

G. WESTINGHOUSE, Jr.  
Automatic-Brake Attachment.

No. 218,150.

Patented Aug. 5, 1879.

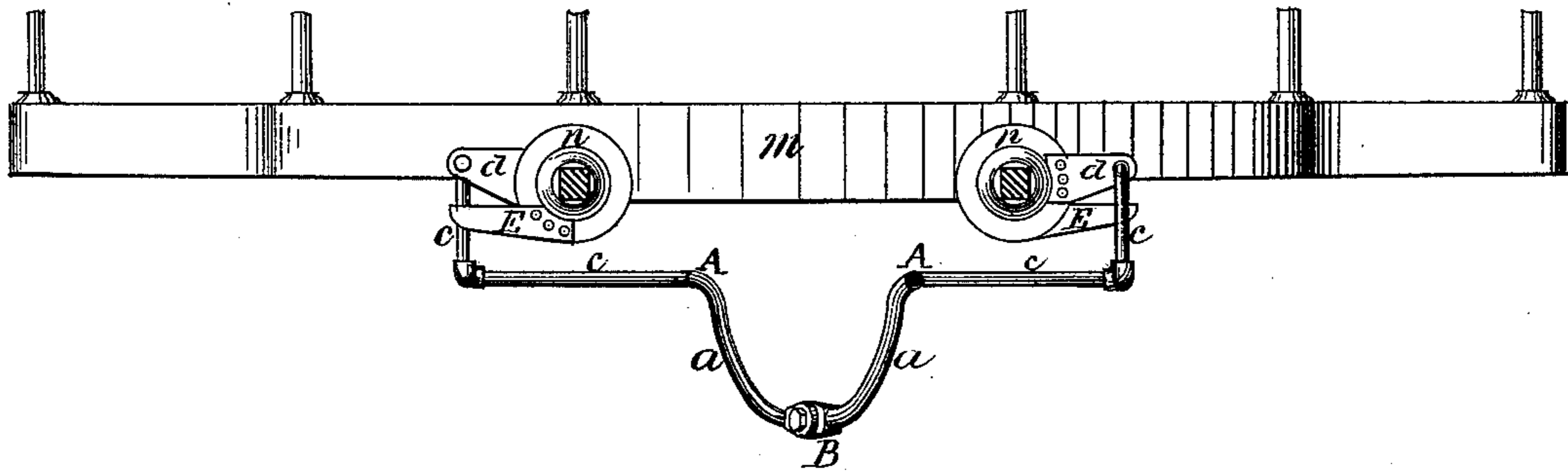


Fig. 1.

