J. B. WRIGHT & F. O. LAWSON.

AIR BRAKE MECHANISM.

APPLICATION FILED MAR. 8, 1917.

1,287,557. Patented Dec. 10, 1918.

Fig. 1.

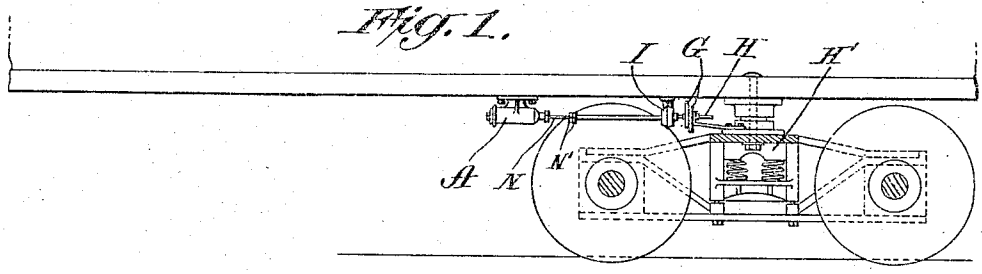


Fig. 2.

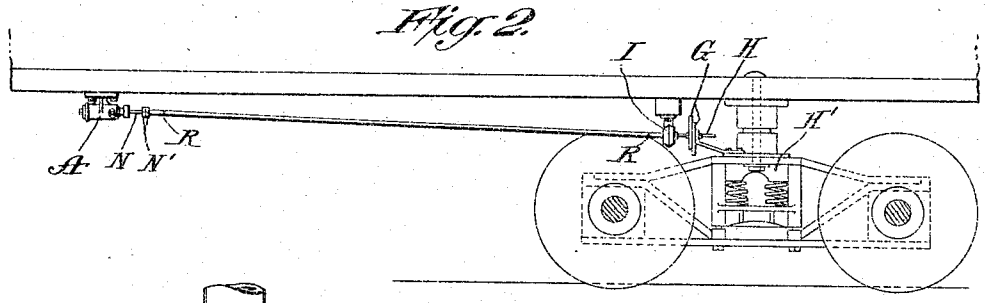


Fig. 4.

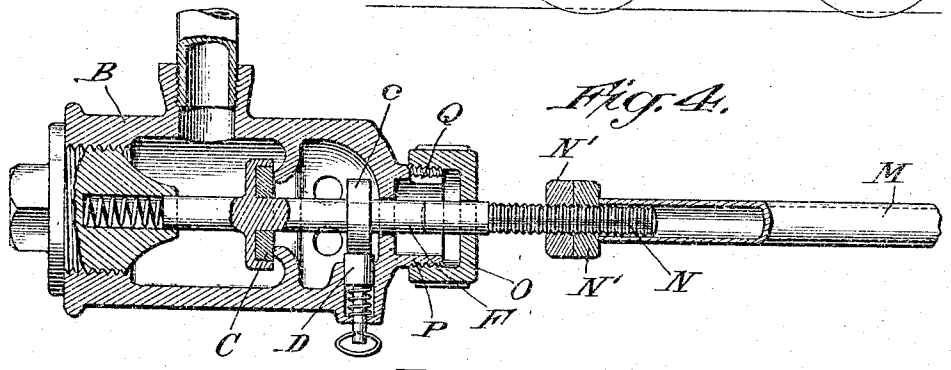
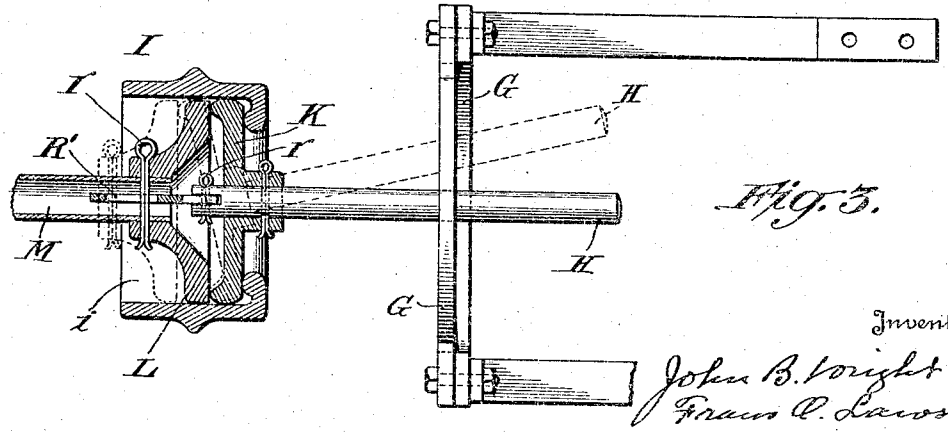


