

E. H. HAMILTON.
 AUTOMATIC SAFETY ATTACHMENT FOR AIR BRAKES.
 APPLICATION FILED SEPT. 19, 1910.

989,144.

Patented Apr. 11, 1911.

2 SHEETS—SHEET 1.

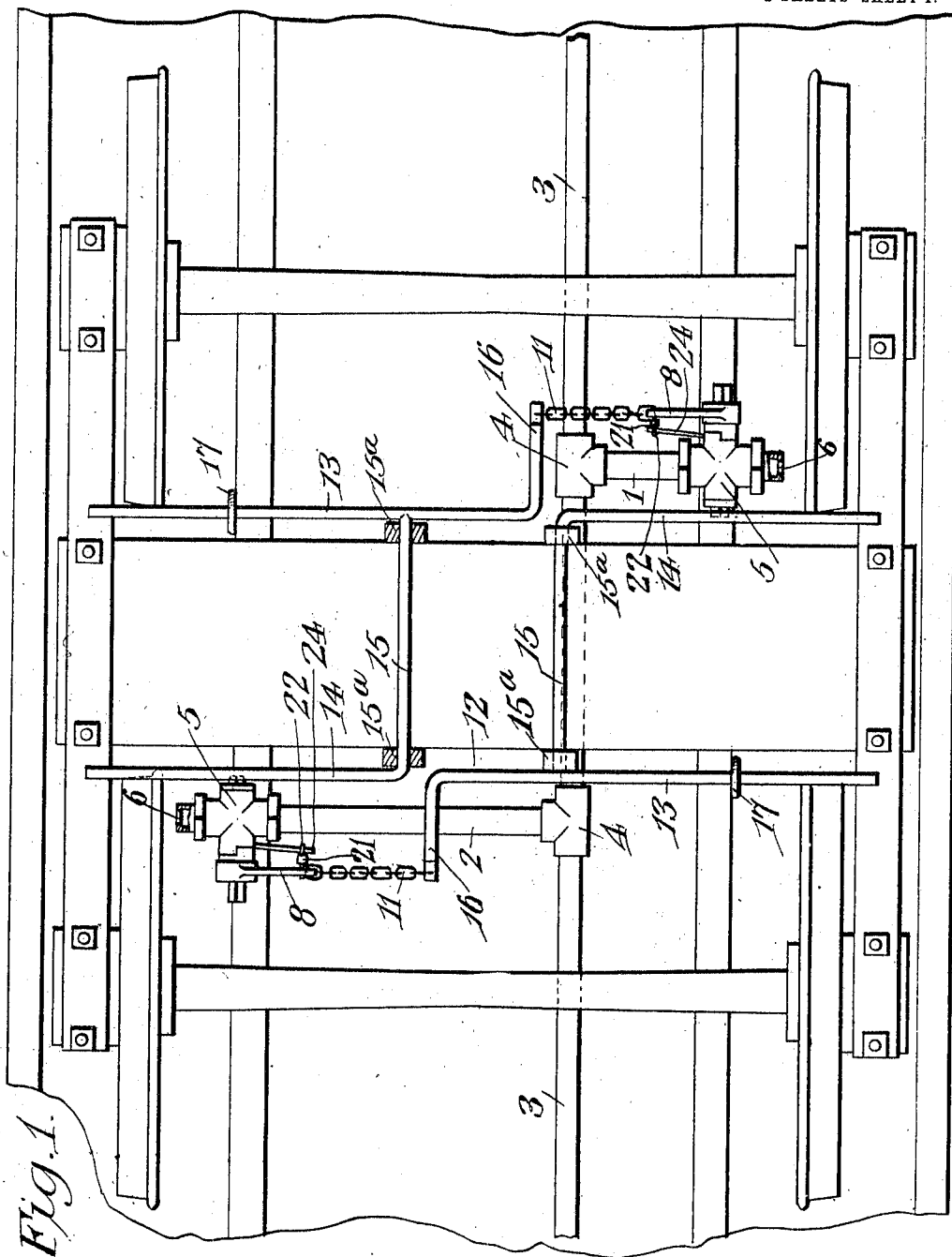


Fig. 1.

