Jan. 2, 1923. 1,440,747.

T. ROGATCHOFF.

LUBRICATING SYSTEM FOR CROSSHEADS.

FILED JAN. 25, 1921. 3 SHEETS—SHEET 1.

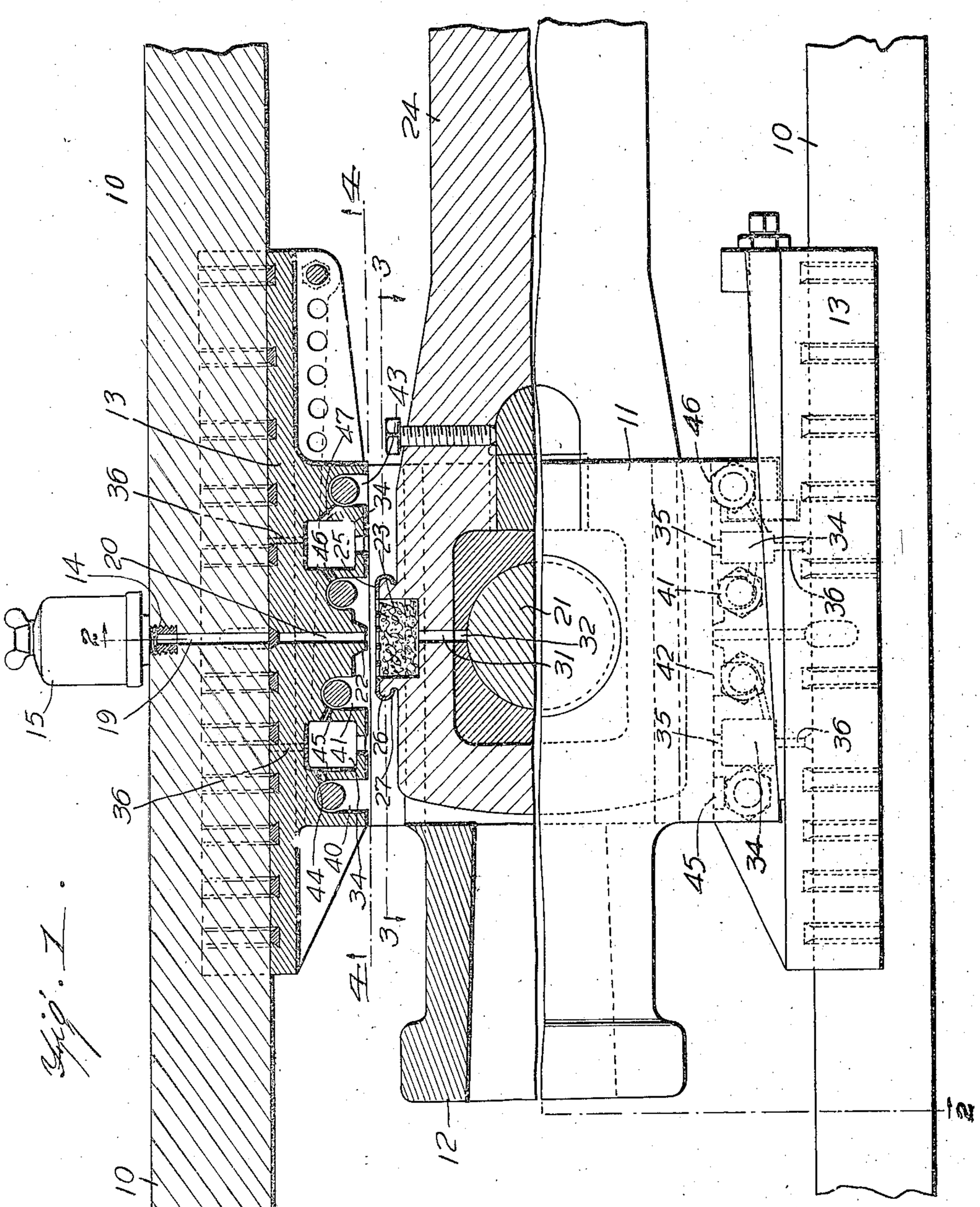

Fig. 1.

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Fig. 2.

