

No. 897,864.

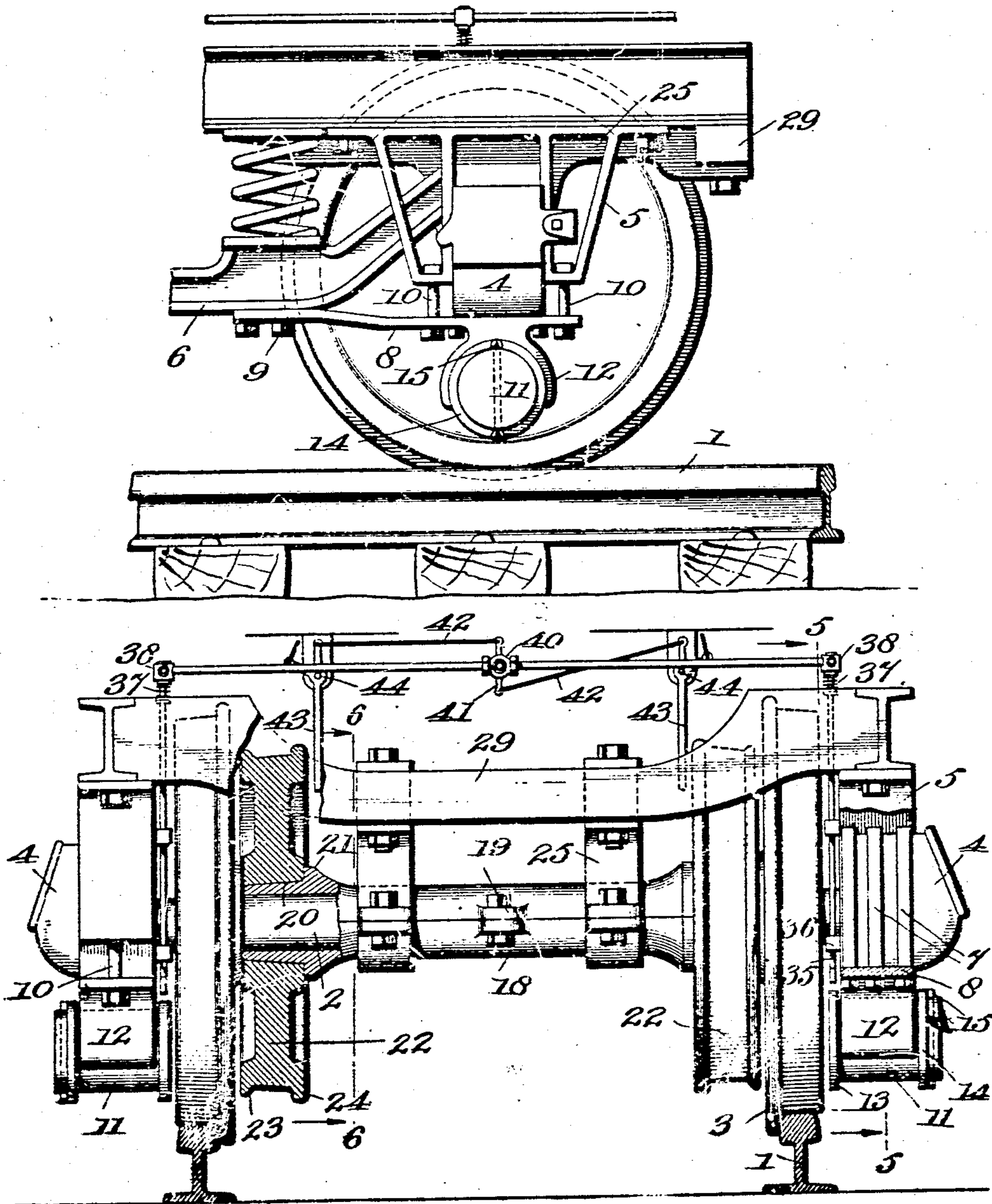
PATENTED SEPT. 8, 1908.

J. T. ANDREW.
SAFETY APPLIANCE FOR RAILWAYS.

APPLICATION FILED APR. 28, 1908.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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Fig. 2.

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Fig. 3.

