C. H. WILLIAMS AND E. G. BUSSE.

BRAKE BEAM.

APPLICATION FILED JULY 28, 1921.

1,421,881.

Patented July 4, 1922.

2 SHEETS—SHEET 1.

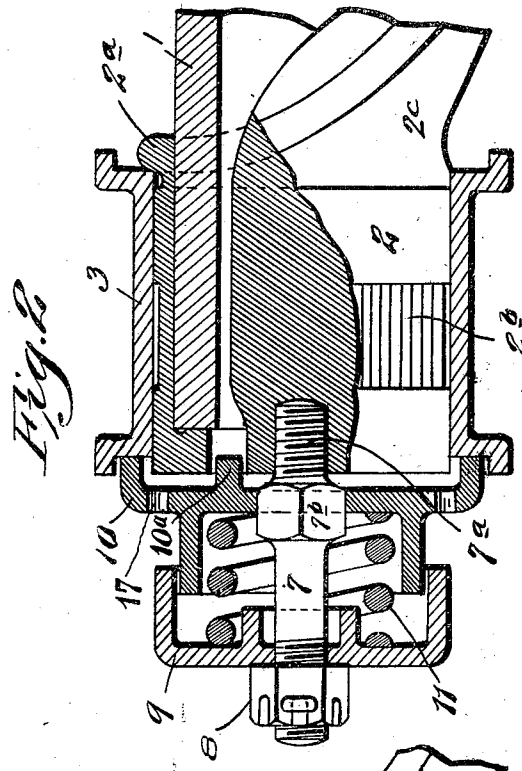


Fig. 2.

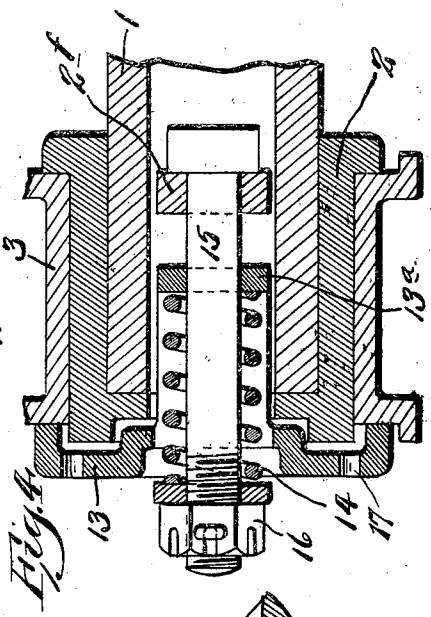


Fig. 4.

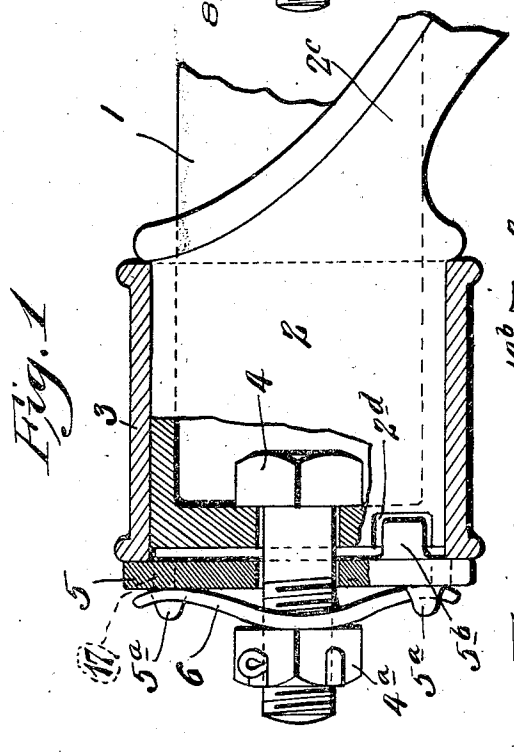


Fig. 1.