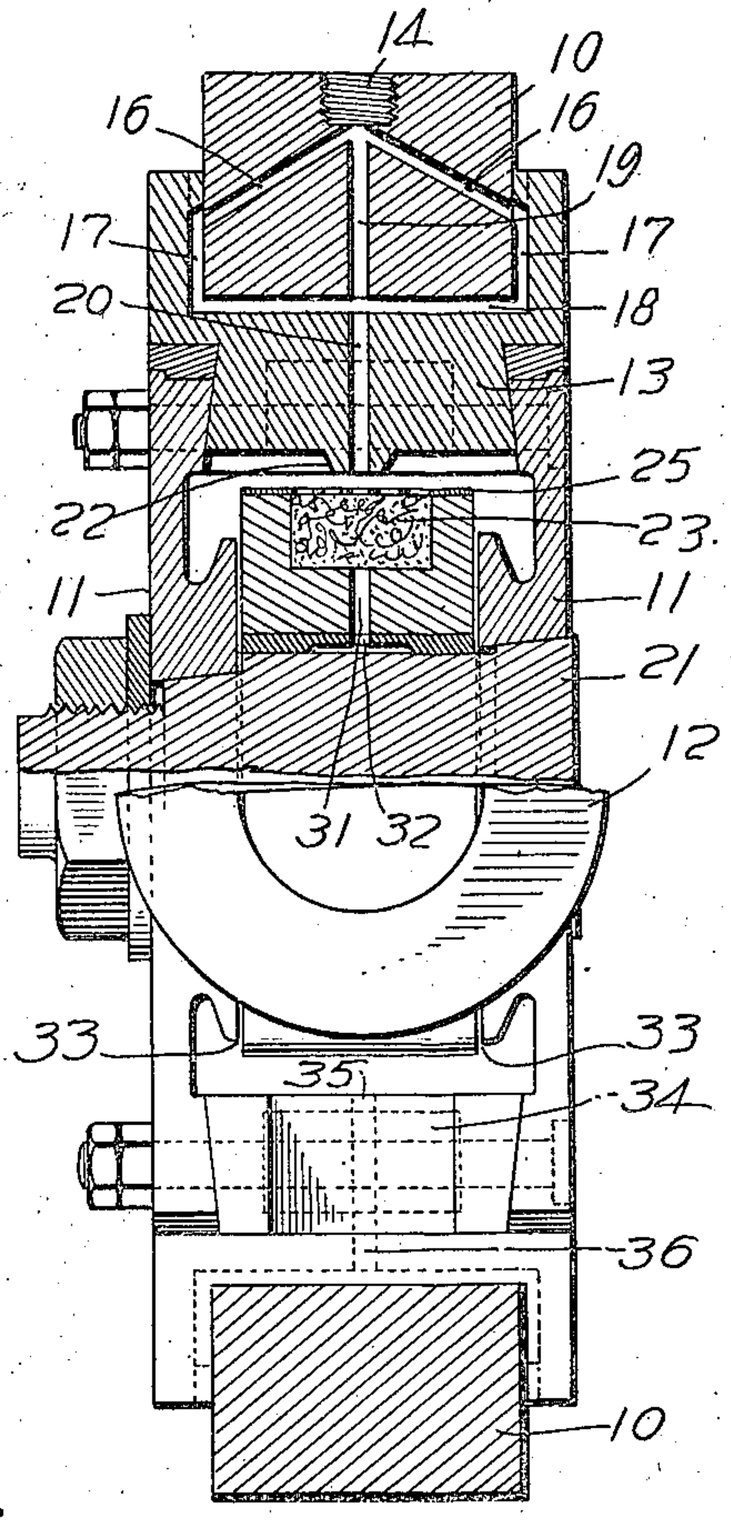

Fig. 3.

