

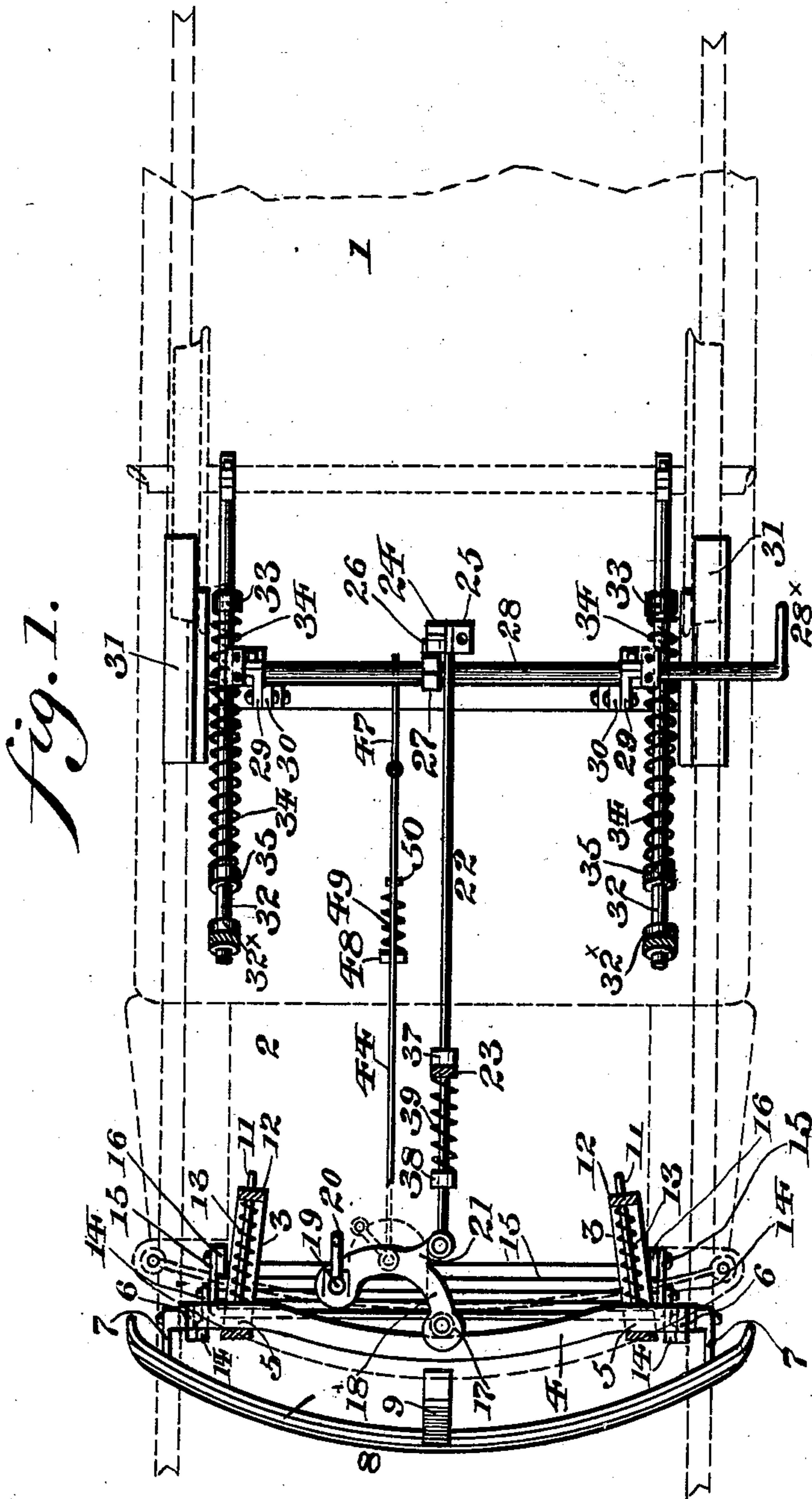
(No Model.)

2 Sheets—Sheet 1.

J. & J. G. KURTZ.
AUTOMATIC BRAKE AND SAFETY FENDER.

No. 551,210.

Patented Dec. 10, 1895.



