No. 801,448. PATENTED OCT. 10, 1905.

C. FELLNER.

STEAM MOTOR RAILWAY CAR.

APPLICATION FILED NOV. 3, 1904.

2 SHEETS—SHEET 1.

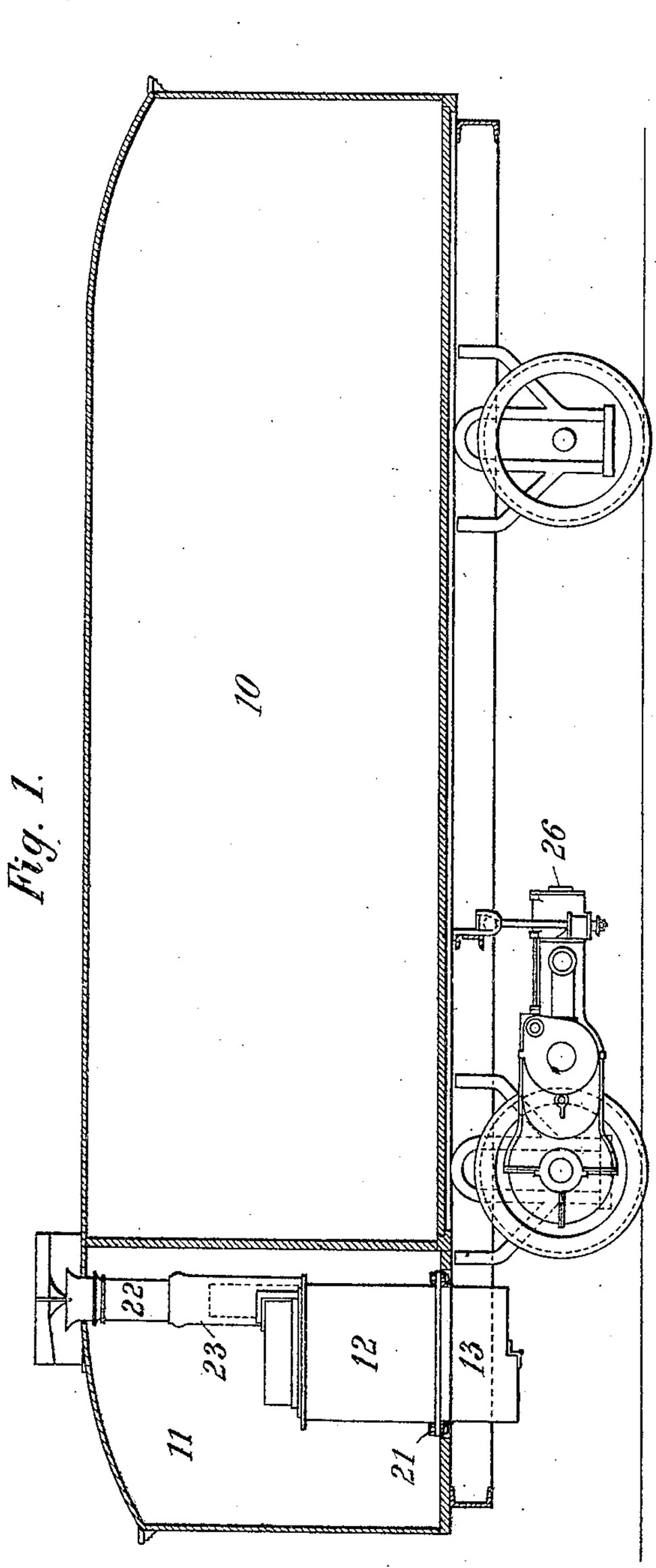

Fig. 1.