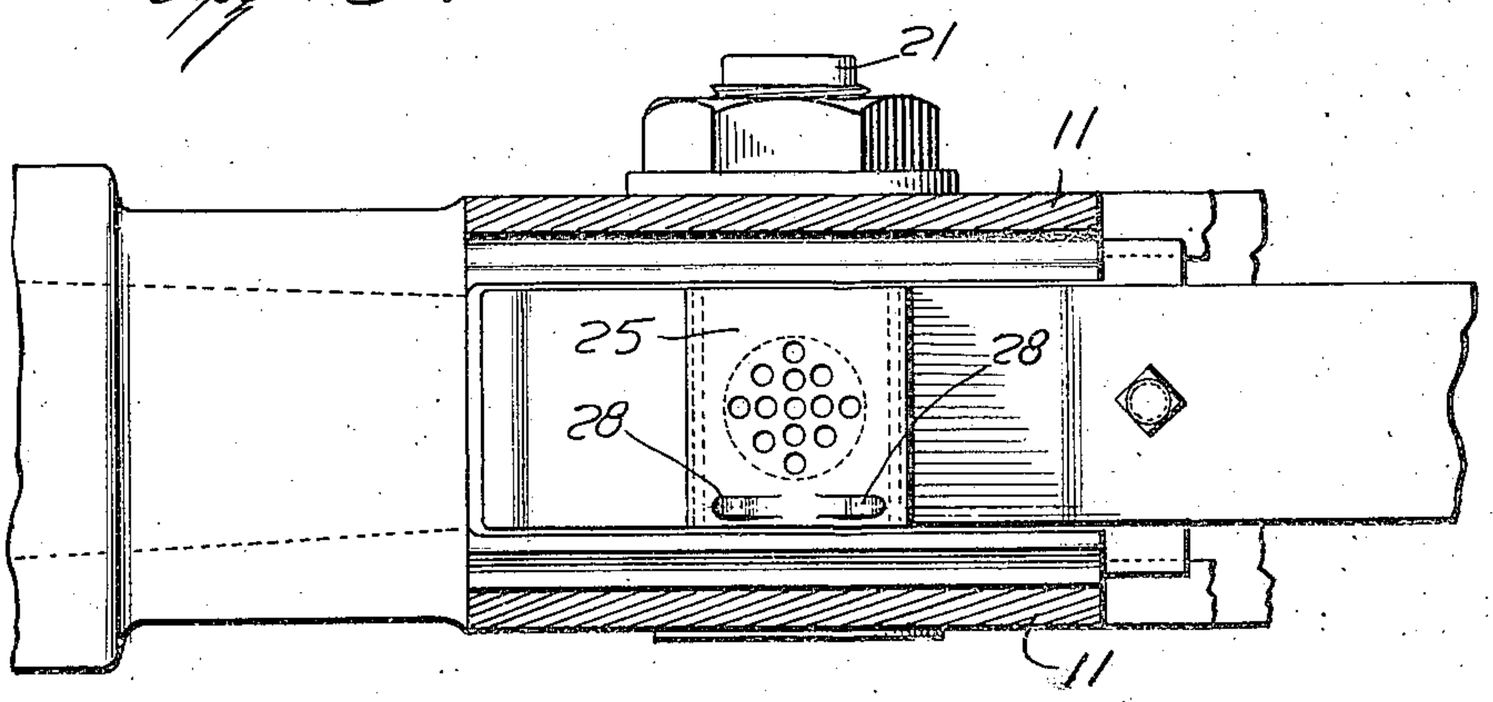

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Fig. 4.

