontal and capable of being turned up vertically to form a rectangular box; a gate in the bottom of the chute, and means for opening and closing said gate from the ground; a movable inclined chute or series of chutes
35 extending from under the fixed chute to the front of the bin, and means for moving this movable chute away from the mouth of the fixed chute so that the coal can be discharged directly into the bin.

40 Figure 1 in the accompanying drawings is an end elevation of the device and of a car upon the trestle. Fig. 2 is a side or front elevation of the same. Fig. 3 is an isometrical view of the screen and movable chutes.
45 Fig. 4 is an end view of the box and fixed chute, showing the wings of the box closed. Fig. 5 is an isometrical view of the gate to the fixed chute. Fig. 6 is an isometrical view of the box, showing one end and one side
50 turned down, and Fig. 7 is a plan of the box, rails and chute.

In the several views, the same numerals refer to the same parts.

Referring to the drawings, 1 is an ordinary gondola car, provided as usual with a chute
55 —2— upon its under side, in which chute is a gate which can be opened and closed from the side of the car by means of suitable mechanism. As is well known, this gate or door consists of hinged leaves opening downwardly,
60 and therefore cannot be closed while the coal is being discharged. Cars of this construction are well known and in common use, being loaded at the mines and then delivered
65 at the coal yard as may be desired, being shunted from the main track to an elevated track above suitable bins into which the coal is discharged through the chute 2. From these bins the coal is usually shoveled into the coal carts, thus necessitating a great deal
70 of labor, as the coal must be screened before it can be put into the cart for delivery. By means of my invention all this shoveling of the coal is avoided.

3 is one of the uprights which form a part
75 of the bin.

4 4 are two longitudinal beams of the trestle and upon which rest the ties 6 which support the rails, 5, 5.

7 is a pendent frame attached to the inner
80 beam 4, or otherwise supported.

8 is a fixed chute in the form of the frustum of an inverted pyramid, supported in any suitable manner between the beams 4, 4, and having its upper edge below the rails. When
85 the chute on the car is opened, the coal passes into the chute 8. To the bottom of this chute are attached the longitudinal bars 9, 9 connected by the cross bars 10, 10, and thus a support is afforded for the gate 11, which
90 moves longitudinally in suitable ways —12— in the bars 9, and connected to lever 13 by a pin 11' extending through the lever, which is moved backward and forward in order to open and close the gate, by means of cords or chains
95 —14— connected to the lever and which pass over pulleys —15— attached to the front of the bin and within reach of the person who is loading the cart. I have shown this device as a convenient means for constructing
100 and operating the gate, but any other suitable means may be adopted, and in carrying

my invention into effect, I do not confine myself to this device.

In order to prevent the coal discharging from the car from being scattered over the track, and also to afford means for checking the flow of coal from the car, the mouth of the fixed chute 8, when the coal is being discharged, is inclosed by a rectangular box, and when this box is filled, the flow of coal from the car will be arrested, if the slide —11— is closed. This box is formed by four hinged wings, two of them —16, 16— being placed between the rails, and the other two —17, 17— being placed each outside of one of the rails; the wings 16, 17, being hinged to the ties 6. As the wings 17, 17 are hinged outside of the rails, it is necessary to attach to each end of these wings side pieces —18, 18— which, when the wings are turned up are in the same plane as the wings 16, 16, and join the same. In order to allow for the space occupied by the rail, jogs 19 and 20 are provided in each side piece 18. In Fig. 4 the horizontal position of the side wings 17 is shown in dotted lines, and in Fig. 6 one wing 16 and one wing 17 are shown in the positions they occupy when the box is closed, the other two wings being shown in the positions occupied by them when the box is open. When the box is closed, the wings may be fastened together by hooks and staples, as shown in Fig. 4. The wings are normally in a horizontal position, thus permitting of free passage of cars on the track, but when it is desired to discharge the coal from the car, the wings are turned up to form the box, after the car is in position over the fixed chute 8. When the gate —11— in the fixed chute —8— is opened, the coal will fall upon and pass over the screen 21 and then by the chute 22 to the cart or other receptacle at the end of this chute. For the purpose of effecting the object of my invention, one inclined screen and chute will be sufficient, but it may be desirable to have one or more secondary screens and chutes. In the drawings, one secondary chute —23— is shown under the screen and chute —21, 22— and parallel with the same. In this case, the secondary chute is to receive the screenings and convey them to a suitable receptacle —24— thus preventing the screenings from falling into the bin. If desired, a series of screens and chutes may be provided in order to separate the coal into different sizes. In case it is desirable to allow the screenings to drop into a cart or an empty bin under the track that part of the chute 23 under the screen may be hinged so as to be dropped, as shown by the dotted lines in Fig. 3. The chutes are linked together as shown, and are supported on the cross bar 7' of the pendent frame 7, and slide freely upon the same. The screen is pivotally connected to the upper end of the chute 22 in order to enable its angle of inclination to be varied by means of a cord or chain 29 passing over suitably arranged pulleys 30, according to the

