Jan. 13, 1925. 1,523,335

T. H. WRIGHT

ELECTRIC MONORAIL TRAIN

Filed Feb. 11, 1924 4 Sheets-Sheet 1

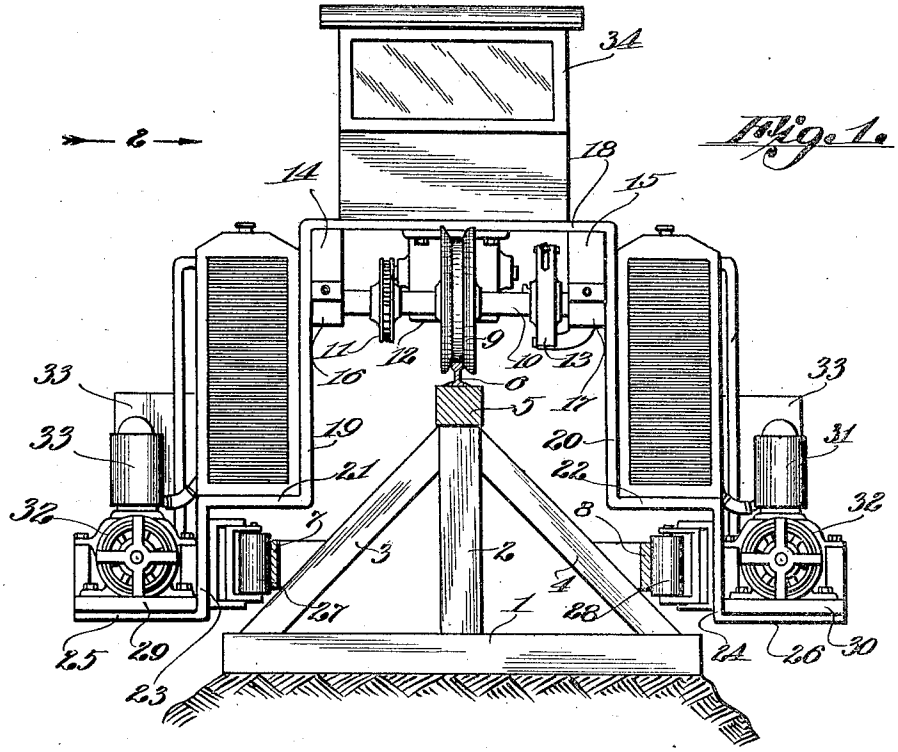


Fig. 1.

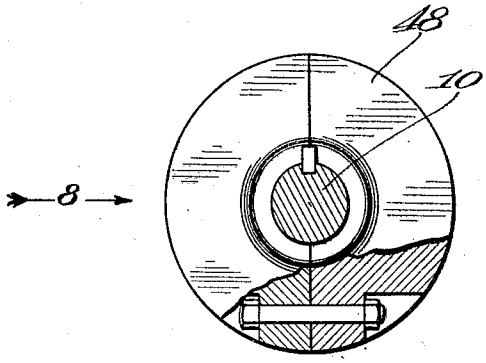


Fig. 9.

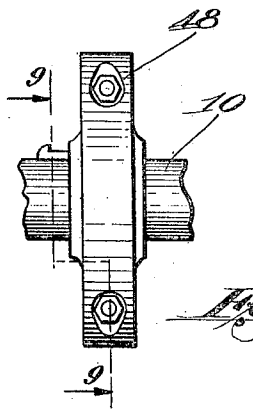


Fig. 8.

