

(No Model.)

2 Sheets—Sheet 1.

W. H. HILL & C. W. BENDER.
PETROLEUM CAR.

No. 427,867.

Patented May 13, 1890.

Fig. 1.

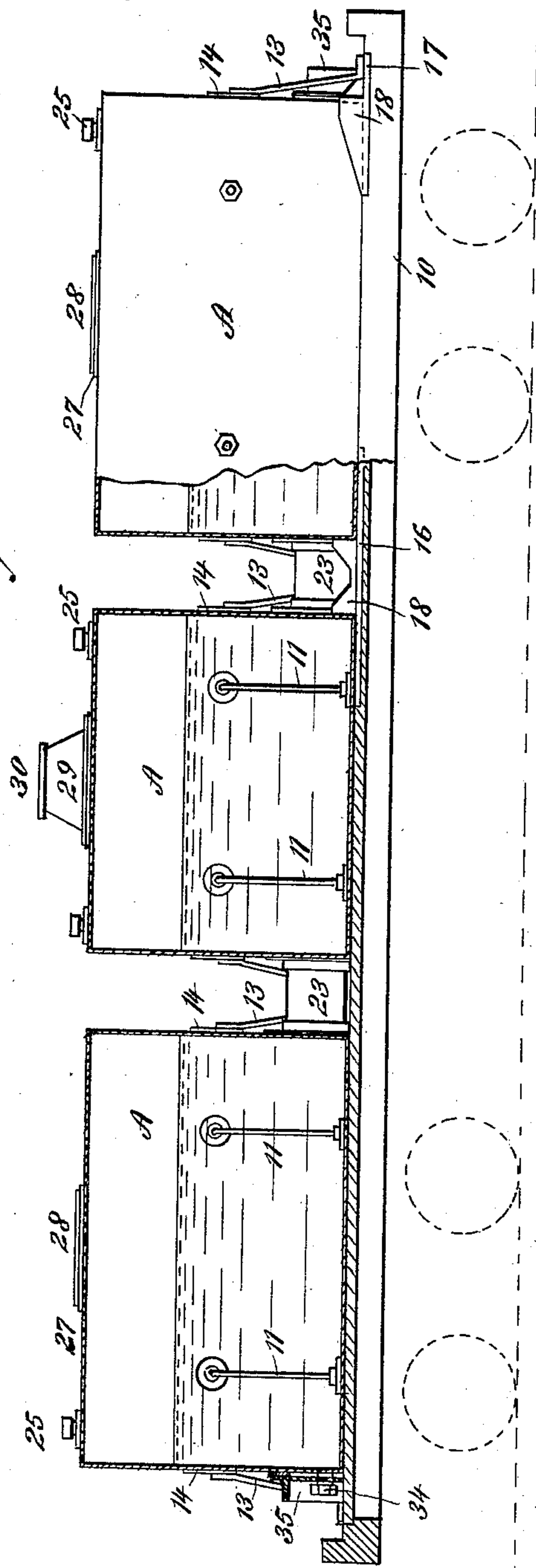
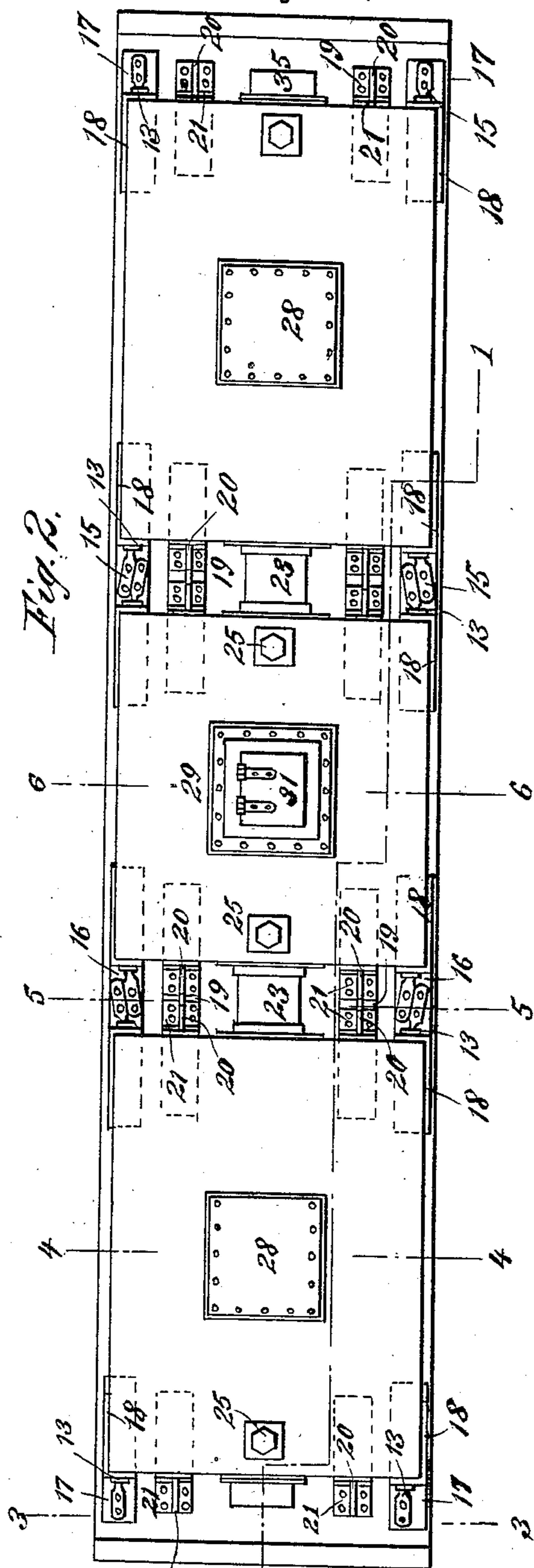


