G. W. TAYLOR.

EMERGENCY BRAKE.

APPLICATION FILED DEC. 6, 1910.

999,531.

Patented Aug. 1, 1911

3 SHEETS—SHEET 1.

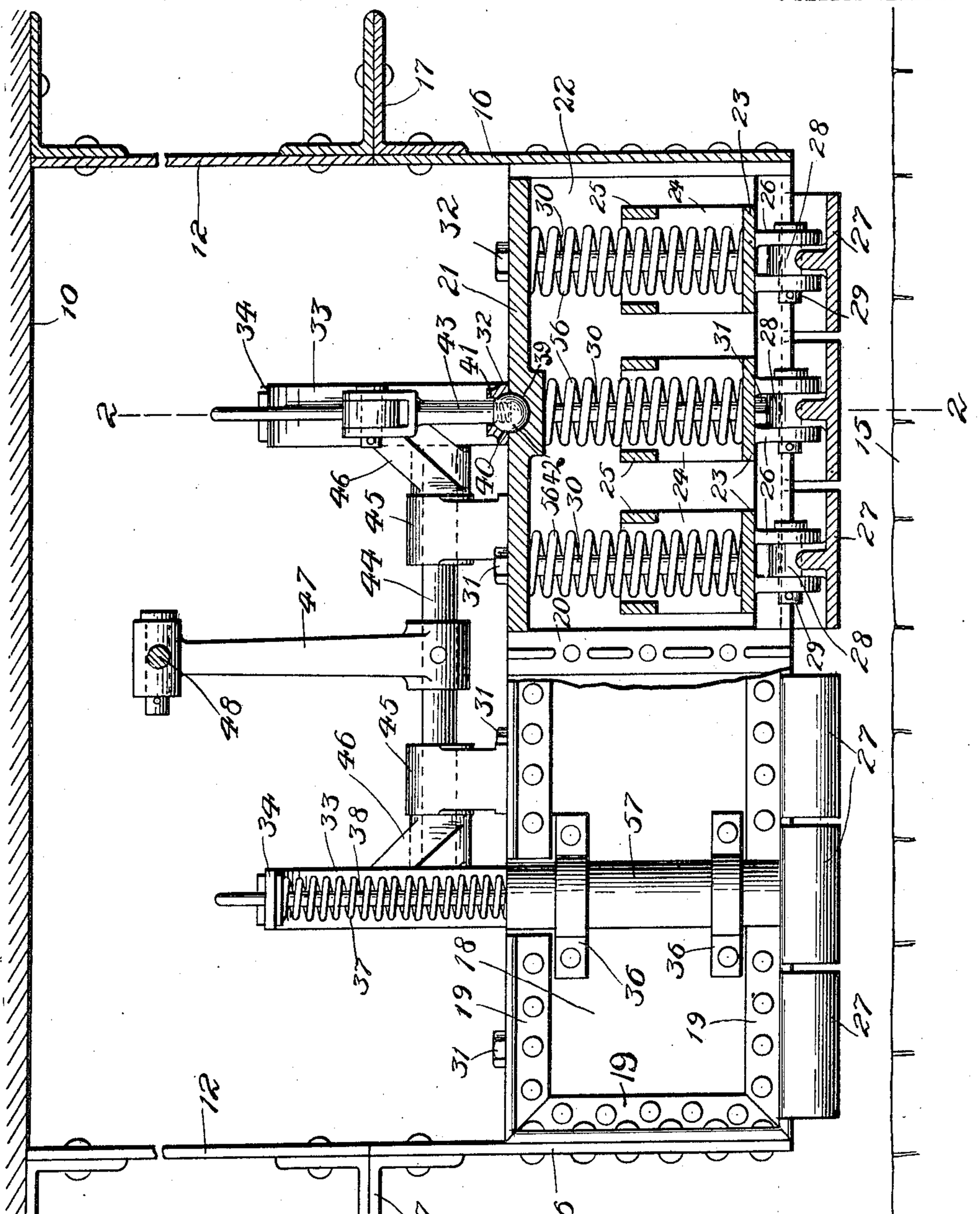

Fig. 1.

