

Sept. 4, 1928.

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H. W. PROTZELLER

CAR CONSTRUCTION

Filed Feb. 23, 1927

2 Sheets-Sheet 1

Fig. 1.

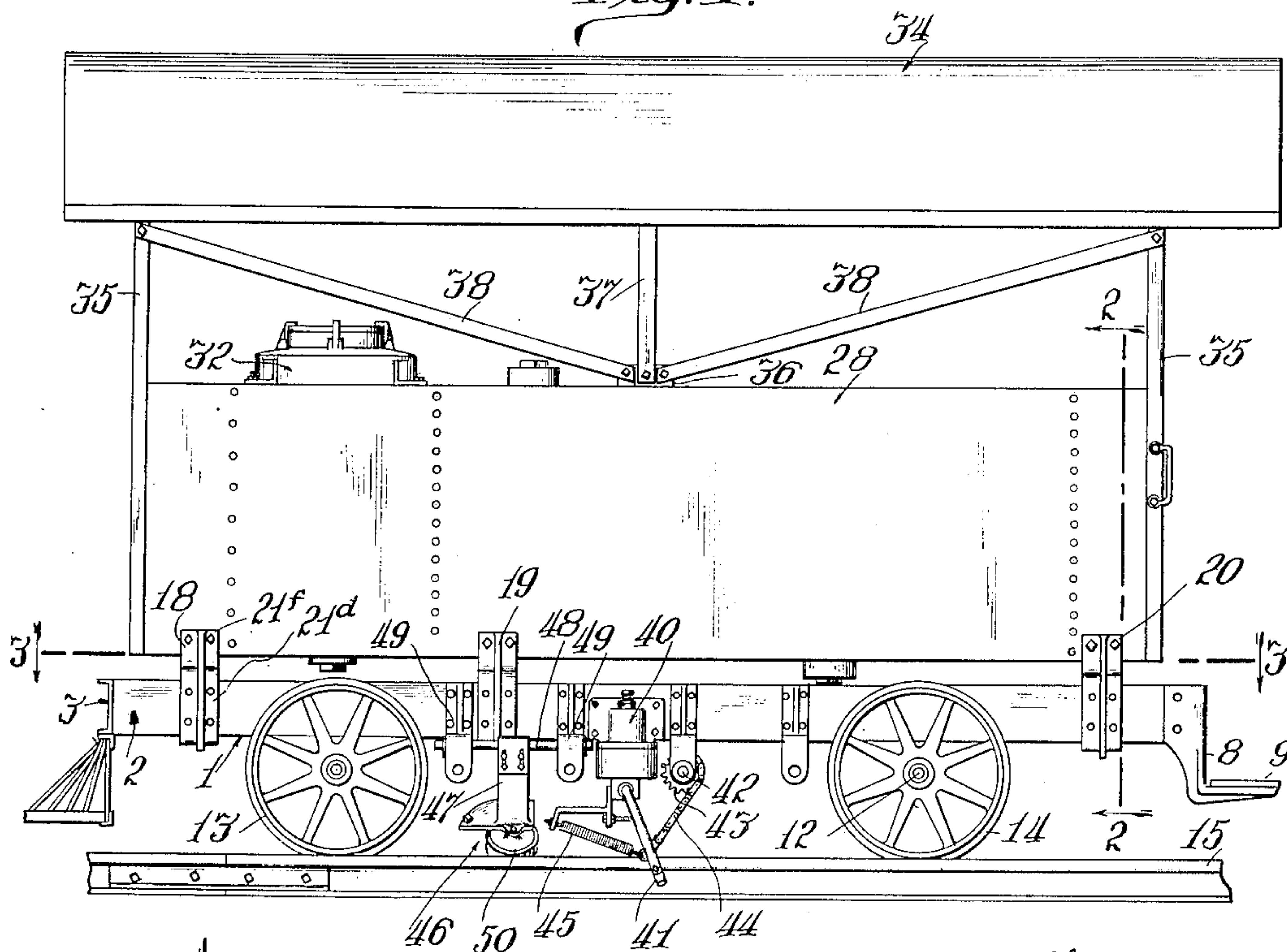
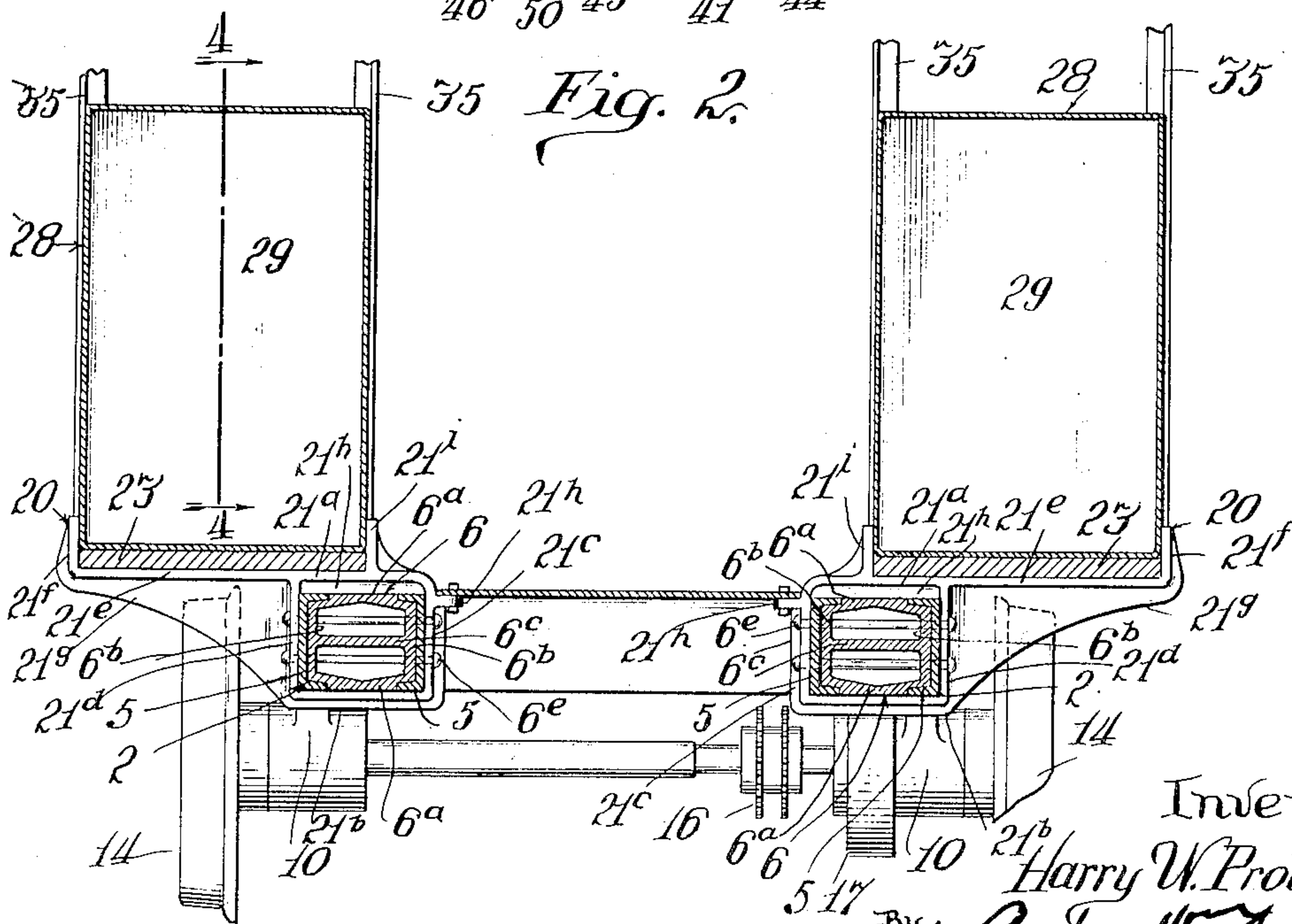