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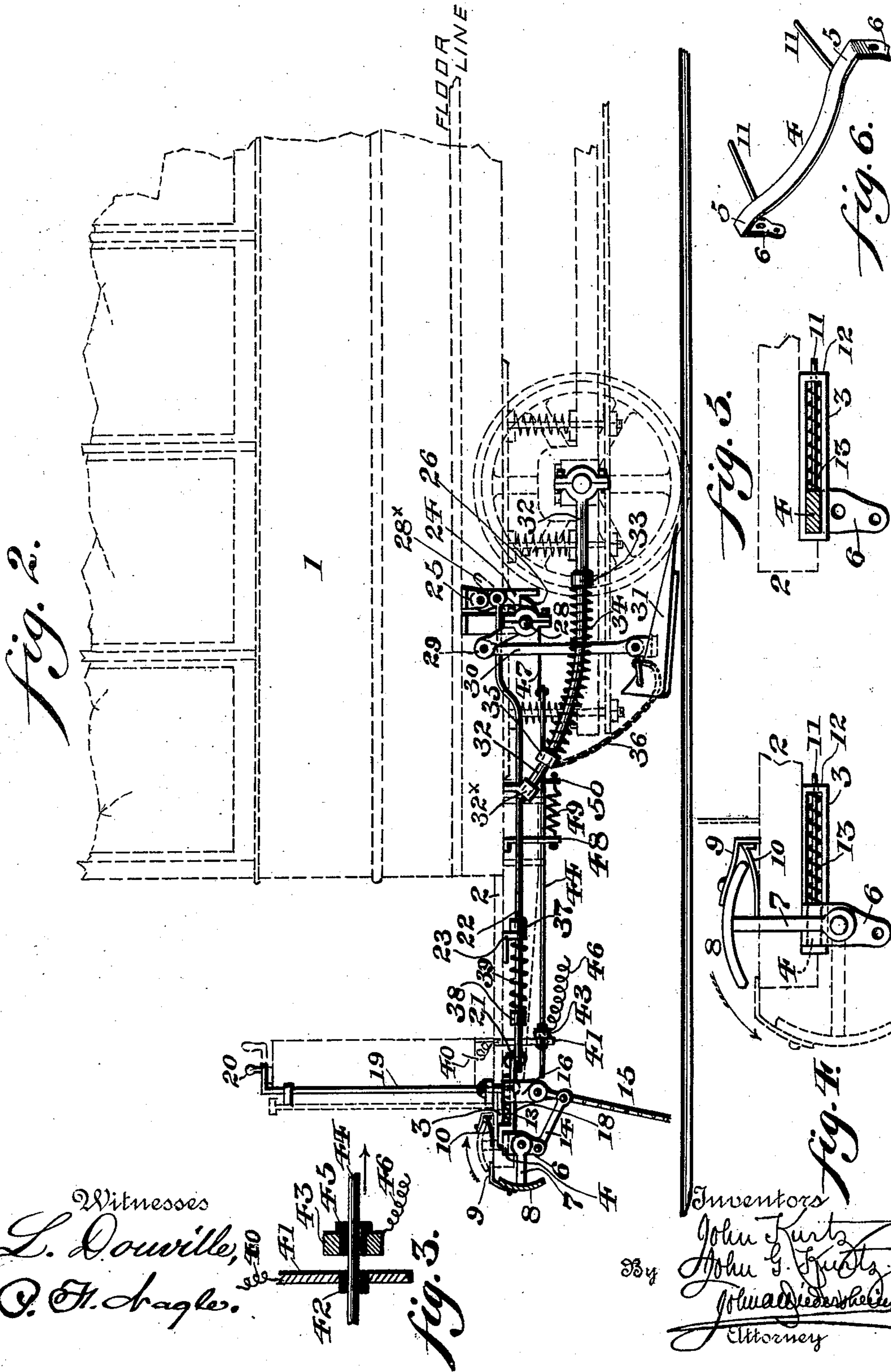
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UNITED STATES PATENT OFFICE.

JOHN KURTZ AND JOHN G. KURTZ, OF MOORE, PENNSYLVANIA.

AUTOMATIC BRAKE AND SAFETY-FENDER.

SPECIFICATION forming part of Letters Patent No. 551,210, dated December 10, 1895.

Application filed March 21, 1895. Serial No. 542,604. (No model.)

To all whom it may concern:

Be it known that we, JOHN KURTZ and JOHN G. KURTZ, citizens of the United States, residing at Moore, in the county of Delaware, State of Pennsylvania, have invented a new and useful Improvement in Automatic Brakes and Safety-Fenders, which improvement is fully set forth in the following specification and accompanying drawings.