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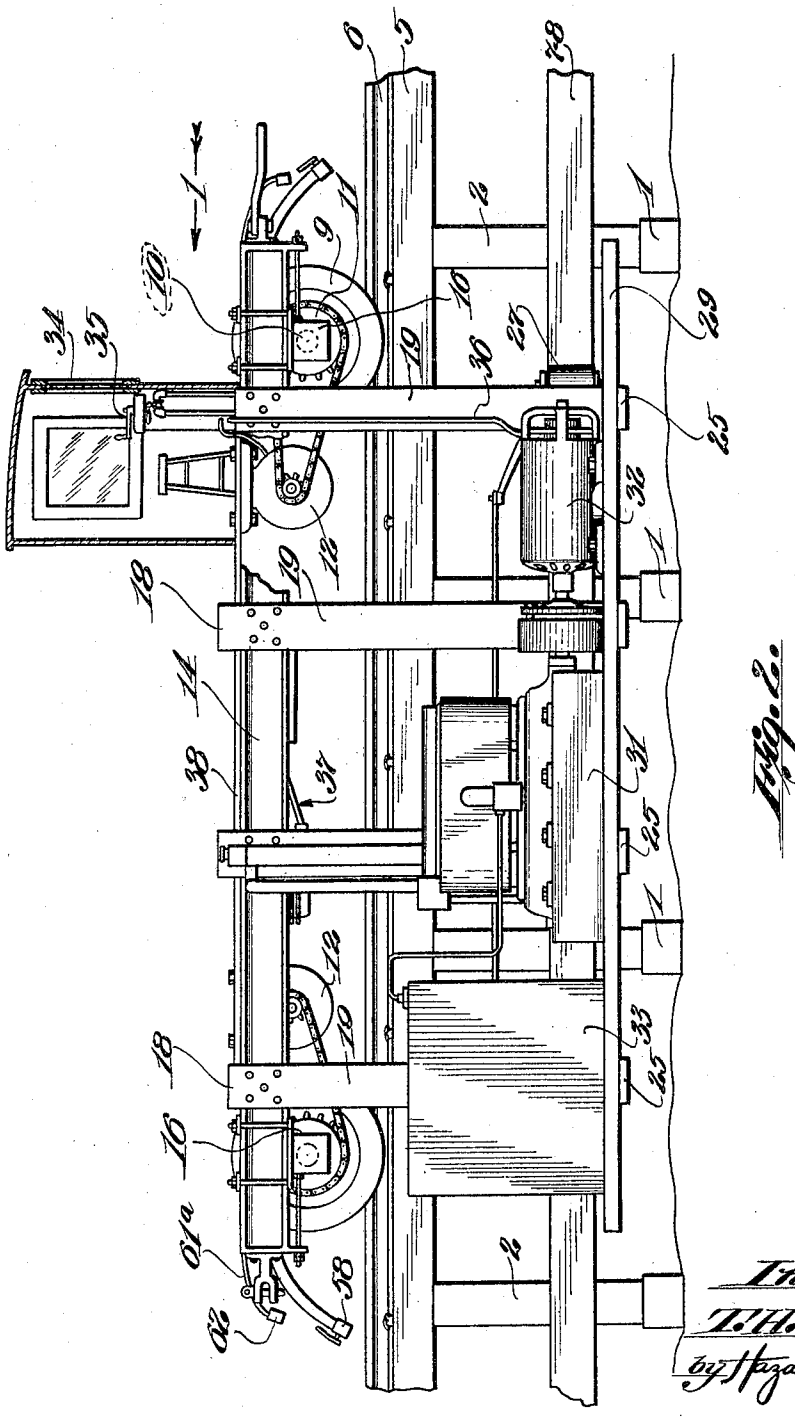


Fig. 2.

