

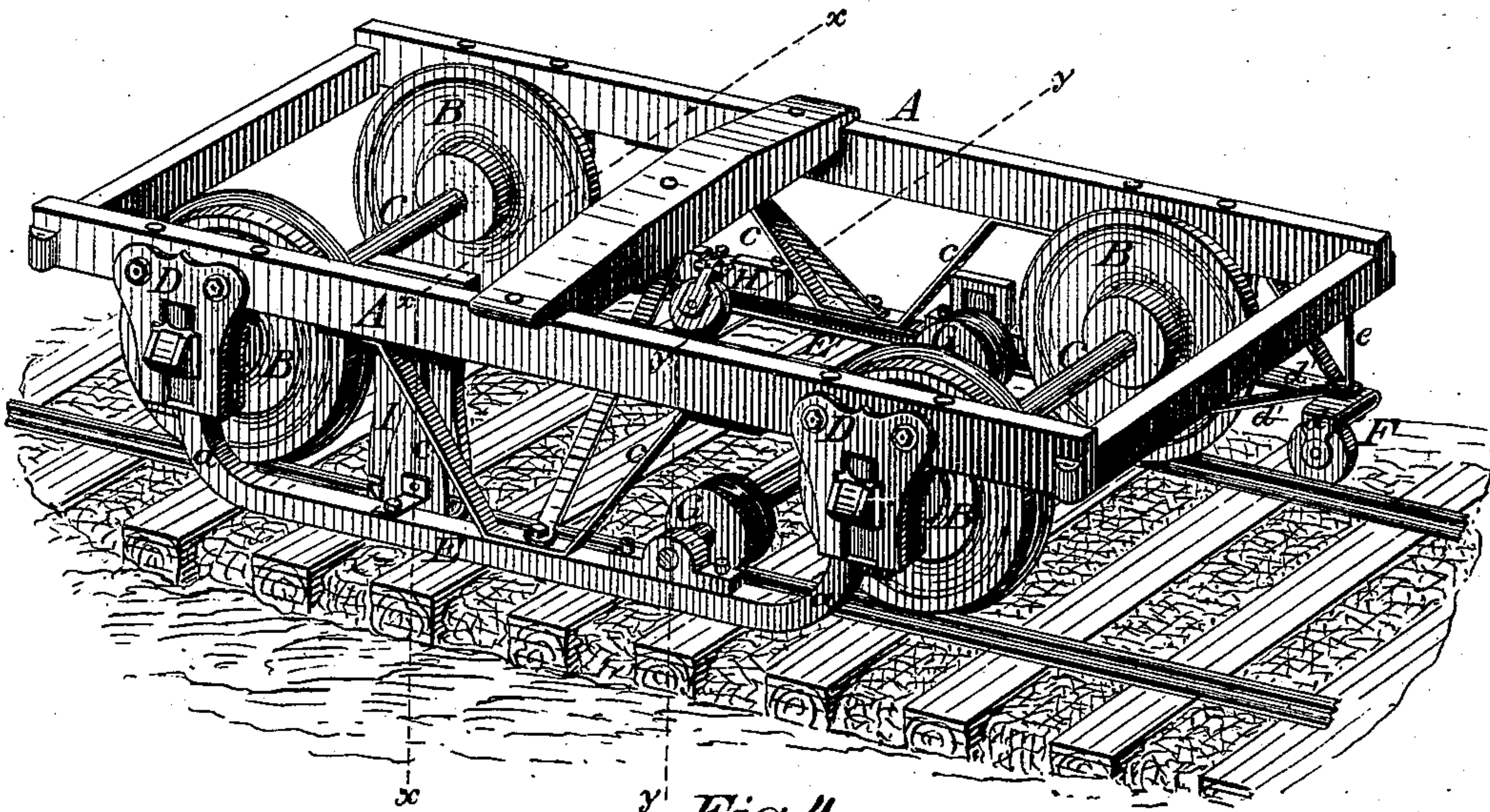
**J. P. WILSON.**

## SAFETY-APPLIANCES FOR CARS AND