Fig. 2.



Inventor

Harry W. Protzeller

By *Arthur W. Nelson*
Attorney

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Fig. 3.

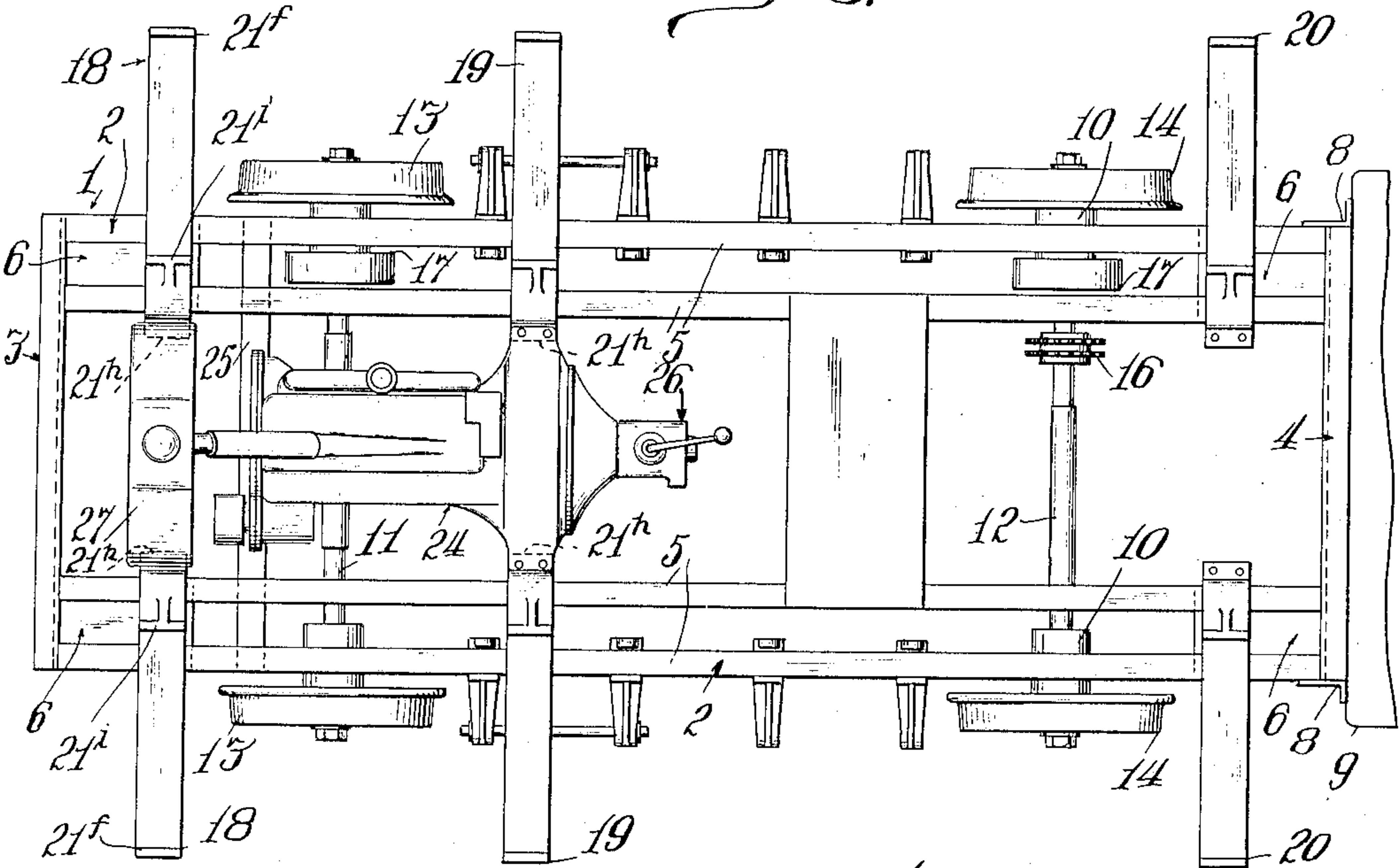


Fig. 4.