Fig. 2.



WITNESSES:

Donn Twitchell
L. Sedgwick

INVENTOR:

W. H. Hill
C. W. Bender

BY

Munn & Co.

ATTORNEYS

(No Model.)

2 Sheets—Sheet 2.

W. H. HILL & C. W. BENDER.
PETROLEUM CAR.

No. 427,867.

Patented May 13, 1890.

Fig. 3.

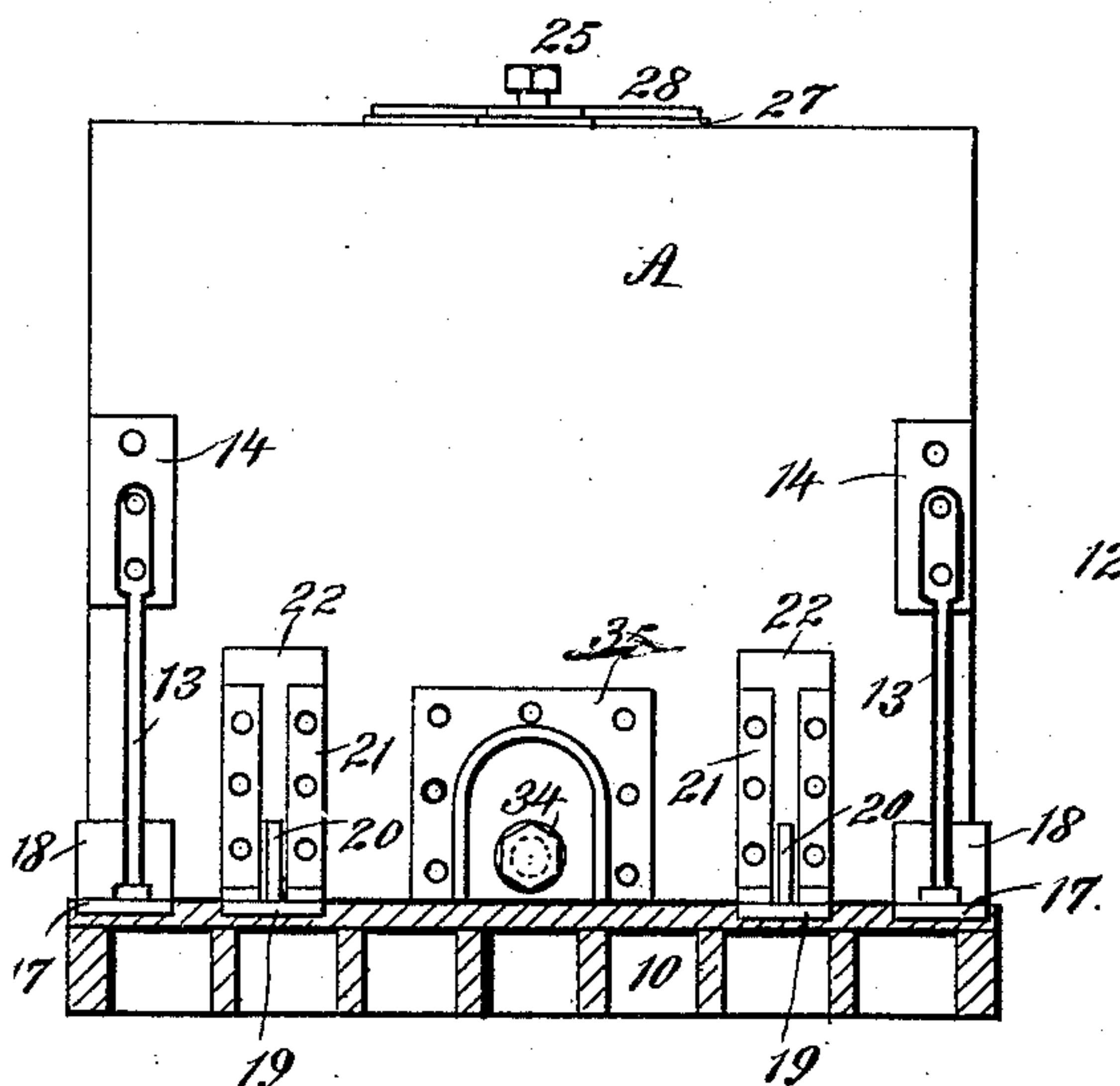


Fig. 4.