WITNESSES

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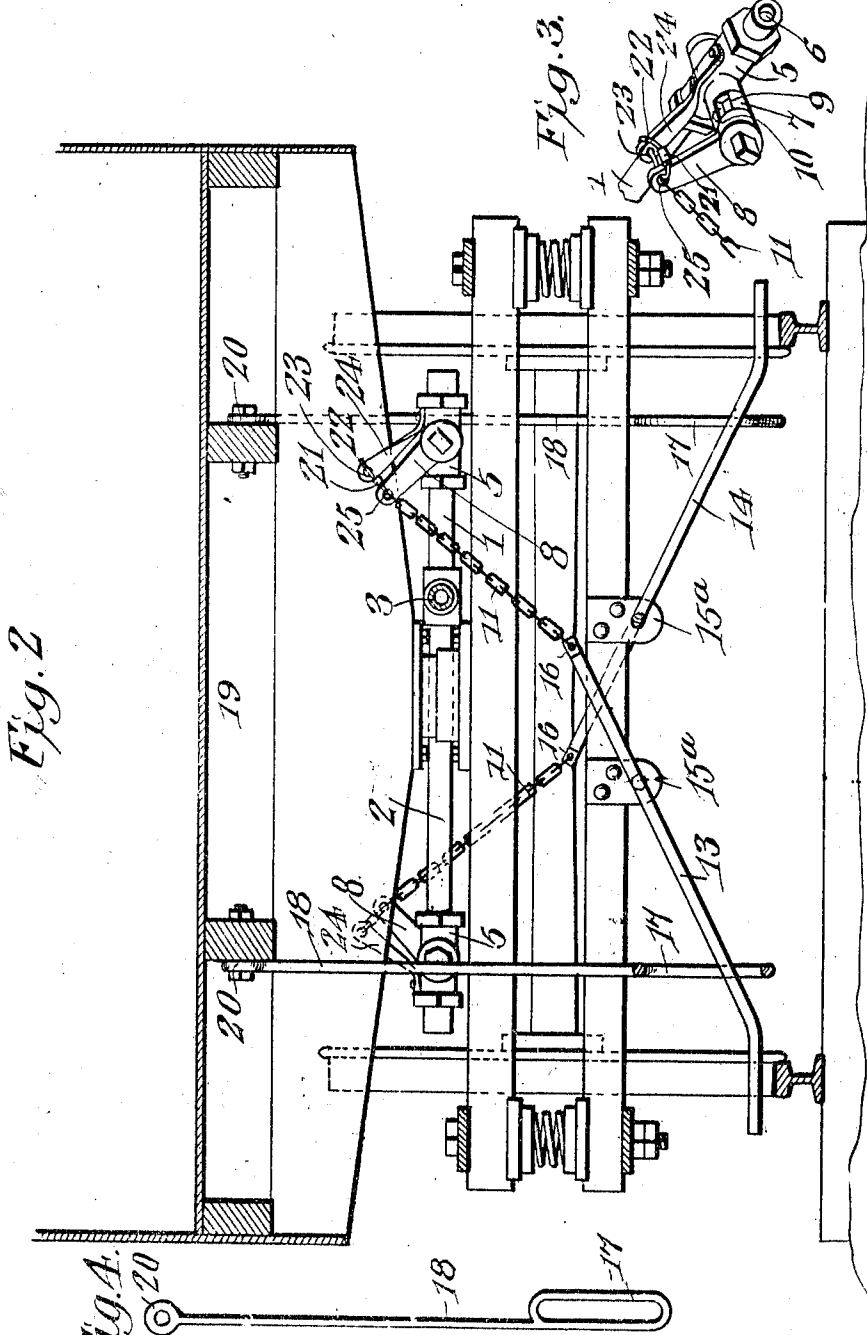
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WITNESSES

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AUTOMATIC SAFETY ATTACHMENT FOR AIR-BRAKES.

989,144.

Specification of Letters Patent.

Patented Apr. 11, 1911.

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To all whom it may concern:

Be it known that I, ERNEST H. HAMILTON, a citizen of the United States, residing at Kilgore, in the county of Gregg and State of Texas, have invented a new and useful Automatic Safety Attachment for Air-Brakes, of which the following is a specification.

The invention relates to improvements in automatic safety attachments for air brakes.