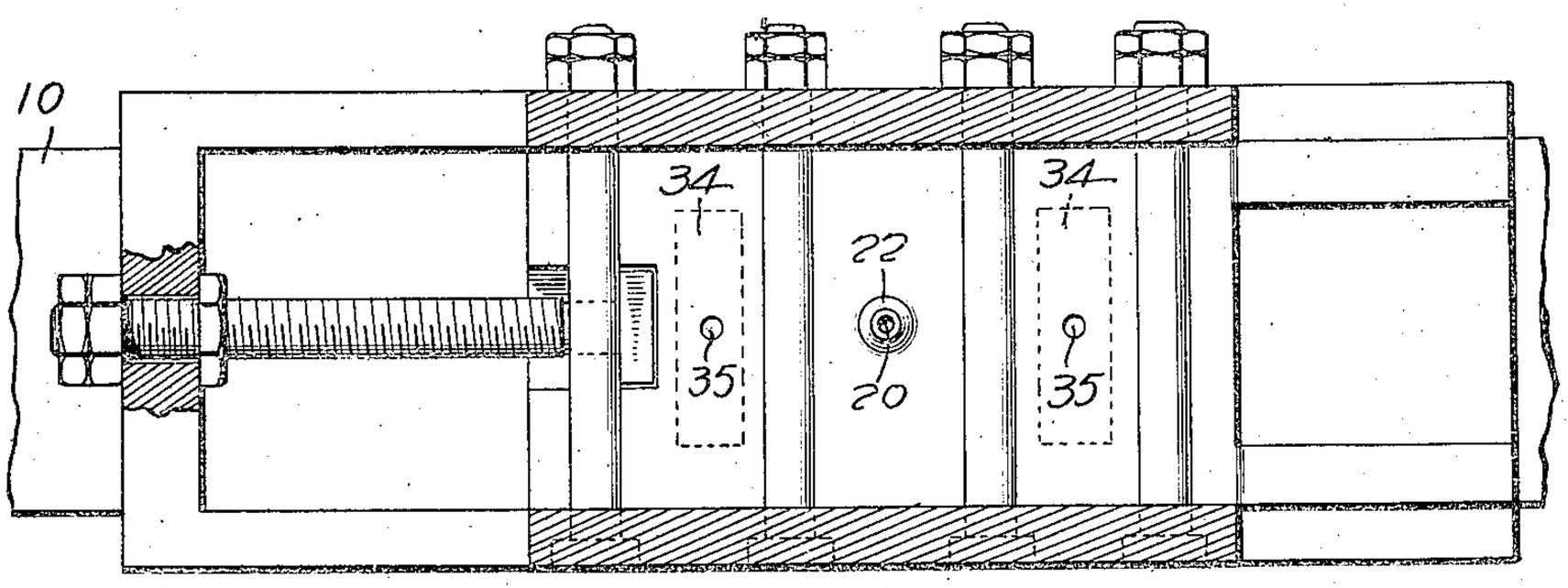


Fig. 5.

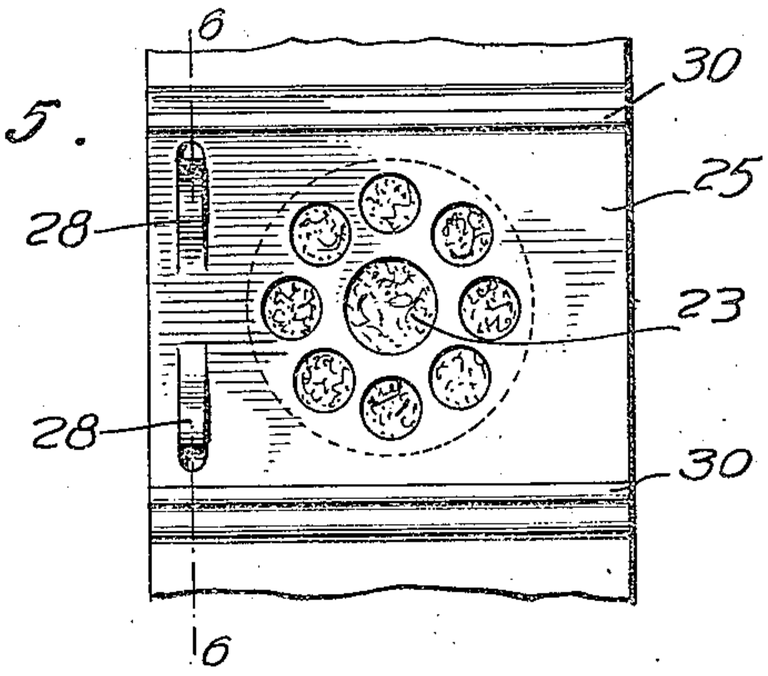


Fig. 8.

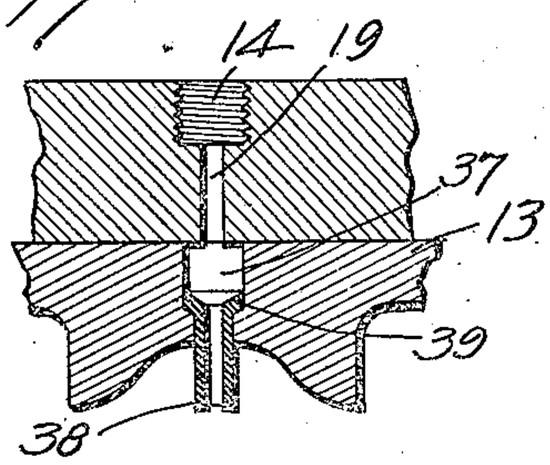


Fig. 6.