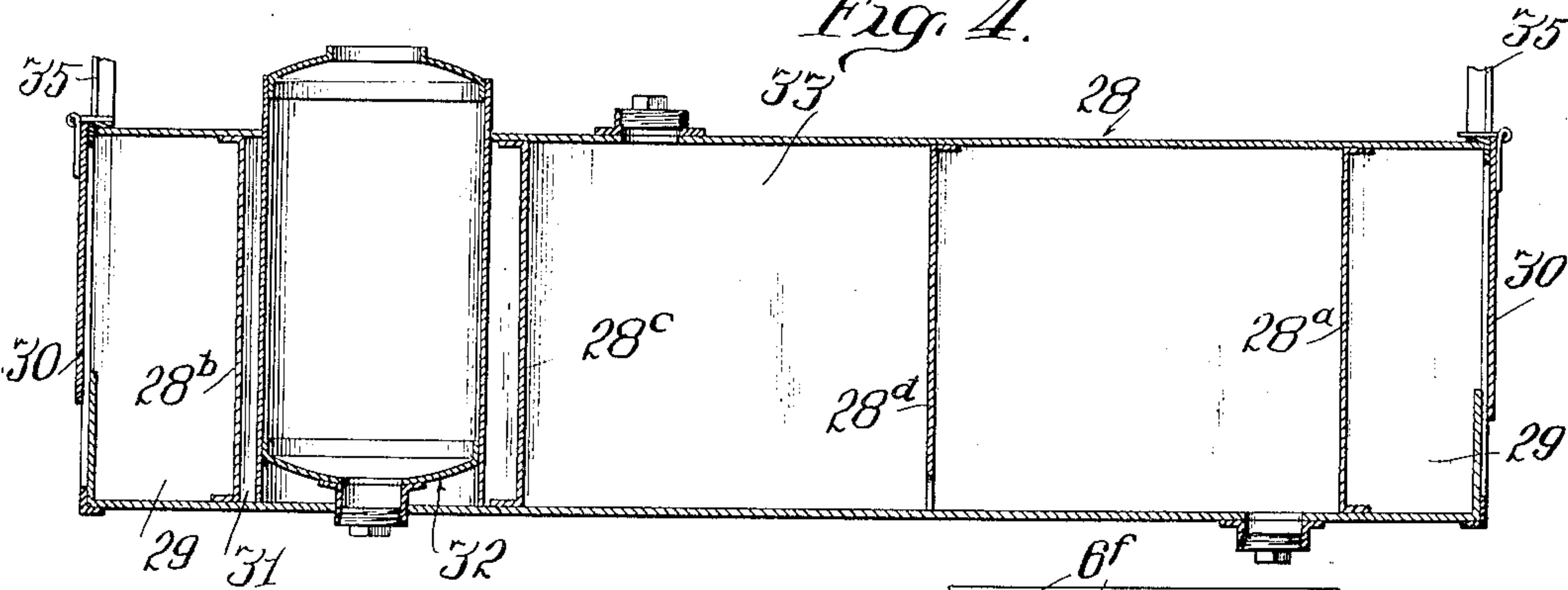


Fig. 5.

