

No. 690,501.

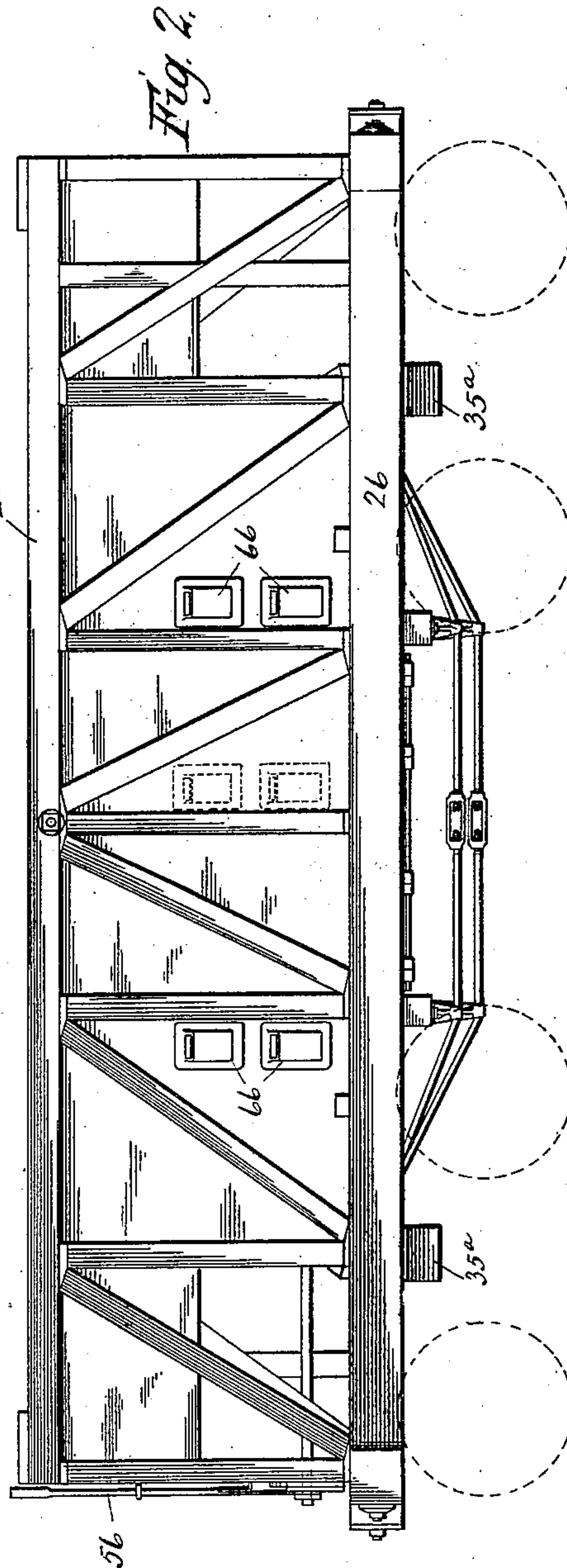
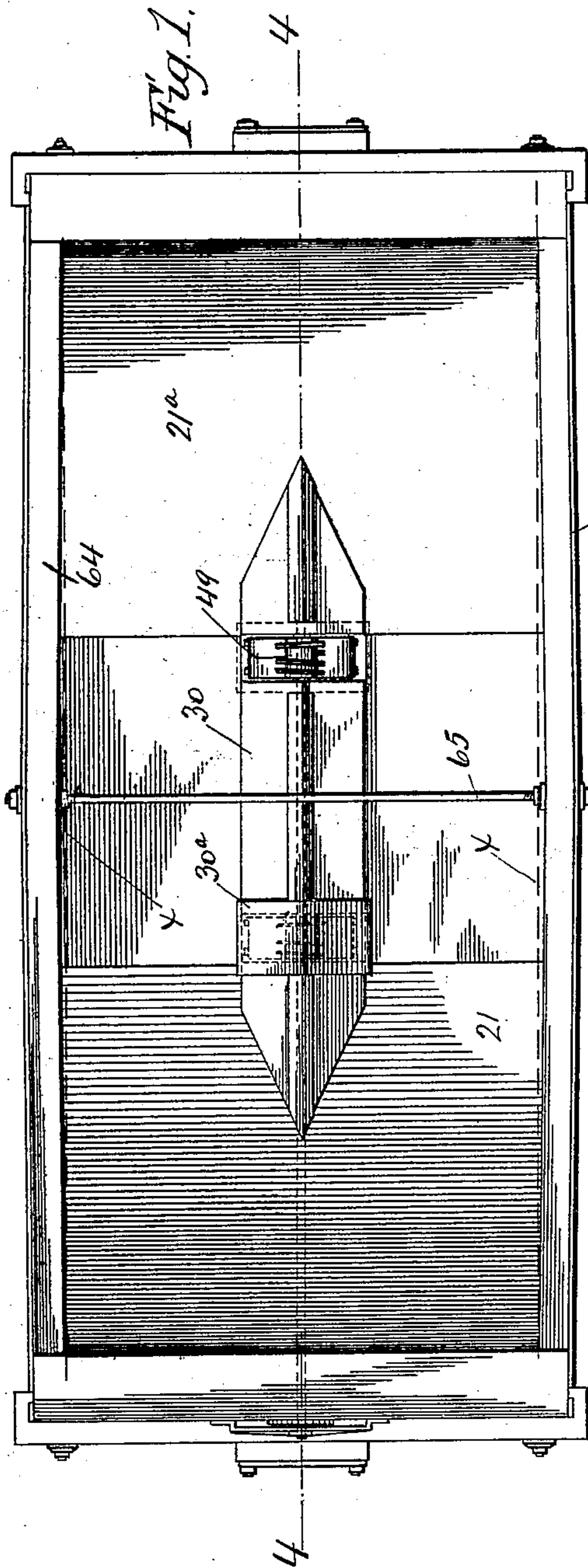
Patented Jan. 7, 1902.