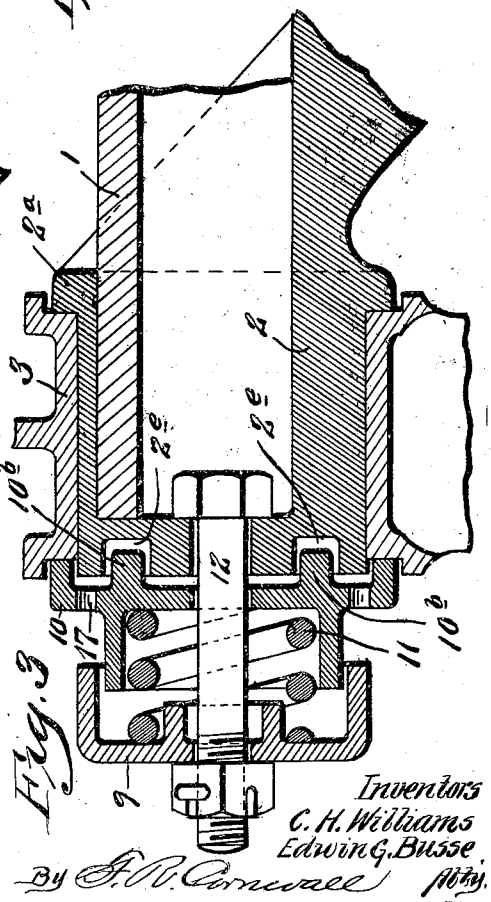


Fig. 3.

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2 SHEETS—SHEET 2.

Fig. 5

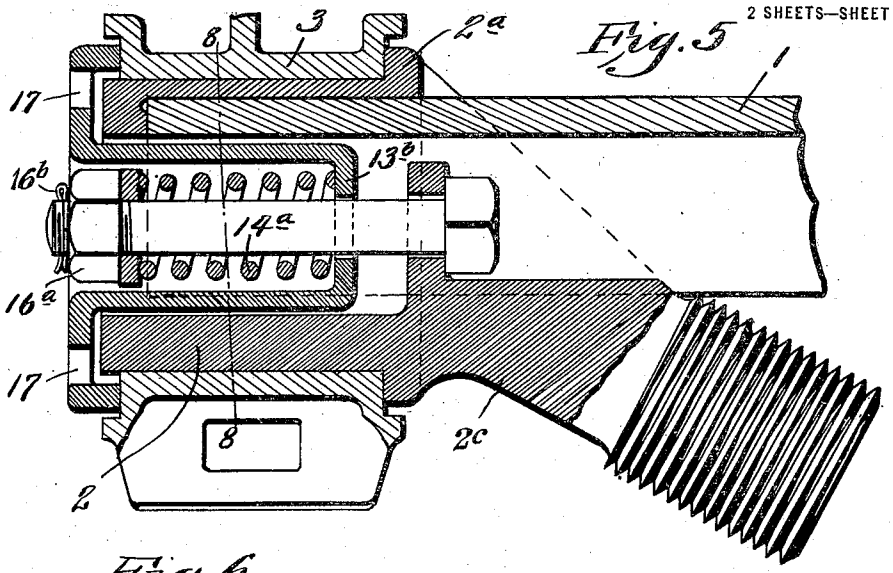


Fig. 6

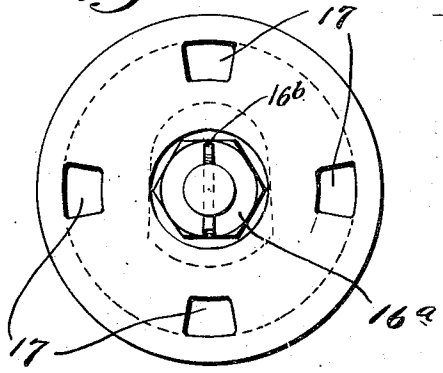


Fig. 7

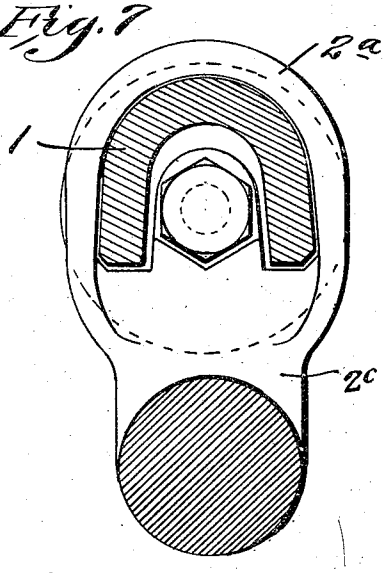
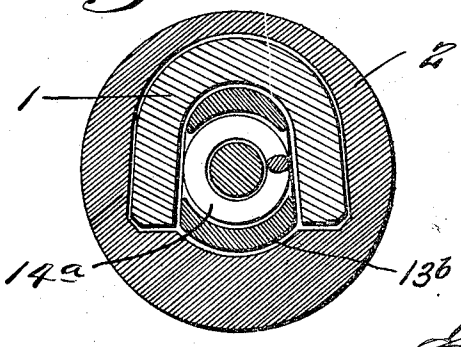


Fig. 8



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UNITED STATES PATENT OFFICE.