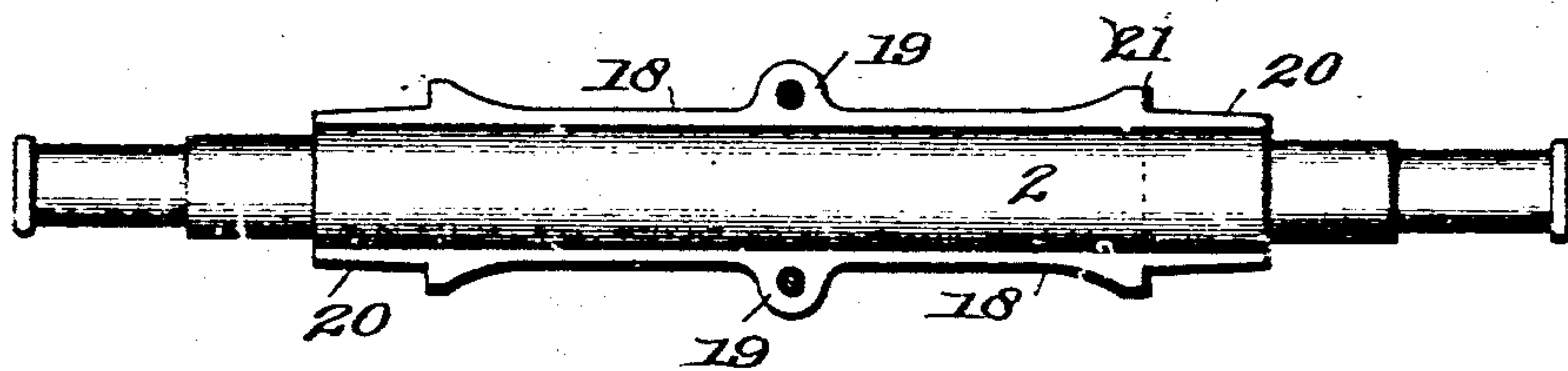


Fig. 4.

