

J. W. BATES.
TOY TRAIN.

APPLICATION FILED DEC. 7, 1906

Fig. 1

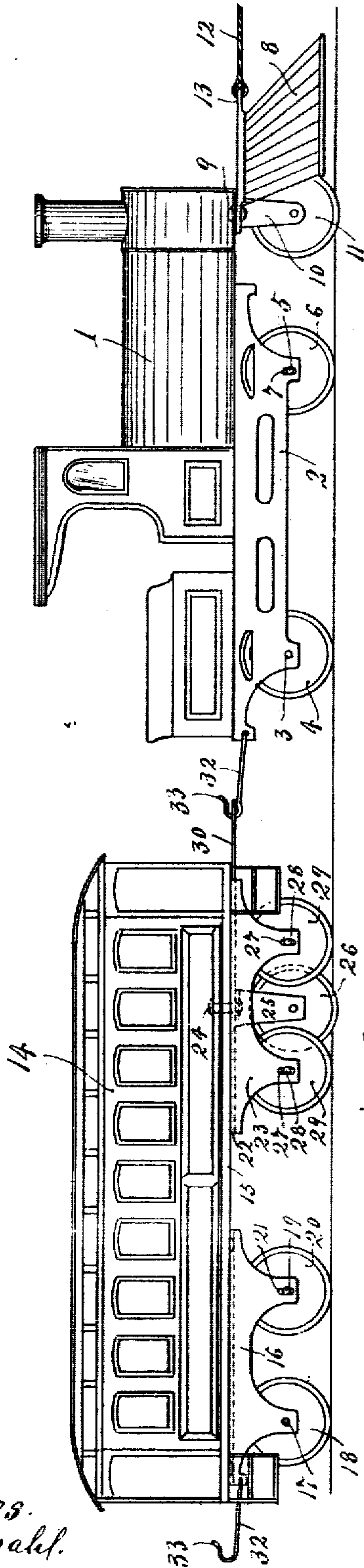


Fig. 4.