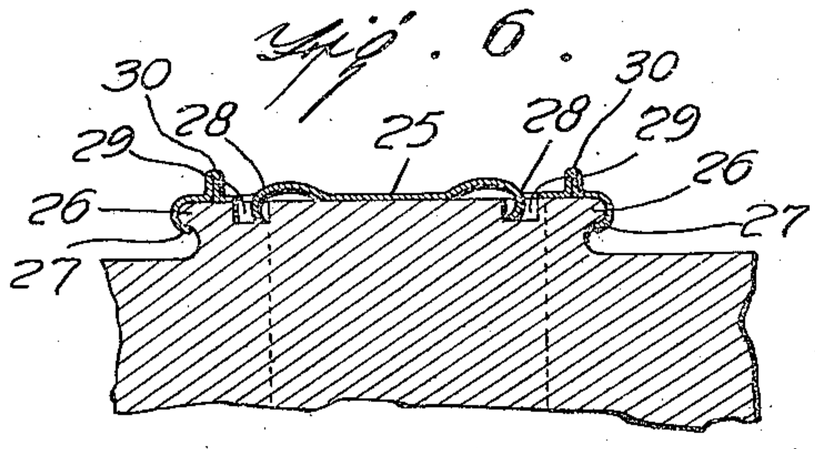
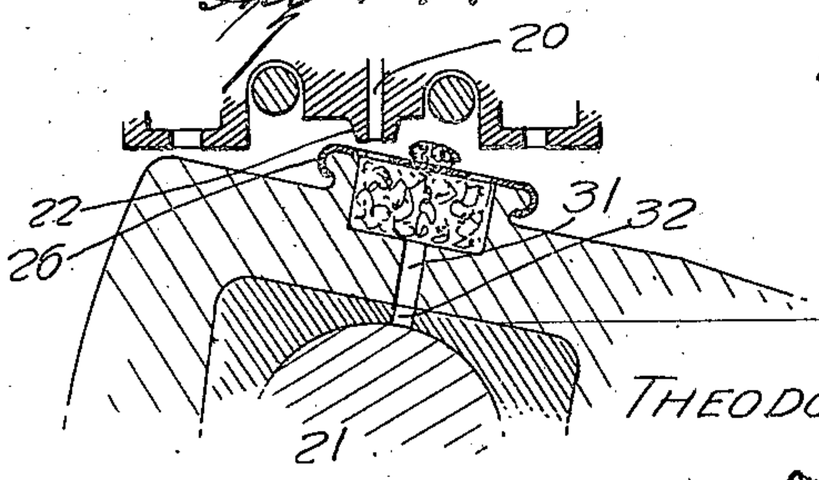


Fig. 7.



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UNITED STATES PATENT OFFICE.

THEODORE ROGATCHOFF, OF BALTIMORE, MARYLAND.

LUBRICATING SYSTEM FOR CROSSHEADS.

Original application filed January 8, 1920, Serial No. 350,091. Divided and this application filed January 25, 1921. Serial No. 439,819.

To all whom it may concern:

Be it known that I, THEODORE ROGATCHOFF, a citizen of the Republic of Russia, residing in the city of Baltimore and State of Maryland, have invented certain new and useful Improvements in Lubricating Systems for Crossheads, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to lubricating systems for cross heads, as for instance cross heads of locomotives, and the like, and has for an object to provide improved means for lubricating the several moving parts as the cross head operates.

A further object of the invention is to provide a shoe as a part of the organized structure of a cross head, the shoe being interchangeable from top to bottom, and providing parts of the lubricating system in either such position.

A further object of the invention is to provide in a lubricating system, means for properly conducting the lubricant from the upper guide-way to the several moving parts including the side rod bearing and the shoes.

A further object of the invention is to cover as a division of co-pending application Serial Number 350,091, filed January 8, 1920, the lubricating features disclosed in said co-pending application.

With these and other objects in view the device comprises certain novel units, elements, parts, combinations and arrangements as will be hereinafter more fully described and claimed.