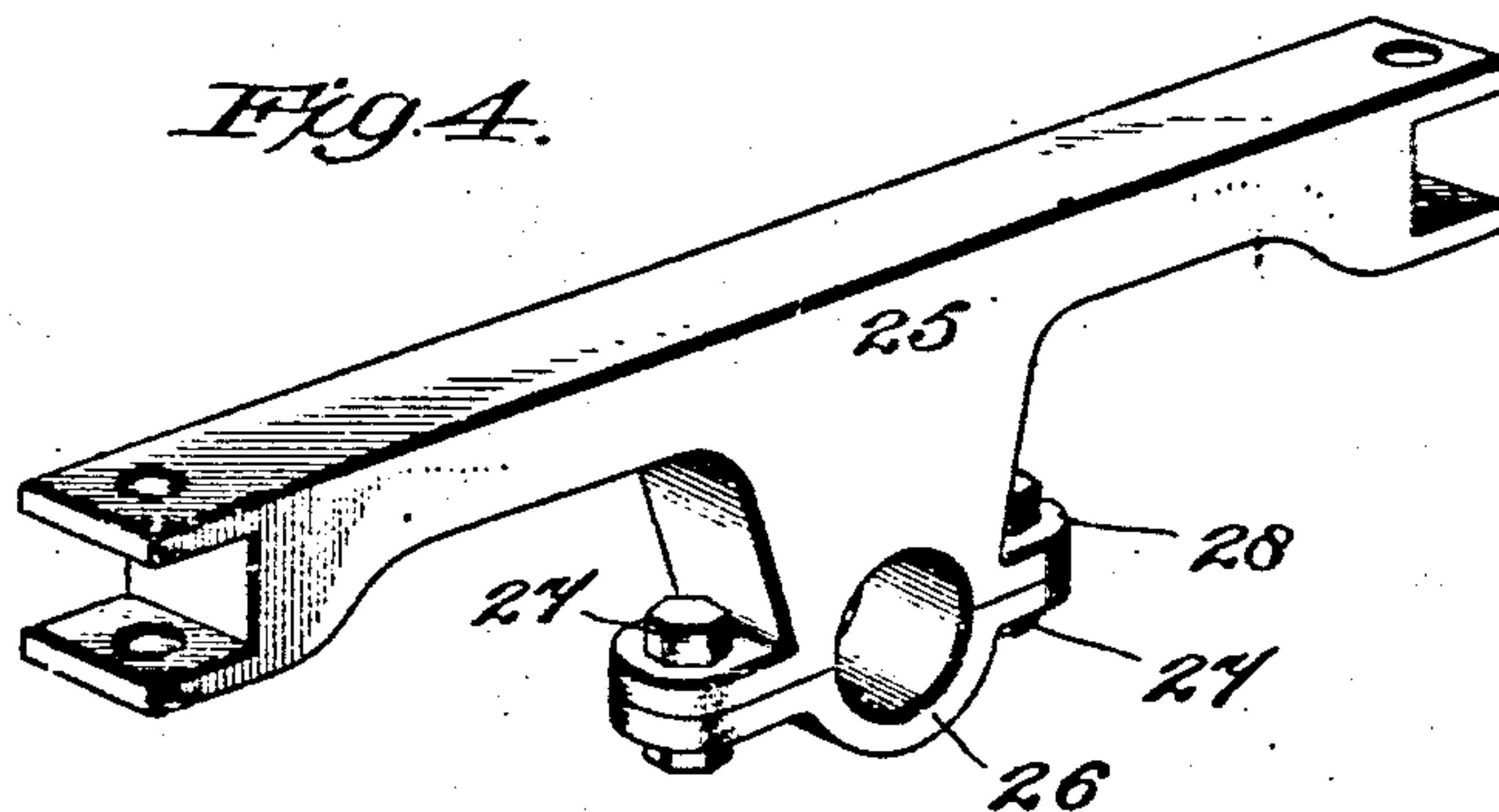