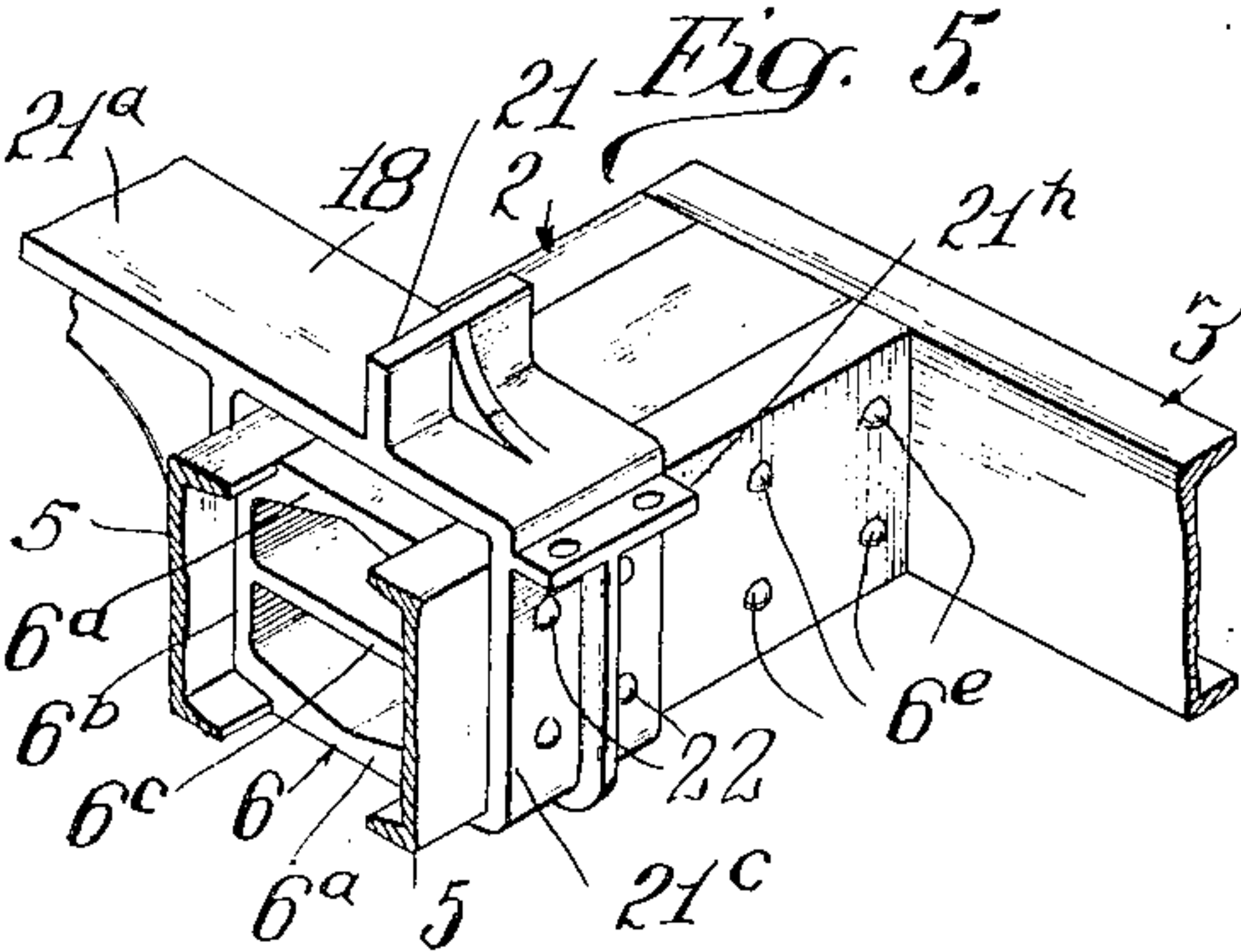
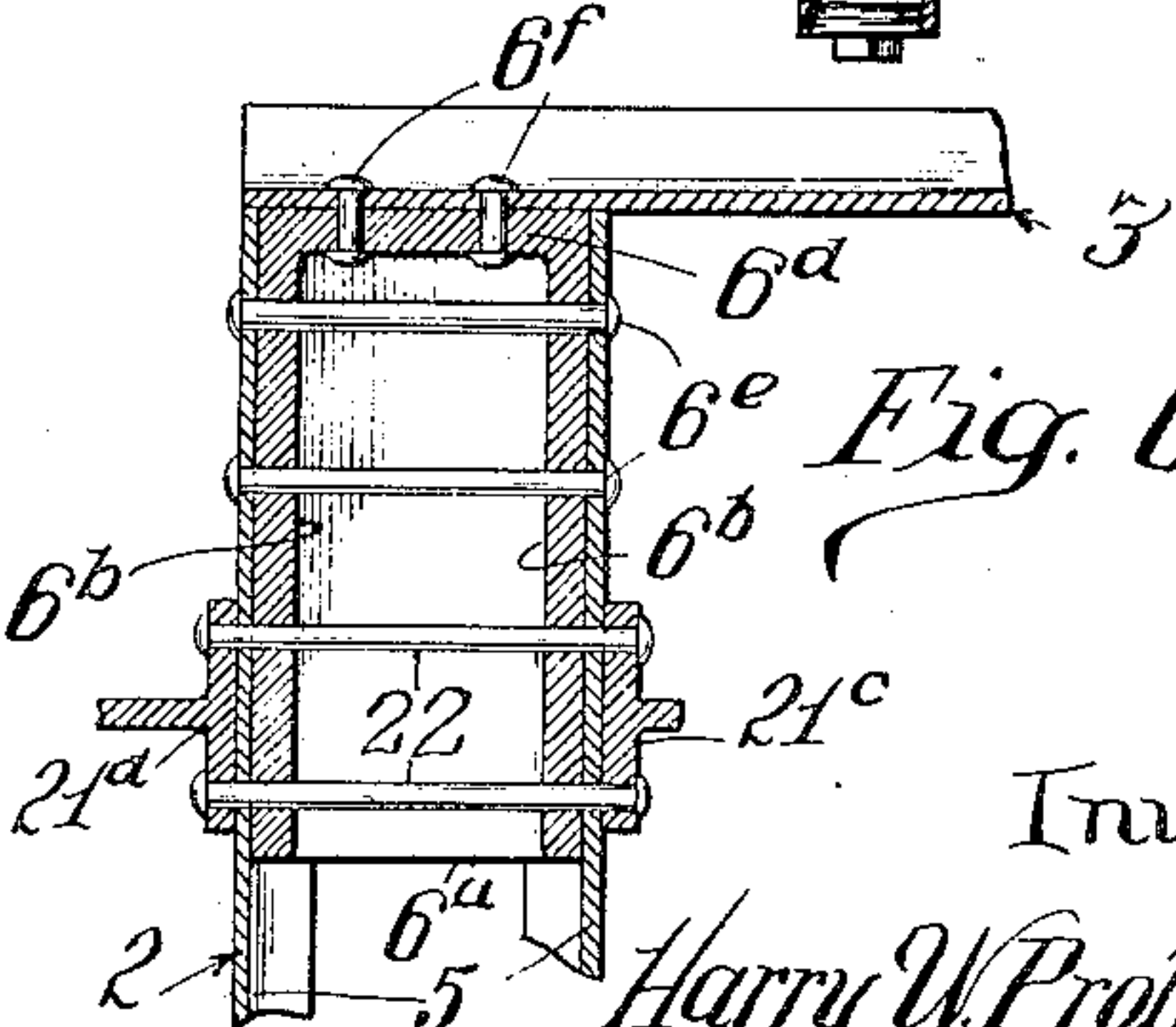


Fig. 6.



Inventor

Harry W. Protzeller

By *Arthur W. Nelson*
Attorney

UNITED STATES PATENT OFFICE.

HARRY W. PROTZELLER, OF EAST CHICAGO, INDIANA, ASSIGNOR TO O. F. JORDAN COMPANY, OF EAST CHICAGO, INDIANA, A CORPORATION OF INDIANA.

CAR CONSTRUCTION.

Application filed February 23, 1927. Serial No. 170,296.

This invention relates to improvements in car constructions and it consists of the matters hereinafter described and more particularly pointed out in the appended claims.

5 The primary object of the invention is to provide a strong and rigid construction especially adapted as the vehicle of a self propelled rail joint oiler, and which includes, a tank arrangement at each side of
10 the car with a center aisle or passage between them in which is arranged the driving engine and associated parts.