LOCOMOTIVES.

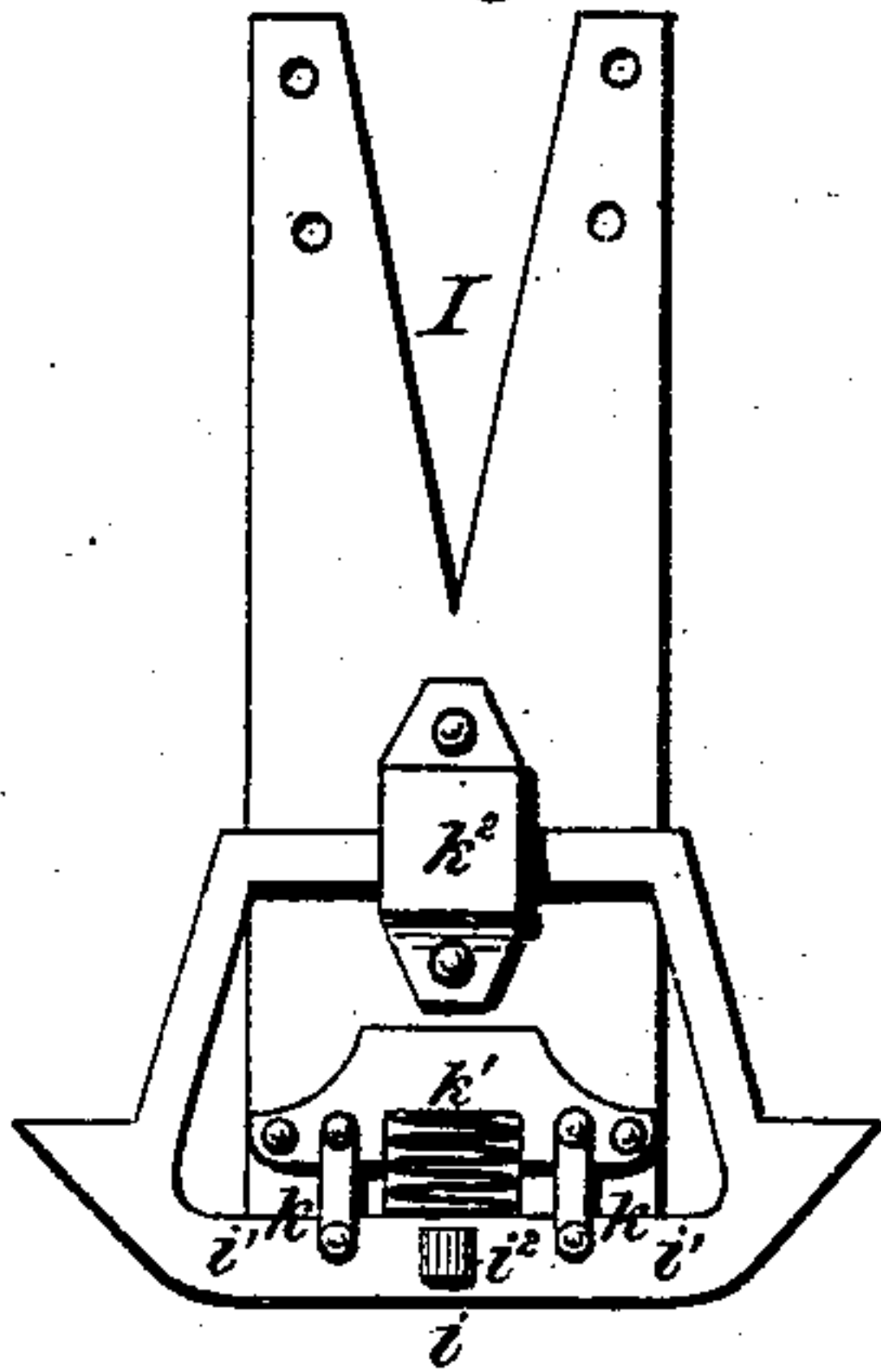
No. 183,441.

Patented Oct. 17, 1876.

