

No. 875,543.

J. LYNCH.
AUTOMATIC BRAKE.
APPLICATION FILED JUNE 29, 1907.

PATENTED DEC. 31, 1907.

2 SHEETS—SHEET 1.

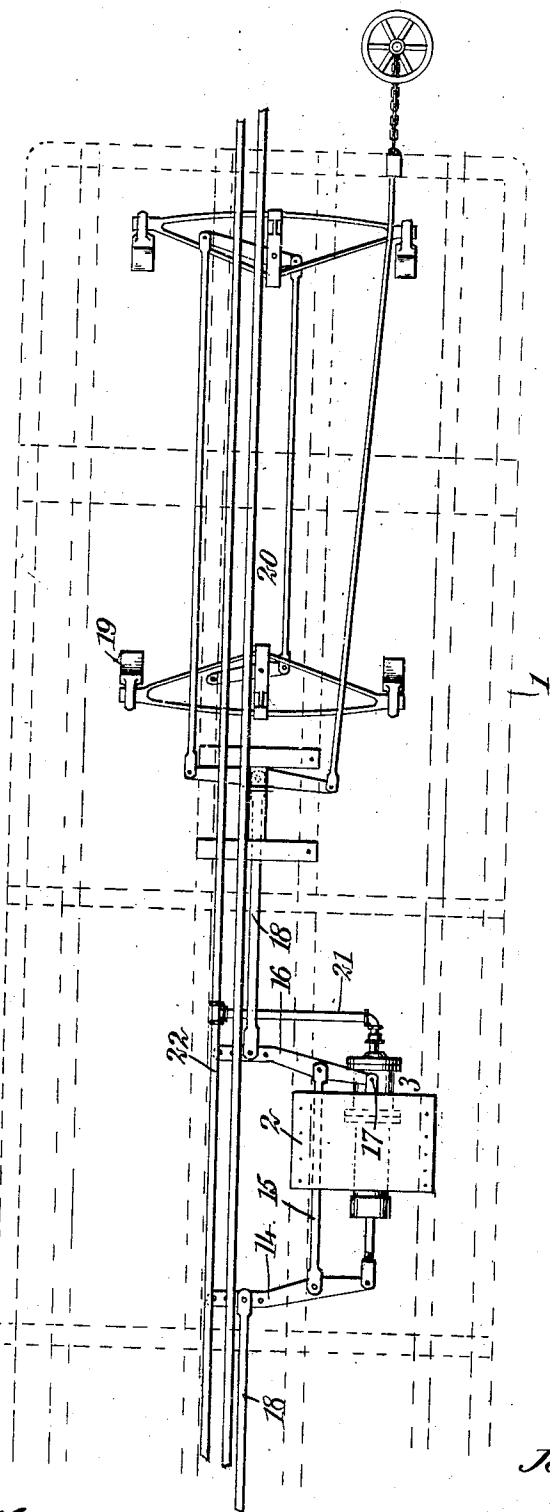


Fig. 1.

