

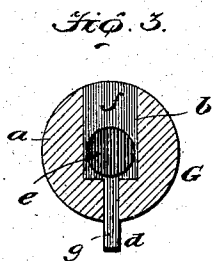
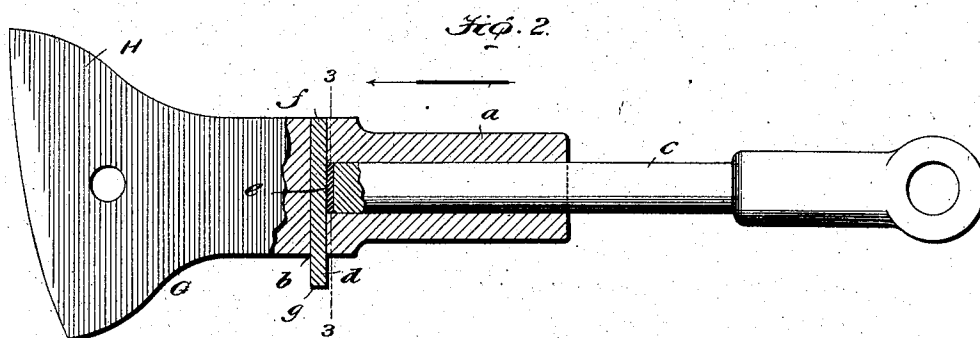
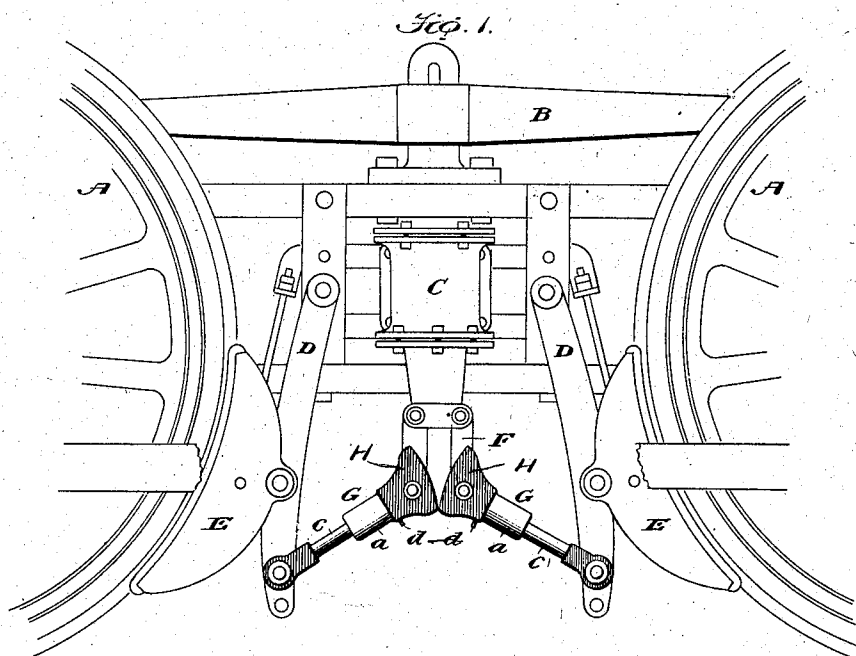
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T. LAFFERTY & T. REYNOLDS.

LOCOMOTIVE BRAKE.

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Witnesses

*Wm. C. Dwyer*  
*W. C. Dwyer*

By

*Thomas Lafferty* X  
*Thomas Reynolds*  
*James Shuby*

Inventors

Attorney

# UNITED STATES PATENT OFFICE.

THOMAS LAFFERTY AND THOMAS REYNOLDS, OF BARABOO, WISCONSIN.

## LOCOMOTIVE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 791,702, dated June 6, 1905.

Application filed February 1, 1905. Serial No. 243,633.

*To all whom it may concern:*

Be it known that we, THOMAS LAFFERTY and THOMAS REYNOLDS, citizens of the United States, residing at Baraboo, in the county of Sauk and State of Wisconsin, have invented new and useful Improvements in Locomotive-Brakes, of which the following is a specification.

Our invention pertains to fluid-pressure locomotive-brakes of the shoes between drivers' type, and more particularly to the thrust-bars of such brakes; and it contemplates the provision of thrust-bars embodying such a construction that wear may be expeditiously and easily taken up or compensated for with a view of obviating lost motion incident to the application of the brake.

With the foregoing in mind the invention will be fully understood from the following description and claims when taken in connection with the accompanying drawings, forming part of this specification, in which—

Figure 1 is a detail side elevation of a brake comprising thrust-bars constructed in accordance with our invention. Fig. 2 is an enlarged view, partly in side elevation and partly in section, of one of the thrust-bars removed; and Fig. 3 is a transverse section taken in the plane indicated by the line 3 3 of Fig. 2 looking in the direction indicated by arrow.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which—

A A are the drivers of a locomotive.

B is a portion of the locomotive-frame; C, a fluid-pressure brake-cylinder; D D, levers connected to the frame B; E E, brake-shoes carried by the said levers; F, a portion of a piston complementary to the cylinder C, and G G thrust-bars interposed between and connected to the piston portion F and the levers D and having the usual opposed cams H at their inner ends.

With the exception of the thrust-bars G all of the parts mentioned may be, and preferably are, of the well-known conventional construction.