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4 Sheets-Sheet 3

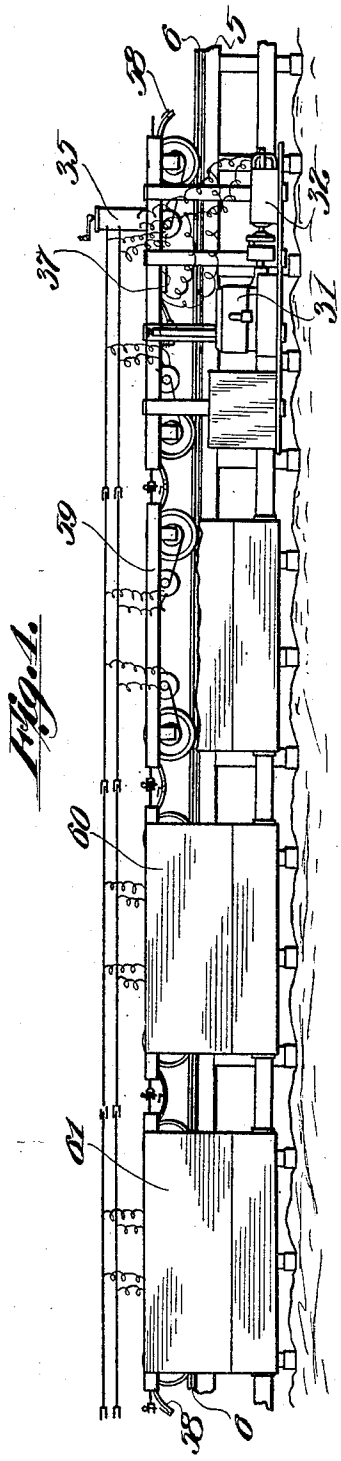


Fig. 1.

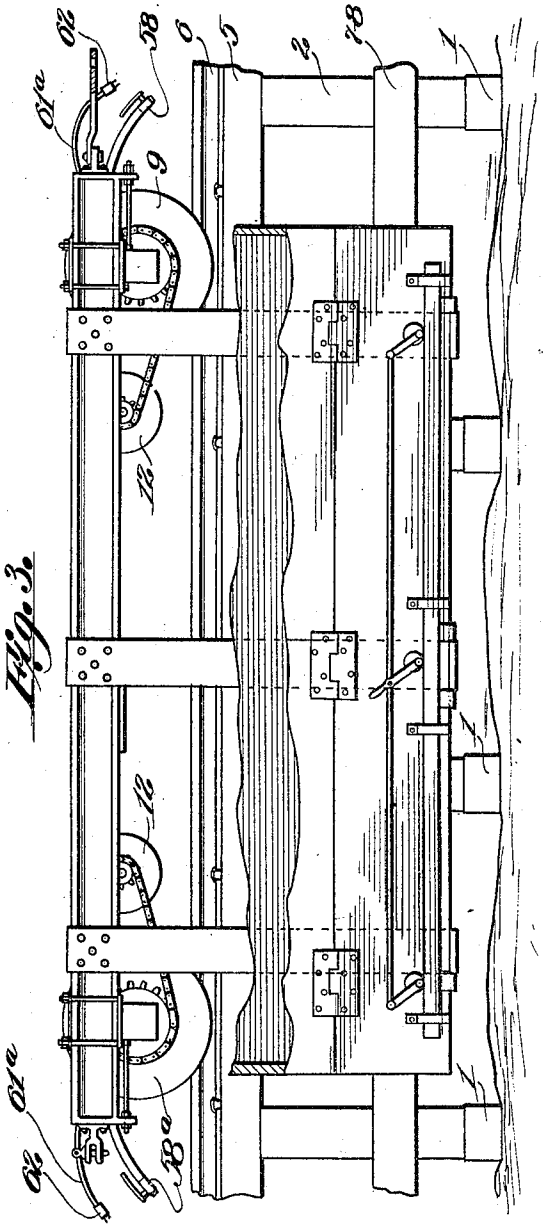


Fig. 3.