H. C. WILLIAMSON & H. PRIES.
DUMP CAR.

(Application filed June 7, 1901.)

(No Model.)

5 Sheets—Sheet 1.



Witnesses:

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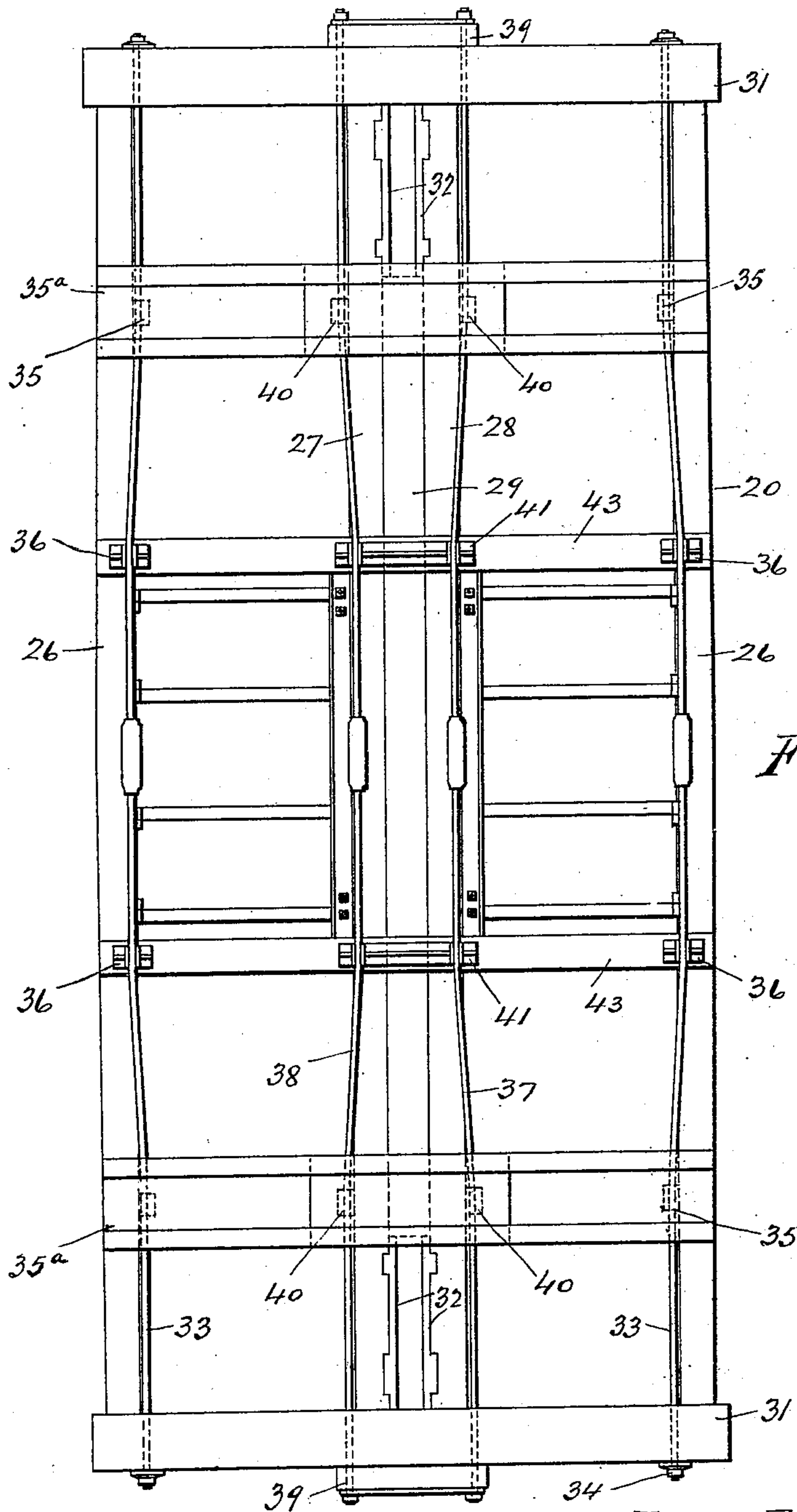


Fig. 3.