Fig. 5.



Inventors

John B. Wright and

Frank O. Lawson

By Church & Church

their Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN B. WRIGHT AND FRANS O. LAWSON, OF GREENSBORO, NORTH CAROLINA.

AIR-BRAKE MECHANISM.

1,287,557. Specification of Letters Patent. Patented Dec. 10, 1918.

Application filed March 8, 1917. Serial No. 153,334.

To all whom it may concern:

Be it known that we, JOHN B. WRIGHT and FRANS O. LAWSON, citizens of the United States, residing at Greensboro, in the county of Guilford and State of North Carolina, have invented certain new and useful Improvements in Air-Brake Mechanisms; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to brake mechanism for railway cars, etc., and more especially to mechanism designed for the purpose of applying the brakes in case of an abnormal displacement of the trucks with relation to the body of the car, such, for example, as would be occasioned by an abnormal movement of the body with relation to the trucks caused, for example, by high speed over a poor track, a partial or total derailment of the truck, "splitting a switch" or any one of the numerous conditions which are usually the remote or proximate cause of the great majority of railway accidents.

Apparatus of the general type referred to is now in public use and is recognized by those familiar with the art, as the product of the Wright Safety Air Brake Company, and features of the appliances now in use are illustrated in the patents to Wright, Nos. 947,142 and 978,979, and in the patent to Wright and Lawson, No. 1,115,644, to which reference may be had for a disclosure of features which may aid in an understanding of the present improvement.

The object of the present invention is to provide a means, whereby abnormal displacement of the body with relation to the trucks or of the trucks with relation to the body of the car may be made effective for operating a brake setting valve, located at a point remote from the trucks or from the control mechanism, which latter must be closely associated with the truck bolster. With this mechanism it becomes possible to locate the valve mechanism at a point or points conveniently accessible or in fact to utilize valve mechanism which is at present found in modern car equipment regardless of whether or not such valve mechanism is primarily designed for setting the brakes under abnormal conditions, such as above referred to.

Referring to the accompanying drawings,—

Figure 1 is a sectional elevation illustrating the present improvements.

Fig. 2 is a similar view illustrating a variation to show the adaptability of the structure to varying conditions.

Fig. 3 is a detail section of the actuating mechanism located in proximity to the truck.

Fig. 4 is a similar section through the preferred form of valve mechanism which may be located at a conveniently accessible point on the body of the car and at any desired distance from the actuating mechanism, the form of valve illustrated, however, being simply a preferred form and is adopted for illustrative purposes only.

Like characters of reference in the several figures indicate the same parts.

In said drawings the valve, indicated at A in Figs. 1 and 2, may be any valve which, when actuated, will bleed the train pipe so as to set the brakes, and in order that, when once actuated it may be held in its actuated position, until manually closed or allowed to close, it is provided with a catch or locking device. The valve adopted for illustrating the invention is one which corresponds closely with the valve commonly employed in safety railway brake equipment, as above referred to, and embodies a casing B having an inwardly opening valve C. The casing is in communication with the train pipe of the brake system and when the valve is opened by a longitudinal movement of the casing pressure is permitted to escape from the train pipe and the valve is held in its open position by a spring-pressed plunger D. The plunger or catch is normally held retracted by engagement with a ring-shaped projection *c* on the stem of the valve. The valve is conveniently a spring-pressed valve and its stem F projects at one end of the casing in position for coöperation with a connection extending to the actuating devices. This valve may be located at any conveniently accessible point, or it, as above indicated, may be a valve such as now found in ordinary air brake systems adapted to be opened for setting the brakes under emergency conditions.