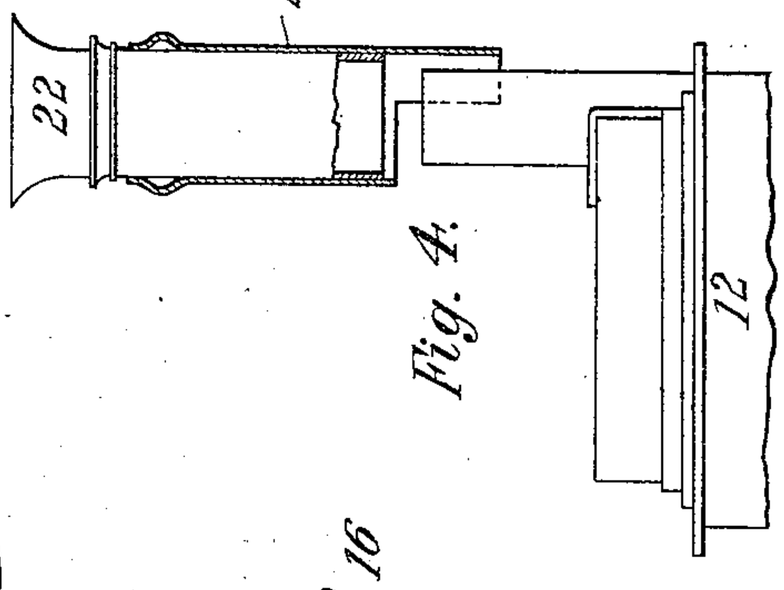

Fig. 4.

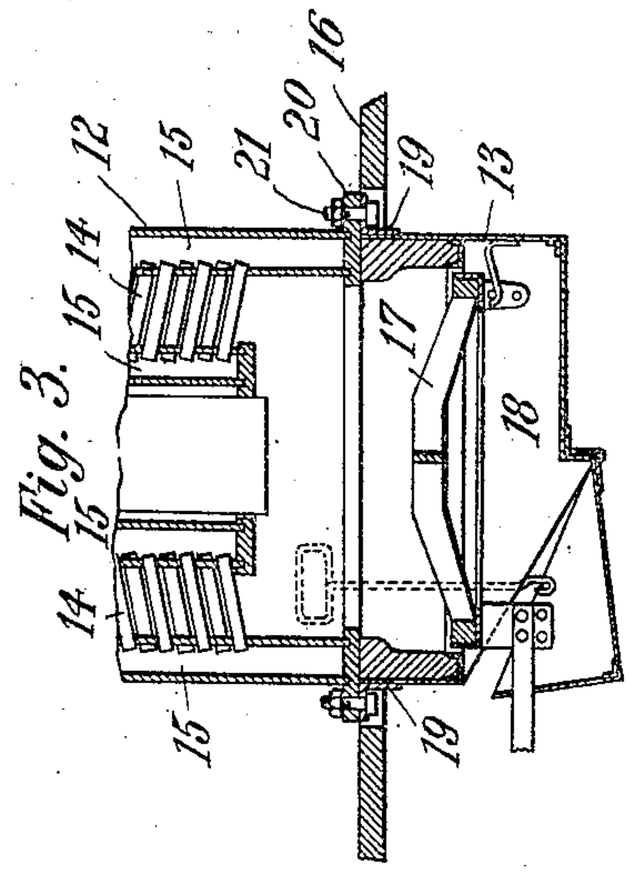

Fig. 3.

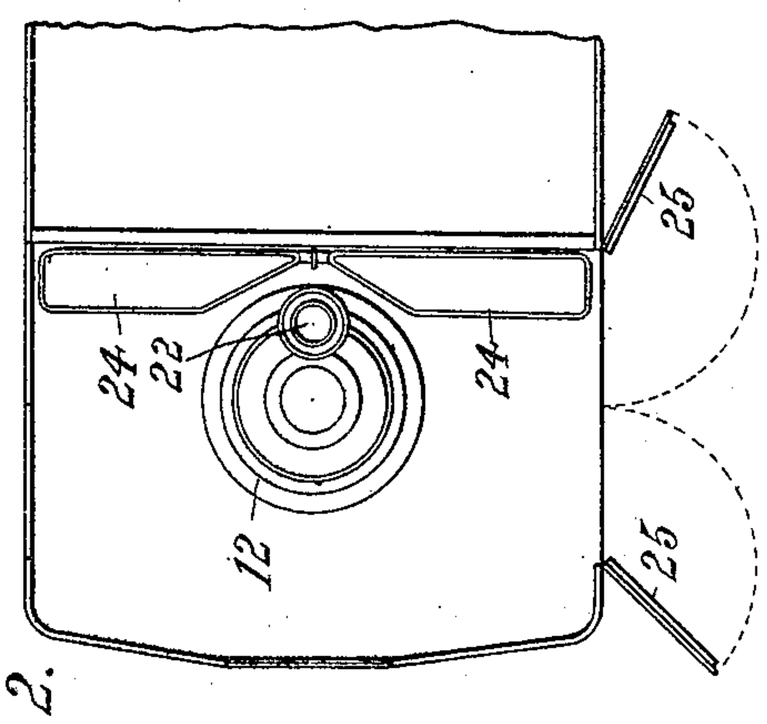

Fig. 2.