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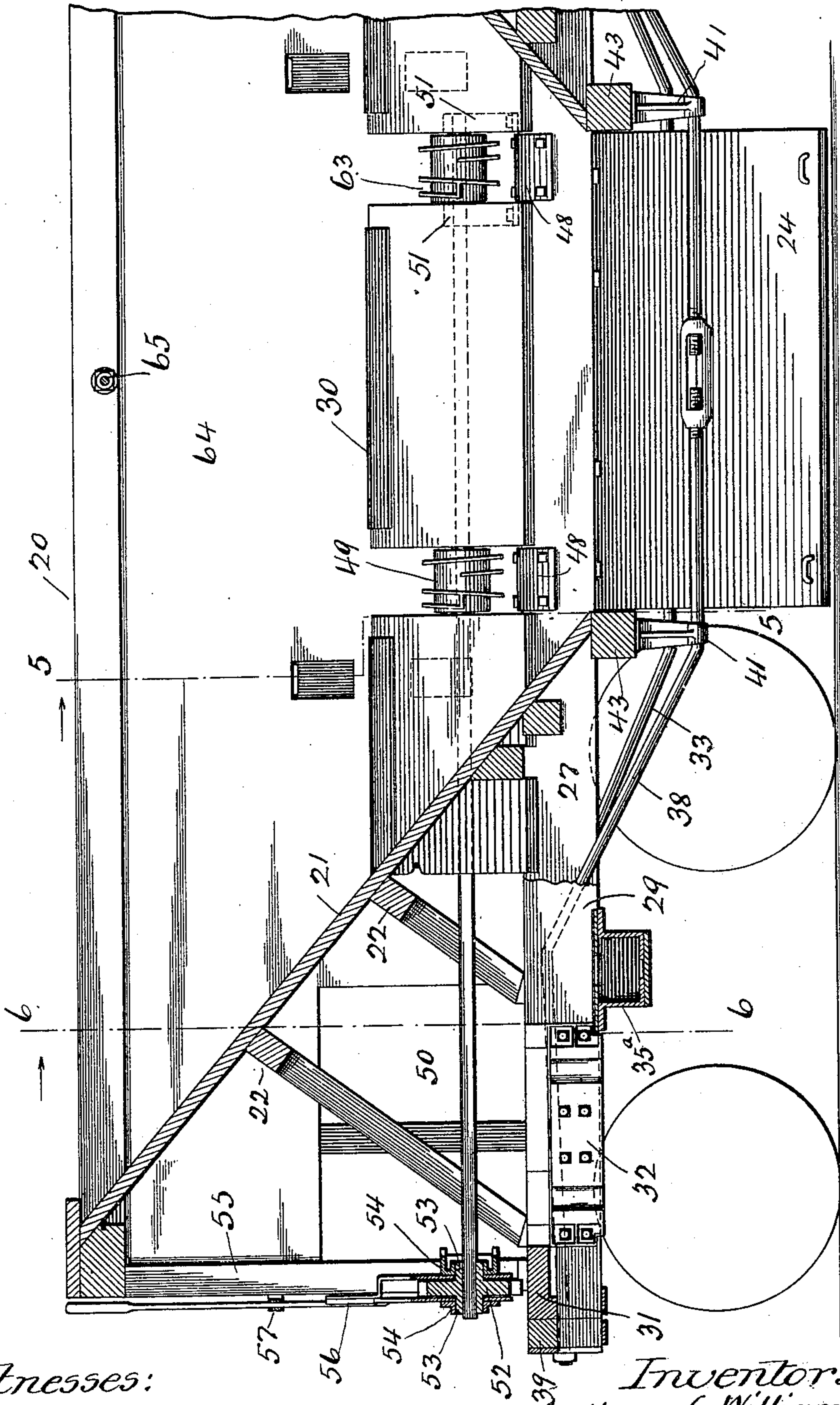
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(No Model.)

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Fig. 4.