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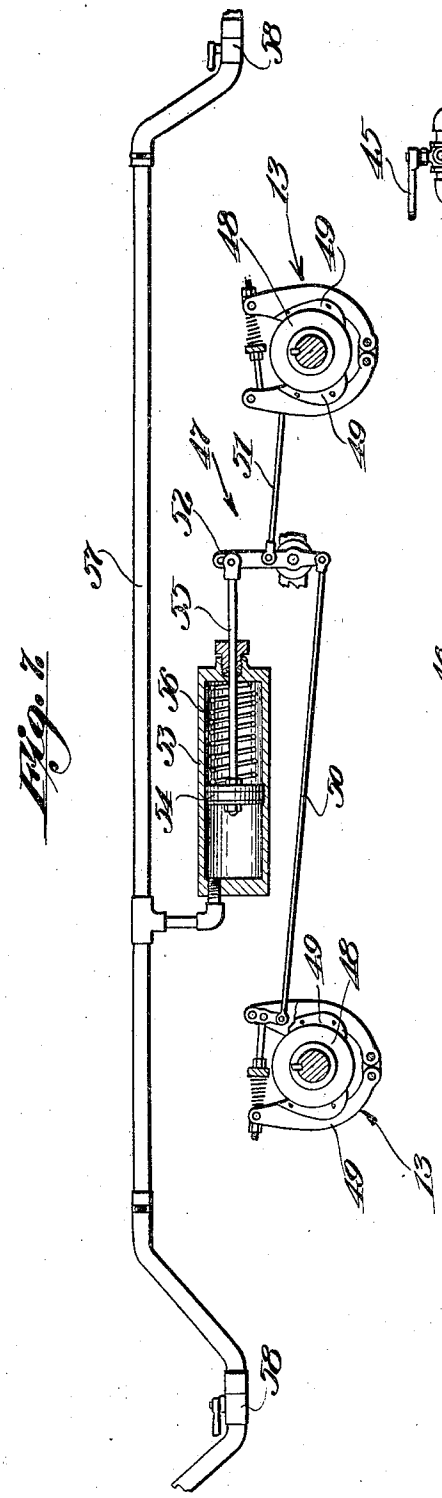


Fig. 4.

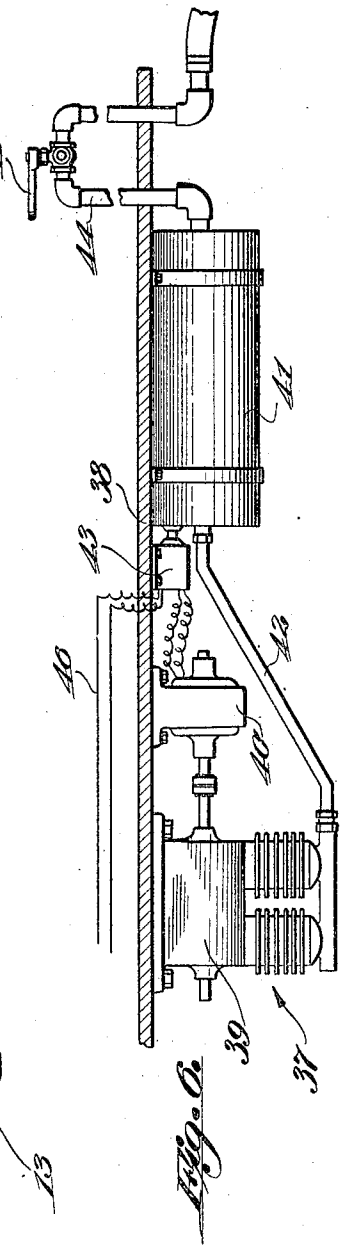


Fig. 6.

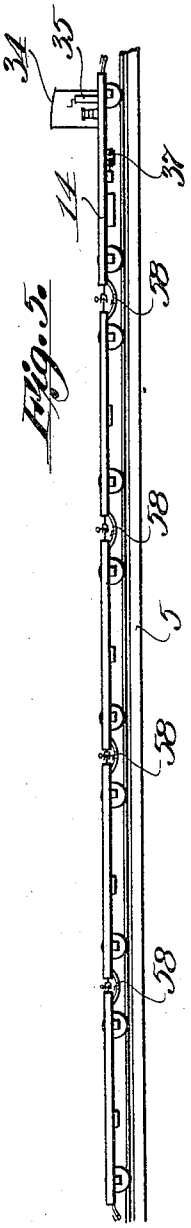


Fig. 5.

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Patented Jan. 13, 1925. 1,523,335

UNITED STATES PATENT OFFICE.