WITNESSES

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ATTORNEYS

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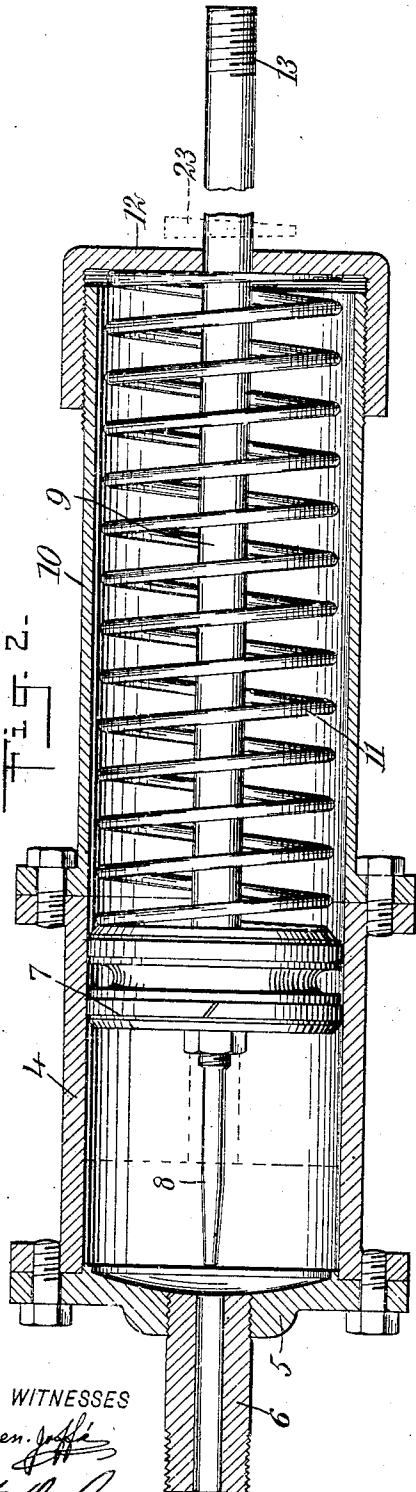


Fig. 2.

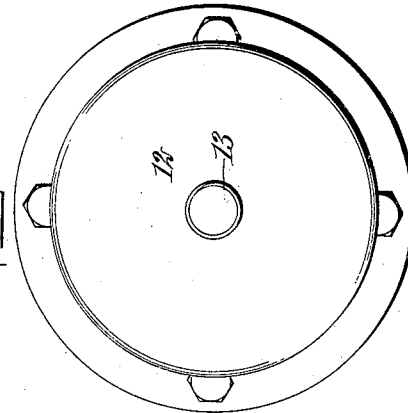
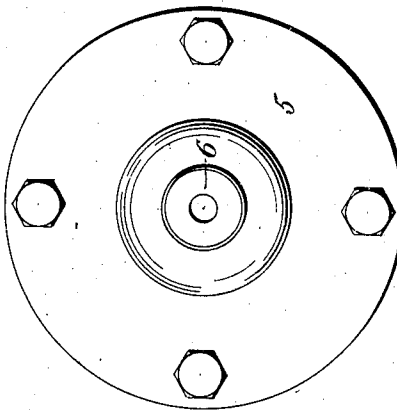


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

JAMES LYNCH, OF VAN BUREN, ARKANSAS.

AUTOMATIC BRAKE.

No. 875,543.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed June 29, 1907. Serial No. 381,477.

To all whom it may concern:

Be it known that I, JAMES LYNCH, a citizen of the United States, and a resident of Van Buren, in the county of Crawford and State of Arkansas, have invented a new and Improved Automatic Brake, of which the following is a full, clear, and exact description.

This invention relates to automatic brakes, and the object of the invention is to produce a brake of this class which is simple in construction and which can be controlled in its operation by pneumatic means.

More specifically, the purpose of the invention is to provide a brake which is held unapplied by the air pressure in the service pipe, but which is applied by spring pressure when the pressure in the service pipe is sufficiently reduced.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan of the brake mechanism at one end of a car, the body of the car being indicated by dotted lines, and the brake being operated by my invention; Fig. 2 is a longitudinal central section through the air cylinder and spring box, which constitutes a feature of the invention; Fig. 3 is an end view of the air cylinder, that is, it is a view of the left end of the mechanism shown in Fig. 2; and Fig. 4 is an elevation of the opposite end of the device shown in Fig. 2.

