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FLANGE LUBRICATOR FOR RAILROAD CARS.

APPLICATION FILED JAN. 23, 1912.

1,111,308. Patented Sept. 22, 1914.

Fig. 1.

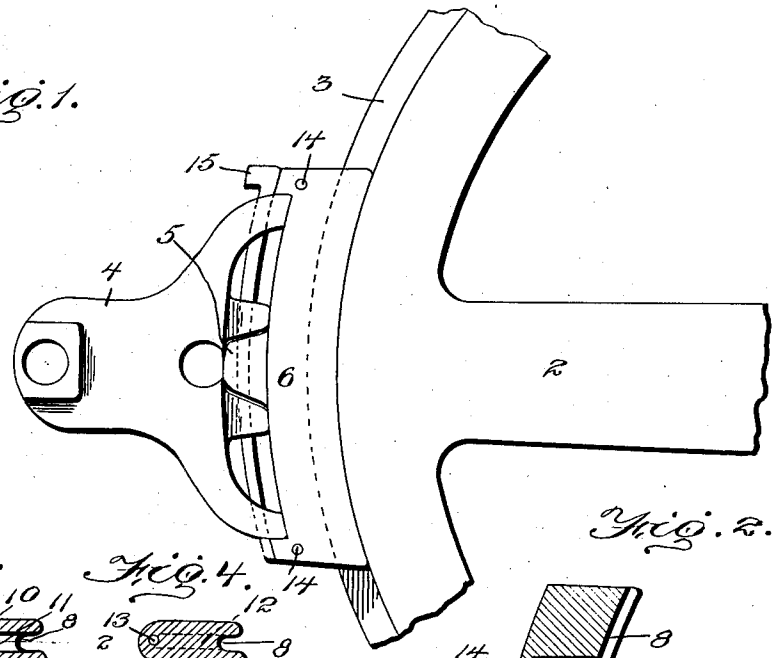


Fig. 3.

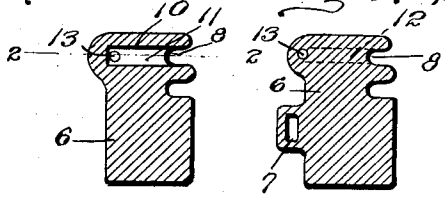
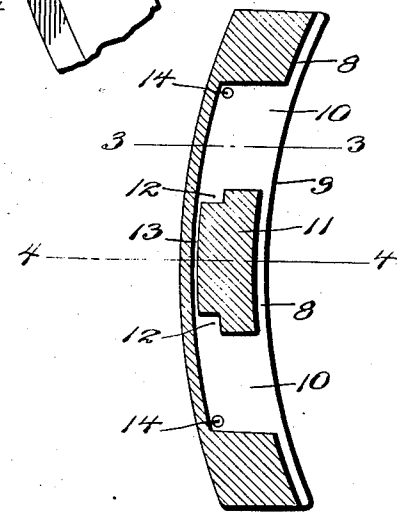


Fig. 4.

Fig. 2.



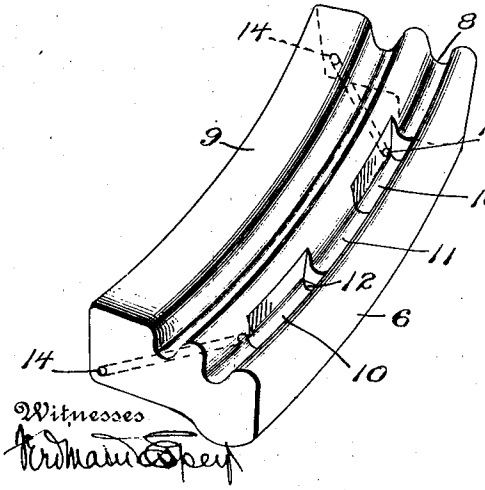


Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

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FLANGE-LUBRICATOR FOR RAILROAD-CARS.

1,111,308. Specification of Letters Patent. Patented Sept. 22, 1914.

Application filed January 23, 1912. Serial No. 672,880.

To all whom it may concern:

Be it known that we, IRA KINCAID, MARK A. FOOTE, and WARREN H. NEUREITHER, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Flange-Lubricators for Railroad-Cars, of which the following is a specification.

Our invention relates to brake shoes for railroad cars and locomotives, and the main object of the invention is to provide means whereby the flanges of locomotive and car wheels may be kept lubricated, thus preventing the rapid wearing away and sharpening of the flanges, particularly when running on curves, and the wearing away of the rail, thus very much reducing the danger of derailment. It is the worn flanges of the locomotive and car wheels and the worn rails that are often the cause of derailment, particularly at switches.

A further object of the invention is to improve upon the like construction described in the application of Ira Kincaid for brake shoe, filed August 19, 1910, Serial No. 577,993.