Witnesses:
Raphael Netter
Walter C. Paulding

Inventor:
CHARLES FELLNER
by Chipford & Rule Attys.

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2 SHEETS—SHEET 2.

Fig. 5.

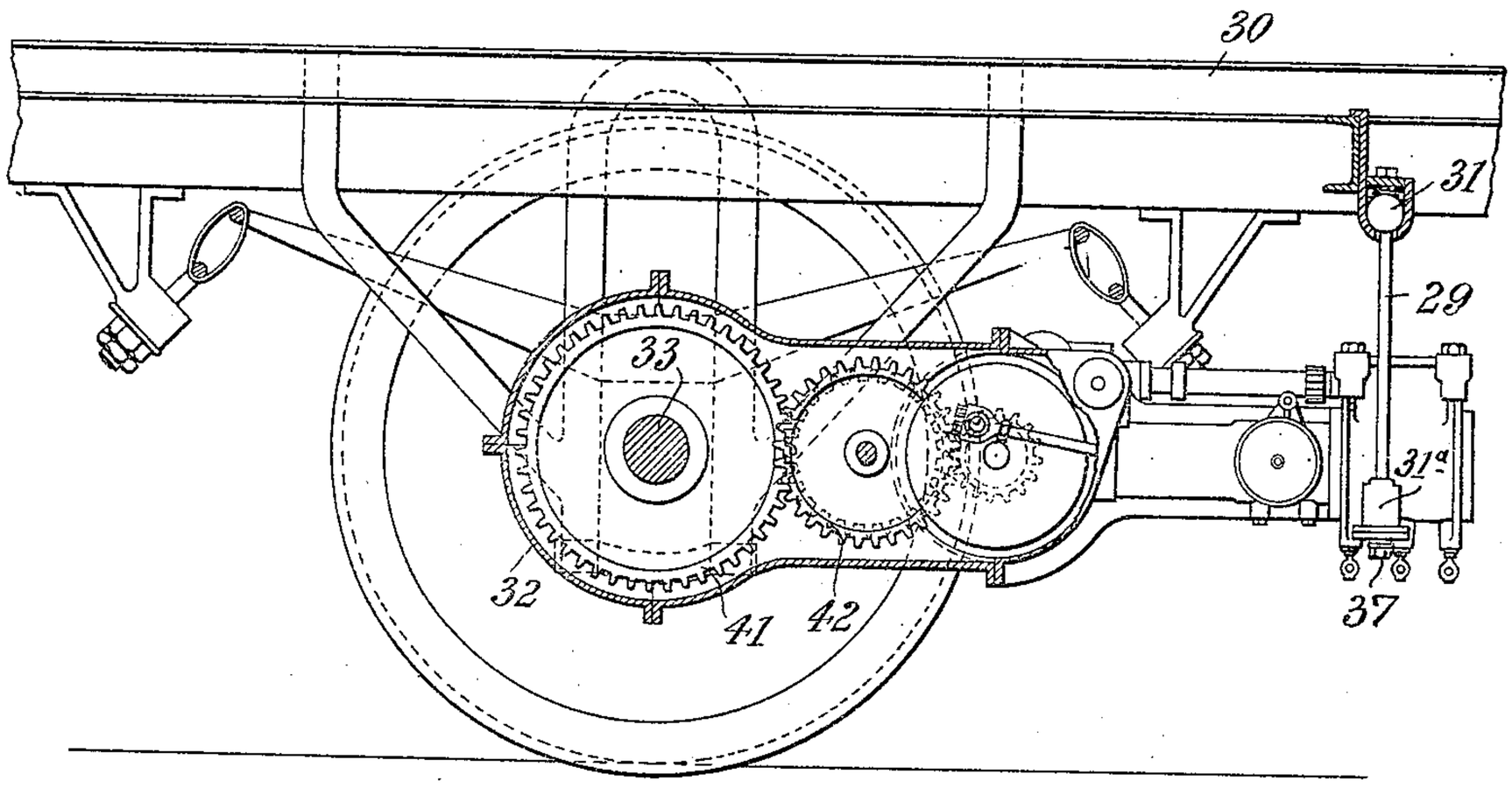
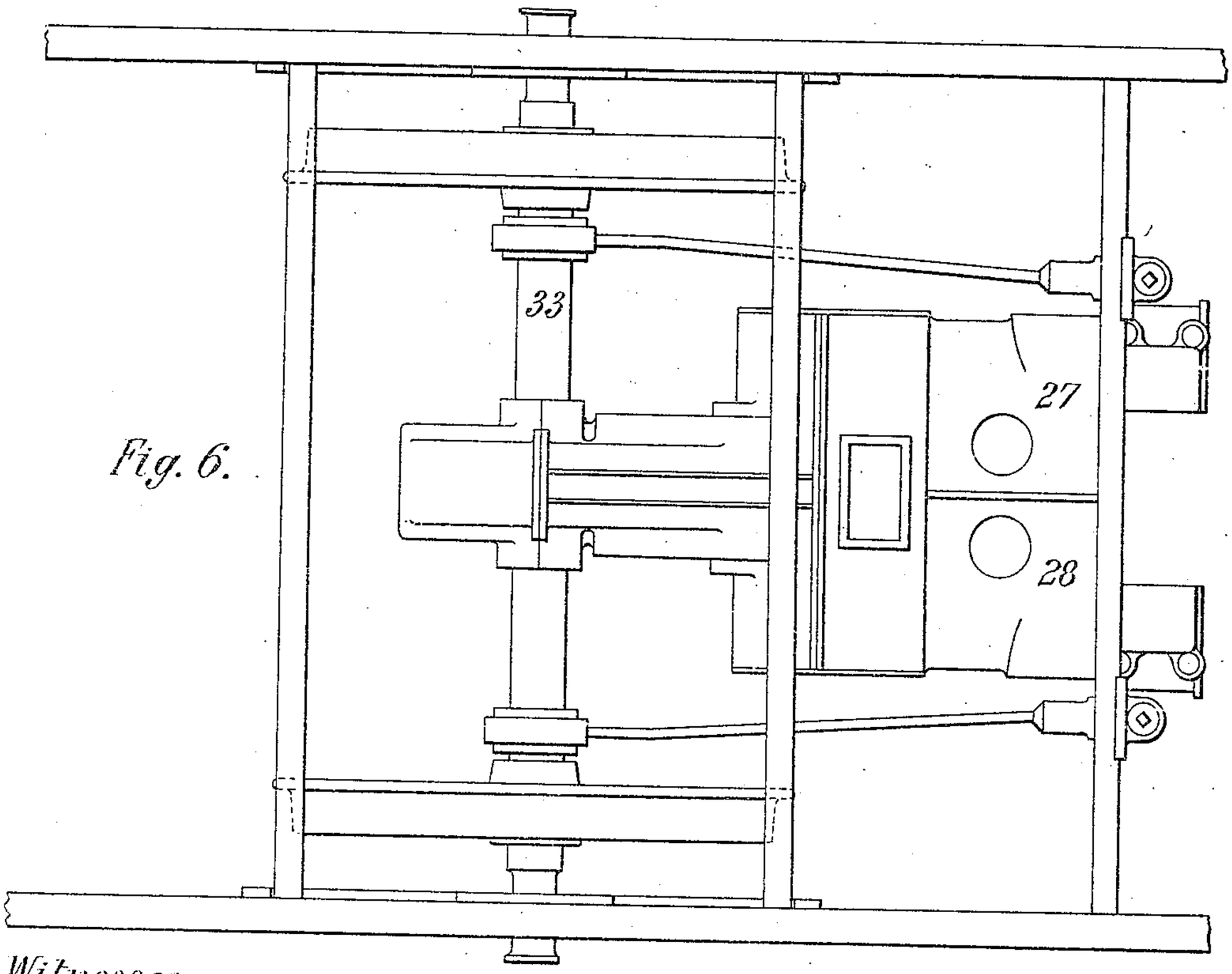


Fig. 6.