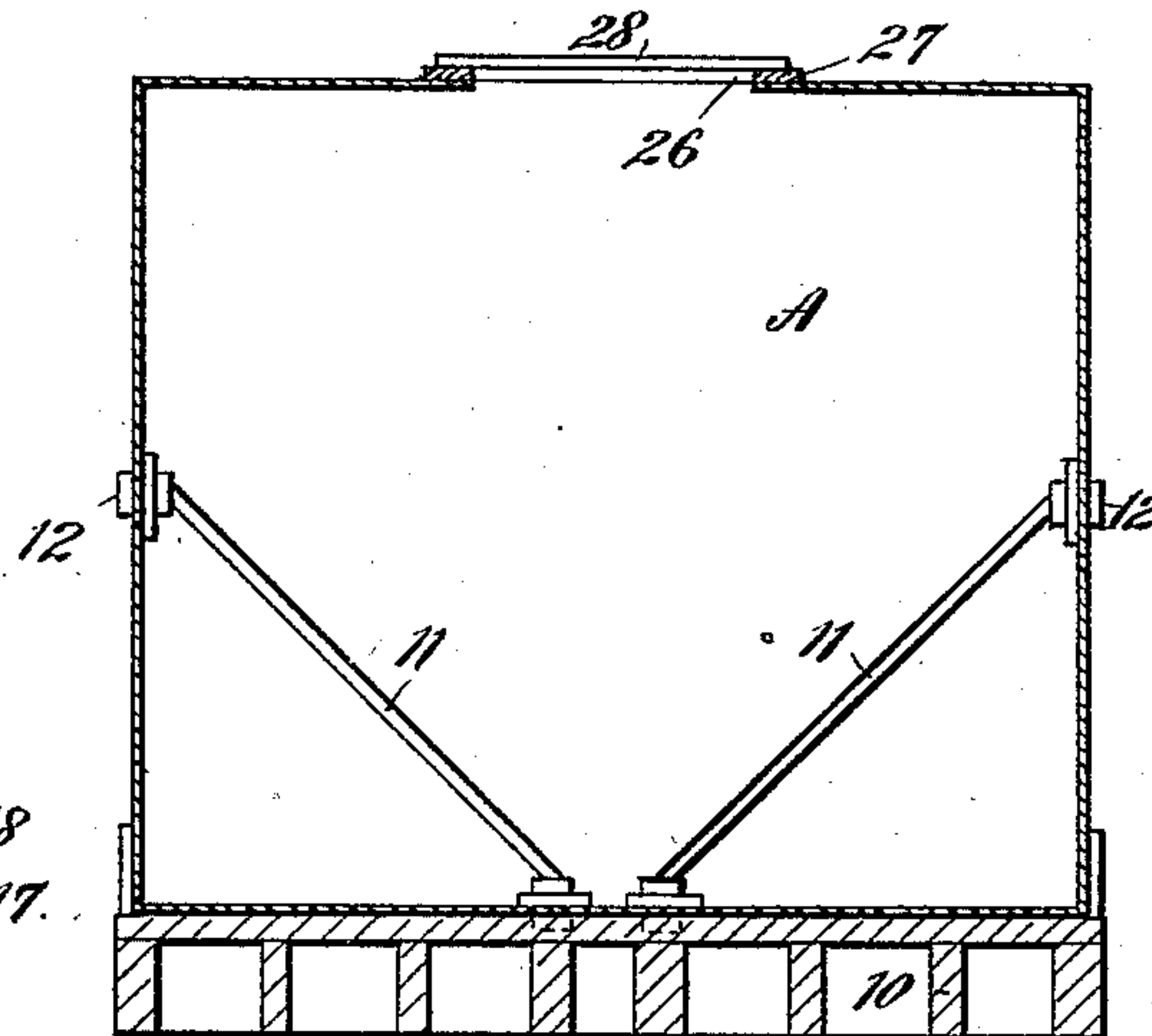


Fig. 5.