The object of the present invention is to provide a simple and efficient safety device, adapted to be quickly applied at small expense to the trucks of locomotives and all kinds of cars without necessitating any alteration in the construction thereof, and capable of preventing bad wrecks in case of a derailment of one or more of the wheels of a train by automatically applying the air brakes to the entire train.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a reverse plan view of an automatic safety attachment, constructed in accordance with this invention, and shown applied to one of the trucks of a car. Fig. 2 is a transverse sectional view of the same. Fig. 3 is a detail perspective view of the outer portion of one of the pipe sections, illustrating the construction of the valve and the means for sealing the same in its closed position. Fig. 4 is a detail view of one of the hangers.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

In the embodiment of the invention illustrated in the accompanying drawings, the safety attachment comprises in its construction a pair of transversely disposed pipe sections 1 and 2, extending laterally in opposite directions from the train pipe 3 of an air brake of the ordinary construction, and connected therewith by suitable couplings 4 and equipped with valves 5, adapted to be opened in event of the derailment of

one or more of the wheels of the truck to bleed the train pipe and thereby reduce the pressure therein sufficiently to effect an emergency application of the air brakes of the entire train. The pipe sections are located at opposite sides of the central transverse supporting portion of the truck, as clearly illustrated in Fig. 1 of the drawings, and they are of unequal length, as the train pipe 3 is located at one side of the center of the car. The valves, which may be of any preferred construction, are located at the outer portions of the pipe sections 1 and 2 at opposite sides of the truck and have discharge openings or outlets 6.

In the accompanying drawings, the valves 5 have rotary valve plugs or members 7, equipped with oscillatory operating arms 8 and provided with shoulders 9, arranged to co-act with shoulders 10 of the valve casings to limit the rotary opening movement of the valve plug or member 7 to prevent the valve from being partially closed through the excessive rotary movement. The oscillatory operating arms, which preferably extend upwardly at an inclination when the valves are closed, are connected by short chains 11, or other suitable flexible connections with transversely disposed valve operating or actuating levers 12, arranged at an inclination and consisting of spaced parallel upwardly extending arms 13 and 14, a transverse connecting pivot portion 15 and an inwardly extending approximately L-shaped arm 16, having its terminal portion connected to the lower end of the chain 11. The transverse operating levers are reversely arranged, their inner arms 16 being located at opposite sides of the central supporting portion of the truck, and their outer arms being spaced apart and lying at opposite sides of such supporting portion and having horizontal outer engaging portions. The transverse pivots 15 of the operating levers are mounted in suitable bearing plates or brackets 15^a, secured to and depending from the spring plank of the truck. The outwardly extending arms 13 and 14 of the operating levers are located between the wheels of the truck, but they may be arranged either in front or behind the wheels, and their outer horizontal engaging portions, which trail slightly above the rails, project outwardly a sufficient distance beyond the same to insure a positive contact therewith in event of a derailment. Should one or more of the

wheels leave the rails, the dropping of the truck will cause a relative upward movement of the outer arms of the operating levers and a corresponding downward movement of the inner arms, and a similar movement of the oscillatory arms of the valves, which will be opened to permit an escape of the air of the train pipe. The discharge openings 6 of the valves are of a size to cause the necessary reduction in the train pipe pressure when one or more of the valves are open. The brakes will also be applied should the body of the car leave the trucks in toppling over an embankment, or similar accident, and the outer arm 13 of each of the operating levers is arranged in a vertical loop 17 of a hanger 18, depending from the car body 19. The loop 17, which is vertical, is arranged at the lower end of the hanger, and the latter is provided at its upper end with an eye 20 for the reception of a bolt, or other suitable fastening device for securing it to the sills or other portion of the frame-work of the body of the car. The loops extend a sufficient distance below the levers to allow for the vertical movement and lateral vibration of the body of the car. When there is an excessive upward or outward movement of the body of the car, the hangers will carry the outer ends of the operating levers upward and will swing the oscillatory operating arms of the valves downward and apply the brakes.

In order to prevent an accidental opening movement of the valve and to indicate a surreptitious opening thereof, the oscillatory arms are normally held against movement by means of car seals 21, having their wires 22 passed through openings 23 of rigid arms 24 and through eyes 25 of the oscillatory arms 8. The wire is frangible and adapted to be easily broken in event of a derailment or other accident. The arms 24, which are arranged at an inclination, are suitably fixed at their lower ends to the valve casings and extend upwardly therefrom, and the perforations 23 are located at their upper ends, which are arranged contiguous to the outer terminals of the oscillatory arms of the valves when the latter are closed. The eyes 25 are located at the outer ends of the oscillatory arms and are in register with the eyes or openings of the fixed arms in the closed position of the valves. Any tampering with the valves sufficient to open the same will be indicated by the broken condition of the seal.