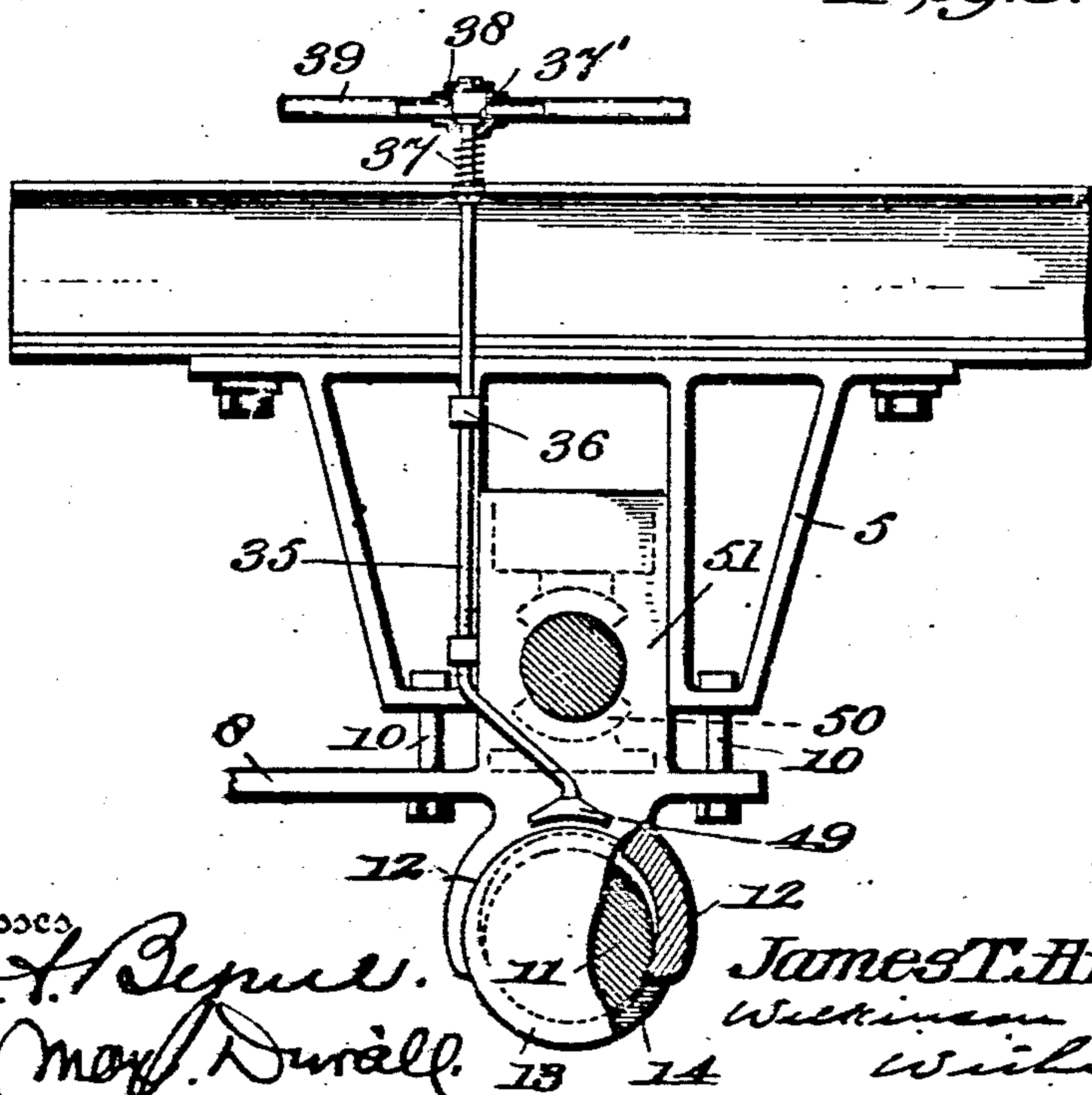


