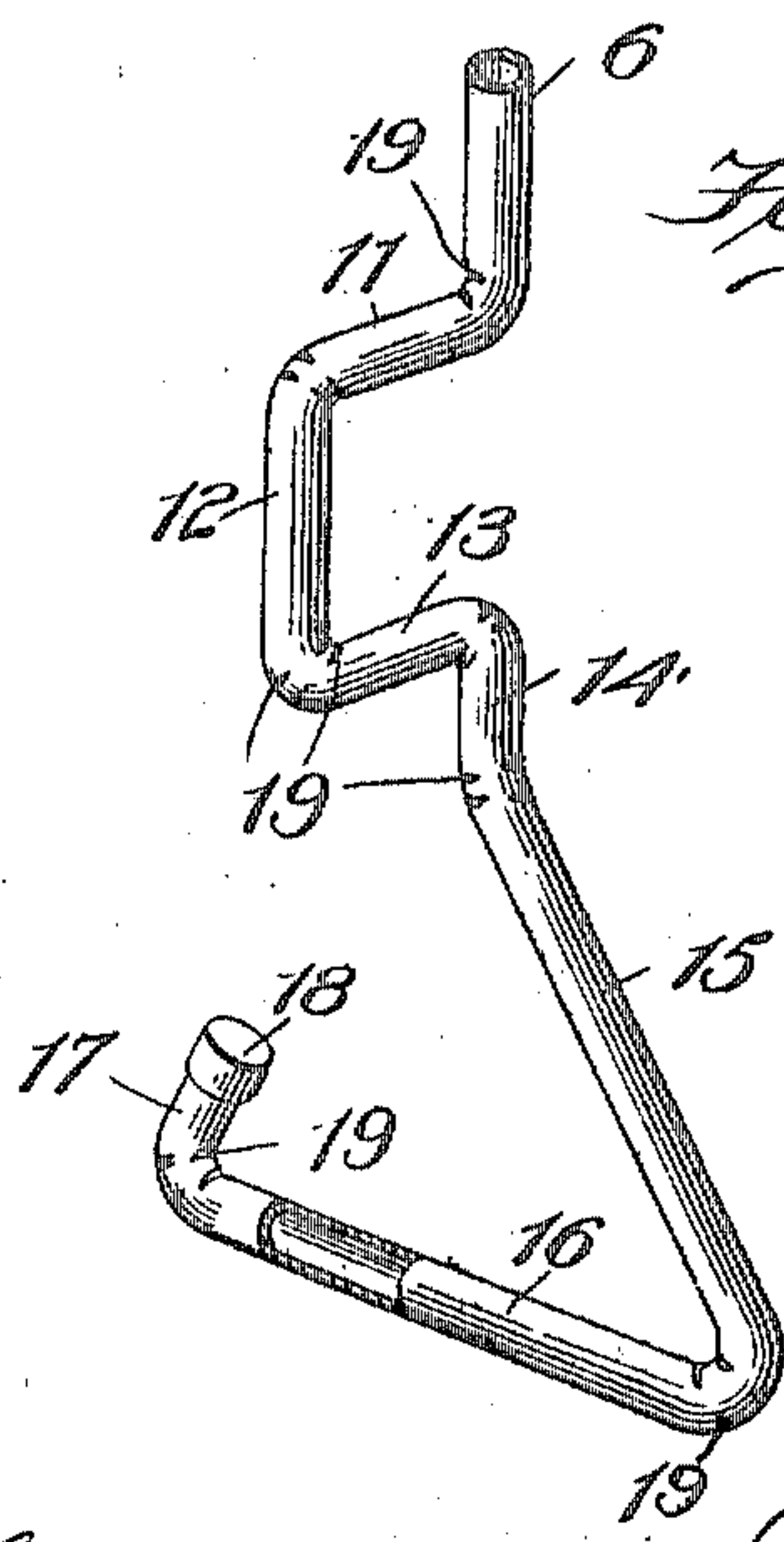
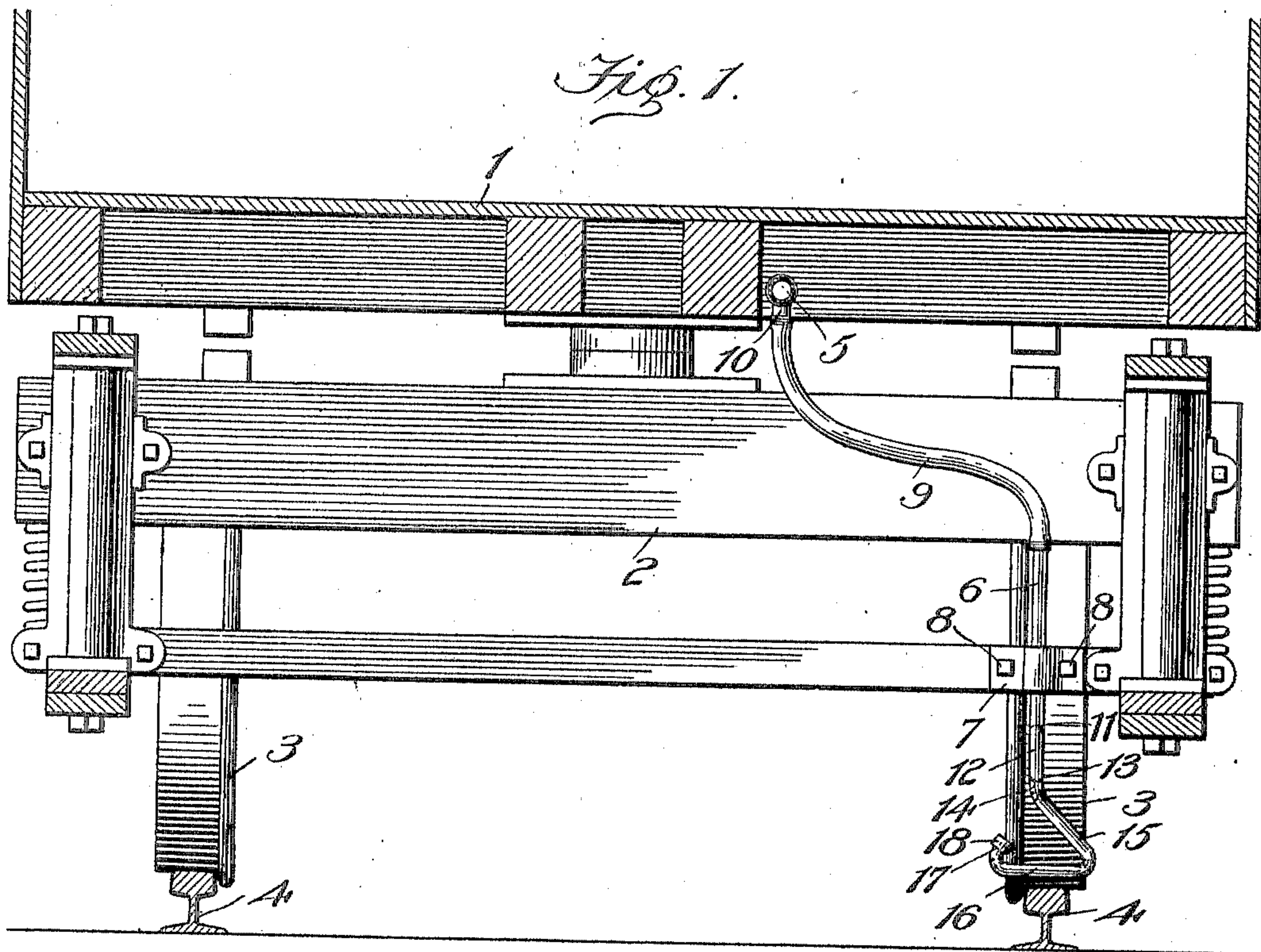