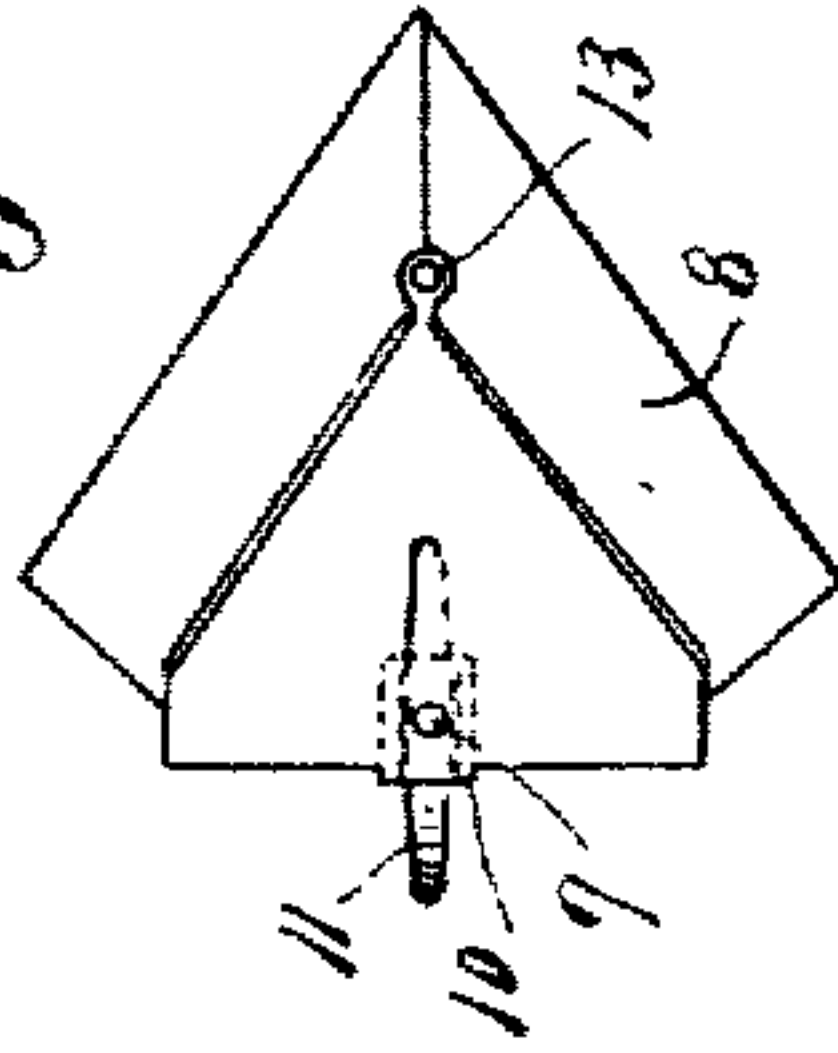


Fig. 3.

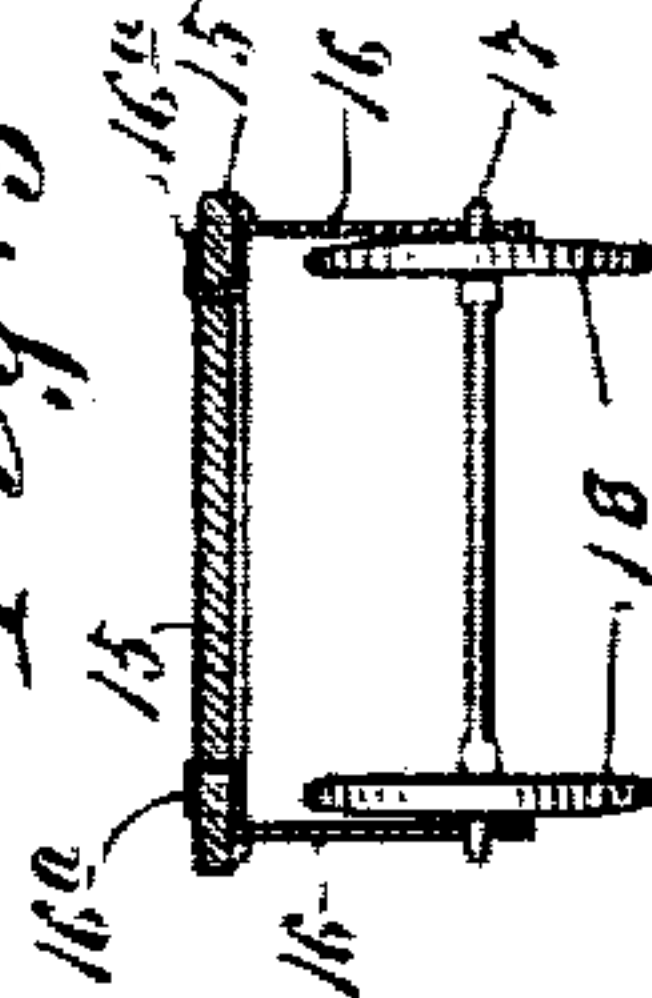


Fig. 2.