Fig. 5.



Witnesses

Witnesses
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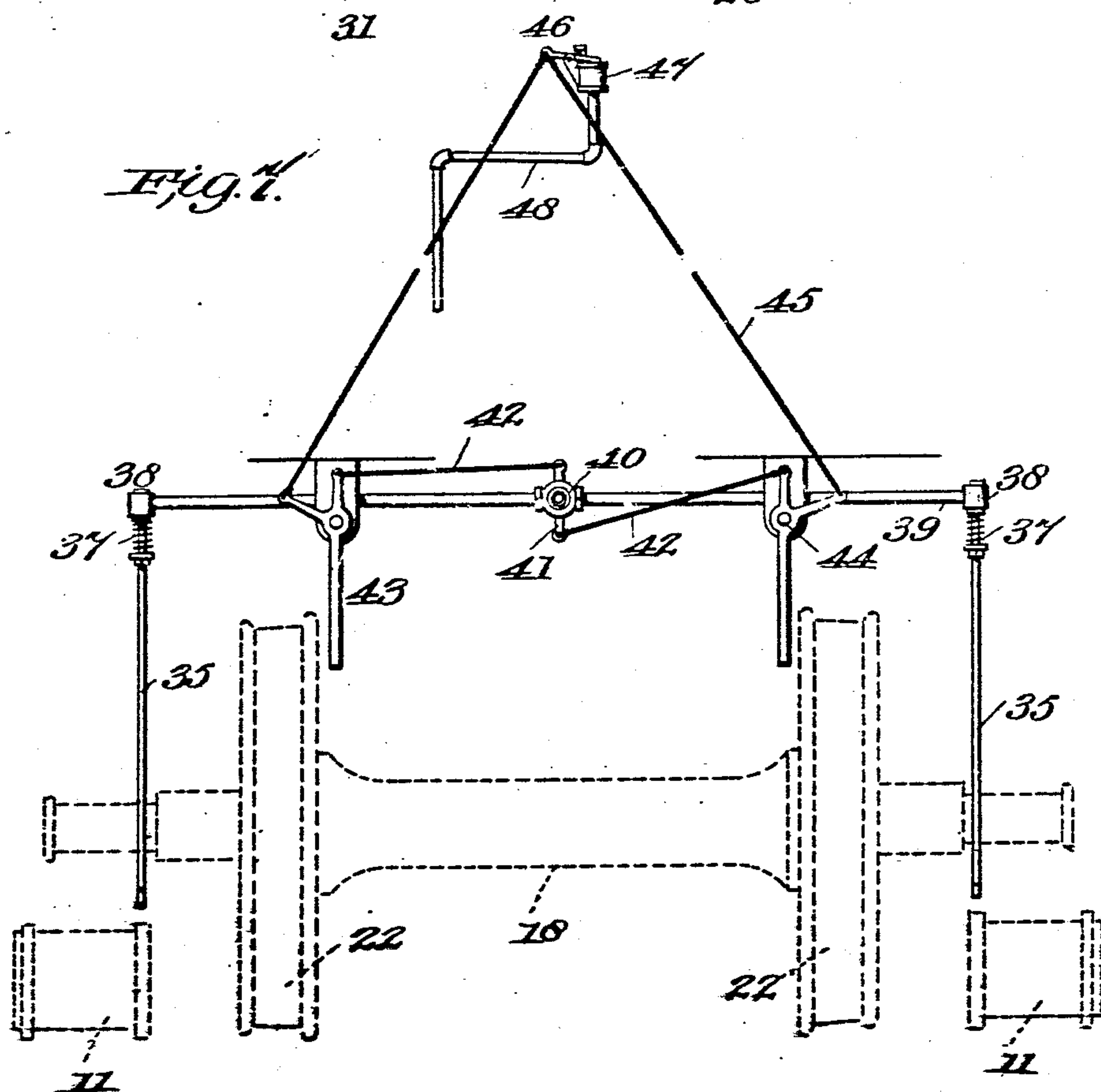
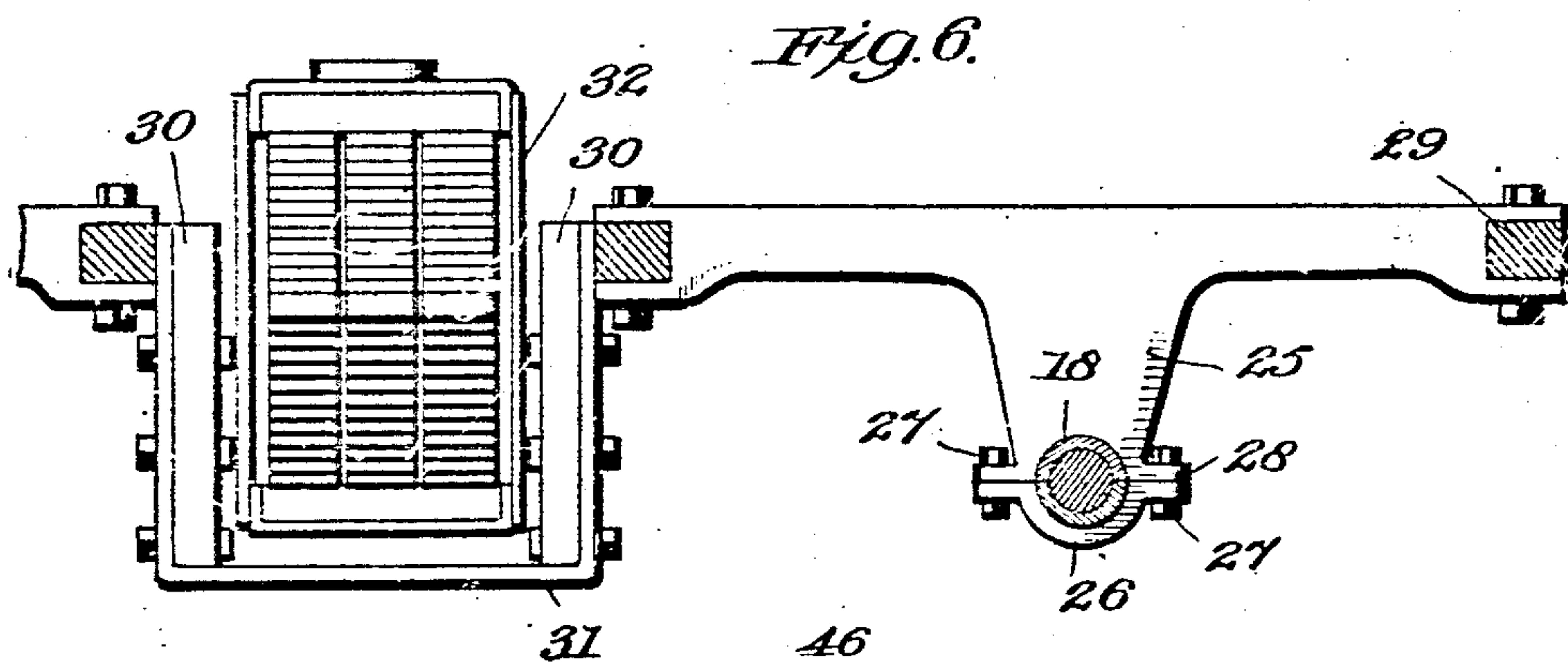
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J. T. ANDREW.
SAFETY APPLIANCE FOR RAILWAYS.