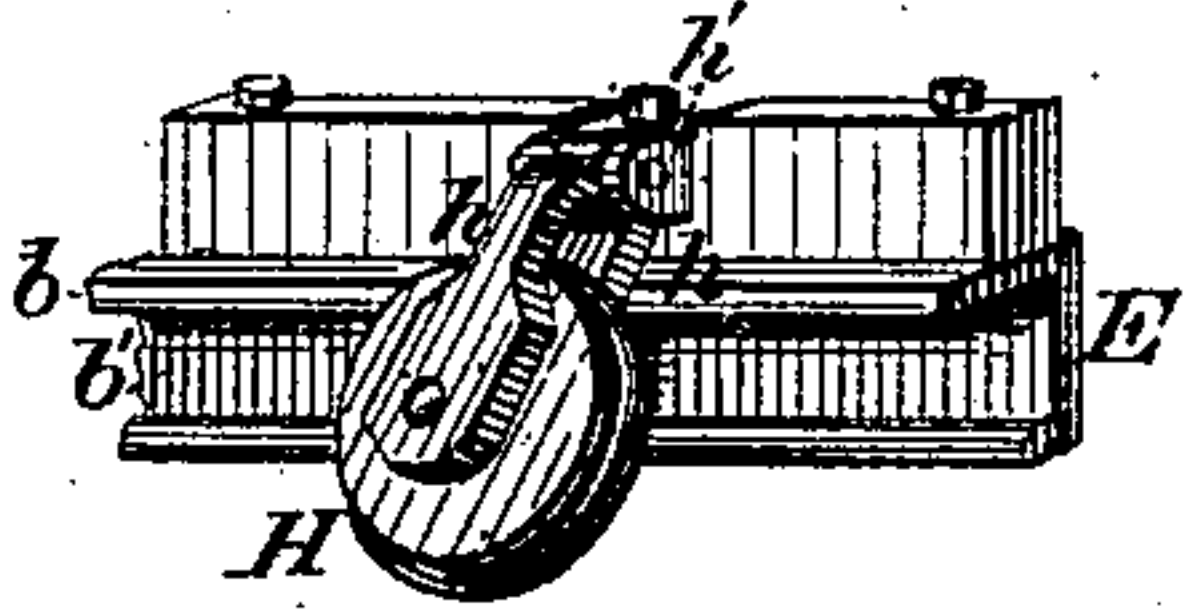
*Fig. 1.*



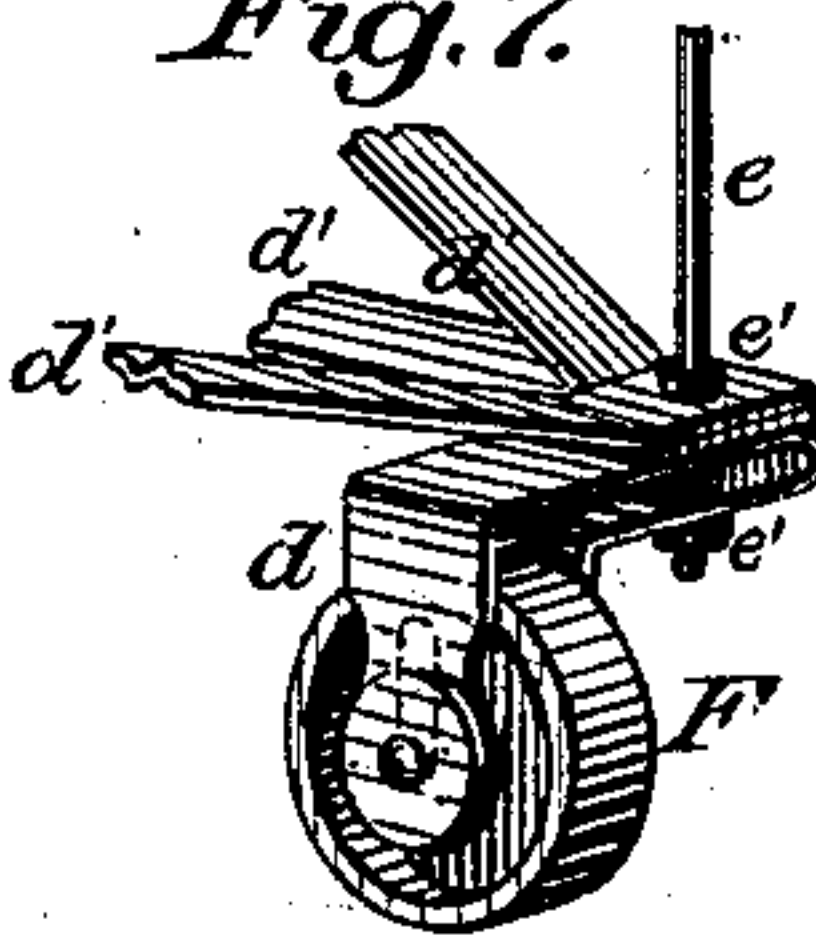
*Fig. 4.*



*Fig. 5.*



*Fig. 7.*