No. 811,687.

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J. P. BIRMINGHAM.
AUTOMATIC EMERGENCY AIR BRAKE OPERATING DEVICE FOR RAILWAYS.
APPLICATION FILED JULY 31, 1905.



Witnesses

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AUTOMATIC EMERGENCY AIR-BRAKE-OPERATING DEVICE FOR RAILWAYS.

No. 811,687.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed July 31, 1905. Serial No. 272,025.

To all whom it may concern:

Be it known that I, JOHN P. BIRMINGHAM, a citizen of the United States, residing at Lexington, in the county of Rockbridge and State of Virginia, have invented new and useful Improvements in Automatic Emergency Air-Brake-Operating Devices for Railways, of which the following is a specification.

My present invention has relation to new and useful improvements in automatic fluid-pressure railway-brakes of the type which are operated to stop the car when a reduction of pressure takes place in the train-pipe, and more particularly those brakes which are automatically operated to stop the train when a car is derailed.

The primary object of the invention is to provide an extremely simple and at the same time highly-efficient device which may be applied to any of the brake systems now in general use and which will automatically operate to release the train-pipe pressure should a car or cars be derailed.

A further object of the invention is to provide an improved frangible appliance adapted to be carried by the car-truck and connected to and communicating with the train-pipe and arranged to strike the rail or road-bed should the car leave the track, whereby said appliance will be broken to permit the pressure to escape from the train-pipe, and thereby set the brakes.

A further object is to provide a frangible device which will be of sufficient strength and durability as not to break under ordinary circumstances, but which will break with certainty when the car is derailed whether the derailment takes place at one side or the other of the track and without regard to the direction in which the car is moving.

The invention consists in the improved device, to be fully described hereinafter, and the novelty of which will be particularly pointed out and distinctly claimed.