freedom with which the coal slides upon the same; the size and dryness of the coal being taken into consideration.

The screen is held in position by the tension of a cord or chain —25— which passes over suitable pulleys 26 to a point within reach of the person loading the coal, and to the other end of the screen is attached another cord or chain —27— which passes over a pulley 28 to a point within reach of the same person. The screen can thus be removed at will from under the mouth of the fixed chute in case it may be desired to have the coal discharged directly into the bin.

It will thus be seen that by means of my invention, the coal can be loaded into the carts directly from the car and screened at the same time, thus avoiding the great labor required to screen the coal from the bins by hand, and in case it may be necessary to unload a car quickly so that it may be removed from the track, the screen and chutes may be removed and the coal discharged directly into the bin in the ordinary manner. The gate in the car chute is then closed, the wings surrounding the fixed chute are turned down and the car is free to be removed from the track.

The advantages of this invention as a labor saving device will be obvious to all who are acquainted with the present methods of handling coal.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, substantially as and for the purpose set forth, with the trestle supporting the tracks of a railroad; of a fixed chute placed between said tracks; a gate in said chute; means for opening and closing said gate; normally horizontal hinged wings around said chute, located respectively between the rails of said track and outside of said rails and capable of being turned into vertical positions and secured together to form a receptacle around the fixed chute; a movable chute supported under the fixed chute; and means for moving said chute.

2. The combination, substantially as and for the purpose set forth, of the trestle; the fixed chute in the same; a frame 7 pendent from the said trestle; an inclined chute supported by, and movable on said frame; a screen 21 hinged to the upper end of this chute and extending under the fixed chute; means operated from the ground for raising and supporting the upper end of this screen; and means operated from the ground for removing this screen.

3. The combination, substantially as and for the purpose set forth, of the rails —5, 5—; the rectangular chute —8— lying between these rails; the wings —16, 16— hinged respectively to the opposite sides of the chute between the rails; and the wings —17, 17— hinged respectively to opposite sides of the chute outside the rails and provided with

side pieces —18, 18— each having thereon
jogs —19, 20—.

4. The combination, substantially as and
for the purpose set forth, of the fixed chute
5 —8— having a gate in the same; means for
opening and closing said gate; an inclined
screen supported beneath said gate; means
for drawing said screen up or down; means
for varying the angle of inclination of said
10 screen; and a supported inclined chute
hinged to the screen.

5. The combination, substantially as and

for the purpose set forth, with the fixed chute
8, movable screen —21— and inclined chute
—22— hinged thereto of a secondary chute 15
23 arranged under the screen 21 connected
to and movable with the same.

In testimony whereof I have hereunto sub-
scribed my name this 6th day of October, A.
D. 1893.

HANS L. CARSTEIN.

Witnesses:

CHAS. A. KELLOGG,
ALEX L. HAYES.