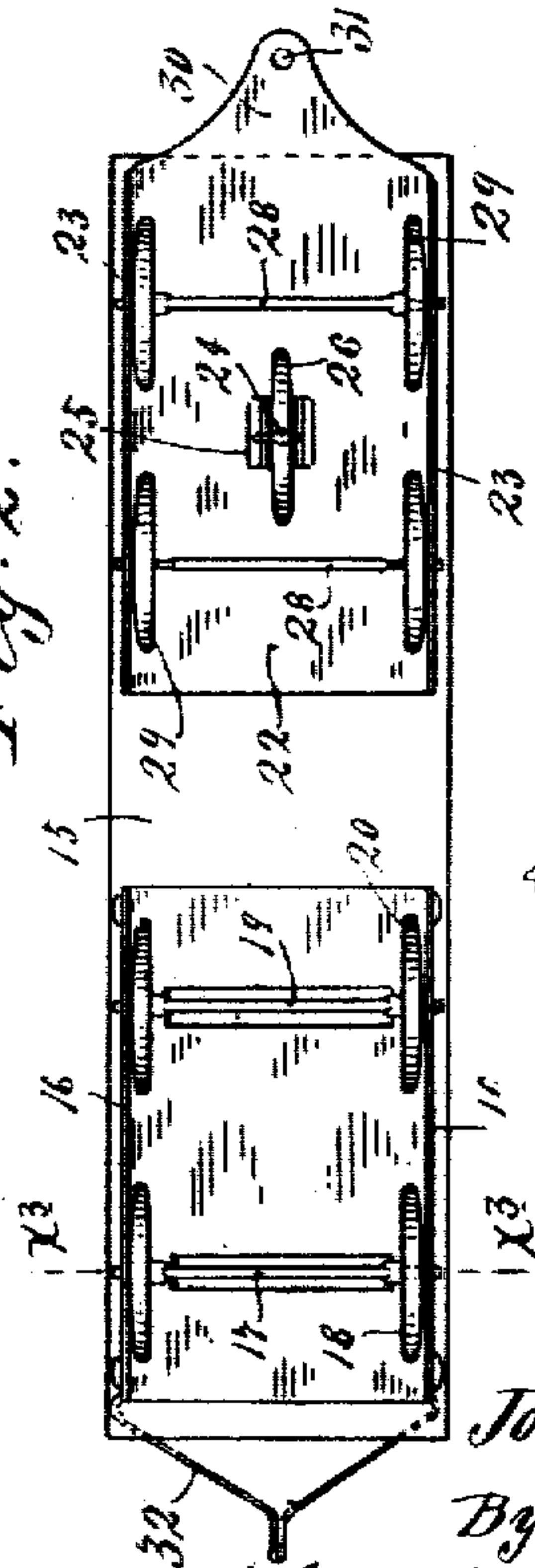


Fig. 7.

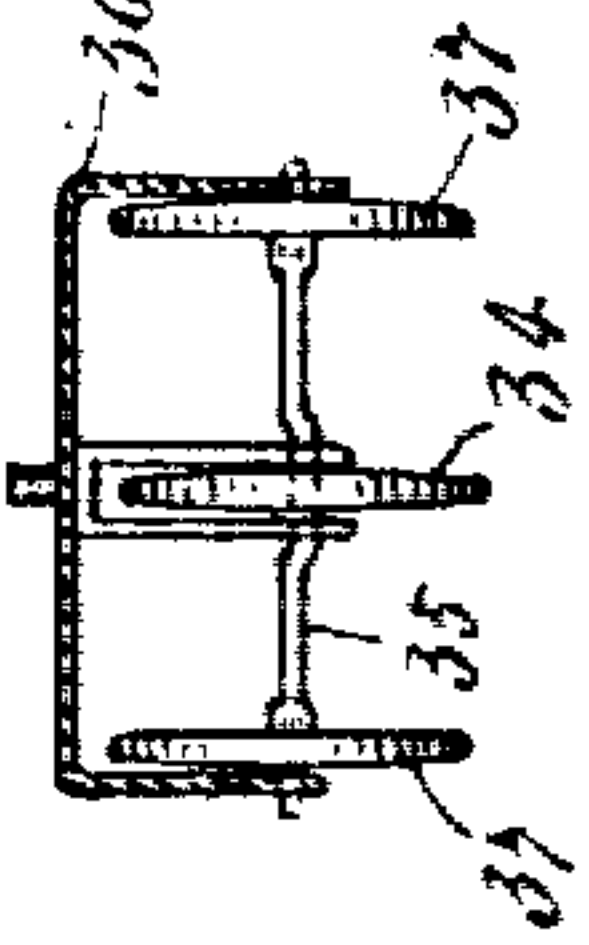


Fig. 6.