Witnesses

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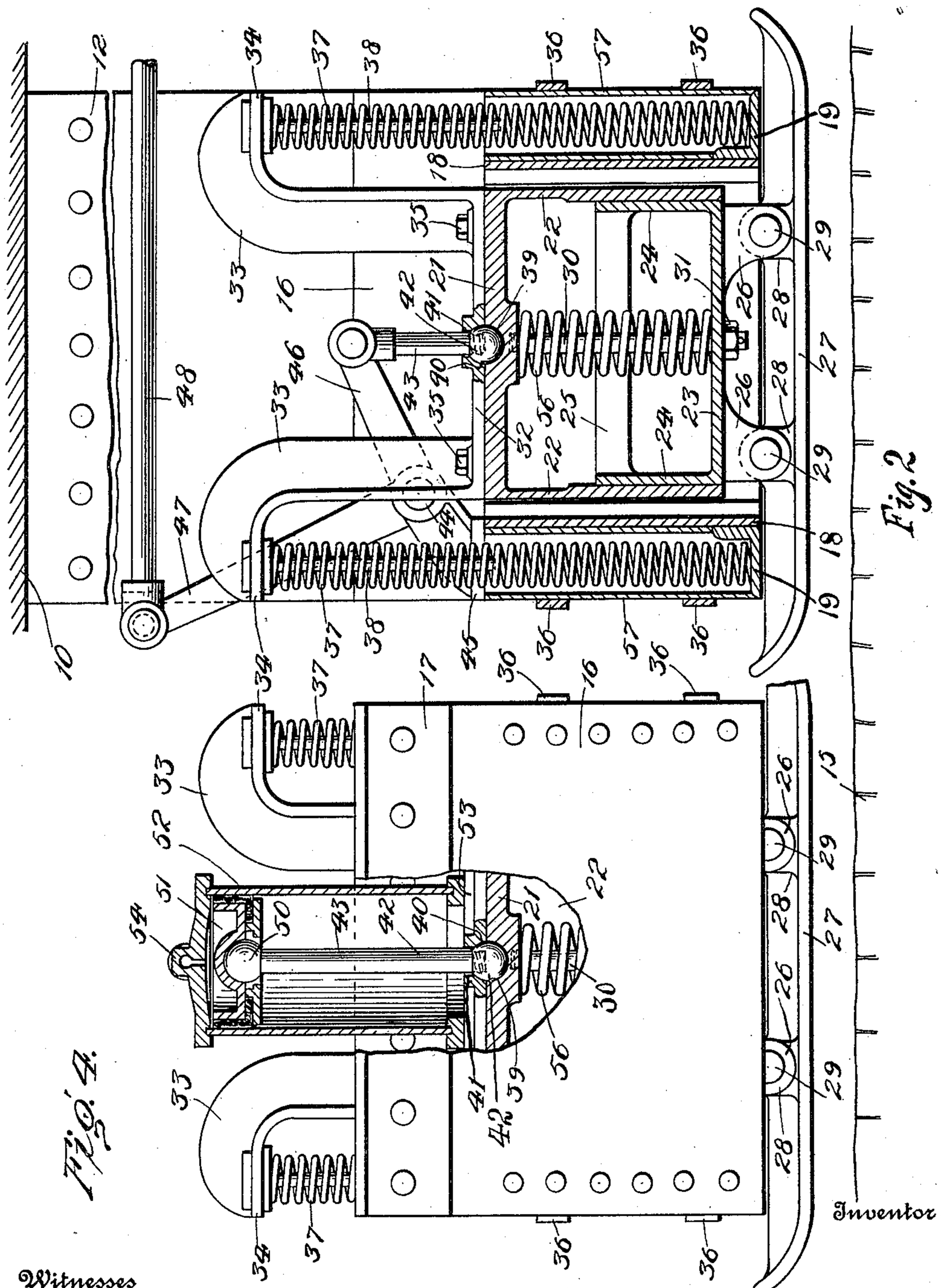

Fig. 2.

Fig. 4.

Witnesses

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3 SHEETS—SHEET 3.