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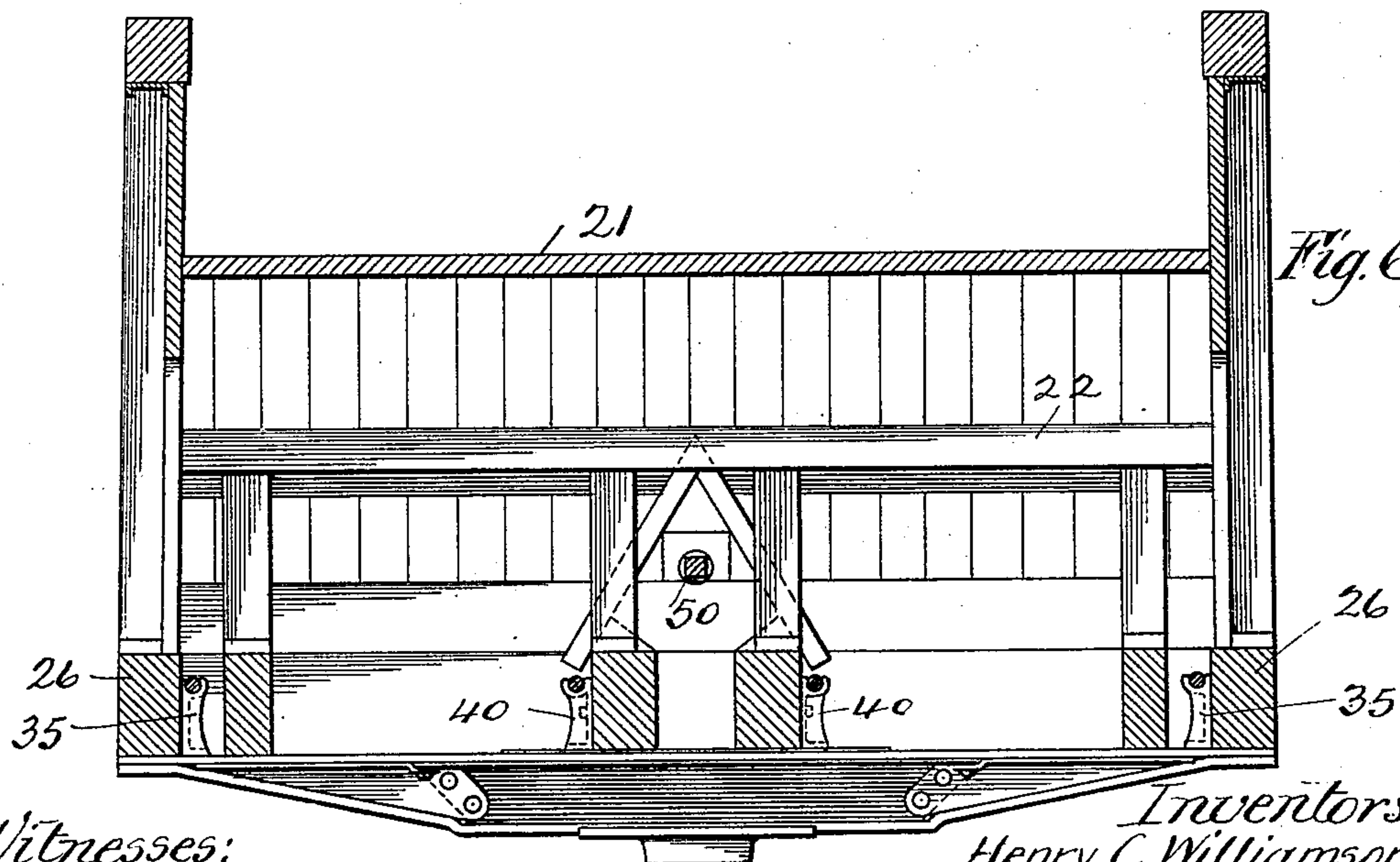
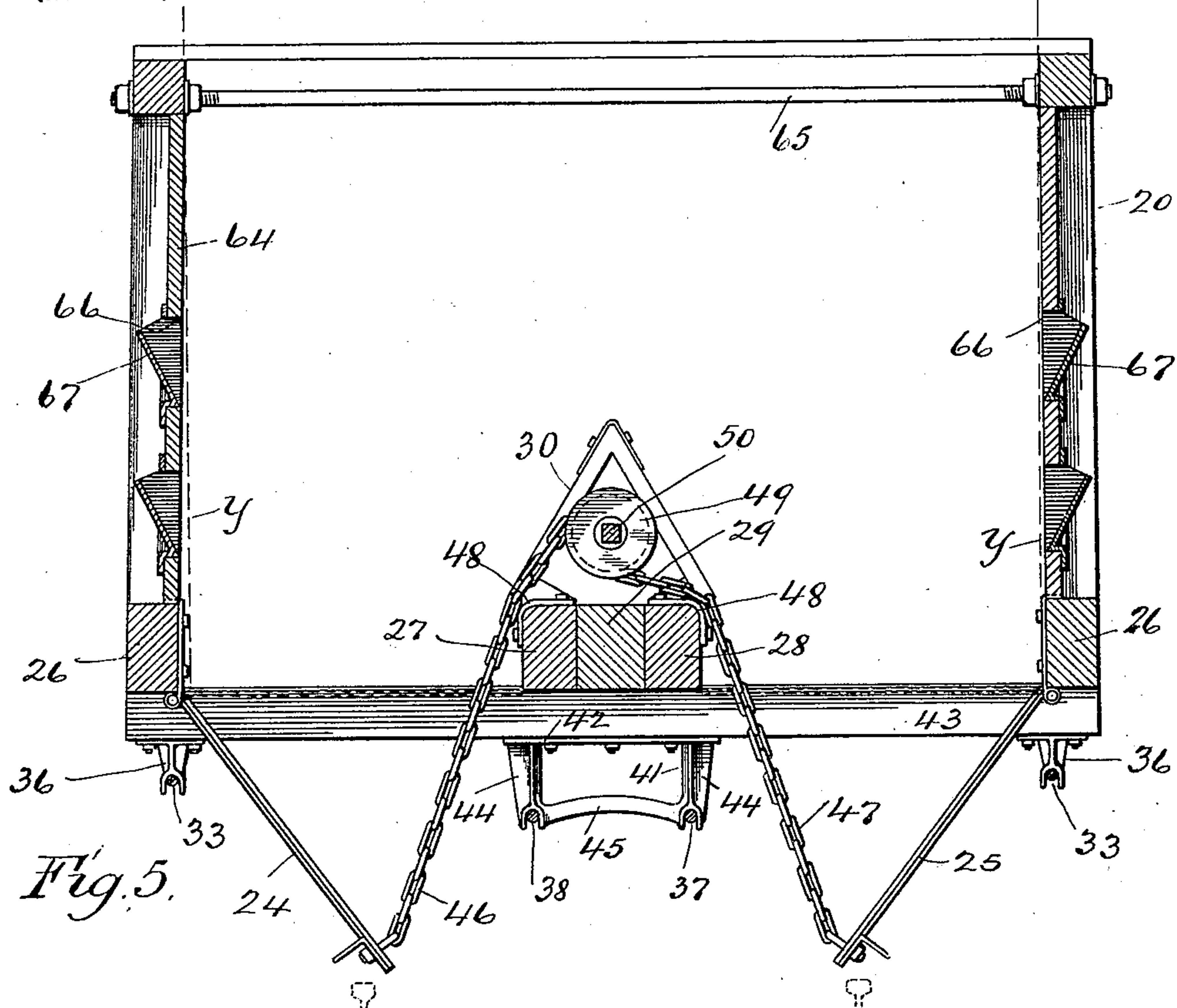
H. C. WILLIAMSON & H. PRIES.