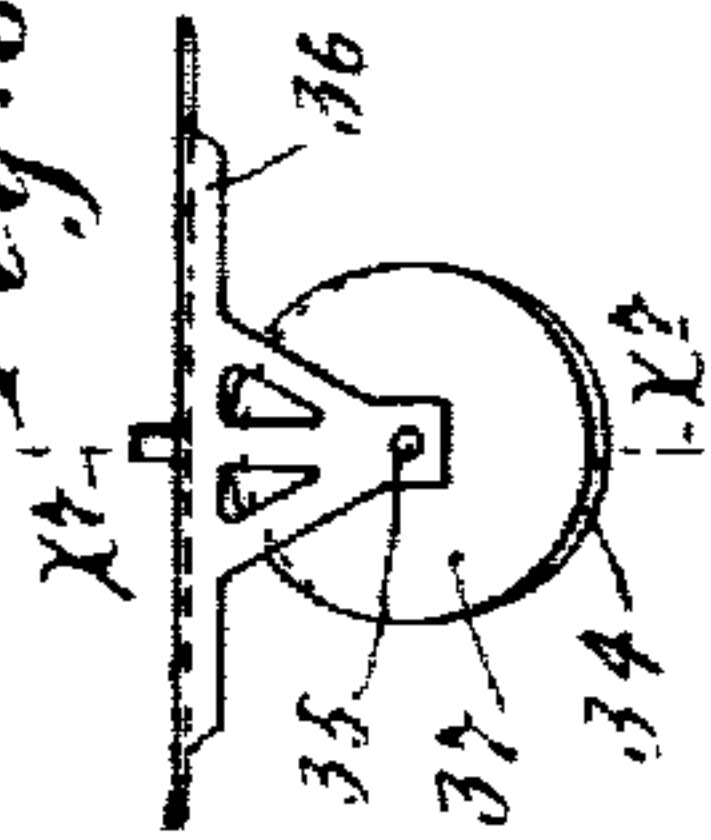
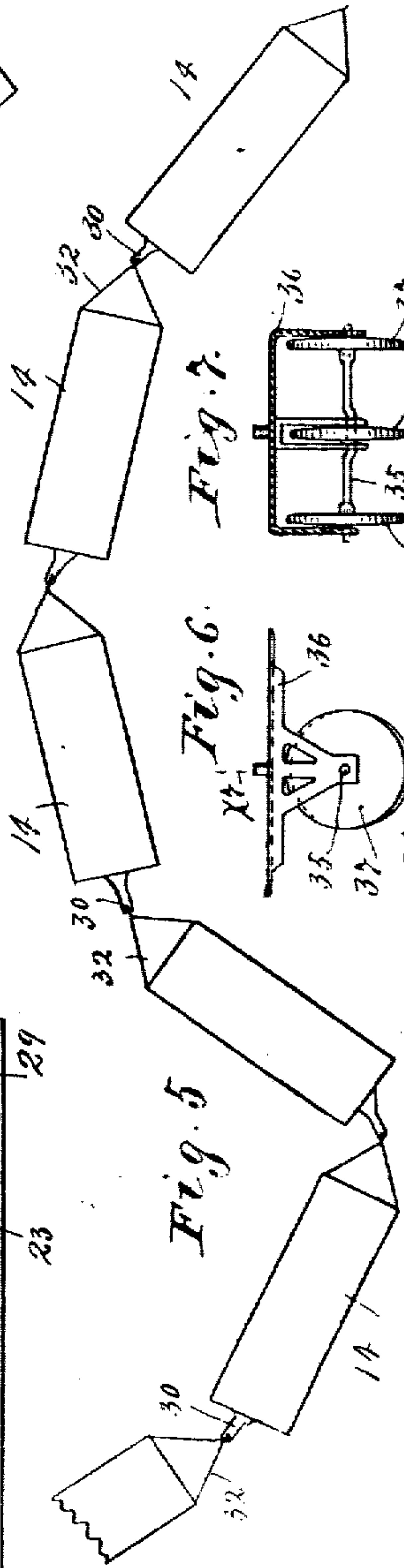


Fig. 5.



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UNITED STATES PATENT OFFICE.

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TOY TRAIN.

No. 864,222.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed December 7, 1906. Serial No. 348,745.

To all whom it may concern:

Be it known that I, JOSEPH WILLIAM BATES, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Toy Trains; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an improved toy train made up of a plurality of trailing vehicles such as cars, engines, wagons, trucks, etc., and to this end it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

In the drawings, the invention is shown as embodied in a toy train made up of an engine and a plurality of cars.

Figure 1 is a view in side elevation, showing the engine and one car. Fig. 2 is a bottom plan view of the car. Fig. 3 is a transverse vertical section taken on the line $x^3 x^3$ of Fig. 2, the upper portion of the car body being removed. Fig. 4 is a detail view in plan, showing the wheel equipped cow catcher of the engine removed from working position. Fig. 5 is a diagrammatic plan view illustrating the trailing action of a plurality of connected cars. Fig. 6 is a detail view in side elevation, showing a modified form of the pivoted car truck; and Fig. 7 is a transverse vertical section taken on the line $x^7 x^7$ of Fig. 6.