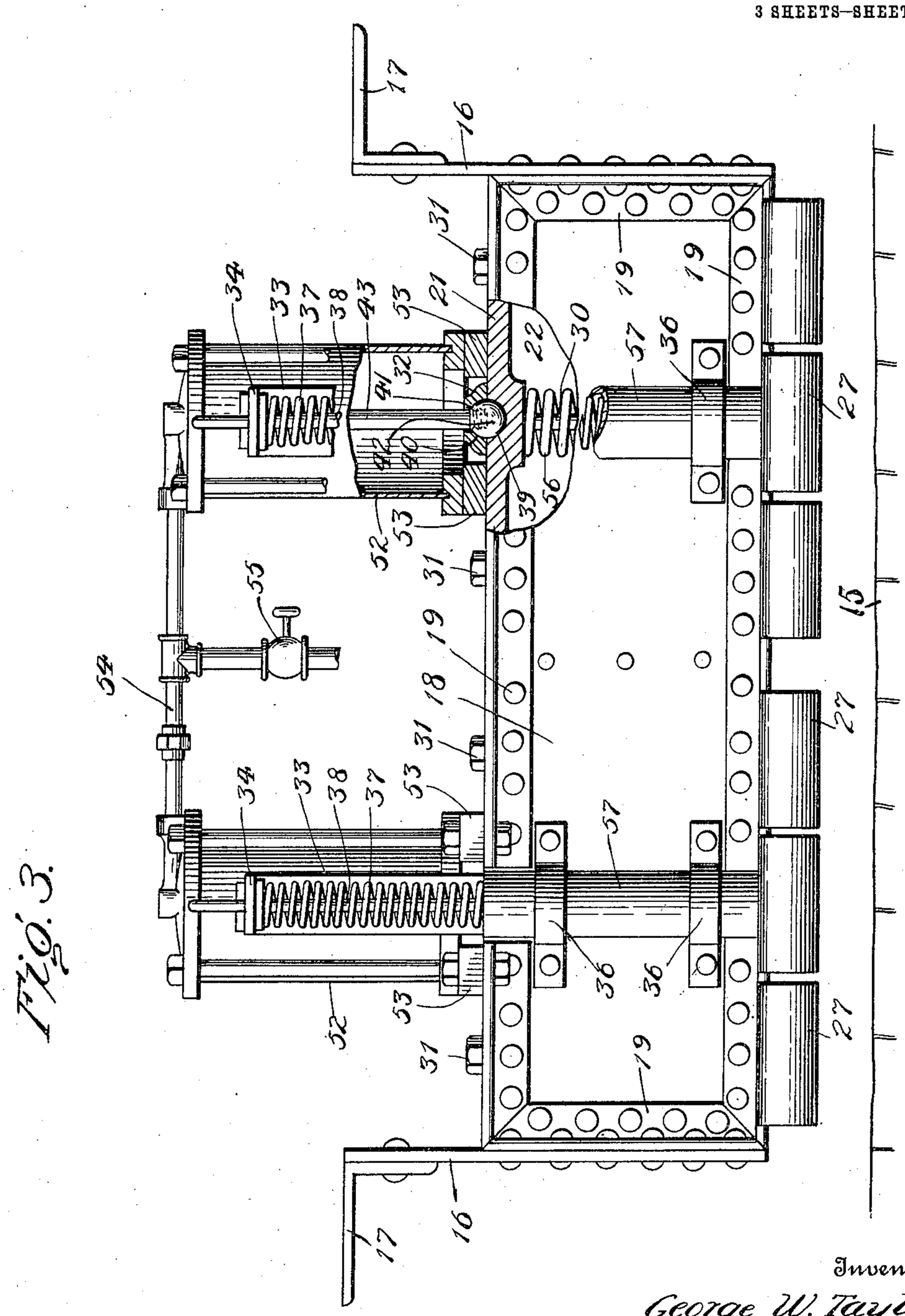

FIG. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

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EMERGENCY-BRAKE.

999,531. Specification of Letters Patent. **Patented Aug. 1, 1911.**

Application filed December 6, 1910. Serial No. 595,981.

To all whom it may concern:

Be it known that I, GEORGE W. TAYLOR, citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Emergency-Brakes, of which the following is a specification.

This invention relates to improvements in railway car brakes, more particularly to the class of shoe brakes, or brakes that are adapted to be applied to the track or to the road bed along side of the track, and has for one of its objects to improve the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to provide a device of this character which is yieldable to automatically adapt itself to inequalities of the road bed, and which will be automatically released when the applying strains are removed.

Another object of the invention is to provide a brake of this character having a plurality of shoes which are independently yieldable to enable the brake to readily adapt itself to the condition of the road bed.

Another object of the invention is to provide a device of this character which may be operated by a system of levers or by the application of air pressure or like power.

With these and other objects in view, the invention consists in certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims; and, in the drawings illustrative of the preferred embodiment of the invention, Figure 1 is a side elevation of the improved apparatus applied and partly in section; Fig. 2 is a transverse section on the line 2—2 of Fig. 1; Figs. 3 and 4 are views similar to Figs. 1 and 2, illustrating modifications in the construction.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The improved device may be applied to railway cars of different sizes and construction, and may also be applied without material structural changes to trolley cars and other electrically actuated cars, and it is not desired therefore to limit the invention to any specific form of car.