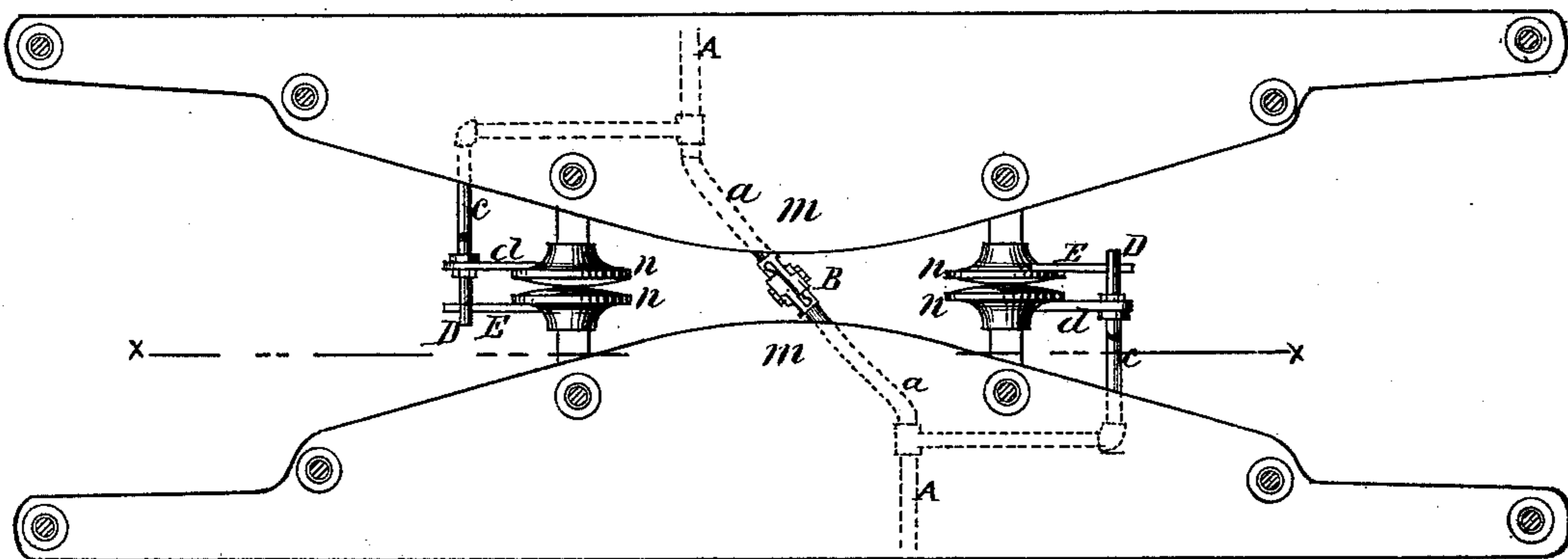


Fig. 2.

