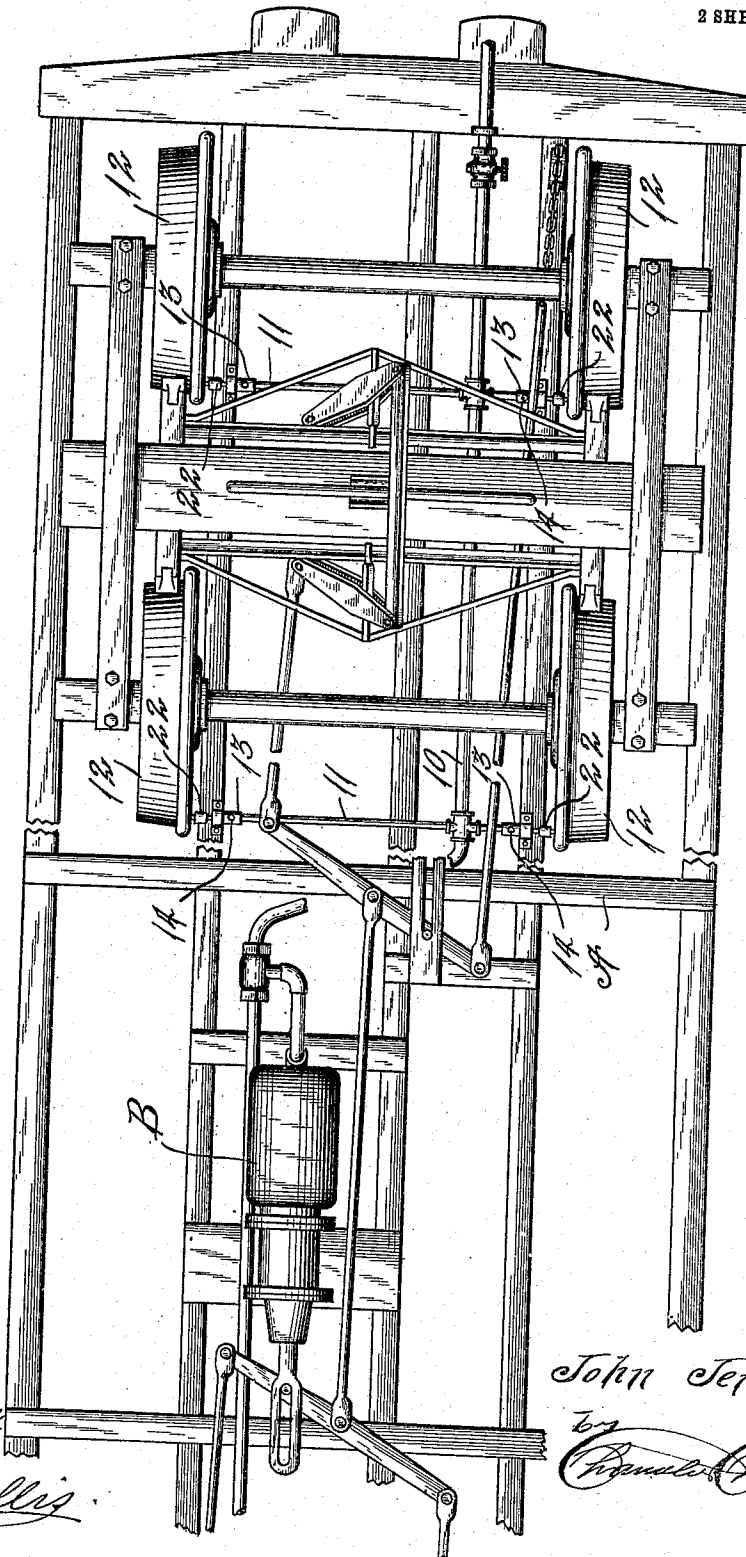


J. JENKINS.
BROKEN FLANGE FINDER.
APPLICATION FILED JULY 20, 1909.

937,307.