*Fig. 6.*



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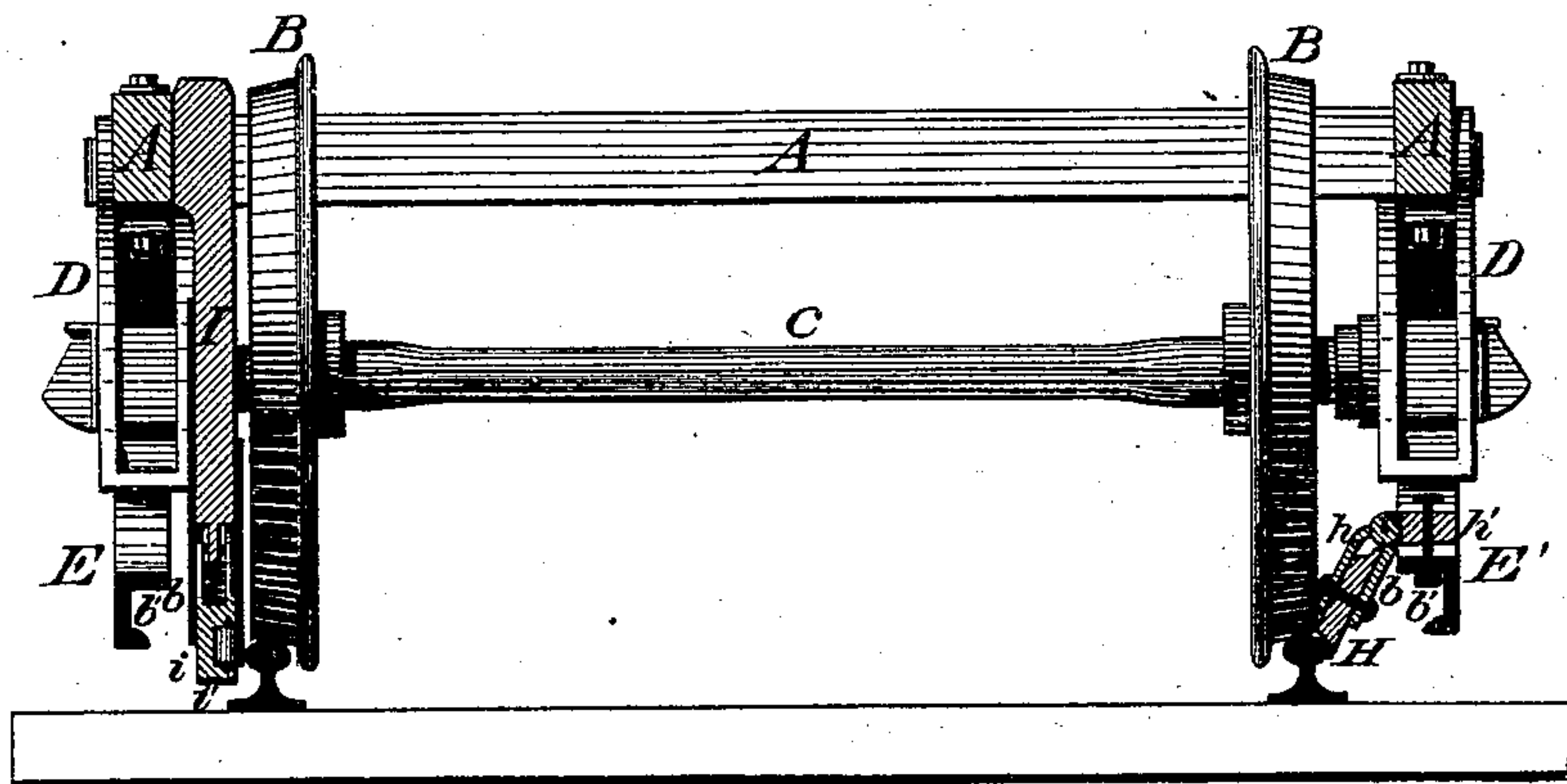
**J. P. WILSON.**