A further object of the invention is to so form a flange lubricating brake shoe that it may be reversed in position and used either end up.

A still further object is to so arrange the charging duct leading to the lubricant reservoir contained within the brake shoe that the charging duct will not become choked with dust, dirt or the scrapings from the car wheel.

Other objects will appear in the course of the following description.

Our invention is illustrated in the accompanying drawings wherein:

Figure 1 is a fragmentary side elevation of a portion of a railway car wheel, a brake head and our improved flange lubricating brake shoe applied thereto. Fig. 2 is a transverse section on the line 2—2 of Fig. 3. Fig. 3 is a transverse section on the line 3—3 of Fig. 2. Fig. 4 is a transverse section on line 4—4 of Fig. 2. Fig. 5 is a perspective view of the brake shoe removed from the brake head.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to the drawings, 2 designates a wheel of any suitable character shown as the wheel of a locomotive, and formed with the usual flange 3. The brake head 4 is of any ordinary or usual construction and is shown as being formed with a socket or mortise 5 at its middle for the reception of a tenon 7 on the brake shoe proper 6. The interior face of the head 4 is concaved and the shoe 6 is longitudinally concavo-convex fitting the curvature of the wheel. The shoe may be provided with any means of attachment for supporting it upon the carrier blocks, such as are employed in trucks for railway cars, locomotives and the like.

The shoe 6, generally speaking, is of any usual or ordinary form and is provided at its middle with a tenon 7 adapted to be received in the mortise 5 and held to the brake head by means of a cotter pin 15.

The inner face of the brake shoe 6 is longitudinally concaved to fit the circumference of the wheel 2, and the front braking-face of the shoe is provided with a vertical groove 8 near one side (called the "flange groove"), in which the flange of the wheel extends; and the surface 9 between the said flange-groove and the side of the brake-shoe most distant therefrom constitutes the curved surface for producing the braking action upon the tread of the wheel.

Formed in the brake shoe immediately behind the groove 8 are a plurality of pockets 10 shown as two in number and extending longitudinally of the brake shoe. These pockets are separated from each other by an intermediate web 11, the pockets 10 extending behind the web as at 12. The pockets are connected by means of a duct 13 located adjacent to the rear walls of the pockets. The reason for making the pockets undercut as at 12 is to increase the width of the web 11 and thus increase the bearing which the shoe has upon the wheel without decreasing the size of the pockets, and to afford space for a larger lubricant pocket and to form a funnel to facilitate the flow of lubricant from the upper pocket into the duct 13.

Each of the pockets has leading from it at its outer end a duct 14 which leads to the outside face of the brake shoe behind the tread portion 9 of the brake shoe, these ducts being located as deep as possible so as not to be near the face of the brake shoe and therefore to permit the brake shoe to be worn down without the face intersecting the duct. It is for this same reason that the duct 13

is located as deeply as possible, that is, as near as possible to the rear faces of the pockets 10. Each of the ducts 14 opens upon the outside face of the brake shoe, this being a position in which the ducts will not become plugged up by dirt gathered by the brake shoe from the wheel.

In the form of lubricating brake shoe shown in the patent before referred to, the filling or charging duct for the lubricant containing chamber or pocket extended upward to the upper face of the brake shoe. The brake shoe scraped the dirt and other foreign matter off the face of the wheel, and this foreign matter gathered upon the top of the brake shoe, completely plugging up and closing the filling duct, necessitating the use of a plug. This plug could be easily removed when the filling duct was not choked up, but it was liable to become stuck in place and has been found in practice to be inconvenient. The scrapings from the wheel often conceal even the plug so as to make it difficult to remove. Also in many cases the brake shoe sets snugly up against the framework of the car, which prevents oiling through a duct opening at the top of the brake shoe, or if it does not absolutely prevent oiling does at least prevent the admission of an oil can. With the feed duct opening upon the side face of the shoe, however, it is seldom or never obstructed.

The object in having two oil lubricant pockets 10, each provided with a filling duct 14 and connected to each other by means of the duct 13, is to permit the brake shoe to be reversed end for end so that the brake shoe may be used either for the right or left wheel of a locomotive or car. When lubricant is supplied to the upper pocket, it percolates down through the intermediate duct 13 and into the lower pocket. The filling duct 14 is of course always the uppermost duct. It will of course be evident that where liquid and freely running lubricant is used the lower duct should be closed by a suitable plug. This plug being upon the outside of the brake shoe and at the lower end thereof is not liable to become clogged with dirt, dust or oil.