The thrust-bars G are identical in construction, and therefore a detailed description of

the one shown in Figs. 2 and 3 will suffice to impart an understanding of both. The said bar, Figs. 2 and 3, is made up of a tubular member *a*, having the cam at one end and also having a diametrical passage *b* at the inner end of its tubular portion, a rod member *c*, arranged in the tubular member and designed, by preference, to be connected to one of the shoe-carrying levers, a plug *d*, arranged removably in the passage *b* of the tubular member, and one or more washers *e*, interposed between the inner end of the rod member and the opposed face of the plug *d*, as best shown in Fig. 2. The passage *b* comprises, by preference, a comparatively wide portion and a reduced portion, and the plug *d* is correspondingly shaped—*i. e.*, has a body portion *f* and a stem *g*, Fig. 3. In virtue of this construction it will be observed that when the plug *d* is inserted in the passage *b* of the tubular member the inner end of its body portion *f* will bring up against the inner end of the larger portion of the passage *b*, while its stem *g* will protrude beyond the side of the tubular member *a*. From this it follows that there is no liability of the plug being casually displaced and lost, and yet the plug may be removed when desired by one or more hammer-blows applied to the end of the stem *g*. As before stated, the function of the washer *e* is to take up or compensate for wear between the tubular member *a* and the rod member *c*, and this being so it follows that when the thrust-bar is originally applied the washer may be omitted and the inner end of the rod member made to abut against the opposed side of the plug *d*. When, however, wear takes place between the rod member *c* and the plug *d* and gives rise to the objectionable lost motion, one or more of the washers is interposed between the rod member *c* and the plug *d*. To so place the washer, the plug *d* is knocked out of the tubular member *a* and the washer is introduced to position through the passage *b*, after which the plug is replaced and driven home. When desirable, the plug *d* may be made in wedge form—this with a view of lessening the liability of it being casually displaced when the brake is idle.

We do not, however, deem it necessary to make the plug in wedge form and do not desire to be understood as confining ourselves to such construction. When wear ensues subsequent to the described interposition of a washer between the rod member *c* and the plug *d*, the plug is again removed and one or more additional washers are introduced to position, after which the plug is replaced and driven to the position illustrated.

It will be readily appreciated from the foregoing that thrust-bars constructed in accordance with our invention embody but a minimum number of parts and are susceptible of being easily and cheaply produced. The chief advantage of our improved construction of thrust-bars resides, however, in the fact that the bars embody no parts that are liable to be set by rust. This will be appreciated as an important advantage when it is remembered that when wear takes place in the ordinary thrust-bars extant the locomotive engineer has great difficulty in taking up such wear, because to do so he must loosen the threaded connection between the members of the thrust-bars, which threaded connections are very amenable to be locked by rust.

We have entered into a detailed description of the construction and relative arrangement of the parts embraced in the present and preferred embodiment of our invention in order to impart a full, clear, and exact understanding of the said embodiment. We do not desire, however, to be understood as confining ourselves to such specific construction and relative arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of our invention as claimed.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A thrust-bar for the purpose described, comprising a member having a tubular portion or socket and a passage intersecting said tubular portion or socket, a rod member disposed in the tubular portion or socket of the first-mentioned member, and a plug removably arranged in the passage of the first-mentioned member.

2. A thrust-bar for the purpose described, comprising a member having a tubular portion or socket and a passage intersecting said tubular portion or socket, a rod member disposed in the tubular portion or socket of the first-mentioned member, a plug removably arranged in the passage of the first-mentioned member, and a washer interposed between the

inner end of the rod member and the abutment afforded by the plug.

3. A thrust-bar for the purpose described, comprising two members and an abutment carried by one member and adapted to be removed therefrom for the interposition of one or more devices for taking up wear between it and the other member.

4. A thrust-bar for the purpose described, comprising a member having a cam at one end and a tubular portion or socket at its opposite end and also having a diametrical passage at the inner end of the tubular portion or socket, a rod member arranged in the tubular portion or socket of the first-mentioned member, a plug removably arranged in the diametrical passage of the first-mentioned member and projecting beyond the side of said member, and a washer interposed between the plug and the inner end of the rod member.

5. The combination, in a locomotive-brake, of a fluid-pressure brake-cylinder, a piston therein, a pair of brake-shoes, movable supports carrying the brake-shoes, and thrust-bars connecting the said movable supports and the piston; the said bars respectively comprising two members and an abutment carried by one member and adapted to be removed therefrom for the interposition of one or more devices for taking up wear between it and the other member.

6. The combination, in a locomotive-brake, of a fluid-pressure brake-cylinder, a piston therein, a pair of brake-shoes, movable supports carrying the brake-shoes, and thrust-bars connecting the said movable supports and the piston; the said bars respectively comprising an inner member having a cam at its inner end and a tubular portion or socket at its outer end, and also having a diametrical passage at the inner end of the tubular portion or socket, a rod member arranged in the tubular portion or socket of the inner member, a plug removably arranged in the diametrical passage of the inner member and projecting beyond the side of said member, and one or a plurality of washers interposed between the inner end of the rod member and the opposed face of the plug.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

THOMAS LAFFERTY.  
THOMAS REYNOLDS.

Witnesses:

EVAN EVANS,  
HERMAN GROTOPHORST.