For the purpose of illustration the improved device is shown arranged for application to a conventional car, a portion of the body of which is represented at 10. The improved brake herein shown and described is adapted more particularly for application to the paving blocks, preferably upon those located between the rails, and a plurality of paving blocks are represented conventionally at 15.

The improved device is suspended from the body of the car at any suitable point, preferably midway between the trucks.

The supporting framework of the improved device is of metal, preferably steel, and constructed of a combination of L members and plates which are connected together by rivets or other suitable fastening devices, and comprises main side plates 16 and main L members 17 riveted or otherwise secured to the plates at their upper edges. The members 17 are arranged to bear beneath the body 10 of the car and connected thereto by suitable bracket devices 12 or other fastening devices. The plates 16 are connected by transverse plates 18 supported by oblong frame or L members 19, the terminal members of the frames being riveted to the plates 16 as shown. By this means an oblong casing or frame is produced in which the plates 16—18 constitute the vertical walls, the plates 18 being of less height than the plates 16. The casing or framework thus produced may be of any required size, but for an ordinary car is about forty-two inches between the plates 16 and fifteen inches between the plates 18, but these dimensions may be varied as circumstances may require.

The improved brake mechanism will preferably be arranged in two sections, each section having three of the shoes operating therein, but any required number of the sections and any required number of the shoes may be employed. When two sections or sets of shoes are employed, as shown, the framework will be provided with guide devices 20 intermediate the ends, as shown, to prevent the two sections from interfering with each other when operated.

The shoe bearing sections are precisely alike and the description of one will suffice for both. Slidably mounted within the supporting framework are two shoe supports formed of an upper horizontal portion 21 and vertical side portions 22, the side portions being arranged to slide against the inner faces of the plates 18 and with their

edges engaging respectively against the inner faces of the plates 16 and the guides 20. By this means the members 21—22 are movable vertically within the framework. Slidably disposed between the sides 22 of the shoe supports are other frames each formed with a bottom 23 and ends 24, the ends being adapted to bear against the inner faces of the members 22 and connected by spaced bars 25. Depending from the bottom 23 are spaced perforated ears 26 to receive the brake shoe members 27, the latter having upwardly directed perforated lugs 28 to engage between the ears 26 and secured therein by suitable pins 29. By this means the shoes are detachably coupled to the member 23 and are movable vertically therewith. The shoes are formed with upwardly curved terminals, as shown, to enable them to freely run upon the road bed, as will be obvious.

The members 23—24—25 are each connected to the member 21—22 by a relatively heavy bolt 30 which is provided with a head 31 at one end and thus holds the members 23—24—25 from downward movement, while leaving it free to move upwardly. Surrounding each of the bolts 30 is a relatively heavy coiled spring 56 which bears at its ends between the lower face of the member 21 and the upper face of the member 23 and thus maintains the shoe yieldably in its downward position, the object to be hereafter explained.

Three of the shoes and their connecting members are shown arranged in each section of the improved device, and which will be the number usually employed, but a greater or lesser number may be used if required.

Connected to each of the members 21 is a plate 32, each plate having standards 33 rising from its ends and outturned at their upper ends, as shown at 34. The plates 32 are rigidly secured to the member 21 by bolts or other suitable fastening devices 35. Bearing against the outer faces of the plates 18, midway between the guides 20 and the plates 16, are guide tubes 57 and retained in position by straps 36 connected to the plates 18. Located within each of the tubular members 57 is a coiled spring 37 bearing at its upper end beneath the outturned portion 34 of the standards 33 and thus exerting their force to maintain the members 21—22 and the shoes and their connecting mechanism yieldably in upward or inoperative position, as shown. Depending from each of the outturned portions 34 of the standards 33 is a rod 38 around which the springs 37 extend, and which serves as a guide to the spring, to prevent lateral displacement thereof. Formed in the center of the member 21 is a half socket 39, while an opposing half socket 40 is formed in the center of the plate 32, the half socket 40 having an opening 41 in its upper side. The half sockets when combined form a complete globular socket to receive a ball bearing 42 on the lower end of a rod 43. The rod 43 constitutes means whereby power is applied to depress the shoe supporting mechanism and is coupled thereto by a ball and socket joint, as will be obvious.