Our invention consists of a novel construction of automatic brake and safety-fender, in which means are provided, in case an object is struck, for breaking the electric circuit and for arresting the movement of the wheels by the interposition of suitable shoes between the latter and the track, provision being also made for preventing injurious strain to any part of the apparatus.

It further consists of novel details of construction, all as will be hereinafter set forth.

Figure 1 represents a plan view of an automatic brake and safety-fender and its adjuncts embodying our invention and a portion of a car to which the same is applicable. Fig. 2 represents a side elevation of the same. Fig. 3 represents a sectional view, on an enlarged scale, of a contact-breaker employed. Fig. 4 represents, on an enlarged scale, a side elevation of the buffer and its connections. Fig. 5 represents a sectional view, showing a cross-bar actuated by said buffer, and a guide therefor. Fig. 6 represents a perspective view of said cross-bar removed, to be hereinafter referred to.

Similar numerals of reference indicate corresponding parts in the several figures.

Referring to the drawings, 1 designates the body of a car, to a suitable portion of the platform 2 of which are secured the guides 3, the latter serving to support the end portions 5 of the cross-bar 4, the extreme ends of the latter being turned downwardly, forming ears 6, to which latter are pivoted the arms 7 of the transversely-extending buffer 8, the latter having the angle-shaped piece 9 attached thereto, by means of which said buffer is held in its forward position, as seen in full lines in Fig. 2.

10 designates a spring or catch attached to the platform 2, which is adapted to engage said angle-shaped piece 9 and hold the same and the buffer 8 in the position seen in full

lines, out of the way, as in Fig. 4, when it is desired to couple cars. The said cross-bar 4 has the rods 11 attached thereto, which extend rearwardly and pass through the walls 12 of the guides 3. 13 designates springs interposed between said walls 12 and the cross-bar 4, whereby the latter is normally held in the position seen in Figs. 1, 4, and 5.

14 designates a link having one end attached to the ears 6 of the cross-bar, the other end of said link being attached to the upper portion of the swinging frame 15, which is pivoted to the lugs 16.

The cross-bar 4, at about its middle portion, contacts with a roller 17, mounted on the under side of the lever 18, (best seen in Fig. 1,) which is normally secured to the lower portion of the rod 19, which is mounted in suitable bearings and has the handle 20 attached thereto, said rod and lever moving in unison.

21 designates an ear projecting from said lever, to which is pivotally attached one end of the rod 22, which latter passes freely through the guide or support 23, and has its other end provided with an offset, and attached to the movable dog or pawl 24, which is pivoted to an ear 25, said pawl being adapted to engage the nose 26 of the catch 27, which is mounted on the shaft 28, the latter being rotatably mounted in suitable bearings, and having an extension and handle 28^x for resetting, as will be explained. Near each end of said rod is an arm 29, extending therefrom, to which one end of a link 30 is pivotally attached, the other end of each of said links being pivoted to a shoe 31, which is normally suspended above the rails in proximity to the car-wheels, as will be understood from Fig. 2.

32 designates rods which have one end movably mounted in the bearings 32^x on the underside of the car, the other ends being mounted on the axle of the same, said rods having the collars 33 rigidly attached thereto, against which abuts one end of the springs 34, the other ends of said springs being in contact with the collars 35, which are freely movable on said rods, said collars having the chains or other connections 36 extending therefrom to said shoes 31. 37 designates a collar attached to said rod 22 and adapted to abut against the guide 23, and so form a stop. 38

designates another collar also attached to said rod 22, against which abuts one end of the spring 39, the other end of the latter being in contact with said guide 23.

40 designates a connection from the feed-wire which leads to the conductor 41, which has the insulating-sleeve 42 therein.

43 designates another conductor which is mounted on the rod 44, suitable insulating material 45 being interposed between the two latter and a wire 46 leading from the conductor 43 to the motor or under the car. (Not shown.) The conductor 41 is immovable and assists to support an end of the said rod 44, the other end of the latter being attached to the chains or other connection 47, which is secured to the shaft 28, so as to be wound therearound, all as will be hereinafter explained. 48 designates a hanger through which said rod 44 passes, said hanger having a spring 49 attached thereto, the other end of the latter being attached to a suitable portion 50 of said rod 44, the tendency of said spring being to keep the conductors 41 and 43 normally in contact.