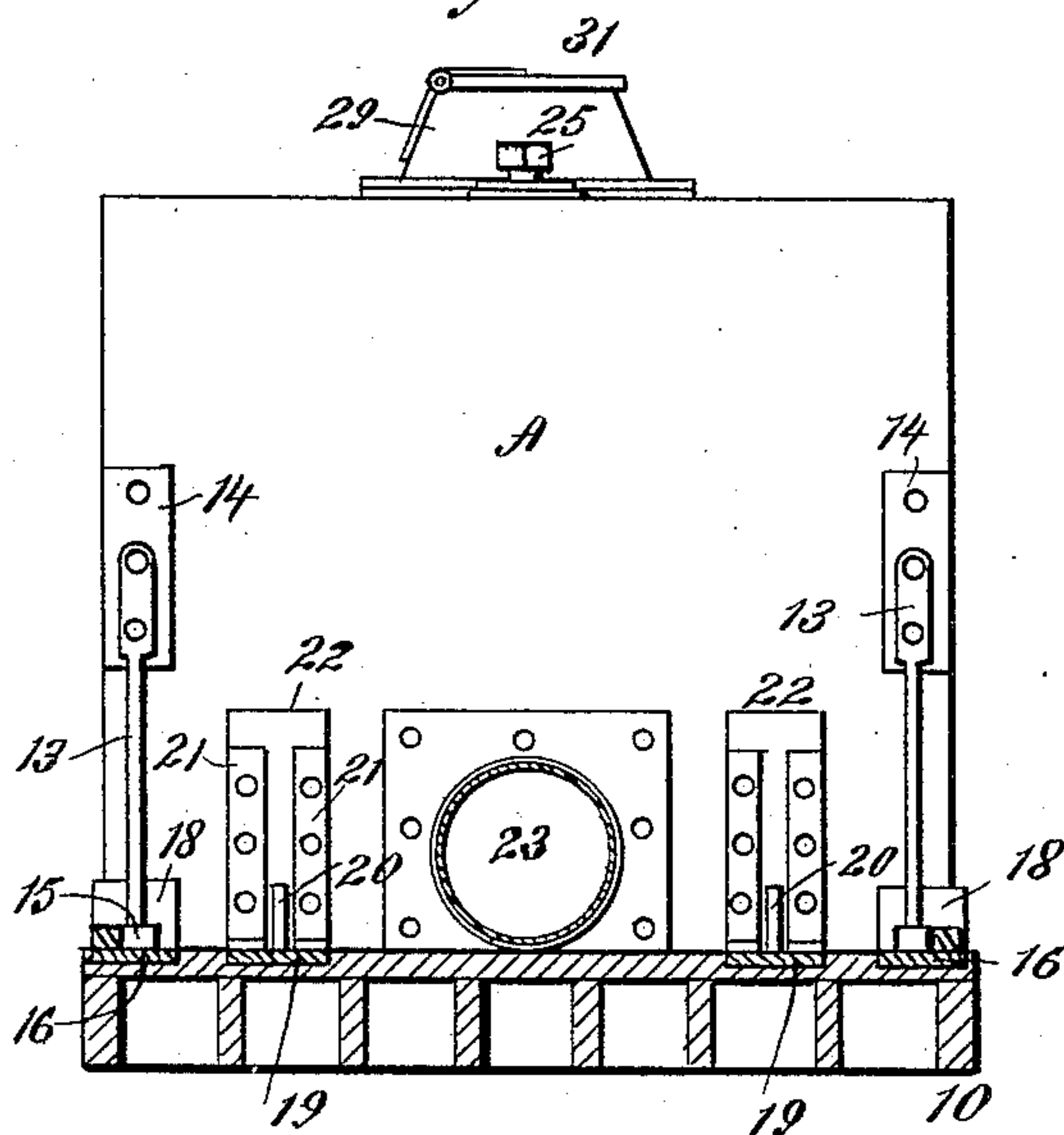