THOMAS H. WRIGHT, OF LOS ANGELES, CALIFORNIA.

ELECTRIC MONORAIL TRAIN.

Application filed February 11, 1924. Serial No. 692,028.

To all whom it may concern:

Be it known that I, THOMAS H. WRIGHT, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Electric Monorail Trains, of which the following is a specification.

My invention relates to monorail trains and consists of the novel features herein shown, described and claimed.

It is found that in making up a monorail train for the transportation of any considerable load, the monorail locomotive does not have sufficient traction upon the rail to pull the train.

Of course this trouble could be overcome to some extent by adding weight to the monorail locomotive, but I prefer to overcome the difficulty in another way.

The object of my invention is to make a monorail train, place electric motors upon each car for driving the car, place an electric generator upon the locomotive and operate the generator from any suitable power such as an internal combustion engine. An air brake and electric air brake mechanism may be supplied to the cars and operated from the locomotive generator.

In a monorail train made up in this way, the locomotive member of the train need only be strong enough to carry the power mechanism, the operator and the controller mechanism.

Further objects and advantages will appear from the drawings and specification.

Fig. 1 is a front elevation of a monorail locomotive mounted upon a track ready for operation, the track being shown in cross section, and the view being taken looking in the direction indicated by the arrow 1 in Fig. 2.

Fig. 2 is a side elevation of the monorail locomotive as seen looking in the direction indicated by the arrow 2 in Fig. 1.

Fig. 3 is a fragmentary side elevation of one of the monorail cars upon a monorail track, the particular car shown being a dump car.

Fig. 4 is a diagrammatic side elevation showing the locomotive member and a plurality of cars upon the track and with special reference to the electrical features.

Fig. 5 is a diagrammatic view upon a smaller scale and showing a monorail train with the electrical features hidden.

Fig. 6 is a fragmentary vertical section of the locomotive and showing the electric air brake system with special reference to the electric motor, the air compressor and the air receiving tank.

Fig. 7 is a vertical section of the air brake system with a special reference to the air transmitting pipe, the air piston and the brakes.

Fig. 8 is an edge view of a brake drum the shaft being broken away and the view being taken looking in the direction indicated by the arrow 8 in Fig. 9.

Fig. 9 is a cross section on the line 9—9 of Fig. 8.

The monorail track shown in Fig. 1 consists of cross ties 1, central posts 2, braces 3 and 4 connecting the posts 2 to the ties 1, the rail sills 5 mounted upon the posts 2, the track rail 6 mounted upon the sill 5, and the guide bars 7 and 8 mounted upon the braces 3 and 4.

The grooved traction wheels 9 are fixed upon the axles 10, gears 11 are fixed upon the axles 10 and connected to the driving motors 12. The brakes 13 are mounted upon the axles 10 and operated by the air brake system. The beams 14 and 15 extend in parallel positions the length of the locomotive and have bearings 16 and 17 in which the axles 10 are mounted. The cross frames have central horizontal portions 18 mounted upon the beams 14 and 15, vertical portions 19 and 20 extending downwardly from the ends of the portions 18 outside of the beams, horizontal portions 21 and 22 extending outwardly from the lower ends of the vertical portions 19 and 20, vertical portions 23 and 24 extending downwardly from the outer ends of the portions 21 and 22, and portions 25 and 26 extending outwardly from the lower ends of the portions 23 and 24.

Frames are mounted against the inner

faces of the portions 23 and 24 and carry vertical rollers 27 and 28 to bear against the guide bars 7 and 8 and hold the locomotive upright. Platforms 29 and 30 are mounted upon the portions 25 and 26. Internal combustion engines 31 are mounted upon the platforms 29 and 30 and operate electric generators 32 mounted in front of the engines upon the platform. The tanks 33 are mounted upon the platforms behind the engines and carry fuel. The operator's cabin 34 is mounted near the front end of the locomotive and is provided with a controller mechanism 35 for the electricity which is led from the generator 32 through a conduit 36.