DUMP CAR.

(Application filed June 7, 1901.)

(No Model.)

5 Sheets—Sheet 4.



Witnesses:

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H. C. WILLIAMSON & H. PRIES.

DUMP CAR.

(Application filed June 7, 1901.)

(No Model.)

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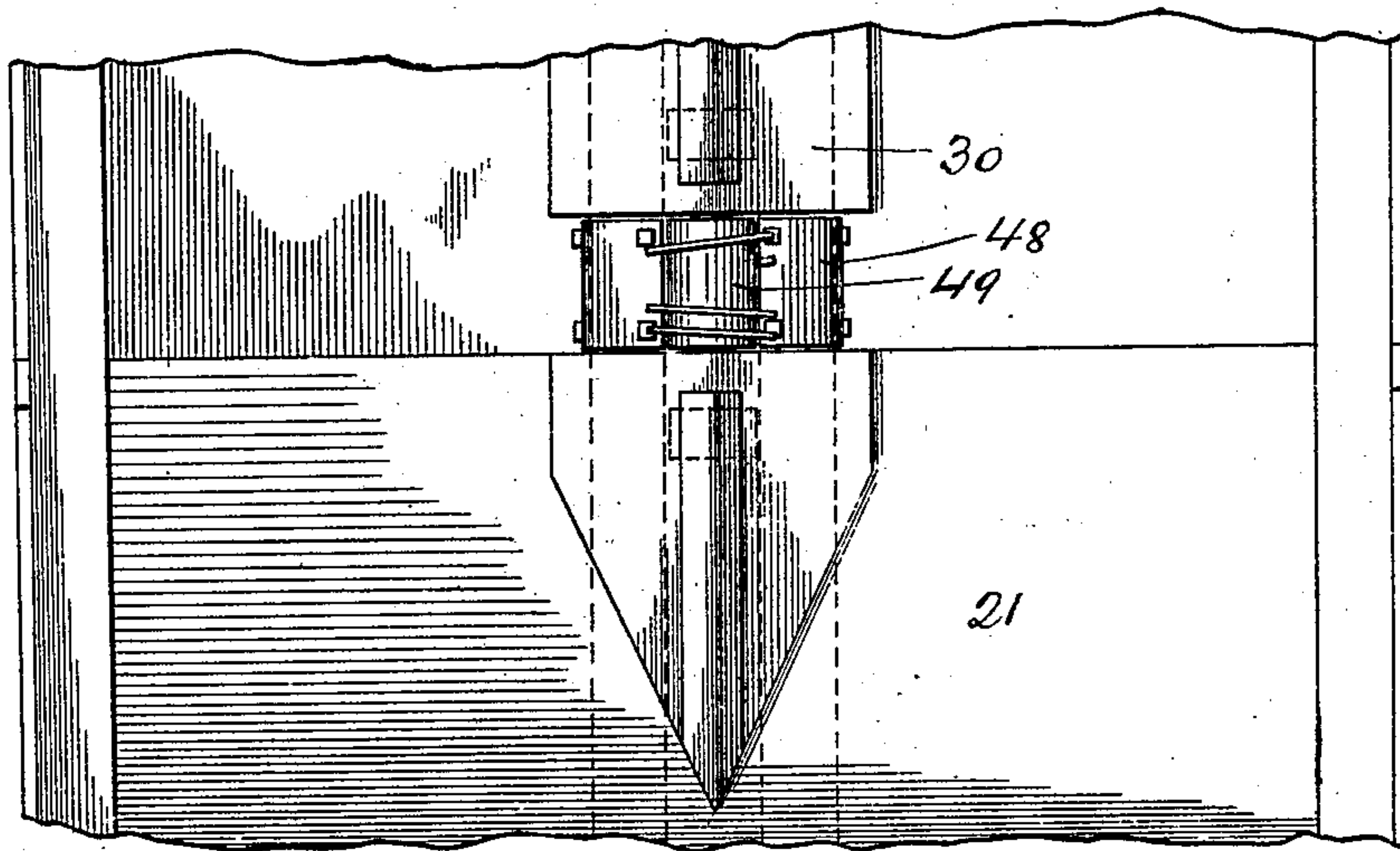
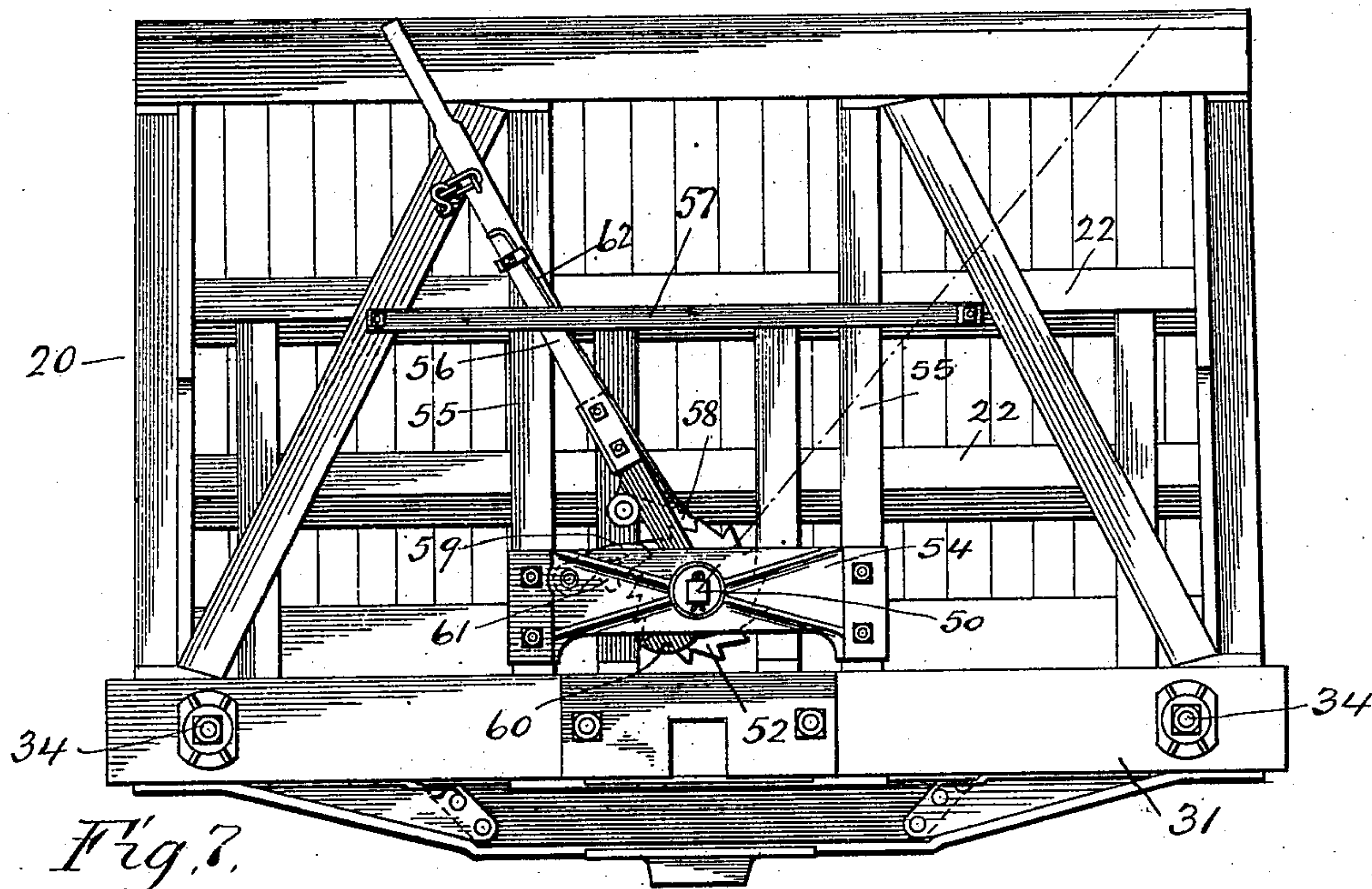


Fig. 8.

Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY C. WILLIAMSON AND HERMAN PRIES, OF MICHIGAN CITY, INDIANA.

DUMP-CAR.

SPECIFICATION forming part of Letters Patent No. 690,501, dated January 7, 1902.

Application filed June 7, 1901. Serial No. 63,585. (No model.)

To all whom it may concern:

Be it known that we, HENRY C. WILLIAMSON and HERMAN PRIES, citizens of the United States, and residents of Michigan City, county of Laporte, and State of Indiana, have invented certain new and useful Improvements in Dump-Cars, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

Our invention relates to the construction of dump-cars, and more especially to improvements in hopper-bottom gondola cars, such as are employed for transporting coal, ore, and other materials of a like nature.

The car herein shown, described, and claimed is particularly adapted for the transportation of ore from the mine to the docks and for discharging the same into vessel-loading chutes. Such cars are necessarily limited in height, as they must pass under the "tipple" from which they are filled. They are necessarily restricted in length, because they must be adapted to the existing construction of docks at which vessels are loaded, so that a number of them may be run onto the trestle from which the chutes lead and the several cars while coupled together discharging each into a chute without moving. These trestles at loading-docks are so constructed that the ore-receiving pockets from which the chutes lead to vessels are located between the rails of the track, and hence the hopper form of car must be used, and the ore must not only be discharged through the bottom of the car, but must be guided between the rails. With these various limitations the car must nevertheless have great capacity and strength and with these characteristics must also be capable of discharging its load with great rapidity. These various objects are attained in the present construction, as hereinafter fully described and as illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a dump-car constructed in accordance with our invention, certain parts, such as the draft-rigging and one of the plates for covering the drums of the door-closing mechanism, not being shown. Fig. 2 is a side elevation of the same. Fig. 3 is a bottom view of the car. Fig. 4 is a detail section, on an enlarged scale, on the line 4 4 of Fig. 1. Fig. 5 is a section on the line

5 5 of Fig. 4. Fig. 6 is a section on the line 6 6 of Fig. 4. Fig. 7 is an end elevation showing the mechanism for operating the hopper-doors, and Fig. 8 is a partial plan of the car on an enlarged scale.

The body 20 of the car is substantially of the gondola type, and the end floors 21 and 21^a thereof are given a decided inclination in order that the contents of the car may readily move out through the discharge-opening when the doors are released. The inclined end floors 21 and 21^a are supported in the usual manner by floor-timbers 22 and terminate so as to provide a centrally-located discharge-opening, which is closed by a pair of doors 24 and 25, hinged to the side sills 26 and closing against the central sills 27 and 28, the said latter sills dividing the discharge-opening centrally and providing, in effect, two side outlets for the contents of the car.

The car is constructed with three central sills 27, 28, and 29, located above which and supported thereby is an inverted-V-shaped hood 30, which extends from the incline 21 to the incline 21^a, as illustrated in Fig. 1, including in its length the removable caps 30^a, one of which is shown in Fig. 1 covering over the winding-drums for the door-operating mechanism, hereinafter referred to. The sills 27 and 28 extend the length of the car and are framed into and secured to the end sills 31, while the inner sill 29 is of less length than the others, its ends abutting against the cheek-plates 32 of the draft-timbers. The outer truss-rods 33 are parallel to each other from the end sills 31, to which they are secured by bolts 34, to the saddles 35, supported by the car-bolsters 35^a, and are then bowed outwardly and downwardly to the queen-posts 36, thereby adding to the rigidity of the car-frame and also clearing the discharge-openings in the bottom of the car, which extend to the side sills 26. As thus arranged they are also out of the way of the hopper-doors when open. The central truss-rods 37 and 38, bolted to and passing through the dead-wood 39, are also parallel as far as the saddles 40, likewise supported by the bolsters 35^a; but from the saddles 40 to the queen-posts 41 the said truss-rods are bowed inwardly, as illustrated in Fig. 3, in order to clear the inner sides of the discharge-open-

ings. Each of the queen-posts 41, under which the central truss-rods 37 and 38 pass, consists of a base 42, bolted to the needle-beams 43 beyond the ends of the discharge-openings, the posts 44 and a cross-piece 45 connecting the said posts, thereby providing a means for resisting the lateral strains on the truss-rods and effectually trussing the car-frame.

The doors 24 and 25 are each controlled by means of a pair of chains 46 and 47, only one of which is shown, which pass upwardly over wearing-plates 48, fixed to the central sills 27 and 28, and are secured to and wound about drums 49, keyed to a shaft 50, the drums and shaft being housed under the hood 30, and thereby protected from the load. The shaft 50 is journaled in blocks 51, located at opposite sides of the drums 49, and one of its ends is extended to the end of the frame of the car and has fixed to it a ratchet-wheel 52, the hubs 53 of which are journaled in plates 54, secured to the uprights 55, forming a part of the framing of the car. A bifurcated lever 56 is loosely pivoted on the hubs 53 of the ratchet-wheel, and its upper end projects above the upper end of the car, passing through a guide-strap 57, secured across the end of the car. An actuating-pawl 58 is pivoted between the legs of the lever 56 and coöperates with the ratchet-wheel 52. A retaining-pawl 59 is pivoted between the plates 54, so as to engage the ratchet-wheel to hold the same against backward movement. Each of the legs of the lever 56 is provided with a forwardly-projecting toe 60, one of which is shown in dotted lines in Fig. 7, designed to engage lugs 61, depending from the retaining-pawl 59, so that when the lever is swung to the limit of its advance movement this pawl is raised to free the ratchet-wheel and permit the doors 24 and 25 to fall. The pawl 58 is controlled by a rod 62, and suitable means may be provided for holding the rod for the purpose of suspending the pawl out of engagement with the ratchet-wheel.