The operation is as follows, assuming the parts to be in the position seen in Fig. 1: If an object strikes the buffer 8 or the frame 15, the cross-bar 4 will be moved rearwardly and will contact with the roller 17, thus moving the lever 18 and rod 22 rearwardly, and so tripping or moving the pawl 24 out of engagement with the catch 27, whereupon the shoes, being unsupported, fall, and the wheels ride up thereon, and their motion is instantly arrested, any dangerous shock being taken up by the springs 34, which act as buffers. The shaft 28 is caused to rotate by the dropping of the shoes, whereby the chain or cord 47 is wound thereon, thus moving the conductors 43 and 41 out of contact, the same assuming the position seen in Fig. 3, the circuit being thus broken. The springs 13 cause the cross-bar 4 to move forwardly, while the spring 39 has a similar effect on the rod 22, and if now the shaft 28 is properly rotated by the handle 28^x the shoes will be lifted from the track, and the tripping devices will appear as in Fig. 2, the spring 39 holding the pawl in position, while the spring 49 holds the conductors 41 and 43 normally in contact.

When it is desired to couple cars, the buffer 8 can be turned into the position seen in Fig. 4 and held there by means of the catch 10.

The device can be operated by the motor-man by turning the handle 20, the rod 19 and the lever 18 operating in unison, as is evident.

When the buffer is turned up into the position seen in Fig. 4, the lever 18 will be actuated, when the frame 15 is struck.

It will thus be seen from the foregoing that by mounting one end of the rods 32 on an axle of the car and allowing the other end of said rods to move freely in the bearings 32^x, as described, all the shock caused by the contact of the wheels with the adjacent shoes 31

will be thrown upon said axle, and the front of the car being raised as the forward wheels ride up on said shoes the weight is thus thrown upon the back portion, thereby avoiding all injurious strains or jars.

It will be seen from Fig. 2 that the shoe is normally raised at its front end, the link 30 being connected with said shoe in front of its center of gravity, thereby insuring at all times the proper dropping of the rear end of the shoe and increasing the tendency of the wheel to ride on the same when in contact therewith.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a device of the character described, a cross bar, springs and guides therefor, ears thereon, a buffer pivotally connected to the latter, and means for holding the same in a vertical or horizontal position, substantially as described.

2. In a device of the character described, a buffer connected with a cross bar, a pivoted lever in contact with said cross bar, a rod connected with said lever and carrying a pawl, a rock shaft having arms supporting shoes, and a catch on said shaft engaged by said pawl, said parts being combined substantially as described.

3. In a device of the character described, a cross bar having depending ends or ears, rods extending rearwardly from said bar, guides for the latter and said rods, springs for holding said bar in position, a buffer pivotally attached to said ears, an angle shaped piece attached to said buffer, and a spring or catch adapted to engage the latter, substantially as described.

4. A buffer, a swinging frame, a cross bar, connections intermediate the above parts, a pivoted lever adapted to be actuated by said cross bar, a rod extending from said lever to tripping mechanism, shoes adapted to be released by said mechanism, rods suitably supported, and having springs, and fixed and movable collars thereon, and connections from said movable collars to said shoes, substantially as described.

5. In a device of the character described, the conductors 41 and 43, the rod 44 to which the latter is attached, said conductor 41 serving to support one end of said rod, another portion of the latter being supported in a suitable hanger, a shaft 28 mounted in suitable bearings, a flexible connection from the end of said rod to said shaft, and the spring 49 extending from said hanger to a suitable portion of said rod, substantially as described.

6. The lever 18, attached to the rod 20, the roller 17 on said lever, the cross bar 4 suitably guided and supported and adapted to contact with said roller, means for moving said cross bar when an object is struck, a rod 22 extending from said lever to suitable tripping mechanism, and shoes adapted to

be released by said tripping mechanism, substantially as described.

7. The shoes 31, means for supporting the same, the rods 32, fixed and movable collars 5 on said rods, springs therebetween, and chains extending from said movable collars to said shoes, whereby injurious strains are avoided, substantially as described.

8. In a device of the character described, 10 a cross bar having suitable guides, a buffer connected with said cross bars, a pivoted lever, having a roller engaged by said cross bar, springs bearing against said cross bar,

a sliding rod connected with said lever and having a coil spring thereon bearing against 15 a stationary guide, a rock shaft with arms thereon supporting rods to which shoes are attached, a pawl connected with said sliding rod engaging a catch on said rock shaft, said parts being combined substantially as de- 20 scribed.

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