The application of the brakes of the entire train when one or more of the wheels thereof jump the track will in a great measure prevent the wrecks resulting from derailing, and in any event will greatly reduce the damage resulting from a wreck of this character.

Having thus fully described my invention,

what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the class described, the combination with a truck, and a train pipe, of a pipe section connected with the train pipe and extending laterally therefrom to one side of the truck and provided with a valve having an operating member, a depending hanger located at the opposite side of the truck, and a transversely disposed operating lever fulcrumed at an intermediate point and having inner and outer arms, the inner arm being connected with the operating member of the valve and the outer arm being loosely arranged in the said hanger and extending to a point above the adjacent rail and adapted to contact with the same in event of a derailment.

2. In a device of the class described, the combination with a train pipe, of a pipe section connected therewith and extending laterally therefrom and provided with a valve having an operating member, a transversely disposed operating lever composed of spaced outer arms located above the rail and arranged to engage the same in event of a derailment, a connecting pivot portion, and an inwardly extending arm connected with the operating member of the valve.

3. In a device of the class described, the combination with a train pipe, of a pipe section connected therewith and extending laterally therefrom and provided with a valve having an operating member, a transversely disposed operating lever composed of spaced outer arms located above the rail and arranged to engage the same in event of a derailment, a connecting pivot portion, an inwardly extending approximately L-shaped arm arranged contiguous to one of the outwardly extending arms, and means for connecting the inwardly extending arm with the valve operating member.

4. In a device of the class described, the combination with a train pipe, of transverse pipe sections connected with the train pipe and extending laterally therefrom in opposite directions and provided at their outer portions with valves having operating members, opposite transversely disposed operating levers fulcrumed at an intermediate point and having outer operating portions and inner arms, and means for connecting the inner arms with the operating members of the valve.

5. In a device of the class described, the combination with a train pipe, of transverse pipe sections connected with the train pipe and extending laterally therefrom in opposite directions and provided at their outer portions with valves having operating members, opposite reversely arranged transversely disposed operating levers composed of spaced outer arms arranged at opposite sides of the central supporting portions of a

truck, transverse pivot portions connecting the outer arms and mounted on the truck, inwardly extending reversely arranged arms also located at opposite sides of the central supporting portions of the truck, and means for connecting the inner arms with the operating members of the valve.

6. In a device of the class described, the combination with a train pipe, of a valve connected therewith and having an operating member, a transversely disposed operating lever fulcrumed at an intermediate point and having an inner arm connected with the valve operating member, an outer arm located above the rail and arranged to engage the same in event of a derailment, and means for connecting the lever with the body of the car to operate the valve should the body leave the truck, said means permitting a limited independent operation of the levers.

7. In a device of the class described, the combination with a train pipe, of a valve connected therewith and having an operating member, a transversely disposed operating lever fulcrumed at an intermediate point and having an inner arm connected with the valve operating member, an outer arm located above the rail and arranged to engage the same in event of a derailment, and a depending hanger provided with means for securing it to a car body and having a loop receiving the outer arm of the lever.

8. In a device of the class described, the combination with a train pipe, of a valve connected therewith and having a movable operating arm provided at its outer end with an eye, a fixed arm mounted on the

valve and extending therefrom and provided at its outer end with an eye located adjacent to the eye of the operating arm when the valve is closed, operating mechanism connected with the operating arm of the valve and arranged above the rail and adapted to come in contact with the same in event of a derailment, and a seal having a frangible portion passed through the said eyes of the fixed and movable arms and normally holding the valve in its closed position.

9. In a device of the class described, the combination with a train pipe, of a pipe section extending laterally therefrom, a valve connected with the pipe section and provided with an inclined upwardly extending operating arm having an eye, a fixed arm mounted on the valve and arranged at an inclination and having an eye registering with the eye of the operating arm when the valve is closed, a seal having a frangible portion passed through the said eyes and normally holding the valve in its said position, an inclined transversely disposed operating lever fulcrumed at an intermediate point on the truck and having its other arm located above the rail and adapted to engage with the same, and means for connecting the inner arm of the lever with the operating arm of the valve.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ERNEST HUBBARD HAMILTON.

Witnesses:

J. F. CULP,

LEE HAMILTON.