Describing first the construction of the engine, the numeral 1 indicates the body thereof, the same having laterally spaced depending plates 2 that constitute the frame in which wheel-equipped axles 3—4 and 5—6 are mounted. The said wheels may be either fixed or loose on the respective axles, but the rear axle 3 is held against vertical movements by said frame 2, while the front axle 5 is free for limited vertical movement in slots 7 of said frame 2. The cow catcher 8 is pivotally attached at 9 to the lower forwardly projecting portion of the boiler body of the engine and is provided with a centrally located depending bracket or fork 10 in which a wheel 11 is journaled. The entire engine body is supported by the two rear wheels 4 and by this wheel 11 of the said pivoted cow catcher. The wheels 6 simply engage the floor or ground under their own gravity, and the slots 7 have such vertical dimensions that no part of the weight of the engine body will be thrown upon the axle 5 and wheels 6 under ordinary usage on a smooth floor or road bed. The said wheels 6, however,

assist in preventing the engine from being overturned and furthermore, give a more natural appearance to

the engine. The numeral 12 indicates a drawing cord which, as shown, is attached to an eye 13 on the upper forward portion of the cow catcher 8. The said cow catcher 8 and its wheel 11 it will thus be seen, constitute the forward truck of the engine and lateral oscillatory movements thereof serve to determine the line of travel of the engine.

Referring to the construction of the car, which as illustrated in the drawings is made in imitation of a passenger coach, the numeral 14 indicates the body thereof which is suitably imposed upon and suitably secured to a quite heavy flat floor plate 15 which may be conveniently constructed of cast iron and which is heavy enough to give the desired traction of friction between the car wheels and the floor.

The rear truck of the car is made up, as shown, of a pair of laterally spaced vertical plates 16 and wheel-equipped axles 17—18 and 19—20. The frame plates 16, as shown, are rigidly secured to the floor plate 15 by means of frame extensions 16^a that are passed upward through perforations in said plate 15 and are clenched thereto. The axle 17 may be either rotary or non-rotary, but is held against vertical movements with respect to the frame plates 16. The axle 19 is mounted in slots 21 in said frame-plates 16 and is capable of limited vertical movements therein, so that no part of the weight of the car body will be thrown upon the wheels 20 but the said wheels may, nevertheless, lightly engage with the floor under their own weight.

The forward truck of the car is pivotally attached thereto and the frame thereof is made up of a plate 22 having laterally spaced downturned flanges 23. The frame plate 22 is pivotally attached, at its central portion, to the floor plate 15, as indicated at 24, and on either side of its pivot said frame plate 22 is provided with depending bracket legs 25 in the lower ends of which is journaled a truck wheel 26. The truck wheel 26 carries the weight of the forward portion of the car body, and being mounted for oscillatory movements with the frame plate 22, serves to steer the car. In the depending side flanges 23 are vertical slots 27 in which are mounted axles 28 provided with laterally spaced truck wheels 29. The axles 28 are capable of limited vertical movements in the slots 27 so that no part of the weight of the car body will be thrown upon said wheels 29, but the said wheels will usually rest upon the floor under the action of their own weight. These wheels 29 and axles 28, however, assist in preventing the car from being tipped over by a lateral rocking movement of the front end of the car. The weight of the car body, as is evident, is carried entirely by the two rear wheels 18 and centrally located front wheel 25.

The connection for producing the trailing action of the engine and the car or other vehicles includes a