The power mechanism 37 of the air brake system is mounted under a platform 38 between the beams 14 and 15, said platforms 38 being mounted upon the beams and forming the upper bed of the locomotive.

The power mechanism 37 is shown in Fig. 6 and consists of an air compressor 39, a motor 40 for driving the air compressor, a tank 41 for carrying the compressed air, a pipe 42 connecting the air compressor 39 to tank 41, an automatic cutout 43 for stopping the motor when the pressure reaches a certain point in the tank 41 and the air pipe 44 connecting the tank 41 to the air controller valve 45. The electric lines 46 lead from the generator 32 to the automatic cutout 43 and then to the motor 40.

The air operated brake mechanisms 47 is shown in Fig. 7 and one of these mechanisms is mounted on the locomotive and one on each car, brake drums 48 are fixed upon each axle of the locomotive and each axle of each car. The brake shoes 49 engage the drums 48 and are operated by the brake rods 50 and 51. A lever 52 is pivotally mounted and the rods 50 and 51 are connected to the lever. The air cylinder 53 is mounted in convenient position, the piston 54 operates in the air cylinder 53, a piston rod 55 connects the piston 54 to the lever 52 and a spring 56 mounted behind the piston 54 serves to set the brakes when the air is exhausted from in front of the piston. The air pipe 57 is connected to the opposite end of the cylinder 53 from the spring 56, there being an air pipe on the locomotive and on each of the cars and the air pipe on the locomotive is connected to the controller valve 45 and the pipes are connected between the cars by couplings 58. The controller 45 is a three way valve and is mounted in the cab 34 near the controller 35.

A motor 12 is mounted upon the locomotive, one for each axle 10, said motors being connected to drive the traction wheels 9, there being traction wheels 9 upon each axle. In a like manner the motor 12 is provided for each axle of each car 59, 60, 61 and so on. The electricity is conducted from the controller 35 through conduits 61[a] and the conduits 61 are connected between the cars by plug and socket members 62, so that when the train is made up the controller 35 may be operated to drive each of the two motors on the locomotive on each of the cars simultaneously, and when the controller 45 is operated to exhaust the air from the brake cylinders 53, the brakes will all be set by the action of the springs 56 and when the controller is operated to open the air line from the tank 41, the air pressure will release the brakes.

It desired a single motor may be provided for the locomotive and a single motor may be provided for each of the cars, the only requirement being that each car shall have its own power for driving its own traction wheels, so as to take the driving load off the locomotive.

Thus I have produced a monorail train comprising a locomotive member and car members connected together, electric motors for driving each traction wheel of the train, a generator on the locomotive and connected through a controller mechanism to the motors, an engine for driving the generator, and an electric air brake system connected to the generators, and a controller for the air brakes.

Various changes may be made without departing from the spirit of my invention as claimed.

I claim:

1. A monorail train comprising in combination a locomotive having a plurality of engines depending on opposite sides thereof, said engines being independently operated and each driving an electric generator, electric conductors from each generator to a single controller, a plurality of cars and driving motors mounted thereon, and electric conductors from the controller to the series of motors, whereby the single controller governs the operation of the motors by the plurality of generators.

2. A monorail train comprising in combination a locomotive having a plurality of engines depending on opposite sides thereof, said engines being independently operated and each driving an electric generator, electric conductors from each generator to a single controller, a plurality of cars and driving motors mounted thereon, and electric conductors from the controller to the series of motors, whereby the single controller governs the operation of the motors by the plurality of generators, said motors being connected in parallel to the conductors from the controller.

3. A monorail train comprising in combination a locomotive with a central body mounted on a central rail, depending sides engaging guide rails, a plurality of internal

combustion engines mounted on said depending sides, electric generators driven by said engines, such engines being independent one of the other, electric conductors from said generators to a controller mounted on the central body, a plurality of cars having motors, and electric conductors connecting said motors with the controller, whereby the single controller conducts the electric current from the plurality of generators to the plurality of motors.

In testimony whereof I have signed my name to this specification.

THOMAS H. WRIGHT.