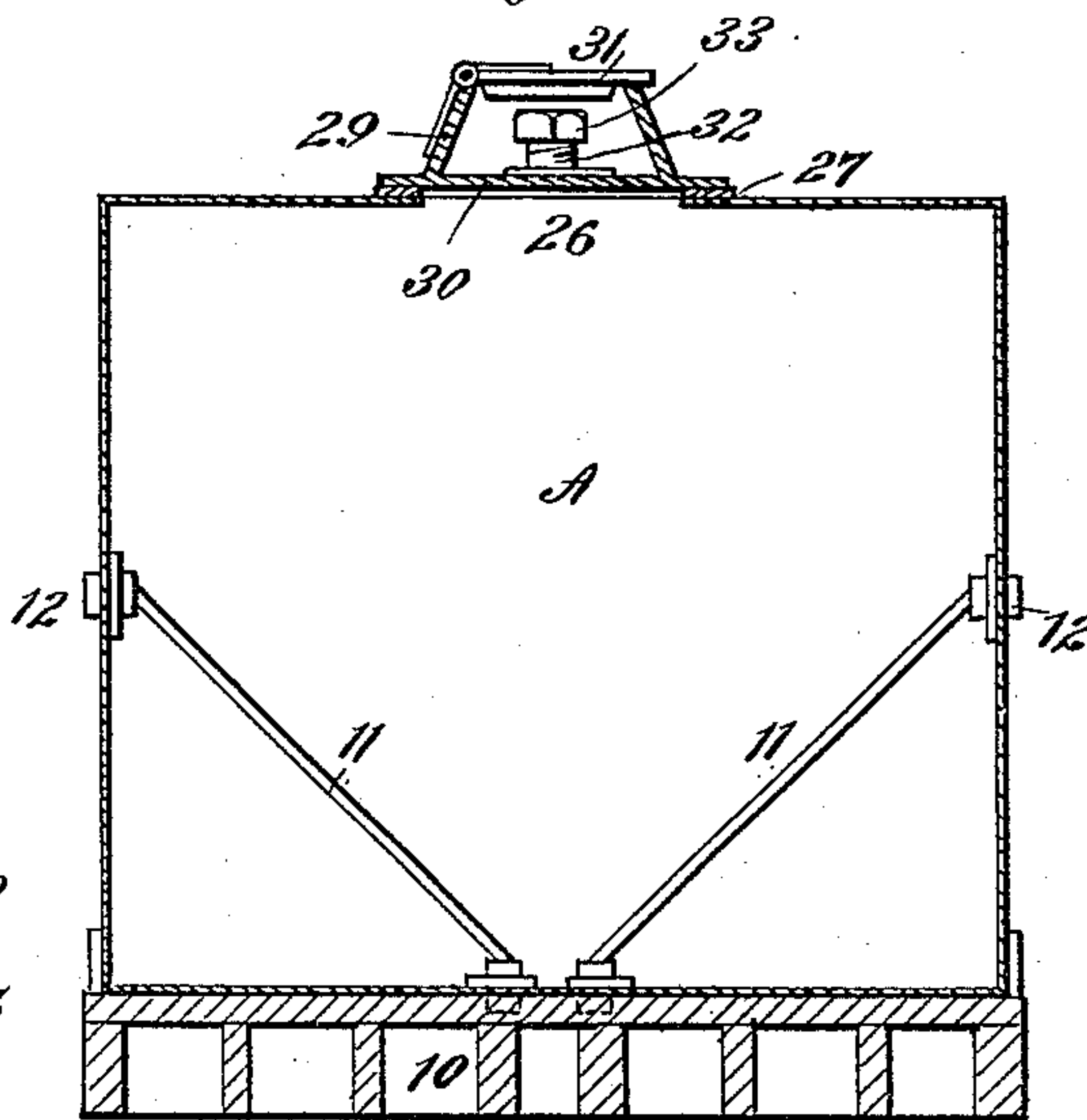