steering projection from the truck frame of one of the vehicles and a coupling yoke or bracket on the abutting end of the adjacent vehicle. For instance, in the construction illustrated the pivoted frame 22 of the forward truck of the car is provided with a short forwardly projecting rigid steering section 30, the extended end of which is perforated at 31, and the cooperating coupling yoke or bracket 32 is provided at its centrally located extended end with a hook 33 that is adapted to be passed through said perforation 31. The coupling yoke 32 is applied to the rear end of the engine frame 2 and one is applied to the rear end of the rigid truck frame 16 of each car. More specifically stated, the extremities of the prongs or legs of the coupling yokes 32 are pivotally mounted in perforations in the flanges of the said engine and truck frame, so that they are capable of vertical pivotal movements, but are rigid against lateral movement or movements in a horizontal direction transversely of the line of travel. The steering projections 30 and coupling brackets or yokes 32 are so related to each other that the one vehicle will be caused to travel the same or in approximately the same tracks as those that are ahead and behind the same in the train. It will be noted that the projecting end of the perforated steering portion 30 of the frame plates 22 is higher up than the pivotal connection between the coupling yoke 32 and the engine frame 2. This produces a slight downward pressure on the wheel 26 in addition to that which is due directly to the weight of the car body and thus increases the traction of said wheel. The engine may be constructed of cast iron and weighted so that the wheels thereof will have the desired traction. To insure a good trailing action, on a smooth floor, considerable weight on the wheels is desirable. In the car, the heavy floor plate 15 insures the desired weight.

In the modification shown in Figs. 3, 6, and 7, a central wheel 34 is journaled on the central depressed portion of a non-rotary axle 35 which is secured to the depending flanges of a truck frame 36. The central wheel 34 is arranged to engage the floor while outside wheels 37 loose on said axle are held just out of contact with the floor.

While the train has, in the accompanying drawings and the detailed description, been a toy railway train, it will of course be understood that the several features of invention may be applied to trains made up of various other vehicles, and that such vehicles may have either plain or ornamental bodies and may be of any suitable design.

The forwardly projecting steering portion 30 of the pivoted truck frame 22 is for convenience called a steering arm, and the part 32 for the same reason is called a steering coupling, but it will of course be understood that these terms are used broadly and do not

limit the applicant's invention to any specific form of these parts. The word "truck" is also used in a broad sense and where broadly used is intended to include a runner equipped truck as well as a wheel equipped truck.

What I claim is:

1. A train made up of a plurality of vehicles, said vehicles having pivoted front trucks and rigid rear frame portions, said pivoted trucks having centrally located forwardly projecting steering arms that move laterally therewith, and steering couplings attached to the rear frame portion of said vehicles and secured against movement with respect thereto transversely of said vehicles, the projecting ends of said steering arms and cooperating steering couplings being pivotally united, substantially as described.

2. A train made up of a plurality of vehicles having pivoted front trucks, said trucks having centrally located forwardly projecting steering arms rigidly connected to the frames thereof, and yoke-like steering couplings attached to the rear frame portions of said vehicles with freedom for pivotal movements, the projecting ends of said steering arms and steering couplings being detachably and pivotally connected, substantially as described.

3. A train made up of a plurality of vehicles, said vehicles having pivoted front trucks provided with forwardly projecting centrally located rigidly connected steering arms, and steering couplings attached to the rear frame portions of said vehicles and to the projecting ends of said steering arms, the points of attachment of said steering couplings to the said vehicle frames being below said arms, whereby a downward pull is produced on said pivoted trucks, substantially as described.

4. A train made up of a plurality of vehicles, said vehicles having pivoted front trucks with centrally located supporting wheels and rigidly attached forwardly projecting steering arms, and yoke-like steering couplings having their prongs pivotally attached to the rigid rear frame portions of said vehicles, and provided with hooked projecting ends for detachable and pivotal engagement with said steering arms of said pivoted truck, substantially as described.

5. The combination with a vehicle body having at its rear portion a rigid wheel-equipped truck frame and provided at its forward portion with a pivoted truck frame, said pivoted truck frame having a centrally located supporting wheel and laterally spaced loosely supported idle truck wheels, substantially as described.

6. In a toy car, the combination with a heavy metal floor plate, of a pair of trucks, one of which is pivoted to said floor plate and the other of which is provided with a sheet metal frame provided with up-turned projections passed through slots in said floor plate and bent or clenched to secure said truck frame rigidly to said floor plate, substantially as described.

7. A toy engine having a rigid wheel-equipped rear truck and provided at its forward end with a pivoted cow catcher serving as a front truck frame, said cow catcher having a supporting wheel located directly below the pivotal connection of said cow catcher to the said engine, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH WILLIAM BATES.

Witnesses:

E. L. MATTHEW,
F. D. MERCHANT.