## SAFETY-APPLIANCES FOR CARS AND LOCOMOTIVES.

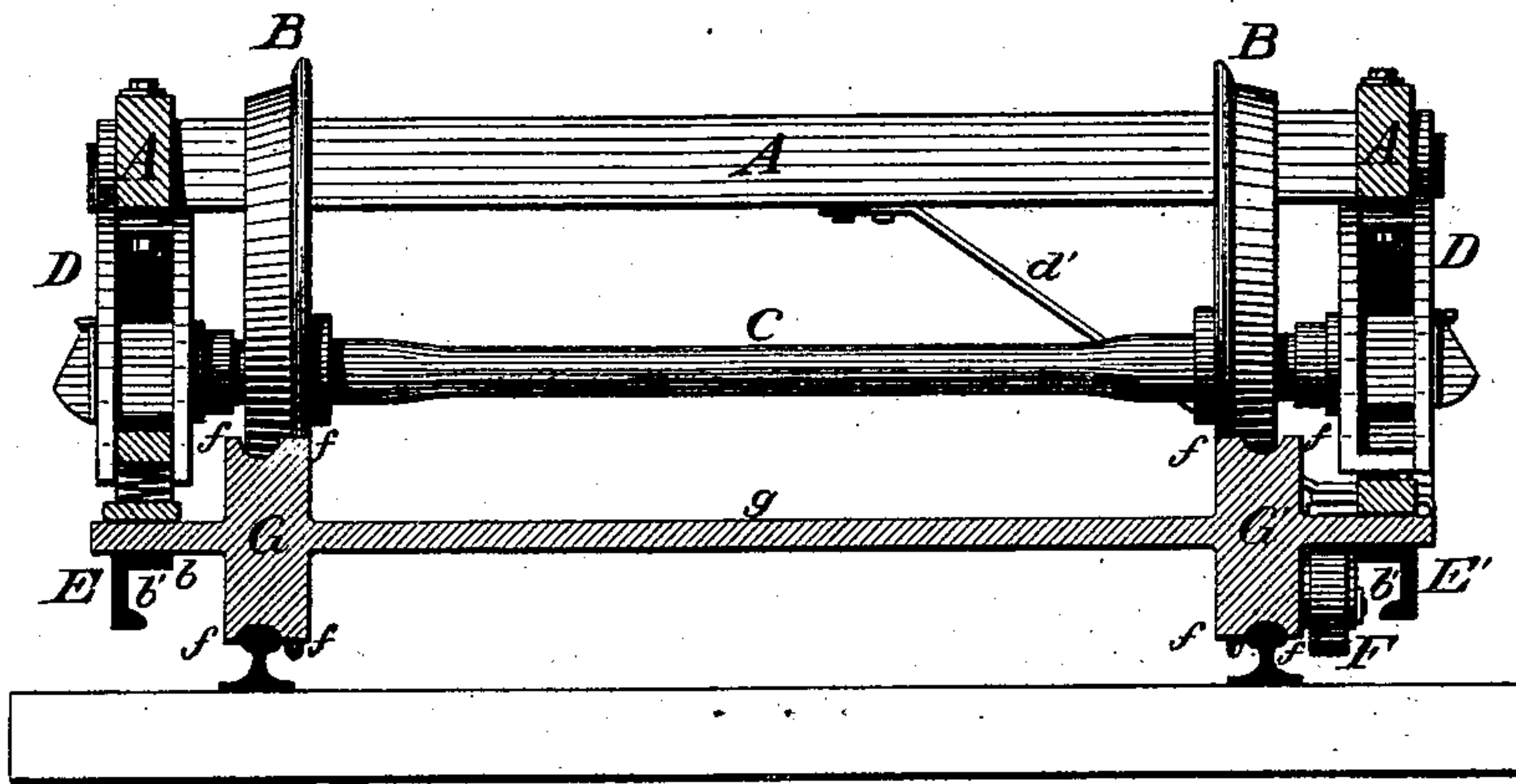
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Fig. 2.