The mechanism just described for releasing and closing the doors is shown in Patent No. 673,103, granted to us April 30, 1901, and is the preferred mechanism for accomplishing such results. We do not, however, confine ourselves to its use, and any other suitable means may be employed.

Each of the drums 49 is provided with spiral peripheral grooves 63, so that as the chains are wound upon the same their links enter the grooves obliquely for the purpose of preventing any twisting or kinking of the chains and consequent variations in their length.

The sides 64 of the car are bowed outwardly (illustrated in Fig. 1 by means of the vertical dotted lines X) and are also inclined downwardly and outwardly, as will be clearly seen on reference to the line Y in Fig. 5. It will be readily understood that as the ore or coal leaves either end of the car and moves toward the discharge-openings it will travel through a gradually-widening passage, the

unloading or dropping of the contents of the car being thereby greatly facilitated.

At 65 is shown a cross-rod for staying the sides of the car.

In spite of all precaution material will sometimes, even when adhesive in its nature, arch over the dumping-apertures, and it becomes necessary to break the arch by means of thrust-rods inserted through suitable apertures in the sides of the car. Such apertures are shown at 66 and are preferably located at each end of the discharge-apertures, so as to give access to the bases of the arch, though, if desired, they may be located substantially midway of such apertures, as indicated by dotted lines in Fig. 2, to accord access to the crown of the arch. The novelty in the present construction in this regard consists in the form of the closures for such apertures, upwardly and outwardly inclined plates 67 being used, which, while affording ready entrance for the thrust-rod, prevent the material from forcing its way out.

When constructed as described, the car has great strength, particularly by reason of the arrangement of the central sills and truss-rods. It has great carrying capacity and discharges its load readily, the discharge-apertures being large, the inclines at the ends of the car being steep, and the friction between the material and the car sides being greatly reduced by the inclination of the latter outwardly from their upper edges and from the ends of the car.

We claim as our invention—

1. In a dump-car, in combination, the inclined end floors, a door-closed opening in the bottom of the car, and side walls inclined upwardly and inwardly.

2. In a dump-car, in combination, the inclined end floors, a door-closed opening in the bottom of the car, and side walls of the car bowed outwardly and inclined upwardly and inwardly.

3. In a dump-car, in combination, a car-body having door-closed bottom discharge-openings, means for controlling the doors, central sills against which the doors close, a queen-post secured to the sills beyond the ends of the openings, and truss-rods passing under the queen-posts and bowed inwardly.

4. In a dump-car, in combination, a car-body having a bottom discharge-opening, central sills passing through the center of the opening, hinged doors closing against the sills, a queen-post secured to the sills beyond each end of the opening, a pair of truss-rods passing over the queen-posts and bowed inwardly so as to clear the discharge-opening, and side truss-rods bowed outwardly around the outer sides of the discharge-opening.

5. In a dump-car, in combination, a car-body having door-closed bottom discharge-openings, means for controlling the doors, central sills against which the doors close, a pair of queen-posts secured to the sills beyond the end of each of the openings, and truss-rods

passing under the queen-posts and bowed inwardly, each of the said pairs of queen-posts being connected by a bar.

5 6. In a dump-car, in combination, a car-body having door-closed bottom discharge-openings, means for controlling the doors, a plurality of central sills arranged in close order and against which the doors close, a pair of queen-posts comprising a rectangular frame
10 secured to the sills beyond the end of each of the discharge-openings, truss-rods passing under the queen-posts and bowed inwardly, and side truss-rods bowed outwardly around the outer ends of the discharge-openings.

15 7. In a dump-car, in combination with a car-body, the inclined end floors providing a discharge-opening in the bottom of the car, a door for closing the opening, the car having an aperture in its side over the discharge-
20 hopper, and an upwardly and outwardly inclined plate partially closing said aperture.

8. In a dump-car, in combination, a car-body having door-closed bottom openings, central sills against which the doors close, the sides of the car-body having apertures over the discharge-hopper, and an upwardly and outwardly inclined plate partially closing each of said apertures. 25

9. A dump-car provided with a door-closed opening in the bottom thereof, and having at least one pair of its opposite walls inclined upwardly and inwardly. 30

10. A dump-car provided with a door-closed opening in the bottom thereof, and having at least one pair of its opposite walls bowed outwardly. 35

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