Fig. 6.



WITNESSES:

Don Twitchell
C. Sedgwick

INVENTOR:

W. H. Hill
C. W. Bender
BY *Munn & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM HENRY HILL AND CHARLES W. BENDER, OF UTICA, NEW YORK.

PETROLEUM-CAR.

SPECIFICATION forming part of Letters Patent No. 427,867, dated May 13, 1890.

Application filed February 13, 1890. Serial No. 340,331. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM HENRY HILL and CHARLES W. BENDER, of Utica, in the county of Oneida and State of New York, have invented a new and useful Improvement in Petroleum-Cars, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in petroleum-cars, and has for its object to provide a series of connected metal tanks so braced that their walls will not bulge even when heavily loaded and subjected to the vibrations of travel; and a further object of the invention is to so construct the tanks that the bulk of their weight will be over the trucks of the car-body, the tanks being capable of rigid and firm attachment to either a flat or a gondola car.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters and figures of reference indicate corresponding parts in all the views.

Figure 1 is a partial vertical longitudinal section through a series of tanks represented as mounted upon a car-body, the section being taken on the line 1 1 of Fig. 2. Fig. 2 is a plan view of the improved car. Fig. 3 is a section taken on line 3 3 of Fig. 2 and end view of one of the end tanks. Fig. 4 is a transverse section through an end tank and the car-body, the said section being taken on the line 4 4 of Fig. 2. Fig. 5 is a transverse section through the car-body taken on line 5 5 of Fig. 2, showing an end view of the intermediate tank; and Fig. 6 is a transverse section on line 6 6 of Fig. 2, illustrating the said intermediate tank in central vertical section.