Patented Oct. 19, 1909.
2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
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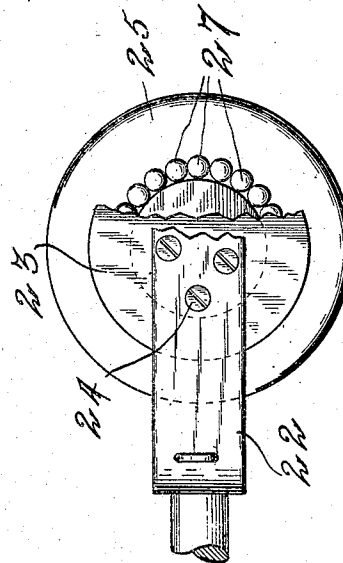
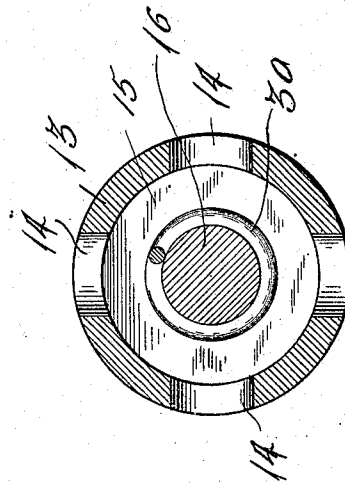
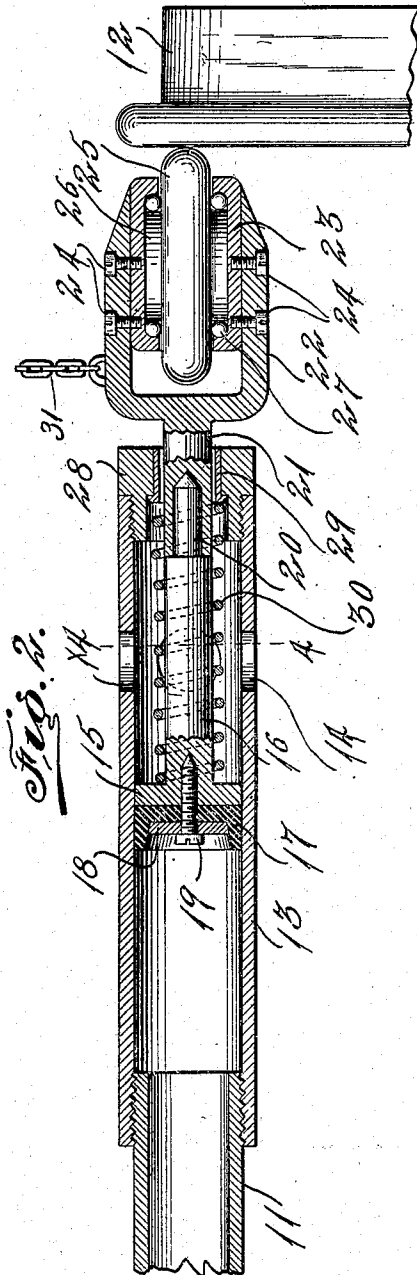
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UNITED STATES PATENT OFFICE.

JOHN JENKINS, OF RICHMOND, VIRGINIA.

BROKEN-FLANGE FINDER.

937,307.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed July 20, 1909. Serial No. 508,593.

To all whom it may concern:

Be it known that I, JOHN JENKINS, a citizen of the United States, residing at Richmond, in the county of Henrico, State of Virginia, have invented certain new and useful Improvements in Broken-Flange Finders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to brake systems for railroad trains and the like and has special reference to a device for automatically setting the brakes when the flange of a wheel becomes accidentally broken. This device is preferably termed a broken flange finder.

One object of the invention is to provide a novel mechanism whereby the brakes will be automatically set whenever any one of the flanges of the wheels in the train becomes broken.

Another object of the device is to provide a novel means in such a mechanism whereby the mechanism will automatically free itself from the flange instantly after the broken flange is discovered so that the mechanism itself is not injured by such breaking of the flange but may be repeatedly used.

With the above and other objects in view, as will be hereinafter apparent, the invention consists of a novel form of valve connected to the train pipe of a train and provided with a member bearing against a rail flange, said member normally holding the valve closed.

The invention further consists in certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically set forth in the claims.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and Figure 1 is a bottom plan view of a car frame showing the brake system and the manner of locating and applying this invention. Fig. 2 is a longitudinal section through the valve used in this invention. Fig. 3 is a top plan view partly broken away showing the bearing wheel used in connection with this device. Fig. 4 is a section on the line 4-4 of Fig. 2.