Any suitable means may be employed for applying the depressing power to the shoe supporting mechanism.

When the improved apparatus is applied to railway cars having the ordinary hand brakes a system of levers will be employed for actuating the rod 43, and when the improved device is applied to cars having the ordinary air brake system, compressed air will be employed to actuate the rod.

In Figs. 1 and 2 a countershaft 44 is shown mounted for oscillation upon one of the members 19 by brackets 45, and connected to this countershaft are lever arms 46, one for each of the rods 43 and connected thereto as shown. Connected to the shaft 44 is another lever arm 47 to which a pull rod 48 is connected in position to be actuated by a suitable hand brake mechanism, the latter not being shown as it forms no part of the present invention. By this arrangement it will be obvious that the springs 37 operate to maintain the shoe supporting mechanism yieldably in its upward and inoperative position and with the lever arms 46—47 likewise in their upward or inoperative position. When the brake is to be applied the rod 48 is actuated with the result of depressing the shoe supporting mechanism through the operation of the lever arms 46—47 of the rod 43 and against the resistance of the springs 37. As the shoes are depressed and engaged against the surface 15 the springs 56 yield sufficiently to cause the shoes to automatically adapt themselves to the surface upon which they bear, so that each shoe is caused to bear with its full force upon the bearing surface, and to automatically adapt itself to any irregularities therein. Thus if an obstruction occurs underneath one of the shoes, that particular shoe will not be depressed as far as the other shoes, and thus cause the shoes to bear with equal force no matter what the condition of the bearing surface may be.

In Figs. 3 and 4 the improved device is shown with the shoe supporting mechanism arranged to be actuated by compressed air, preferably by a portion of the air from the air brake system. The only change in the construction which it is necessary to make is to increase the length of the rod 43 and to provide another ball 50 to its upper end, the upper ball arranged to be coupled into a piston head 51 operating in a cylinder 52, the cylinder being supported by transverse

members 53 from the L members 19 of the frame. The cylinder is designed to receive compressed air through a conductor 54 which is connected to the air brake system in any suitable manner, the latter not being shown as it forms no part of the present invention. The conductor 54 is provided with a suitable controlling valve 55, which is under the control of the engineer, motorman, or other employee, as the case may be. By this simple means it will be obvious that when the brake is to be applied the operator simply actuates the valve 55 and admits the compressed air above the piston head 51 and applies the shoes to the road bed in the same manner as before described.

When three of the shoes are employed in each section of the device, one of the rods 38 will be located opposite the half socket 39 and the head 31 of this particular rod will be located upon the lower end of the rod beneath the member 39 and bear upon the same, as shown, but this is merely a matter of detail that does not in any manner affect the scope of the invention.

The improved device is simple in construction, strong, durable, and compact, and may be applied without material modifications or alterations to cars of different sizes and of different construction.

The improved device will generally be employed as an emergency brake, but may be employed as an ordinary brake if preferred.

Having thus described the invention, what is claimed as new is:

1. In a brake of the class described, a main frame adapted to be connected to a car, shoe supports movable in said frame, a plurality of shoes movable relative to each of said shoe supports, an independent yieldable means connecting each of said shoes to said shoe supports, and means operating to depress said shoe supports and the shoes carried thereby.

2. In a brake of the class described, a main frame adapted to be connected to a car, shoe supports movable in said frame, shoes movable relative to said shoe supports, yieldable means connecting said shoes to said shoe supports, standards carried by said shoe supports, means operating to maintain said shoe supports yieldably in inoperative position, and means operating to depress said shoe supports and the shoes carried thereby.

3. In a brake of the class described, a main frame adapted to be connected to a car, shoe supports movable in said frame, frames slidable in said shoe supports, shoes coupled detachably to said frames, springs between said shoe supports and frames, springs between said shoe supports and main frame, and means for depressing said shoe supports and the shoes and frames carried thereby.

4. In a brake of the class described, a main frame adapted to be connected to a car, shoe supports movable in said frame, shoes movable relative to said shoe supports, yieldable means connecting said shoes to said shoe supports, standards carried by said shoe supports, guide tubes carried by said main frame, guide pins depending from said standards and extending into said guide tubes, springs surrounding said guide pins and bearing between said main frame and standards, and means operating to depress said shoe supports and the shoes carried thereby against the resistance of said springs.

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

GEORGE W. TAYLOR.

Witnesses:

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JOSEPH THOMASSON.