The tanks A are ordinarily arranged in sets of three, the outer tanks being the largest and adapted to be attached to the bed 10 of the car-body over the trucks thereof. Each tank is constructed of metal, sheet metal being preferably employed, and the said tanks are rectangular in cross-section, having perpendicular sides and ends and a flat top and bottom, as shown in Figs. 4 and 6. By reason of this peculiar shape a maximum capacity

is obtained for each tank, and the said tanks are enabled to be supported throughout their length and breadth by the bottom of each being brought in perfect contact with the top of the car-bed.

In order to prevent the sides of the tanks from bulging outward when filled or partially so and subjected to the vibrations of travel, each tank at each side is provided, preferably, with two stay-rods 11, the upper ends of which rods are carried through the sides of the tanks, one at each side of the center and about midway between top and bottom, the upper outer ends of the rods being ordinarily secured in place by suitable lock-nuts 12, and the lower ends of the rods are secured to the bottoms of the tanks within the same, as best illustrated in Figs. 4 and 6.

The rods of each tank are preferably arranged so that the rods upon one side will be in horizontal alignment with the rods upon the opposite side, and the lower ends of opposite rods are preferably made to closely approach each other, being attached to the bottom, one at each side of a central line. Thus the said rods are given a downward inclination and effectually hold the sides of the tanks in a true perpendicular position. The ends of the tanks are also braced, but the braces are located upon the outer faces.

Each tank at each end is preferably provided with two exterior brace or stay rods 13, their upper ends being bolted or otherwise firmly secured to the tanks. The ordinary mode of attachment consists in securing to each end wall of each tank near the side surface a re-enforcing metal plate 14, the upper ends of the stay or brace rods 13 being bolted to said re-enforcing plates as well as to the tank. The lower ends of the brace or stay rods 13 are carried horizontally in the direction of the opposed end surface of the next tank, and the said horizontal section of each brace or stay rod is attached by bolts or otherwise to a connecting-plate 16, one of said plates being employed to connect one end surface of the intermediate tank with one of the end tanks. The connecting-plates are firmly bolted to the bottoms of the tanks and virtually form a portion thereof. The said connecting-plates are located at or near the sides of the tanks, the outer edges of the plates be-

ing preferably made to extend slightly beyond the outer sides of the tanks. Similar connecting-plates 17 are attached to the bottom of each end tank at their outer end faces, and brace or stay rods 13 are likewise provided for the said end surfaces. The intermediate connecting-plates 16 are each provided at each side of the center with oppositely-facing angle-sockets or corner-irons 18, the said sockets or corner-irons being so spaced as to receive the inner corners of the end tanks and the four corners of the intermediate tank, and the end connecting-plates 17 are each provided with a single socket or corner-iron 18, adapted to receive the outer end corners of the outer tanks. Thus the tanks are firmly held in position and effectually sustained against lateral movement, and, through the medium of the brace or stay rods 13, against vertical movement. The connecting-plates 16 and 17 are adapted to fit in recesses formed in the bed 10 of the car-body, in order that the bottom of the tanks throughout their length and width may have an even bearing against the upper face of the said bed.

In addition to the outer connecting-plates 16 and 17, two inner connecting-plates 19, parallel therewith, yet spaced therefrom, are provided at each end of the tanks. The intermediate of the second set of connecting-plates are secured to both the end and intermediate tanks at their bottoms, the end set of connecting-plates being connected with the car-bed and end tanks only, and the said car-bed is recessed to receive these second or inner sets of connecting-plates in like manner with the outer sets of connecting-plates 16 and 17. Upon the intermediate connecting-plates of the second or inner set a lug or spur 20 is formed about midway between the sides at each side of the center, which lugs or spurs have one perpendicular end surface adapted for contact with the ends of the tanks. The outer connecting-plates of this second or inner set 19 are provided with one lug or spur only, which engages with the outer end surfaces of the end tanks. Both sets of connecting-plates are secured to the car-bed in any suitable or approved manner.