CHARLES HAINES WILLIAMS AND EDWIN G. BUSSE, OF CHICAGO, ILLINOIS, ASSIGNORS TO CHICAGO RAILWAY EQUIPMENT COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

BRAKE BEAM.

1,421,881. Specification of Letters Patent. **Patented July 4, 1922.**

Application filed July 28, 1921. Serial No. 488,212.

To all whom it may concern:

Be it known that we, CHARLES HAINES WILLIAMS and EDWIN G. BUSSE, citizens of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Brake Beams, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this application, in which—

Figure 1 is a vertical sectional view of our improved brake beam.

Figure 2 is a vertical sectional view of another form of our invention.

Figure 3 is a similar view of a still different form of our invention.

Figure 4 is a horizontal sectional view through another modified form of our invention.

Figure 5 is a vertical section of still another modification of our invention.

Figure 6 is an end elevational view of the locking plate shown in Figure 5.

Figure 7 is an inside end elevational view of the sleeve.

Figure 8 is a cross-sectional view on line 8—8 of Figure 5.

This invention relates to a new and useful improvement in brake beams, and is designed particularly as an improvement upon that type of brake beam shown in the Robischung Patent No. 549,021, dated October 29, 1895, and the Floyd Patent, No. 1,169,787, dated February 1, 1916, both of which are characterized by the utilization of a coiled spring whose energies are exerted to hold the brake head on the sleeve by exerting a longitudinal pressure on said head in a direction parallel to the longitudinal axis of the sleeve. This yielding pressure on the head transmitted through the so-called locking plate, while permitting the head to adjust itself rotatably on the sleeve, takes up wear between the sleeve and head and permits a slight longitudinal movement of the head on the sleeve occasioned by inequalities in the track, or when the wheels are rounding a curve in the track. This longitudinal movement of the brake head on the beam reduces wheel-flange wear to a minimum.

In all of the forms of our invention, the yielding means in the form of a spring is arranged exteriorly or outside of the locking plate so that in the event of breakage or crystallization of the spring, or should the spring take a permanent set, it can quickly and readily be observed, and in addition conveniently and quickly renewed.

Another object of our invention is to provide means for holding the locking plate against rotation so that should the serrations on the locking block carried by the head (not shown), or on the sleeve, become worn, the friction of the locking plate against the end of the brake head will tend to prevent it from accidental rotatable displacement.

Another object of our invention is to provide sight openings in the locking plate, so that the wear of the parts can be observed, and proper adjustment or renewals made in the event such are desirable.

In the drawings, 1 indicates a compression member of a brake beam substantially U-shaped in cross-section. 2 is a cast, welded or forged sleeve or thrust block provided with a seat for receiving the end of the compression member 1. This sleeve is also provided with a flange 2^a at its inner end, against which the brake head 3 is normally pressed. The sleeve 2 may be provided with serrations 2^b for well understood purposes. 2^c represents an inwardly extending shank or projection on the sleeve 2, preferably threaded at its extremities to receive a coupling by which a tension rod, not shown, is secured in position.

In Figure 1, sleeve 2 which forms a trunnion for the brake head, as above described, is preferably provided with a recess and an axial opening whereby a bolt 4 may be passed through the opening from the inside of the sleeve. 5 indicates a locking plate of larger diameter than the trunnion portion of sleeve 2. The marginal edges of this locking plate engage the ends of the barrel portion of the brake head 3 which extends outwardly slightly beyond the end of sleeve 2. 6 indicates a flat leaf spring or spring washer, the ends of whose arms pass through openings in lugs 5^a on the locking plate. The bolt 4 passes through openings in the locking plate 5 and friction washer 6 and receives a nut 4^a, which is preferably

castellated, as shown, whereby the pressure on the locking plate against the end of the brake head may be regulated or adjusted. 5^b indicates a lug or lugs on the locking plate 5 designed to co-operate with a recess, or recesses, 2^d in the end wall of sleeve 2 for the purpose of preventing rotation of the locking plate with brake head 3. By this means, friction is created between the locking plate and the brake head, which friction tends to hold the brake head in an adjusted position. The resilient means 6 permits longitudinal movement of the brake head on the sleeve and in the event that this spring is broken, or takes a permanent set, so that it can no longer perform its function, such disqualification is readily observable, and the spring can be quickly and easily renewed. The space between the end of sleeve 2 and the locking plate is sufficient to take up ordinary wear, but when this space is closed and the locking plate can no longer exert a yielding longitudinal pressure on the brake head, it is obvious that the brake head should be renewed.