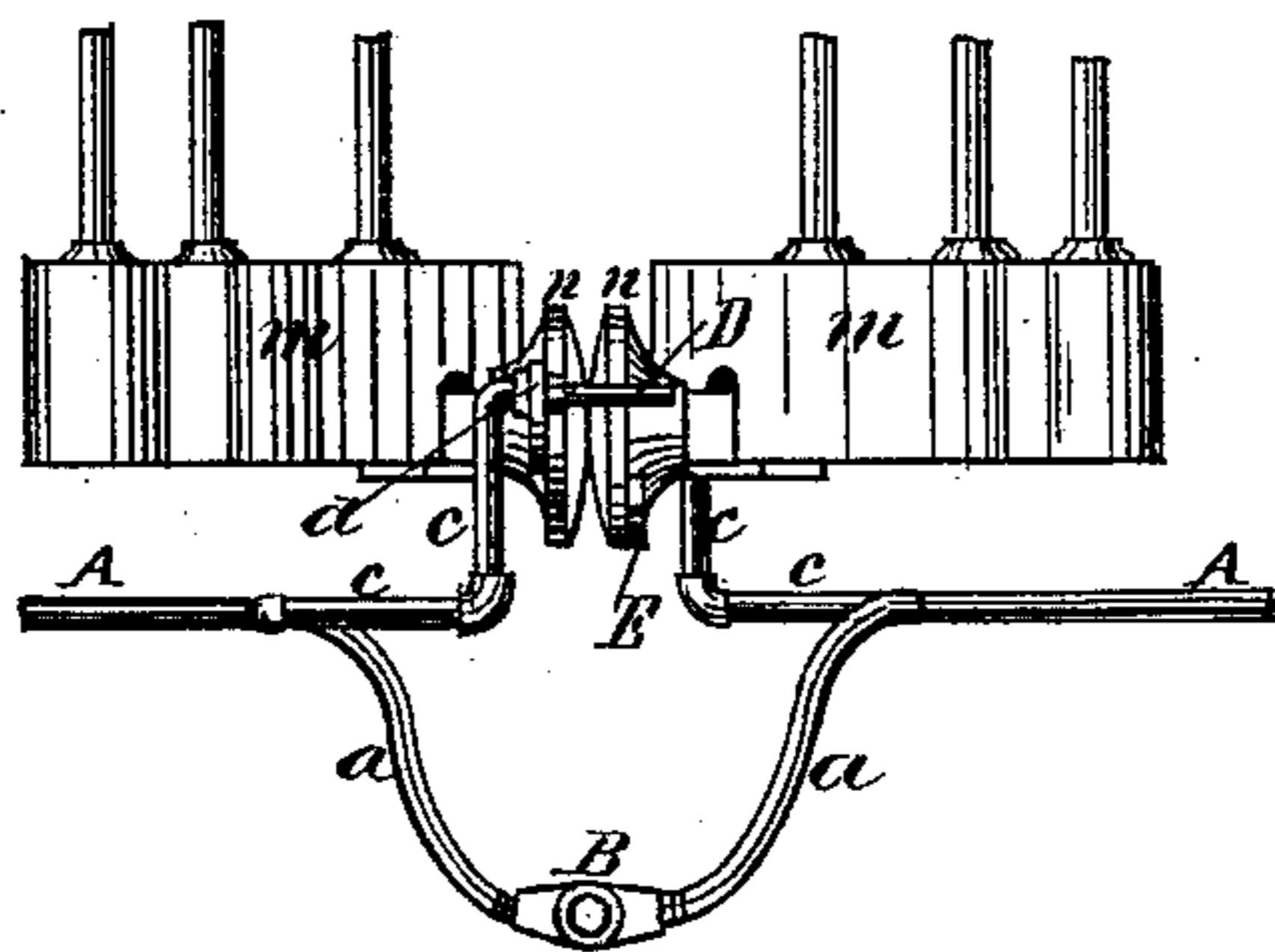


Fig. 3.

Witnesses  
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# UNITED STATES PATENT OFFICE.

GEORGE WESTINGHOUSE, JR., OF PITTSBURG, PENNSYLVANIA.

## IMPROVEMENT IN AUTOMATIC-BRAKE ATTACHMENTS.

Specification forming part of Letters Patent No. 218,150, dated August 5, 1879; application filed May 17, 1879.

*To all whom it may concern:*

Be it known that I, GEORGE WESTINGHOUSE, Jr., of Pittsburg, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Automatic-Brake Attachments; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 2 is a plan view of the end beams of a car-platform with my improvement applied thereto. Fig. 1 is an end view in the plane of the line  $x x$ , and Fig. 3 is a side elevation of the same.

My present invention relates to certain improvements in power-brake apparatus of the class or kind commonly known as the "automatic." Such improvements may be employed with either the vacuum or compressed-air system; but the latter use will be more particularly explained. As such automatic apparatus is now in somewhat general use in this country, reliance is chiefly placed on the separation of the couplings as a means for securing the automatic action of the brakes in case a car leaves the track.

By my present invention I make provision for the rupture of a brake-pipe connection by and immediately consequent on the derailment of a car, or other like accident, whereby the brakes will be applied as soon as the accident occurs, rather than after the accident may have resulted in disaster.

The end cross-beams of a car-platform frame are represented at  $m m$ , and at  $n n$  I have shown disk-buffers, which may be of any known construction, arranged outside the coupling, and secured to the car-frame in any suitable way, with the usual addition of springs properly arranged to hold them in contact when the cars are coupled, and, if so desired, with swiveling joints in the heads or stems, or other additional appliances for securing their more perfect action.

A represents the ends of the brake-pipe on each of the cars, which are provided with the flexible-hose extensions  $a a$ , which latter carry the couplings B. From the pipe A, I lead a branch,  $c$ , (preferably with a flexible section,) to a closed socket, D, which latter is secured to a bracket,  $d$ , and the latter to one of the buffers  $n$ —say, to that on the right hand. The socket D is made of cast-iron, or of some brittle or frangible material, and it projects a short distance beyond the face of the buffer, to which it is secured. On the other buffer—say, the left-hand one—I fix a bracket, E, but in such position that, projecting laterally, it shall be some little distance above or below, as may be preferred, the ordinary level of the socket D, and the distance above or below should be fully equal to, or slightly in excess of, the common range of vertical motion of the cars relatively to each other in ordinary running. Under ordinary circumstances, while the flexible sections in  $c$  permit the longitudinal motions of the buffers in turning curves, &c., there is sufficient space or range of motion between the socket D of the one buffer and the contiguous buffer of the next car and its bracket E to permit the lateral and vertical oscillations of the buffers relatively to one another; but in case a car leaves the track entirely or runs off on a switch or siding the buffers of that car must necessarily become so far displaced in some lateral direction that one or more of them or of the brackets E, which they carry, will strike and break the socket D of the facing buffer. The branch  $c$  being thus opened compressed air escapes from the brake-pipe, reducing the pressure therein, and so causing the brakes to be applied; or if the brakes be worked by vacuum, the rupture of the socket D allows air to enter the brake-pipe, increasing the pressure therein, and so causing the brakes to be put on.