APPLICATION FILED APR. 28, 1908.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JAMES T. ANDREW, OF MONTGOMERY, ALABAMA.

SAFETY APPLIANCE FOR RAILWAYS.

No. 897,864.

Specification of Letters Patent.

Patented Sept. 8, 1908.

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To all whom it may concern:

Be it known that I, JAMES T. ANDREW, a citizen of the United States, residing at Montgomery, in the county of Montgomery and State of Alabama, have invented certain new and useful Improvements in Safety Appliances for Railways; 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 relates to improvements in safety appliances for railroad cars, and the object of my invention is to provide a means whereby the derailment of a train, with the injurious effects arising therefrom, shall be rendered practically impossible, this application being in the nature of an improvement upon my former applications Serial No. 349,727, filed September 27, 1906, and Serial No. 389,562, filed August 21, 1907.

A further object of my invention is to simplify and to cheapen the structure heretofore applied to existing railroad equipments, and at the same time to render the same more effective in action.

A further object of my invention is to provide a means by which the operation of the air brake system is rendered more certain in the case of a derailment, and a signal is given.

To these ends my invention consists in the novel combination of parts more fully hereinafter described and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification in which like numerals refer to like parts in all the views:—Figure 1, represents a side elevational view of a portion of a truck with my invention applied thereto. Fig. 2, is an end elevation of the same partly in section. Fig. 3, represents a car axle with a half sleeve of my axle tube in position. Fig. 4, a perspective view of one of my safety beam supports. Fig. 5, is a sectional elevational view of the back of the journal box looking outward, and illustrating a modification of my safety roller and frame attachment. Fig. 6, is a sectional elevational view on the line 6—6 of Fig. 2, looking in the direction of the arrow showing the main truck springs in elevation. Fig. 7, is a diagrammatic view showing in full lines my means for operating the valves of the Westinghouse air brake system.

1, represents the rails; 2, the axles of an ordinary car truck; 3, the wheels; and 4, the

journal boxes. 5, the ordinary pedestals of a car truck; and 6 the equalizer beams.

Secured to the journal box by means of the straps 7, is the safety frame 8, which is secured to the equalizer beam by the bolts 9, and to the pedestals by the slip bolts 10. In this safety frame 8, is carried the safety roller 11, the frame being provided with downwardly depending curved projections 12, forming an open cylinder bearing for the reception of the said roller, thereby forming in reality a cylindrical safety frame. The roller 11 is provided on its inner end with an integral collar 13, and on its outer end with a removable collar 14, there being a cotter pin 15, passing through the end of the roller 11, to hold the collar 14 in place.

In assembling these parts, the roller is placed in the open cylinder bearing, as shown, before the safety frame 8 is secured to the journal box, pedestals and equalizer beam, and the cotter pin passed through the hole in the end of the roller provided for that purpose. When in place this roller will stand about three inches above the top of the rail, and the open cylinder being larger than said roller, will allow the same to rise about one half an inch should contact with the rail occur, and for a purpose to be described hereinafter.

On the car axle 2, between the wheels 3, I place a sleeve 18 made in halves, provided with lugs 19, tapered journal bearings 20, and with shoulders 21, all as shown. On the bearings 20, are the safety wheels 22, having double flanges 23 and 24. These wheels may be either split wheels, or made in one piece. In either case the flanges 23 are more tapered than the flanges 24, for a purpose that will presently appear. The lugs 19 serve to secure the halves of the sleeve together, and to make the same rigid with the axle 2. Over each sleeve 18 is secured two of my safety beam supports 25, and these supports are provided with the straps 26, encircling said sleeve and having the bolts 27 passing through the flanges 28 integral with said supports 25, the whole loosely encircling the sleeve 18 as shown. The forward upper end of these beam supports 25 is secured to the front cross beam 29 of the truck; and the rear upper end is secured to the center bolster framing 30 of the truck by means of a safety band 31, which encircles the main truck spring casings 32, and their connections, as clearly shown in Fig. 6.