The actuating mechanism is of necessity located in proximity to the trucks or one of

the trucks of the car, and it embodies, as heretofore, a single member or a pair of adjustable members G mounted on or rigidly, but adjustably connected with truck bolster H′, and having an aperture therein properly shaped to receive an actuating stem H of the actuating mechanism with sufficient clearance between the stem and the members G to permit of the desired normal relative movement between the truck bolster and the body of the car. The stem H is formed as a part of the mechanism which will be operated to effect the desired movement of the valve, regardless of the lateral direction in which the stem may be moved. As a convenient and preferred arrangement, a bracket housing I is rigidly mounted on the car frame and forms an internal cylindrical chamber *i* in which a pair of disk-like members K and L are mounted. The stem H referred to projects centrally from the disk-like member K through an axial opening in the housing which will permit the stem to swing laterally through a very considerable arc in any direction, the periphery of the disk-like member constituting a pivot which is universal and the portion of the disk-like member opposite the pivotal point forms one arm of a bell-crank lever, the other arm of which is formed by the stem itself. The coöperating disk-like member L which normally occupies the position shown in Fig. 3 in full lines will, upon lateral movement of the stem in any direction, be displaced longitudinally as indicated in dotted lines, and this movement is utilized for actuating the valve controlling the bleeding of the train pipe for setting the brakes. The connection between the member L and the valve is conveniently a direct push rod connection, as shown in Figs. 1 and 2, and is of necessary length to permit of the location of the actuating devices in proximity to the truck while the valve is at a conveniently accessible point on the body of the car, or wherever a desired valve may be found in the present equipment. Other intermediate and well known mechanical connections may be employed in addition to the push rod referred to, thus permitting of the location of the valve at a still more distant point on the body of the car, but in the preferred arrangement a single direct connection is employed, preferably in the form of a pipe or tube section M which is at one end rigidly connected with the disk-like member L and the opposite end provided with an adjustable extension N. The adjustability of this extension is preferably secured by threading the same and mounting on the threaded portion adjustable lock collars or nuts N′ which will determine the distance the adjustable section may project into the tubular section. The ends of the adjustable section work through a bearing support O, conveniently a cap threaded on the end of the valve casing and adapted to hold the ends of the adjustable section in position for coöperation with the stem of the valve, whereby longitudinal movement of the intermediate connection due to the operation of the actuating devices will effect a similar movement of the valve to open the latter. The threaded extension P of the valve casing may, if desired, be cut away at one side, as at Q, for convenience in placing the intermediate connection in position, and this cut away portion is preferably located on the upper side of the extension of the valve casing whereby the connection may be dropped into position and when the bearing or guide is set up, the parts will be retained in operative relation and at the same time be readily separable, should repair or adjustment be found necessary.

Under some circumstances it may not be convenient or practicable to locate the actuating devices at the remote ends of the intermediate connection in alinement with each other, and where a condition of this kind is presented, the intermediate connection may be readily offset as indicated at R in Fig. 2.

With the arrangement described, the actuating devices may be located at the proper place with relation to the truck frame, but which is very inaccessible, and the remote end of the connection and valve located in a most convenient position for accessibility and connection with the air brake system of the car.

Under some circumstances it may be desirable to connect the disk-like members K and L loosely together and where this is desired they are preferably connected by a link or links or other suitable form of flexible connection such as indicated at R′, which will permit them to move toward and from each other and at the same time hold them against complete separation. Such loose connection may be secured by passing the cotters or fastening pins *r* through both the end of the connection and the central bosses on the disk-like members and ends of the stem and intermediate connections, as will be readily understood. This arrangement is desired as a safeguard to prevent loss of parts and to prevent unskilled workmen from assembling the parts in an incorrect relation.