It will be seen that by attaching the sockets D always to the buffers of the same hand at each end of each car—that is, diagonally opposite each other—and the brackets E to the other buffers, whichever way a car may be turned, there is always a socket, D, adjacent to a bracket, E, at each side of the coupling or longitudinal center line of two adjacent cars when coupled.

Instead of rupturing a socket on the end of the branch pipe, as described, the same result may be secured by equivalent means, and more particularly by arranging a cock or valve

in or on one brake-pipe or branch thereof, so that its handle or stem shall be engaged and shifted, in case of accident, as above mentioned, by coming in forcible contact with the opposite adjacent buffer or its bracket, and so pass automatically and instantly from a closed to an open position, and so cause the application of the brakes in the manner already described. And while I consider the buffers best as a device to which to make the attachments, other mechanically-equivalent connections on or attachments to the platform-frame may be employed, whereby a frangible socket or a cock or valve handle or stem on one shall, in case of such accident as is referred to, be engaged and broken or shifted, as the case may be, so as to perform the function described; and the term buffer or buffers is used in the following claims as inclusive of such mechanical equivalents, even though they may perform no buffing function, equivalency relating to the function of carrying and breaking a frangible socket, or carrying a valve or cock and shifting the handle or stem thereof, as described.

It will also be within my invention to connect a frangible socket with the fluid-pressure brake-pipe at any desired point on the car—say over or near the trucks—and arrange it in suitable proximity to some part of the truck, or a bracket thereon, or in suitable proximity to some part of the same or adjacent car having a motion independent of that of the socket, whereby during ordinary running the socket and such part or bracket will not come in contact; but in case of accident, which gives either to the bracket or to the part with reference to which it is arranged more than the proper motion, the two will come in violent contact and break the socket; and a valve or cock handle may, in this connection, be considered as the mechanical equivalent of the frangible socket, such handle, however, being arranged so that in case of accident, as described, the valve or cock will be opened.

I am aware that it is not new in a non-automatic fluid-pressure brake to arrange a cock in the brake-pipe in such manner that it will be automatically closed in case the cars are forcibly separated; but I believe it to be new to arrange such a device in an automatic-brake structure in such manner that it will be automatically opened under the conditions named. Such reversal of structure and operation gives a reversed and radically different result.

I claim herein as my invention—

1. A frangible socket or equivalent valve or

cock case and handle connected with the brake-pipe of a fluid-pressure brake apparatus, and arranged in suitable position with reference to some part of the car or its attachments or connections, which part, in case of accident, is liable to have a motion independent of that of the frangible socket or cock handle, substantially as set forth, whereby while the cars are in good running order and position the frangible socket or the handle will not be disturbed, but in case of accident the socket will be broken or the handle shifted to an open position by the irregular motion of that part with reference to which the described arrangement is made.

2. A pair of buffers on one side of the main coupling or of the center line of the car, and one on each end of two adjacent cars, in combination with a frangible socket or equivalent valve or cock attached to one and a projecting bracket attached to the other, in manner substantially as described, whereby in case of a car leaving the track or other like accident the socket will be broken or the cock or valve opened, for the purposes set forth.

3. The buffers *n n*, arranged on opposite sides of the center line of the car, in combination with a frangible socket or valve or cock with projecting stem attached to one and a projecting bracket, *E*, attached to the other, substantially as set forth, as a means of effecting the described operation when such car is coupled to another suitably equipped, as represented.

4. In an automatic power car-brake apparatus, a buffer and bracket carrying a frangible socket, or its described equivalent, and in combination therewith, substantially as and for the purposes described.

5. In an automatic power car-brake apparatus, the combination of buffer *n*, bracket *d*, flexible section *c*, and frangible socket *D*, or its described equivalent, substantially as and for the purposes described.

6. In an automatic power car-brake apparatus, the combination of buffer *n*, bracket *d*, and frangible socket *D*, or its described equivalent, substantially as and for the purposes set forth.

In testimony whereof I have hereunto set my hand.

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Witnesses:

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