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

JOSEPH P. WILSON, OF NEW YORK, N. Y.

## IMPROVEMENT IN SAFETY APPLIANCES FOR CARS AND LOCOMOTIVES.

Specification forming part of Letters Patent No. **183,441**, dated October 17, 1876; application filed September 26, 1876.

*To all whom it may concern:*

Be it known that I, JOSEPH P. WILSON, of New York, in the county of New York, and State of New York, have invented a new and useful Improvement in Safety Appliances for Railroad Cars and Locomotives; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object I have in view is to guard against the accidents and losses which continually arise from broken or displaced rails, from cross-tracks and switches, and from broken axles; and my invention therein consists in the novel contrivances employed by me for the above-named object, and in the various operative combinations in which such contrivances are used.

To enable those skilled in the art to make and use my contrivances, I proceed to describe the same, having reference to the drawings, in which—

Figure 1 is a perspective view of a railroad-truck, with the various contrivances in position; Fig. 2, a vertical cross-section on the line X X of Fig. 1; Fig. 3, a similar section on the line Y Y of Fig. 1. Fig. 4 is a separate view of the standard and shoe; Fig. 5, a separate view of the hinged bearing-wheel; Fig. 6, a separate view of the double-flanged wheels; and Fig. 7 a separate view of one of the small wheels at the end of the truck.

Similar letters denote corresponding parts in each figure.

A represents the truck-frame; B, the wheels; C, the axles; and D the pedestals, all of the ordinary construction. E E' are two runners, one on each side of the truck, as shown, extending about as low as the lowest portion of the wheels, and curved up at their ends *a*, by which, with proper bolts, they are rigidly secured to the lower ends of the pedestals or axle-supports. These runners connect the outer pedestals, dispensing with the usual brace, but they may also be extended upwardly to the ends of the truck-frame A. The runners E E' have flanges *b*, with grooves *b'* on their inner faces, as shown in Figs. 2 and 3, and suitable braces *c* connect the truck-frame and said runners between the wheels.

The runners described project a short distance below and outside of the track, and when a rail is broken or displaced, or when an axle is broken, drop upon the ties and support the truck, and at the same time, by bearing against the outside of the whole rail, in the case of a broken or displaced rail, keep the truck on the road-bed till the break in the track is passed or the train stopped.

The runners E E' may be constructed entirely of iron; but I have also designed to make them of wood and steel, which will lessen greatly their weight, and remove the objection heretofore advanced against their use.

I have found, however, in practice that, in passing over a broken rail, especially when the same is in a curve, other devices for keeping the wheels in the line of the track are necessary to insure perfect safety in the passage of the break.

F F are small wheels, one of which is shown in detail in Fig. 7, which are supported outside of the rails, almost bearing against the side of the same, preferably from corners of the truck-frame in front of the pedestals. These wheels are journaled in hangers *d*, and have a limited play in their bearings, so as to ride over any obstruction at the side of the track. These hangers *d* are supported by braces *d'* from the truck-frame and nearest pedestal, and a screw-rod, *e*, passes from the truck-frame through the said braces and hangers at their junction, with suitable nuts *e'* for clamping the braces and hangers rigidly together.

When the truck is in motion the wheels F pass near the side of the rails and prevent the car-wheels from moving laterally.

These wheels may be connected by a shaft, which may be made of common gas-pipe.

G G are two small wheels, having double flanges *f f*, which embrace the track, mounted upon a shaft, *g*, journaled in suitable bearings *g'* in the runners E E'.

These wheels, by virtue of their double flanges, prevent the truck from moving laterally off the track, and, when the truck is passing a broken rail, keep the wheels on the whole rail, so as to pass the break in safety.