Witnesses:
Raphael Netter
Walter C. Fuering

Inventor:
CHARLES FELLNER
by Clifford & Mellen Att'ys.

UNITED STATES PATENT OFFICE.

CHARLES FELLNER, OF BUDAPEST, AUSTRIA-HUNGARY, ASSIGNOR TO GANZ & CO., EISENGIESSEREI UND MASCHINENFABRIKS AKTIEN-GESELLSCHAFT IN BUDAPEST, HUNGARY.

STEAM-MOTOR RAILWAY-CAR.

No. 801,448. Specification of Letters Patent. Patented Oct. 10, 1905.

Application filed November 3, 1904. Serial No. 231,320.

To all whom it may concern:

Be it known that I, CHARLES FELLNER, a subject of the Emperor of Austria-Hungary, residing at Budapest, in the Empire of Austria-Hungary, have made new and useful Improvements in Steam-Motor Railway-Cars, of which the following is a specification.

My invention relates to steam-motor railway-cars; and it consists of certain novel parts and combinations of parts particularly pointed out in the claims concluding this specification.

Heretofore in the construction of self-propelled steam-railway cars the boiler and engine have been built into the car-body, so as to form with it parts of a single unit, necessitating under ordinary circumstances that the entire unit be laid up during the time that repairs were being made to any part of it, and due to the necessary high speed of revolution of the small engine derangements are much more liable to occur than in the case of trains propelled by separate locomotives, because in this case it is not necessary to economize space or weight, and the large engine can run much slower. The result of this has been to make the fixed charges of the road large and to decrease the earning power of the unit. By my present invention this difficulty is entirely eliminated. In my structure both the boiler and the engine can be readily removed, and, in fact, constitute, practically speaking, independent and exchangeable units complete in themselves, so that my motor-car is composed of three units—to wit, the car-body, the steam-generating part or boiler, and the driving mechanism or engine connected with the driving-axle. This allows these elements to be quickly separated, and if repairs are necessary to the boiler or engine it affords ready means for removing the unit in which the defect exists and substituting another in good order, the other units lying idle only while the exchange is being effected.

In the accompanying drawings I have shown my invention applied in forms which are at present preferred by me; but it will be understood that various modifications and changes may be made without departing from the spirit of my invention and without exceeding the scope of my claims.

Figure 1 is a longitudinal section through a car involving my invention. Fig. 2 is a top view of the steam-generating element of said car. Fig. 3 is a cross-section of the lower portion of said steam-generating element, showing the steam-boiler tubes, the ash-pit, and the floor of the car to which these parts are attached. Fig. 4 is a detail of the upper part and smoke-stack of said boiler. Fig. 5 is an enlarged view, partly in section, of the steam-engine or driving mechanism of said car, showing its connection with the running-gear. Fig. 6 is a top view of the same, the floor of the car being removed.

Similar reference-numerals indicate the same or corresponding parts in all the figures.

The following is a description of the structures shown in the drawings:

10 is a railroad-car, and 11 the motorman's cab, at the front end thereof. Located in this cab and resting on the floor of the car is a steam-boiler 12, and beneath the floor of the car is the boiler-furnace 13. In Fig. 3 the lower part of the boiler 12 and the furnace 13 are shown in greater detail.

14 represents the water-tubes, and 15 the water-spaces of the boiler.

17 represents the grate-bars, and 18 the ash-pit of the boiler-furnace. This furnace is provided with an angle-plate 19, which rests on the floor of the car, and the bottom of the boiler is provided with a flange 20, which is fastened to said angle-plate by bolts 21. The smoke-stack 22, as shown in detail in Fig. 4, is provided with a sliding section 23, this section being shown in this figure in its elevated position, permitting the boiler to be readily removed, while in Fig. 1 it is shown in its normal or working position.

24 represents coal-bunkers, (see Fig. 2,) and 25 25 are the doors of the cab.

Located underneath the car is the steam-engine 26. (Shown more in detail in Figs. 5 and 6.) The engine comprises high-pressure and low-pressure cylinders 27 and 28 and is supported by suitable means underneath the floor of the car, being connected to the driving-wheels by gearing which is shown exposed in Fig. 5. In the drawings I have shown a car devoid of trucks and provided with a well-known form of steering-axle having lateral play in its bearings, to enable it to take curves of relatively short axes.