In Figure 2, we have shown a form of our invention in which a stud bolt 7 has a threaded end 7^a which is secured in a tapped opening in the midrib of the thrust block, which, in this instance, extends up within the space formed by the inverted U-shaped compression member. This stud bolt has a squared shank portion, as at 7^b, and its outer end is threaded to receive a castellated nut 8, which nut bears against the outer face of a spring follower 9 telescopically arranged relative to a locking plate 10. The locking plate 10 in this instance is provided with an inwardly extending marginal flange embracing the outer end of the sleeve and bearing against the outer face of the brake head 3. This locking plate is also provided with a lug 10^a, which is received in a recess in the end wall of the sleeve by which it is prevented from turning. The locking plate is also provided with a squared opening for engaging the squared shank portion 7^b of the bolt and in this manner the bolt is prevented from turning when the parts are assembled. The spring 11 is interposed between the spring follower 9 and the locking plate 10 forcing said locking plate inwardly against the brake head to permit the yielding longitudinal movement in an outward direction of the brake head on the sleeve.

In Figure 3, instead of a stud bolt, we have shown a removable bolt 12 whose head bears against the end wall of the sleeve substantially in the manner described with respect to Figure 1. In this form, the end wall of the sleeve is provided with recesses 2^e for receiving locking lugs 10^b on the locking plate.

In Figure 4, we have shown a construction in which the locking plate 13 is provided with an inwardly extending yoke portion 13^a against the cross-piece of which bears a spring 14. 15 is a bolt passing through a short midrib 2^f extending up between the legs of the compression member and integral with the shank portion of the sleeve, said bolt having a castellated nut 16 on its outer end for adjustably compressing spring 14. In this form, it will be observed that the spring bears against a depressed portion of the outer face of the locking plate, the end of the spring and the bolt protruding beyond the locking plate for inspection purposes.

Figure 5 shows a construction very similar to that shown in Figure 4, except that the yoke 13^b is made slightly longer so that the spring 14^a and the nut 16^a is housed within the yoke, being held in position by a cotter pin 16^b. In this and in the other forms of my invention, the locking plate is preferably provided with a series of sight openings 17 (see, also, Figures 1, 2, 3, 4 and 6) arranged to give a view of the adjacent contacting faces of the brake head and sleeve so that in this manner, the observer can ascertain the amount of wear of the parts.

In the form shown in Figures 4 to 8, inclusive, the yoke or spring stirrup prevents the locking plate from turning, but permits movement thereof longitudinally parallel to the longitudinal axis of the sleeve.

In Figure 2, we have shown a serrated sleeve designed to be used in connection with the well-known locking pawl carried by the head (not shown), while in Figures 1, 3, 4 and 5 the serrations, and consequently the locking pawl, are omitted and the locking member is relied upon to hold the head in its rotatably adjusted position. This locking member also permits longitudinal movement of the head on the trunnion.

What we claim is:

1. The combination with a trunnion member of a brake beam, of a brake head mounted thereon, a locking member mounted for direct engagement with said brake head, means for preventing independent rotation of said locking member relative to said trunnion member, and means for yieldingly pressing the locking member against the brake head.

2. The combination with the trunnion member of a brake beam, of a brake head mounted thereon, a locking member designed to marginally and directly engage said brake head, and yielding means exerting pressure against the outer face of said locking member for normally permitting said brake head to move longitudinally along said trunnion.

3. The combination with the trunnion member of a brake beam, of a brake head mounted thereon, a locking member mounted for longitudinal movement relative to said

trunnion, and means for preventing rotation of said locking member relative to said trunnion.

4. The combination with a trunnion member of a brake beam, of a brake head mounted thereon, a locking member mounted upon said trunnion and capable of longitudinal movement relative thereto, an axially arranged bolt extending through said locking member, and yielding means interposed between the outer end of said bolt and said locking member.

5. The combination with the trunnion member of a brake beam, of a brake head mounted thereon, a locking member mounted on said trunnion, and means for yieldingly holding said locking member in engagement with said brake head, said locking member being provided with sight openings whereby wear of the parts may be observed.

6. The combination with a trunnion member of a brake beam, of a brake head mounted thereon, a locking member mounted on the trunnion for holding said brake head in position, and openings through said locking member opposite the engaging faces between the brake head and trunnion for observing wear of the parts at this point.

7. The combination with a trunnion member of a brake beam, of a brake head mounted thereon, a locking member designed to marginally and directly engage said brake head, and exteriorly arranged yielding means which exerts pressure against the outer face of said locking member, thereby permitting the head to move longitudinally along the trunnion, said locking member frictionally holding the head in rotatably adjusted position.

In testimony whereof we hereunto affix our signatures this 15th day of July, 1921.

C. HAINES WILLIAMS.
EDWIN G. BUSSE.