Extending between the journal box 4 and the wheel 3, is a plunger rod 35, passing through guides 36. This rod, at the upper end actuates a plunger 37 which controls a valve 37' in the casing 38, on the end of the pipe 39, which connects with the train line of the air piping 40, which operates the brakes. This piping 40 is also provided with the valve levers 41, having the connections 42, with the levers 43, pivoted at 44 to the car body, and extending into the path of the wheels 22 for a purpose that will be presently explained. The safety and signal levers 43, are also provided with the connections 45 leading to the lever 46 of the engineer's and conductor's whistle signal 47, having the well known pipe connection 48 with the cab of the engine.

In the modification shown in Fig. 5, instead of employing the straps 7, as illustrated in Fig. 2, for securing my cylindrical safety frame to the journal box, I cast the same integral with said journal box as shown. That is to say, the lower bearing 50, in my safety frame for the car journal, which comes into play in case of an accident, is cast integral with the box 51, as shown.

In both forms of my invention the lower end of the rod 35, is provided with a suitably shaped shoe 49, with which the collar 13 of the roller 11 contacts.

The operation of my safety appliance is as follows:—When the flange of a wheel 3, rises to cross a rail 1, during a derailment of the train, the safety roller 11 on the one side and the safety wheel 22 on the other, of necessity likewise rises; and a roller on one side of the truck and a wheel 22 on the other side of the truck moves toward the rails, and of necessity contacts therewith when the flanges of the wheel 3 have crossed the rails and fall on the other side thereof. The lower contacting surfaces of both the rollers 11 and wheels 22 are so disposed that they will strike the top of the rails before the flanges of the wheels 3 reach the spikes or ties, so that the train for the time being will be supported by reason of one of the rollers 11, on one side, and one of the wheels 22 on the other side of the truck contacting with the tops of the rails. In the meantime, one of the safety brake and signal levers 43, which are pivoted to the car body, is struck by one of the wheels 22, as it is carried to one side or the other of the track, and the air brakes are applied, and the engineer's whistle blown through the connections shown. In addition to this, since the roller 11 has a vertical motion in its open cylinder bearing formed by the projections 12, it will, when it contacts with the top of the rail, rise in said bearing and strike the shoe on the rod 35, thereby opening the valve 37' and affording a continuous additional means for applying the brakes.

The flanges 23 of the wheels 22 are made

with a sharper bevel than the flanges 24, in order to render more certain the engagement of the treads of the wheels 22 with the top of the rail, as is apparent from the drawings. In other words, by beveling the flange 23, it is caused, when it strikes the outer edge of the rail, to exert a wedging action, and to insure the throwing of the flange of the wheel 3 sufficiently outward to prevent said latter flange from sheaving the bolts and spikes of the track with which it might otherwise come in contact. An additional advantage in beveling said flange 23, is found in the fact that it forces the truck sufficiently to one side to insure that the roller 11 on the opposite side of the truck will be thrown far enough for its flange 13 to clear the rail and to bring the tread of said roller firmly into contact with the upper surface of said rail.

An important feature of my invention resides in the construction embodying the sleeve 18; for axles now in use are of various sizes, and if it were necessary to provide each of the same with journals for my safety wheels, not only would the time consumed be great, but the cost would also be an important item. By employing my sleeve 18, however, I am enabled at any time to apply it to any existing axle, by the simple expedient of employing liners or washers to make the sleeve fit said axle, and can at once secure it in place by the fastening means shown. After the sleeve is once in place, it furthermore serves to hold the two parts of the axle together should the same become broken, and thereby obviate a most fruitful cause of derailments at the present time. It will, also, be observed that since the safety wheels and journals will be seldom brought into use, all the parts can be cast, and thereby produced at a minimum of cost. Furthermore, should a train be destroyed for any reason, such of these parts that remain intact may be recovered and readily transferred to any other equipment. Furthermore, my safety beams 25, not only serve to stiffen the truck now in use, but they act as a journal bearing on the inside of the truck in case an outer journal breaks, thereby preventing any portion of the truck from dropping to the track; as well as serving to hold the axle up and in place should it break. In addition to the above, as shown in Fig. 6, the two inner ends of each pair of safety beams 25, are joined by the safety bands 31, which encircle the main truck spring casings 32, as above stated, and this structure in case of an accident to any portion of the spring equipment prevents the same from coming down to the track, and consequently obviates another fruitful cause of wrecks at the present day. Furthermore, by providing the additional safety brake applying means 35, 37 etc., and the signal sounding means 45, 46 etc., I have, in case of an accident, two means for auto-

atically setting the brakes, and, also, a third means of notifying the engineer.