Another object of the invention is to provide an improved running frame which
15 includes certain brackets upon which the tanks are mounted so as to project beyond the sides of the frame, the brackets so engaging the frame as to resist any twisting thereof under actual conditions of use.

20 These objects of the invention as well as others, together with the many advantages thereof, will more fully appear as I proceed with my specification.

In the drawings:

25 Fig. 1 is a view in side elevation of a rail joint oiler in which is embodied my improved car construction.

Fig. 2 is a transverse vertical sectional view through the same on an enlarged scale, as taken on the line 2—2 of Fig. 1.

30 Fig. 3 is a horizontal sectional view as taken on the line 3—3 of Fig. 1 and shows the vehicle frame in plan elevation.

Fig. 4 is a longitudinal section through
35 one of the tanks or casings embodied in my improved car construction, the plane of the section being indicated by the line 4—4 of Fig. 2.

40 Fig. 5 is a detail perspective view of one corner of the frame of the car and which will be more fully referred to later.

Fig. 6 is a detail horizontal sectional view through that corner of the frame shown in Fig. 5.

45 My invention is herein shown and will be described as embodied in a vehicle adapted to be self propelled along a railroad track for spraying oil on the joints in the rails but this is to be taken as by way of illustration only and not by way of limitation because the same may be embodied in railroad
50 vehicles for other purposes where its pe-

culiar characteristics makes it of advantage to do so.

Referring now in detail to that embodiment of the invention illustrated in the accompanying drawings, 1 indicates as a whole the rectangular frame of the car which includes side sills 2—2 and front and rear transverse end sills 3 and 4 respectively. Each side sill is in the form of a pair of edgewise disposed parallel but spaced inner and outer channel irons 5—5 with the top and bottom flanges thereof facing inwardly toward each other. In each
55 end of the side sills between the channel irons thereof is a snugly fitting filler or spacer block 6 which includes top and bottom walls 6^a—6^a, side walls 6^b—6^b, and intermediate wall 6^c and end wall 6^d. Said
60 filler block is secured to said channel irons near its closed end by rivets 6^e which pass through the webs of the channel irons and through said block and also by other means later to appear. The front and rear end
65 sills 3 and 4 are each in the form of a channel iron with the flanges thereof facing outwardly, said members being attached to the ends of the side sills by rivets 6^f which pass through the webs thereof and through the
70 end wall of the filler blocks in the ends of said side sills as best shown in Fig. 6. Associated with the rear ends of the side sills are depending brackets 8 which support a
75 step or foot board 9. Fixed to and depending from each outer channel iron 5—5 at points spaced from each end thereof are bearing brackets 10—10 arranged in transverse front and rear pairs and in the front
80 pair is journaled an axle 11 and in the rear pair is journaled a second axle 12. Suitably secured on the ends of said axles are front and rear wheels 13 and 14 respectively, adapted for travel upon the rails 15 or a
85 railroad track. On the rear axle 12 is provided a suitable sprocket 16 by means of which power may be transmitted to said axle for driving the car as a whole. Also on both axles, suitable braking means 17, indicated only generally in Figs. 2 and 3,
90 are provided for stopping the car.

Associated with each side sill 2 are front, rear and intermediate brackets 18—19 and 20 respectively and as said brackets are all

of a similar construction a detailed description of one will suffice for all. Each bracket includes a rectangular open frame like body 21 adapted to embrace the pairs of channel
 5 irons constituting the side sills and which consists of top and bottom members 21^a—21^b and inner and outer side members 21^c and 21^d respectively. Made in continuation of the top member 21^a is a flat top arm or
 10 plate member 21^e which terminates at its outer end in an upturned flange 21^f braced by a reinforcing web 21^g from the outer side member 21^d. On the inner side member 21^c, just below the plane of the top member 21^a
 15 is a short inwardly extending flange 21^h and upstanding from said member 21^a substantially midway between the side member 21^c and 21^d is a flange 21ⁱ. As before stated the open frame or body of each bracket mem-
 20 ber snugly surrounds each side sill. Said brackets are suitably secured in place by bolts or rivets 22 which in the case of the end brackets also extend through the associated filler blocks 6 as best shown in Fig.
 25 6. On the top side of the member 21^a and its extension arm 21^e, between the flanges 21^f and 21ⁱ is mounted a suitable cushioning member 23 secured in place in any well known manner.