I have fully and clearly illustrated my invention in the accompanying drawings, to be taken as a part of this specification, and wherein—

Figure 1 is a cross-sectional view of a car-truck having my improved appliance associated therewith, the latter being connected

to the brake-pipe, which is shown in cross-section. Fig. 2 is a perspective view of the improved appliance.

Referring to the drawings, the reference-numeral 1 designates a car-body of any well-known construction, and 2 the supporting-truck therefor, the wheels 3 of the truck running upon the usual track-rails 4. Extending longitudinally of the car-body is the train-pipe 5, in which air under pressure is maintained during the ordinary running conditions, said train-pipe being connected to a brake apparatus of any approved construction, the elements of which are set in operation by a reduction of pressure in the train-pipe.

Securely and rigidly mounted on the car-truck at a point preferably directly over one of the track-rails is a vertical pipe 6, said pipe being secured in position on the truck by means of a clamping-plate 7, the latter being fastened to the truck by suitable bolts 8. The upper end of the pipe 6 extends for a distance above the clamping-plate 7 and is connected, by means of a flexible hose-pipe 9, with a laterally-projecting nipple 10 on the train-pipe 5, said hose-pipe being of such length as to permit the movement of the car-body relative to the truck in the usual manner without disturbing the connection between the pipe 6 and the train-pipe.

The pipe 6 above referred to is preferably constructed of cast-iron which is brittle in its nature and subject to breakage when subjected to a blow or unusual strain, and this pipe is formed at its lower end in a particular manner to constitute a frangible device which will break when subjected to excessive blows or strains, such as coming into contact with the rails or road-bed while the train is running, but which is sufficiently strong to remain intact against accidental breakage during ordinary running conditions of the train. This frangible device will now be described. At a point just beneath the truck-framing the pipe 6 is carried in a direction coincident with the direction of the rails at an angle to the vertical portion of said pipe, as at 11, and is then directed vertically downward, as at 12, at right angles to the section 11 and parallel to the upper vertical portion,

The vertical portion 12 extends downward a short distance and the pipe is then carried at right angles thereto and parallel to section 11 to a point substantially beneath the vertical portion 6, where it is again bent vertically downward, as at 14, and then inclined laterally downward, as at 15, to a position short of the track-rail, where it is carried horizontally, as at 16, for a distance across the rail in the form of a shoe, the end of the pipe being turned upwardly, as at 17, and closed airtight by a thimble 18. The angles included in said pipe are free angles—that is, they are not inclosed, and by reason of that fact afford definite points for rupture of the pipe in the event of accident to the vehicle to which it is connected. Under ordinary running conditions the horizontal portion 14 of the breakable pipe moves at a short distance above the track-rail, and it will be seen that should the car leave the track the horizontal portion of said pipe will come into contact with the rail, and the weight of the car and trucks being thrown onto said pipe will cause it to break at at least one of the angles thereof, owing to the brittleness of the cast-iron of which said pipe is made. The breaking of the pipe at any point opens the train-pipe to the atmosphere and causes a reduction of pressure in said train-pipe whereby the brakes are set. In order to insure the breakage of the frangible pipe, the same may be weakened at the several angles thereof by cutting notches 19 therein; but while these notches are preferable they are not absolutely necessary, as the nature of the material of which the pipe is made will render it readily breakable when subjected to great strain.

It is not necessary that the frangible pipe be constructed precisely as shown in the drawings, the gist of the invention consisting in providing a pipe of breakable material formed of sections arranged at an angle to each other; but it is preferable to construct the pipe as shown in order that it will be certain to break at some point no matter to which side of the track the car is derailed or without regard to the direction in which the car travels.

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

1. In an automatic fluid-pressure brake system, the combination with the train-pipe, of a frangible pipe connected thereto and having a laterally-deflected portion terminating close to and at one side of the railway-rail, and a shoe portion extending across and close to the rail and terminating in a free end at the other side of the rail.

2. In an automatic fluid-pressure brake system, the combination of the train-pipe, a frangible pipe adapted to be broken by contact with the road-bed or track upon the derailment of the train, said pipe having portions thereof angularly disposed and presenting free angles, and a flexible pipe connecting said train and frangible pipes.

3. In an automatic fluid-pressure brake system, the combination with the train-pipe and a frangible pipe connected thereto and adapted to be broken by contact with the road-bed or track upon the derailment of the train, said pipe having portions thereof disposed at an angle to each other, one of said portions extending transversely of the track-rail and another extending longitudinally thereof, said pipe being weakened at the angles.

4. In an automatic fluid-pressure brake system, the combination of the train-pipe, and a frangible pipe connected thereto and adapted to be broken by contact with the road-bed or track upon the derailment of the train, said pipe having portions thereof disposed at angles to each other, said portions being arranged in different planes, the angles between the different angular portions of the pipe being free angles, for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN P. BIRMINGHAM.

Witnesses:

H. C. WISE,

B. ESTES VAUGHAN.