In the operation of the device, it is preferred that the retaining lock D shall come into action to hold the valve open only when the valve is moved to its wide open position, which would be the case under excessive relative movement between the truck frame and car body. This arrangement gives the device the capacity for effecting what might be termed a service application of the brakes. For example, should the train be traveling at an excessive speed over a rough section

of track, there would be set up in the car body a movement relative to the truck frames, which might become dangerous and, under these circumstances, the valve will be pushed open slightly again and again at each extreme of the relative movement of the car body and truck, and this would result in an application of the brakes, without locking them in their set positions. This operation of the device has been found in practice to introduce an element of safety and to guard against possible carelessness on the part of the engineer in passing over dangerous sections of the track.

What is claimed is:

1. In a safety brake control mechanism for cars, the combination with a brake setting valve located on the body of the car remote from the truck bolster, of an actuating mechanism for the valve located in proximity to the truck bolster and embodying means whereby abnormal relative movement of the truck bolster and car body will operate the same and a direct longitudinally movable operating connection intermediate the actuating mechanism and valve whereby abnormal relative movement of the truck bolster and body will actuate the valve to set the brakes.

2. In a safety brake control mechanism for cars, the combination with a brake setting valve located on the body of the car remote from the truck bolster, of an actuating mechanism for the valve located in proximity to the truck bolster and embodying means whereby abnormal relative movement of the truck bolster and car body will operate the same, and a direct longitudinally movable adjustable operating connection intermediate the actuating mechanism and valve whereby abnormal relative movement of the truck bolster and body will actuate the valve to set the brakes.

3. In a safety brake control mechanism for cars, the combination with a brake setting valve located on the body of the car remote from the truck bolster, of an actuating mechanism located in proximity to the truck bolster and embodying a cylindrical casing, a disk-like member located in the casing and forming one arm of a lever with means whereby abnormal relative movement of the car body and truck bolster in any direction will effect a pivotal movement of the disk-like member, a second member cooperating with the disk-like member and adapted to be moved longitudinally thereby, and an operating connection extending from said second member to the brake setting valve.

4. In a safety brake control mechanism for cars, the combination with the actuating mechanism located in proximity to the truck bolster and embodying an apertured operating part and stem projecting loosely into said aperture, said parts being located one on the truck bolster and the other on the body of the car whereby abnormal relative movement of car truck and body will effect the operation of one by the other, a mechanical operating connection extending freely from said actuating connection to a distant point on the car body, a guiding support for the distant end of the connection, a brake setting valve operated directly by said connection to set the brakes, and means for holding the valve in its operated position.

5. In a safety brake control mechanism for cars, the combination with a brake setting valve, of actuating mechanism therefor embodying a bracket mounted on the car body in proximity to the truck bolster, cooperating disk-like members supported by the bracket, a stem projecting from one of said members and forming therewith a bell crank lever for moving the other longitudinally, an apertured member mounted on the truck bolster in position to coöperate with the stem for moving the latter when relative abnormal movement of the truck and car body takes place, a connecting rod extending from the actuated disk-like member for operating the valve, and a guide for the distant end of the connecting rod mounted on the car body.

6. In a safety brake control mechanism, the combination with a bracket mounted in proximity to the truck bolster, actuating members mounted in said bracket with means whereby relative abnormal movement between the car body and truck will move one of said members longitudinally, an operating rod connected with said last mentioned member, and embodying a tubular section and a section adjustably mounted therein, a guide, for the distant end of said rod mounted on the car body, a brake setting valve operated by said rod, and manually releasable means for holding said valve in its operated position.

7. In a safety brake control mechanism for cars, the combination with a brake setting valve, of an actuating mechanism located in proximity to the truck bolster and embodying a universally pivoted member provided with means whereby abnormal relative movement of the car body and truck will effect a pivotal movement of said pivoted member, a longitudinally movable rod coöperating with said pivoted member, and constituting an operating connection between the brake setting valve and said member.

JOHN B. WRIGHT.
FRANS O. LAWSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."