The letter A indicates in general the frame of a car and on this frame is located the usual brake arrangement here indicated in

general by the letter B. In this brake arrangement B the numeral 10 indicates the train pipe and this brake arrangement is of the ordinary character such that if pressure be reduced in the train pipe the setting of the brakes will result. Attached to this train pipe 10 is a plurality of branch pipes 11 each of which leads to one of the wheels 12. Upon each of the pipes 11 is screwed a valve casing 13, the end attached to the pipe 11 being known as the inlet, and this valve casing is provided with a series of ports 14 extending therearound forming the outlet for the valve. Slidable in the casing 13 is a piston valve comprising a head 15 provided with a centrally disposed threaded aperture which extends into a stem 16 preferably formed integral with the head. Against the head 15 is positioned packing 17 of the form known as cup packing, and this cup packing is held in position by means of a follower plate 18 which is secured to the piston head by a screw 19 which passes through the follower plate and packing and is screwed into the threaded aperture in the piston head and stem. The stem of this valve is reduced as indicated at 20 and on this reduced portion is fitted the shank 21 of a yoke 22. Secured between the yoke arms are spaced cups 23, one of these cups being secured to each of the yoke arms by means of suitable screws 24. Revolvably mounted between the cups 23 is a bearing wheel 25 provided with hubs 26 which fit within the cups in spaced relation to the walls thereof, and between these hubs and the peripheral wall of its respective cup are balls 27 the arrangement thus forming a ball bearing.

The end of the casing 18 opposite the pipe 11 is provided with an apertured plug 28 having a centrally disposed bushing 29 located therein through which the shank 21 passes. Surrounding the stem 16 and that portion of the shank 21 which lies within the casing is a compression spring 30 which tends to force the piston toward the pipe 11. The strength of this spring is so proportioned with relation to the pressure carried in the train pipe that the pipe pressure exceeds the strength of the spring about three times.

From an inspection of Fig. 2 it will be observed that any break which takes place in the flange of the wheel 12 will permit the piston to move outward and as the air pressure considerably exceeds the strength of

the spring this movement will be rapid enough to force the shank 21 quickly free from the reduced portion 20 when the piston is stopped by the closing of the spring coils. This will result in the bearing wheel and yoke being thrown quickly through the gap in the wheel flange so that the parts will not be struck by the edge of the gap and be bent or broken. In order to prevent loss of this portion the yoke is connected to one of the frame members of the car or any other suitable part by means of a chain 31.

When the piston moves from its normal position between the inlet and outlet of the casing 18 to the end of the casing opposite the inlet, the ports 14 will be uncovered and the pressure in the train pipe instantly reduced. It is a well understood fact that air brakes are arranged to work by means of reduction in the train pipe pressure and that when this pressure is reduced the air brakes will at once be set. The uncovering of these ports, permitting as it does reduction of pressure, consequently results in the setting of the brakes so that in the event of a flange breaking somewhere on a car equipped with this invention the brakes will be instantly set and damage prevented as a result of such broken flange. There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

It is obvious that minor changes may be made in the form and construction of this invention without departing from the material principles thereof. It is not therefore desired to confine the invention to the exact form herein shown and described, but it is wished to include all such as properly come within the scope of the appended claims.

Having thus described the invention, what is claimed as new, is:—

1. In a device of the kind described, the combination with a train pipe; of an escape valve therefor, and means adapted to bear

against a wheel flange to prevent the opening of the escape valve.

2. In a device of the kind described, a valve adapted for connection to a train pipe, and an element to hold the valve closed, said element being adapted to bear against a wheel flange.

3. In a device of the kind described, a casing having an inlet and a lateral outlet, a piston moving in said casing, means connected to said piston adapted to bear against an unbroken wheel flange and hold said piston between the inlet and outlet.

4. In a device of the kind described, a casing having an inlet and a lateral outlet, a piston moving in said casing, means detachably connected to said piston adapted to bear against an unbroken wheel flange and hold said piston between the inlet and outlet.

5. In a device of the kind described, a valve including a casing having an inlet and a lateral outlet, a piston moving in said casing, a stem on said piston, a yoke exterior of said casing, a shank on said yoke loosely fitting the stem on the piston, and a bearing wheel revolubly supported in the yoke.

6. In a device of the kind described, a valve including a casing having an inlet adapted for connection to a train pipe and a lateral outlet, a piston moving in said casing, a stem on said piston, a yoke exterior of said casing, a shank on said yoke loosely fitting the stem on the piston, a bearing wheel revolubly supported in the yoke, and a spring in said casing normally forcing the piston toward the inlet end of the casing.

In testimony whereof, I affix my signature, in presence of two witnesses.

JOHN JENKINS.

Witnesses:

A. F. MONTGOMERY,
V. S. REED.