Each of the pockets 10 preferably has parallel side walls extending practically to the back plate, that is, to the full depth of the shoe, leaving the back plate or a sufficient web at the back of the shoe to constitute the back wall of each pocket. Each pocket as shown in Fig. 3 is so located in the brake shoe that when filled with lubricant the face of the flange of the moving wheel from its periphery to its intersection with the tread of the wheel will engage or rub against the lubricant and thus be lubricated. It is this inside face of the flange 3 which rubs against the rail, particularly when the locomotive or car is running upon a curve, and it is this inside face of the flange (especially in the angle formed by the intersection with the tread of the wheel) which must be lubricated in order to avoid the wear and tear mentioned in the first part of this specification.

The same lubricating operation is carried on continuously in the flange groove because as the surface of the flange groove wears inward, new surfaces of the lubricant in the pockets 10 will present themselves, as will be evident by reference to Fig. 3.

The filling for use in the pockets may be of any suitable lubricating material, such as grease, graphite, oily waste, oil, water, or any combination of ingredients capable of retaining itself within the pockets. Furthermore, the specific shape of the pockets 10 may be varied as desired as it is not essential that they be of the detail shape shown, though this shape is preferable. It is also evident that there may be more or less of these pockets 10 as may be found desirable for shoes of various sizes.

The brake shoe constructed as before described has been found by us to be particularly effective in actual practice. It is capable of holding lubricant of any kind and may be used either with graphite, grease, or the pockets may be packed with cotton waste soaked with oil. By reason of the fact that the filling ducts extend to the outside face of the brake shoe, lubricant may be easily filled into the pockets and whatever lubricant is supplied to the uppermost duct will pass down through the uppermost pocket and duct 13 into the lower pocket. The filling ducts opening upon the side face of the brake shoe do not become plugged up with dirt, nor does dirt so accumulate upon the side face as to prevent the easy removal of a plug for these ducts in case a plug is used. Inasmuch as the filling ducts and the duct connecting the pockets are all placed deep within the brake shoe, the brake shoe may be used for a long time before having to be thrown away. By using two pockets, each with a duct extending laterally and toward the end of the brake shoe, the brake shoe may be reversed end for end and thus the same shoe is adapted to be used upon either side of the track. Where graphite or other hard lubricant is used, the lubricant will last for a very long period of time without the necessity of the pockets in the brake shoe being refilled. Where, however, oil and cotton waste are used, it will be obvious that the pockets may be easily refilled from the ordinary oil can.

The flange wears its own flange-groove into the shoe, of course, as the shoe wears away, the new shoe having a flange-groove no deeper than required to accommodate the flange. The flange-groove, engaging the flange, as it does, serves to keep the shoe in

place, prevents it from wabbling sidewise. The flange 3 performs braking service as well as the tread of the wheel; and so, naturally as the flange eats its way into the shoe, constantly creating its own flange groove, the effect is to keep its periphery rounded, and in proper shape. It would get no sharpness except for the action between flange and rail, which is the same as the action between the two blades of shears. When our lubricating shoe is not used, gouges can be plainly seen in the face of the flange, many to the square inch. Where our brake shoe lubricator is used, no such little gouges are visible and the face of the flange is smooth and glassy, even when, perhaps, no lubricant is visible, and when there is so little lubricant that hardly a visible or tangible amount can be gathered by rubbing a finger upon the face of the shiny flange. Attention is also called to the fact that the moving flange, rubbing against the lubricant with our brake shoe, distributes the lubricant, in almost indistinguishable quantity but sufficiently the whole length of the flange-groove to make the flange-groove, itself, for its whole length, a flange lubricator, thus keeping the flanges lubricated, smooth, and the safe shape thereof much more durable.

What we claim is:

1. A brake shoe for locomotive and car wheels having a flange groove extending longitudinally thereof, and a wheel tread-engaging face, said shoe being formed with a plurality of pockets disposed immediately behind the flange groove and opening thereinto, said pockets being as wide as the width of the flange groove and extending into the shoe to the back wall thereof, said pockets being disposed in superposed spaced relation to each other and separated by an integral web, said pockets extending behind the web at the face of the shoe and being connected by a duct extending through the web, the opposite ends of the shoe being formed with filling ducts disposed at the rear end of the shoe immediately in front of the back thereof, said ducts each extending at an inclination from the adjacent end of the shoe toward the middle of the shoe and into the outer rear corners of the respective pockets.

2. A brake shoe for locomotive car wheels having a flange groove and communicant lubricant containing chambers opening upon the face of the groove, said shoe having oppositely disposed filling ducts extending from the outer side face of the shoe into the adjacent chamber and located one at each end of the shoe, whereby the shoe may be inverted for application to either left or right side wheels without effecting a change in the relation of the ducts to the lubricant chambers.

In testimony whereof we affix our signatures in presence of two witnesses.

IRA KINCAID. [L. S.]
MARK A. FOOTE. [L. S.]
WARREN H. NEUREITHER. [L. S.]

Witnesses:
MARK P. GRINER,
WILLIAM C. LAUMENBERG.