Referring to Fig. 5, 32 is a casing attached to the engine and completely inclosing the

train of gearing 41 42 between the engine and the driving-axle 33. This casing embraces and rests on said driving-axle 33, and the engine at one end is thus supported. 29 is a suspension-bar attached to the sill 30 of the car by universal joints 31 31[a] and nut 37. The engine is connected with the boiler by a suitable flexible steam-pipe. (Not shown.)

To remove the boiler from the car, it is only necessary to unscrew the bolts 21 and slide the section 23 of the smoke-stack up until it is clear of the boiler, as shown in Fig. 4. The boiler may be then run out on rollers provided for the purpose, one of the coal-bunkers being previously removed to facilitate the operation. Should it be necessary to remove the ash-pit and fire-box, that can also be done readily, as will be understood from the drawings.

When it is desired to remove the motor from the car, this can be quickly done by jacking up the car and removing the nut 37, when the wheels and the engine attached thereto may be run out of the way and the substitution of another engine with its wheels quickly effected. When trucks instead of the steering-axles are used, the engine may be either rigidly or flexibly suspended from the truck and the complete truck with its engine attached exchanged whenever necessary.

I do not herein claim the features of construction above described, involving the flexible suspension of the motor driving a longitudinally-movable steering-axle; but

What I do claim is—

1. In a steam-motor railway-car the combination with the body and running-gear of a steam-boiler carried by and readily removable from said body, and a steam-engine connected to the driving running-gear at one end of the car and disconnected from the running-gear at the other end thereof, both engine and driving running-gear in their connected condition being removable from the car-body.

2. In a steam-motor railway-car the combination with the body and running-gear, of a steam-boiler carried by and readily removable from said body, a steam-engine connected to the driving running-gear at one end of the car and disconnected from the running-gear at the other end thereof, and a casing surrounding the driving running-gear and connections formed of an extension of the engine-casing, said engine and running-gear in their connected condition both being removable from the car-body.

3. The combination with a car, of a steam-boiler mounted thereon, a furnace arranged below the car, and removable means coupling the boiler and the furnace, whereby one may be moved from the car independent of the other by the removal of the coupling means.

4. The combination with a car, of a boiler mounted thereon, a furnace arranged below the car in line with the boiler, means for coupling the boiler directly to the furnace, at the base of the boiler, and a telescoping stack holding the boiler at the top of the car.

5. In a steam-motor railway-car, the combination of a boiler removably mounted on the car, a furnace detachably secured to the boiler, a driving-axle of a steam-engine, a shaft driven thereby, a train of gearing driven from said shaft, the final gear being concentric with and transmitting power to the driving-axle and an inclosing casing for the gear supporting one end of the engine in driving relation to the driving-axle.

6. In a steam-motor railway-car the combination of a boiler removably mounted on said car and a driving-axle with a steam-engine, a crank-driven shaft, a train of gearing driven from said shaft, an extension of the engine-frame on which said gearing is mounted, the final gear being concentric with and transmitting power to the driving-axle and an inclosing casing for the gear supporting one end of the engine in driving relation to the driving-axle, both the engine and the driving-axle in their connected condition being removable from the car-body.

7. In a steam-motor railway-car, the combination with the body thereof of a steam-boiler located above the floor of the car and a boiler-furnace separate therefrom located below the floor of the car, the boiler and furnace communicating through an opening in the car-floor and being so arranged as to be separately removable, respectively, from above and below the floor.

8. In a steam-motor car, the combination with the body thereof, of a steam-boiler located above the floor of the car, a boiler-furnace located below the floor of the car, both being readily removable from the car-body and a smoke-stack provided with a sliding joint to facilitate the removal of the boiler.

9. In a steam-motor railway-car the combination with the body thereof, of a boiler supported on the floor of the driver's cab and easily detachable therefrom, an interchangeable pair of running-wheels, and an engine attached to and partly supported by the axle of said wheels independent of the running-gear at the opposite end of the car, both the engine and the axle in their connected condition being removable from the car-body.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES FELLNER.

Witnesses:

ALFRED BRUNN,

ANDREW RELEMAN.