H is a small flanged wheel, (shown in detail



in Fig. 5,) which is supported from the inside of one of the runners, near the end of the same, by arms *h*, in the ends of which the said wheel is journaled. These arms are pivoted at their inner end to a plate, *h'*, secured to the runner, so that the wheel *H* can be raised above the track, or lowered to bear against the side of the same. This wheel, like the wheel *F*, and the flanged wheels *G G'*, prevents the lateral movement of the truck.

*I* is a standard or frame-work extending from the inside of the truck-frame *A* to below the tread-surface of the track, and on the outside surface of the said track, of which standards two or four may be used. This standard is suitably braced, and is provided at its lower end with a shoe, *i*, which is supported in close proximity to the side of the rail, or in contact with the same. This shoe, which is shown in detail, has rounded ends *i'* extending on either side of the standard. Links *k*, preferably eight in number, connect the shoe with the standard, and a spring or springs, *k'*, is placed between the shoe and the lower end of the standard. The shoe plays vertically and horizontally between plates *k''* on the standard so as to pass over any obstruction, and by bearing against the rail to prevent the truck from moving off the track. Friction-rollers *i''* may be placed in the inside of the shoe *i* to reduce the friction when the shoe is brought in contact with the rail.

In the construction of the truck I have designed to use any one or two of the devices last described for preventing the lateral movement of the truck, or all may be advantageously employed, it being understood, excepting the flanged wheels *G G'*, that one of these devices—viz., the wheel *F*, flanged wheel *H*, or standard *I*—must be placed at or near the ends of the truck on each side, presenting at four or more points means for retaining the wheels of the truck upon the track.

It will be understood that these contrivances above described are equally applicable to locomotives, tenders, and railroad-cars of every description.

It will be perceived that, in case of the fracture of an axle, the end of the car where the fracture takes place will, at all events, be supported by one or more of the runners, even if the other devices are not sufficient for the purpose, and be inclined to pursue a course nearly or quite in the line of direction of the rails until the forward movement of such car is stopped. In case of such an accident, moreover, there is little danger of the car becoming overturned, as the inclination to deviate from the line of the track would be arrested by the resistance of the rails upon one side against the runner upon that side; and the inclination of the car to turn over, by reason of

the ends of the ties giving away upon one side, would be arrested by the flange of the runner upon the other side taking hold of the tread of the rail, against which it would be pressed.

Ordinarily, however, it is believed that the devices above described—namely, the double-flanged trucks or the pivoted shoes, in connection with the hinged bevel-wheels—would be sufficient to hold the truck up until danger should be over. In case of the more frequent occurrences of broken rails where a piece is entirely gone, or of rails where one is spread out of its proper line, or of cross-tracks or other derangement of the tread-surface of the railroad, it will be perceived that either of the devices before referred to, without the runners, would ordinarily carry the truck over the point of danger without throwing it off the track, and, in connection with the runners, would in all instances insure very great protection.

Having thus described my improvements and explained some of their advantages, what I claim as new therein and my own invention, for which I desire Letters Patent, is—

1. The combination, with a car-truck, having runners *E E'*, of the flanged wheel *H*, hinged by its arms to one of such runners, constructed and arranged substantially as described and shown.

2. The combination, with a car-truck, of the standard *I*, secured to the truck-frame, and the yielding shoe *i* in the foot of such standard, constructed and arranged substantially as described and shown.

3. The combination, with a car-truck, of the standard *I*, secured to the truck-frame, the shoe *i*, pivoted by links *k* in the foot of such standard, and the spring *k'* between the said shoe and standard, constructed and arranged substantially as described and shown.

4. The combination, with the car-truck and runners, of the double-flanged wheel *G G'*, journaled by a shaft, *g*, upon the said runners, constructed and arranged substantially as described and shown.

5. The combination, with the car-truck, of the wheel *F*, journaled in hangers *d*, and supported from a corner of the truck-frame by the screw-rod *e* and braces *d'*, constructed and arranged substantially as described and shown.

6. In combination with a railroad-car, locomotive, or tender, the standard *I*, provided with shoes, the hinged bevel-wheels, and the runners, substantially as and for the purposes set forth.

This specification signed and witnessed this 22d day of September, 1876.

JOSEPH PATTEN WILSON.

Witnesses:

L. W. SEELY,  
C. J. PRILL.