What I claim is:—

1. In a car truck, the combination of a wheel axle, and a sleeve encircling said axle and provided with journals at each end and safety wheels mounted on said journals, substantially as described.
2. In a car truck, the combination of the ordinary wheels and an axle, and a split sleeve encircling said axle and provided with safety wheels at its ends, substantially as described.
3. In a car truck, the combination of the ordinary wheels and an axle, and a split sleeve encircling said axle having journals and provided with safety wheels at its ends on said journals, substantially as described.
4. In a car truck, the combination with the ordinary wheels and an axle, of a sleeve provided with journals surrounding said axle between said wheels, safety wheels mounted on said journals and a safety beam support resting on said sleeve, whereby said sleeve will assist in holding the two parts of the axle together should it break, and whereby said safety beam will serve to brace the truck, substantially as described.
5. In a car truck, the combination with the ordinary wheels and an axle, of a split sleeve surrounding said axle between said wheels, provided with safety wheels at its ends; and a plurality of safety beam supports loosely encircling said sleeve and serving to brace the truck, substantially as described.
6. In a car truck provided with main truck springs, the combination with the ordinary wheels and axles; of sleeves surrounding said axles; safety beam supports loosely encircling said sleeves, and extending longitudinally of the car; and a safety band encircling said springs and joining opposing ends of said supports, substantially as described.
7. In a car truck provided with main truck springs, the combination with the ordinary wheels and axles; of split sleeves surrounding said axles, and provided with journals on their ends; safety beam supports secured at one end to the front cross beam of the truck, and at the other end to the center bolster framing of the same, loosely encircling said sleeves, and extending longitudinally of the car; and a safety band encircling said springs and joining opposing ends of said supports, substantially as described.
8. In a car truck having the ordinary wheels and axle, the combination of a sleeve surrounding said axle and provided with safety wheels inside said ordinary wheels; and safety rollers on the outside of said ordi-

nary wheels, whereby said sleeve is adapted to hold and support the ends of said axle should it break, and whereby one of said safety wheels and one of said rollers will contact with the top of the rails when the car leaves the track, substantially as described.

9. In a car truck provided with the ordinary wheels and axle, the combination of a split sleeve provided with journals surrounding said axle; safety wheels fitted to said journals; safety frames outside said ordinary wheels; and safety rollers in said frames, substantially as described.

10. In a car truck provided with the ordinary wheels and axle, the combination of a split sleeve provided with journals surrounding said axle; safety wheels fitted to said journals; safety frames, provided with cylindrical bearings, outside said ordinary wheels; and safety rollers in the bearings of said frames, substantially as described.

11. In a car truck provided with the ordinary wheels and axle, and with the ordinary pedestals and equalizer beams, the combination of safety frames secured to said pedestals and beams and provided with cylindrical bearings; safety rollers in said bearings; on the outside of said wheels; and additional safety wheels cooperating with said rollers, substantially as described.

12. In a car truck employing a journal box and provided with the ordinary wheels and axle and with the usual pedestals, the combination of a safety frame integral with said journal box and provided with a bearing; a safety roller in said bearing; and a safety wheel cooperating with said safety roller, substantially as described.

13. In a car truck provided with the usual wheels and axle, the combination of a sleeve surrounding said axle; a pair of safety wheels on said sleeve inside said usual wheels and provided with the outer beveled flanges 23, and the safety rollers outside said usual wheels, provided with collars 13, substantially as described.

14. In a car truck provided with the usual wheels and axle, the combination of a split sleeve surrounding said axle; a pair of safety wheels on said sleeve inside said usual wheels and provided with the outer beveled flanges 23, inclined treads and flanges 24; safety frames; and safety rollers outside said usual wheels carried by said safety frames, and provided with collars 13, substantially as described.

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

JAMES T. ANDREW.

Witnesses:

GEO. A. BYRNE,
W. MAX. DUVALL.