

**No. 656,516.**

**Patented Aug. 21, 1900.**

**F. L. CLARK.**  
**AIR BRAKE.**

(Application filed May 23, 1899.)

(No Model.)



**WITNESSES:**

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# UNITED STATES PATENT OFFICE.

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## AIR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 656,516, dated August 21, 1900.

Application filed May 23, 1899. Serial No. 717,974. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS L. CLARK, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Air-Brakes, of which improvement the following is a specification.

The object of my invention is to provide an air-brake apparatus which shall be readily and desirably applicable upon drop-bottom cars having two trucks and which are of such form as to prevent the use thereon of brake apparatus as heretofore constructed.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a side view in elevation, illustrating my invention as applied to a drop-bottom gondola car; Fig. 2, a partial plan view, and Fig. 3 an end view, of the same.

In the practice of my invention a brake-cylinder 1 is secured with its axis in a substantially-vertical plane to the inclined end of one of the hoppers 2 of the car, above the sills or framing 3 thereof. The attachment of the brake-cylinder to the car-body is most desirably effected through the intermediation of a bracket 4, and the auxiliary reservoir 5 may either be connected to the same bracket or be supported by straps 6, secured to the car-frame, as shown. The train-pipe 7 and triple valve 8 are connected with the auxiliary reservoir and brake-cylinder in the usual manner.

The brake-cylinder 1 is fitted with a piston of the ordinary construction, the rod 9 of which projects through the lower end of the cylinder and is coupled to the upper arm 11 of a bell-crank lever composed of a shaft 10, journaled horizontally in bearings 13 on the car-frame, an upper arm 11, and a lower arm 12. The lower arm 12 of the bell-crank lever is coupled by a link 14 to the floating fulcrum of a double-armed equalizing-lever 15, located above the truck of the car which is adjacent to the brake-cylinder. One of the arms of the equalizing-lever 15 is coupled to the live-lever 16 of said truck, and the other arm is coupled to an upper brake-lever-connecting rod 17. The opposite end of the lever 17 is coupled to one end of a double-armed equalizing-lever

18, journaled in a bracket 19 above the truck at the end of the car farther from the brake-cylinder, and the opposite end of the equalizing-lever 18 is coupled by a link 20 to the live-lever 16 of said truck. The lower ends of the live-levers 16 of the trucks are connected by brake-beam coupling-bars 21 with dead-levers 22, the upper ends of which bear against brake-lever stops 23 on the truck-frames, and the live and dead levers 16 22 are connected in the usual manner to brake-beams 24, hung upon the truck-frames and provided with brake-shoes 25 for application to the treads of the car-wheels. A sheave 26 is journaled in the link 14, and a chain 27, passing around said sheave, is connected at its opposite ends to a hand-brake shaft 28 and to a stop 29, fixed to the car-frame.

My invention provides an air-brake car equipment which is simple and compact in construction and which is conveniently applicable and effectively operative upon steel coal and ore cars of recent construction, several designs of which are of such form that none of the prior systems of brake apparatus can be applied thereto.

I claim as my invention and desire to secure by Letters Patent—

1. In an air-brake apparatus, the combination, substantially as set forth, of a brake-cylinder adapted to be fixed vertically to the inclined end of a car-body, above the sills thereof, a bell-crank lever journaled horizontally below said cylinder and having its upper arm coupled to the piston-rod thereof, a double-armed equalizing-lever located below said cylinder, a link coupling the lower arm of the bell-crank lever to the equalizing-lever, a brake-applying lever coupled directly to the equalizing-lever, and a brake beam and shoes connected to the brake-applying lever.

2. In an air-brake apparatus, the combination, substantially as set forth, of a brake-cylinder adapted to be fixed vertically to the inclined end of a car-body, above the sills thereof, a bell-crank lever journaled horizontally below said cylinder and having its upper arm coupled to the piston-rod thereof, a double-armed equalizing-lever located below said cylinder, a link coupling the lower arm of the bell-crank lever to the equalizing-lever, a

sheave journaled in said link, a hand-brake shaft journaled on the car-frame, a stop fixed to the car-frame, a chain passing around the sheave and connected to the hand-brake shaft  
5 and stop, a brake-applying lever coupled directly to the equalizing-lever, and a brake beam and shoes connected to the brake-applying lever.

10 3. In an air-brake apparatus, the combination, substantially as set forth, of a brake-cylinder adapted to be fixed vertically to the inclined end of a car-body, above the sills thereof, a bell-crank lever journaled horizontally below said cylinder and having its upper

arm coupled to the piston-rod thereof, equalizing-levers, each located above one of the car-trucks and coupled to a brake-applying lever of said truck, a link coupling the lower arm of the bell-crank lever to the equalizing-lever of the adjacent truck, a connecting-rod coupling said equalizing-lever to the equalizing-lever of the farther truck, and brake beams and shoes connected to the brake-applying levers. 15 20

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Witnesses:

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