Angle or L-shaped plates or bars 21 are employed to tie the ends of the tanks and the second or inner set of connecting-plates 19 together. These angle or L-shaped plates or bars 21 act in the capacity of additional braces and are arranged in pairs, one being located at each side of each spur 20, formed upon the said inner connecting-plates. The vertical members of the auxiliary brace or stay rods or bars 21 are rigidly secured, preferably by means of bolts, to the ends of the tanks, and a re-enforcing plate 22 is made to intervene each set and the tank, the horizontal members of the auxiliary brace bars or rods being bolted, one at each side of the spurs 20, to the inner connecting-plates 19.

The end tanks are connected to the inter-

mediate tank at or near the bottom, either above or below the car-bed, but preferably above the same, through the medium of horizontally-arranged tubes 23, which tubes may be cylindrical, oval, rectangular, or of any shape.

Each tank at the top is provided with one or more air-vents 25, and each end tank, preferably centrally of the top, is provided with an opening 26, the walls of which are surrounded with a metal re-enforcing plate or washer 27, and a lid or cover 28 is bolted to the washer and the top of the tank, which lids or covers entirely close the openings 26 of the said end tanks, and may be removed when desired—as, for instance, to hurriedly fill the end tanks—although the said end tanks may be both filled and emptied from the central tank, as will be hereinafter explained. The central tank is also provided with a top opening 26 and a surrounding metal washer 27; but instead of a flat cap or cover 28 being employed to close said opening a hood 29 is constructed around it having a floor or bottom 30 and a hinged top 31. In the bottom of the hood or housing 29 a tube 32 is placed, ordinarily covered by a suitable cap or plug 33, as is best shown in Fig. 6. The purpose of this tube 32 is to admit of the application of a pump to the central tank, whereby the liquid contained therein may be discharged therefrom, and likewise from the end tanks through the central tank, or the said tanks be filled in like manner. This is readily accomplished, as each of the tanks is connected in the series and is provided with air-vents. Thus the liquid will at all times find its level, the liquid filled into the central tank passing to the end tanks and the liquid drawn from the central tank being replaced by the flow of liquid from the end tanks.

By reason of the construction above described it is obvious that the weight of the tanks is so distributed that the heaviest portion of said tanks will rest upon the strongest and best supported portion of the car-body.

In order that the petroleum or other liquid contained in the tanks may be drawn simultaneously from the central and end tanks, each end tank at its rear or outer end surface is provided with a suitable capped tube 34 for connection with the interior; and to prevent any damage being done to these end tubes or the cap being dislocated a housing or guard-plate 35 is made to surround each tube, the said guard-plate being bolted or otherwise secured to the tanks and to the bed of the car-body, if so desired.

We desire it to be distinctly understood that while details of construction have been shown and described equivalent construction may be employed without departing from the spirit of the invention.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination, with the bed of a car-

body and a petroleum-tank constructed of metal and provided with straight sides and ends and interior inclined side braces, of two parallel connecting-plates secured near each corner to the bottom of the tank and to the bed of the car-body, the outer connecting-plates being provided with sockets to receive the corners of the tanks and the inner connecting-plates having spurs adapted to engage the end surfaces of the tank, brace-rods attached to the tank and to the outer end of the outer connecting-plates, and angular brace-bars arranged in pairs and secured to the ends of the tank and the outer ends of the inner connecting-plates, one at each side of the spur thereon, substantially as shown and described.

2. In a petroleum-car, the combination, with the bed of the car-body, connecting-plates secured to the said bed and arranged in pairs, the outer connecting-plates being provided with sockets and the inner connecting-plates with spurs, of a series of tanks constructed of metal and having perpendicular sides and ends and interior brace-bars, the outer of which tanks are the largest and adapted for location over the trucks of the car-body, and brace-rods secured to the connecting-plates and the ends of the tanks, as and for the purpose specified.

WILLIAM HENRY HILL.

CHARLES W. BENDER.

Witnesses:

CHARLES G. IRISH,
EDWARD L. HILL.