30 The vehicle thus far described is driven by an engine 24 arranged near the front end thereof and the fly wheel casing thereof is provided with lateral flange extensions engaged upon and bolted to the inwardly ex-
 35 tending flanges or bosses 21^h of the intermediate brackets 19. The front end of said engine rests upon and is bolted to a cross bar 25 which in turn is suitably secured at its ends to the bottom flanges of each pair of
 40 channel irons 5—5. The engine is preferably of the internal combustion type, and is provided at its rear end with a change speed transmission gear 26 operatively connected to the driving member 16 on the
 45 rear axle 12 in any suitable manner, said connection being omitted from the drawing for sake of clearness. Associated with said engine is a radiator 27 which rests upon and is secured to the flanges or bosses 21^h of the
 50 front brackets 18 as best shown in Fig. 3.

Mounted on the brackets 18, 19 and 20 at each side of the frame just described is an elongated rectangular casing 28 of a width to fit between the flanges 21^f and 21ⁱ, said
 55 casing resting upon the cushioning members 23 before mentioned. Each casing has transverse walls 28^a and 28^b spaced inwardly from the ends of the casing, which walls thus define compartments 29—29 respec-
 60 tively at each end of the casing, access to which may be had by hinged doors 30—30 at the extreme ends of the casing. Spaced rearwardly from the wall 28^b a suitable distance is a third transverse wall 28^c which
 65 defines with said wall 28^b a compartment 31.

Suitably secured in said compartment and projecting up through and above the top of said casing is a cylinder 32 capable of holding a fluid under pressure when so desired. The transverse wall 28^c together with the
 70 rear transverse walls 28^a defines a tank 33, also capable of holding a fluid under pressure, a baffle wall 28^d being arranged in said tank to brace the same but in no manner interfering with the equalization of pressure
 75 between the two end parts of the tank. Suitable filling and draining apertures are provided for the cylinder 32 and tank 33.

When the construction thus far described is employed as not only a rail joint oiler but
 80 also as a general purpose maintenance car, the tanks 33 will contain the oil to be sprayed upon the rails, the cylinders 32 will contain paint or whitewash and the compartments 29—29 will contain the necessary
 85 hose reels and tools and the like used in maintenance work.

In connection with such a car construction, I may provide a transversely arched or curved canopy 34 covering the entire car
 90 so as not only to protect the operators against weather conditions but also the various working parts of the car. Said canopy is supported upon the top ends of upright members 35—35 fixed to the end corners of
 95 the casing 28 as best shown in Fig. 1. To add to the rigid support of the canopy I provide on the top of the casing 28 between its ends, a flange plate 36 and extending up-
 100 wardly therefrom is a post 37. Inclined struts 38—38 lead off from said flange plate to the top ends of the upright members 35—35 on the same side of the car, to provide a strong and rigid construction for the
 105 canopy.

Mounted on the outer channel iron of each side sill, approximately between the supporting wheels and axles, is an electro-magnetic valve 40 and swingably supported from
 110 the bottom end of each valve is a spray nozzle head 41 adapted when in its operative position to straddle the associated rail and when in its inoperative position, to extend rearwardly from the valve in a horizontal plane. To the rear of each valve is a
 115 rearwardly operable transverse rock shaft 42 having a sprocket 43 thereon to which is fixed one end of a chain 44, the other end of which is secured to the nozzle head. When the shaft 42 is rocked in one direction the
 120 nozzle head is swung into its inoperative position and when said shaft is rocked in the other direction the nozzle head is swung into its operative position by a spring 45 as best shown in Fig. 1. The nozzle head 41 is
 125 suitably connected (by means not shown) to the associated tank 33, the valve 40 controlling the passage of fluid under pressure from said tank to the nozzle head.

The electro-magnetic valve is automati- 130

cally energized and de-energized to open and close the same by an automatic make and break contactor 46 arranged forwardly of the valve. This contactor includes a supporting arm 47 the top end of which is swingably engaged on a short longitudinally extending shaft 48 mounted in brackets 49 projecting laterally from the side sill. On the bottom end of this arm is a roller 50 for rolling engagement along the inner top corner of the head of the rail and associated therewith is suitable means to engage the inner fish plate of a rail joint as the vehicle moves along the rails. When such a fish plate is engaged, the contactor closes the circuit to the valve 40 which opens to permit a flow of oil under pressure to the nozzle head, to be sprayed upon the plates of the joint. So soon as the contactor passes the joint the circuit to the valve is broken and it closes off the supply of oil to the nozzle head. The contactor supporting arm is so connected to the shaft 42 that when the nozzle is in its operative position, the contactor is also in its operative position and when the nozzle is in its inoperative position the contactor is also in its inoperative position, wherein it assumes a substantially horizontal position up under and transversely of the associated side sills.