Referring more particularly to the parts, 1 indicates the car body in dotted lines. Near the middle portion of the car body at the usual point where the brake cylinder is applied, I attach a bracket plate 2, to which my air chamber and spring box 3 is attached. This air chamber and spring box is clearly shown in Fig. 2. It comprises an air cylinder 4 provided with a head 5 at one end, having an air nipple 6 through which the air supplied to the cylinder passes into the interior thereof, as shown. Within this air cylinder there is slidably mounted a piston head 7, and on the face of this head adjacent to the nipple 6, I provide a longitudinally projecting stem 8, the extremity whereof is slightly tapered as shown. The piston head 7 is

suitably packed so as to prevent leakage of air past the head, and it is attached to a piston rod 9 which extends longitudinally in a cylindrical spring box 10 which is bolted to the end of the cylinder 4 as indicated. This spring box or spring barrel has the same internal diameter as the air cylinder or chamber 4, and within which there is provided a helical spring 11, one end of which thrusts against the side of the head 7, while the other end thrusts against a fixed head 12 which screws upon the remote end of the spring barrel as shown. The piston rod 9 extends through the head 12, and is provided at its extremities with threads 13 which facilitate its attachment to one of the main brake levers 14. This brake lever is connected by a link 15 with a similar brake lever 16 which has a fixed fulcrum at the point 17 on the bracket plate 2. The ends of these levers 14 and 16 are connected with links 18 which operate to apply the brake shoes 19 of the usual equalizing mechanism 20, illustrated at the right in Fig. 1.

The nipple 6 is supplied with air through a branch pipe 21 leading from the train service pipe 22 as shown. It will be understood from an inspection of Fig. 2, that the spring 11 constantly tends to pull the piston rod 9 into the spring barrel, which will apply the brakes. The air pressure existing in the train service pipe exists also in the air cylinder, so that the head 7 is normally held in the end of the cylinder remote from the nipple 6. In this way the spring 11 is held in a compressed condition, and the brakes are maintained unapplied. When the pressure in the train service pipe is reduced, as is usual in applying the brakes when pneumatically operated, the spring 11 extends itself and applies the brakes.

In order to prevent too sudden an action of the spring in case the air hose should burst and the pressure in the service pipe be suddenly reduced to zero, I provide the stem 8, which has been referred to above. It will be observed that as the piston 7 moves toward the left, the end of the stem enters the bore of the nipple 6, and in this way the outward flow of the air through the nipple forced out by the advancing piston, becomes choked. In this way I cushion the piston, when the spring suddenly applies the brakes, and thus I prevent any possibility of throwing out the head 5 or of injuring the brake mechanism

by too sudden an application of the spring force.

It should be understood that if from any accident a car carrying the brake mechanism described should become detached from the train, the spring will immediately apply the brakes and bring the car to a stop. The brakes throughout a train would also be applied in case of a substantial failure of the air service for the brakes.

When the cars are being shifted around the railroad yard and at other times, if necessary, the brakes of any car can be held unapplied by means of a transverse pin 23 indicated in dotted lines in Fig. 2, which is removably received in a suitable opening through the piston rod 9. When this pin is in position it acts as a stop resting against the end of the barrel to hold the spring back.

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

1. In a brake mechanism, in combination, an air cylinder, a piston working therein, a spring tending to move said piston within said cylinder to apply the brakes, means for admitting air to said cylinder to oppose the force of said spring, and means for cushioning the said piston when the brakes are suddenly applied.

2. In a brake mechanism, in combination, an air cylinder, a piston moving therein, a spring pressing said piston toward the end of said cylinder and affording means for apply-

ing the brakes, and means for choking the efflux of air from said cylinder when said spring advances said piston.

3. In a brake mechanism, in combination, an air cylinder, a piston working therein, and carrying a longitudinally disposed stem on the forward side thereof, said cylinder having a head with an opening through which the air may escape in alinement with said stem, and a spring forcing said piston toward said head and affording means for applying the brakes, said stem affording means for choking the flow of air through said opening as said piston advances.

4. In a brake mechanism, in combination, an air cylinder, a piston working therein and carrying a longitudinally disposed stem, said cylinder having a head with a vent opening therein through which air may escape, said vent opening being in alinement with said stem whereby it will be choked by said stem when said piston is adjacent thereto, a spring forcing said piston toward said head and affording means for applying the brakes, and means independent of the air pressure for holding said piston against movement by said spring.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses:

JAMES LYNCH.

Witnesses:

SAM R. CHEW,

OVERTON M. PARKS.