When the car is in use, it is apparent that the casings 28 will each contain a great weight and that this weight is offset outwardly with respect to the vertical median plane of the associated side sill. Ordinarily such weight would tend to spring or twist said side sill but with my improved construction as before described, no such springing and twisting can occur due to the duplex arrangement of the channel irons of each sill and also to the filler blocks and brackets with the open frames surrounding said side sills. The arrangement of the casing provides an aisle between the casings for the best arrangement of the operative parts of the car as well as a most convenient place for the operators.

My improved car construction is indeed strong and rigid so that it amply withstands the heavy service strains imposed upon it in use. It embodies as its greater part, structural members readily purchased in the open market and eliminates the necessity of any great amount of special machine work in the manufacture thereof.

While in describing my invention I have referred to the arrangement and form of the various parts of my improved construction in detail, the same is to be taken as by way of illustration only so that I do not wish to be limited thereto except as may be pointed out in the appended claims.

I claim as my invention:

1. A car embodying therein, a frame including side sills, each comprising at least

a pair of spaced parallel sill members, a filler block fixed between and to the ends of each pair of sill members, and end sills fixed at their ends to the ends of said filler blocks.

2. A car embodying therein a frame including side sills, each comprising at least a pair of spaced parallel sill members, a filler block fixed between and to the ends of each pair of sill members, end sills fixed at their ends to said side sills, a plurality of casing supporting brackets embracing said pairs of sill members and extending laterally therefrom and means for securing said brackets to said side sills.

3. A car embodying therein a frame including side sills, each comprising at least a pair of spaced parallel sill members, a filler block fixed between and to the ends of each pair of sill members, end sills fixed at their ends to the ends of said filler blocks, a plurality of casing supporting brackets embracing said pairs of sill members and extending laterally therefrom and means for securing said brackets to said side sills and filler blocks respectively.

4. A car embodying therein a frame including side sills each comprising a pair of channel irons with their flanges facing toward each other, a filler block disposed between the ends of each pair of channel irons, and fixed thereto, end sills connecting the ends of each side sill and fixed to said filler blocks, brackets surrounding the channel irons of each side sill and including a portion projecting laterally therefrom and means passing through portions of said brackets, channel irons and filler block to connect them together.

5. A car embodying therein a frame including side sills each comprising spaced parallel members, end sill members fixed to the ends of said side sills, brackets including portions surrounding said spaced parallel members, and other portions projecting laterally therefrom, and a casing engaged on said brackets and offset from said side sills, said brackets having upright flanges thereon engaging the sides of the casing.

6. A car embodying therein a frame including side sills each comprising spaced parallel members, end sill members fixed to the ends of said side sills, brackets including portions surrounding said spaced parallel members and other portions projecting laterally therefrom, a casing including a plurality of compartments engaged on said brackets and projecting laterally from said side sills, and cushioning members interposed between said bracket members and the bottom of said casing, said bracket having flanges engaging the sides of said casing.

7. A car embodying therein, a frame including side sills and end sills, longitudinally spaced brackets fixed to said side sills

and including flat top portions with laterally spaced upright flanges thereon, a casing engaged upon the flat top portions of the brackets associated with each side sill, said casing including two end compartments each having a door, and an intermediate pressure fluid tank.

8. A car embodying therein a frame including side sills and end sills, longitudinally spaced brackets fixed to said side sills and including flat top portions with laterally spaced upright flanges thereon, a casing engaged upon the flat top portions of the brackets associated with each side sill, between the flanges thereon, said casing including two end compartments each having a door, a pressure fluid tank near one compartment and a third compartment near the other end compartment, said third compartment being adapted to receive another pressure fluid container.

9. A car embodying therein a wheeled frame including side sills and end sills, longitudinally spaced brackets fixed to said side sills and including flat top portions, a rectangular casing disposed upon the flat top portions of the brackets on each side sill, a plate on said casing between its ends, upright members fixed to the end corners of said casing and to said casing plates, a canopy supported upon said upright members, and brace bars connecting said casing plates and the

top ends of said upright members fixed to the end corners of said casing.

10. A car embodying therein, a frame including side sills each comprising a pair of spaced sill members, supporting wheels and axles operatively connected to said side sills, a plurality of brackets having open frame portions surrounding portions of each side sill member and each having an outwardly extending arm at its top and also an inwardly extending flange, a casing disposed on the bracket arms of each side sill member, an engine for driving one of said axles, said engine being fixed at one end to the inwardly extending flanges of a pair of said brackets, one on each side sill member and a transverse member fixed to said side sills and upon which the other end of said engine is engaged.

11. A bracket for the purpose specified including an open frame with top, bottom and side walls, said top wall being extended laterally in one direction beyond one of said side walls and being braced therefrom by a web and terminating in an upright flange, a second flange rising from said top wall between said side wall and an inwardly extending flange on the other of said side walls.

In testimony whereof, I have hereunto set my hand, this 15 day of February, 1927.

HARRY W. PROTZELLER.