In the drawings:

Figure 1 is a vertical view, partly in elevation and partly in section, of a cross head embodying the present invention;

Figure 2 is a sectional view through one part of the cross head and an end elevation of the other part, as indicated by line 2—2 of Figure 1;

Figure 3 is a top plan view of the connecting rod with the lubricant cup cover shown in plan;

Figure 4 is an inverted plan view of the shoe showing the lubricant nipple and the openings into the lubricant storage chambers;

Figure 5 is a top plan view of the lubricant cup carried by the rod;

Figure 6 is a transverse sectional view through the lubricant cup covering, as indicated by line 6—6 of Figures 3 and 5;

Figure 7 is a view of a modification showing the means of wiping the lubricant from the nipple carried by the shoe, and

Figure 8 is a sectional view showing a modified type of nipple.

Like characters of reference indicate corresponding parts throughout the several views.

In the said co-pending application, Serial Number 350,091, the present lubricating system is disclosed as a part of the disclosure of the cross head. As shown in that application, the cross head is adapted to be operated in conjunction with guide-ways 10 of substantially the usual and ordinary type. Reciprocating between the guide-ways 10 is a composite cross head made up of a body 11 in the form of spaced plates connected by the nipple 12 into an integral structure, the nipple providing means for connection with a piston rod. Between the plates 11 of the body of the cross head, the shoes 13 are positioned, the form of connection between said shoes and cross head forming no part of the present application, but the basis of the said co-pending application. The upper guide-way 10 is provided with a screw-threaded socket 14 proportioned and positioned for connection with a cup 15 for introducing the lubricant. The guide is provided with inclined passages 16 communicating with grooves 17 and with cross passages 18, the said passages 17 and 18 being located in the shoe 13. The guide-way is also provided with a vertical passage 19, like the passages 16 communicating with the socket 14 and directed toward a central vertical passage 20 in the shoe. The connection of the shoe with the body in such that the central passage 20 is located directly over the center of the pin 21 and a boss 22 is formed at the lower end of such passage, making a discharge nipple immediately above a lubricant cup 23 in the rod 24 when such rod is in substantially a horizontal position. As shown particularly at Figure 7, the rod oscillates upon the pin 21 as the cross head reciprocates, whereby the lubricant cup moves in relation to the nipple upon the pin 21 as a center.

The lubricant cup 23 is preferably provided with a packing, as indicated and to retain the packing in position a keeper 25 is provided with means for retaining the keeper over the cup. This keeper is perforated, as shown particularly at Figures 3 and 5, so that the oil dripping from the nipple 22 upon the keeper passes through perforations into engagement with the packing in the oil cup 23. This keeper may be retained in any usual or ordinary manner, but preferably by forming transverse ribs 26 upon the connecting rod upon opposite sides of the lubricant cup 23 and having inturned marginal edges 27 of the keeper 24 engaging such ribs. To further position this against longitudinal or lateral movement, springs 28 are provided, preferably being struck up from the material of the keeper and hooked into sockets 29 in the connecting rod, as shown more particularly at Figure 6. Ribs 30 are formed transversely of the bar, thereby preventing the displacement of the oil which drips from the nipple 23 onto the keeper 25.

As shown particularly at Figure 7, the packing within the cup 25 may extend upwardly through one of the perforations, as for instance the central perforation, as shown at Figure 5, so that it engages against or wipes the nipple at each oscillation of the rod upon the pin.

From the oil cup 23 a passage 31 extends downwardly to the pin 21 so that the lubricant dripped from the nipple 22 passes through the cup 23, the passage 31 to the pin, provision, as the perforation 32 through the brass, being provided registering with the passage 31. The lubricant from the bearing of the brass upon the pin 21, drips from the ends of said brass about the pin and dropping downwardly through the spaces indicated at 33 in Figure 2, drops onto the lower shoe, as shown in inverted plan in Figure 4. This lower shoe, being a duplicate of the upper shoe, is provided with a plurality of chambers 34 with openings 35 positioned to conduct the lubricant dropped upon the shoe into such chambers and with other passages 36 from the chambers to the exterior of the lower shoe, whereby the lubricant passing through the passages 35, chambers 34 and passages 36, lubricates the under side of the lower shoe.

Instead of forming the nipple as shown at 22 in Figures 1 and 2, a socket 37 may be formed in the shoe, as shown particularly at Figure 8 with a nipple 38 set into such socket, provided with a flanged head 39 for maintaining the nipple in such position. In such position it serves the same purpose and performs the same function in manner as the nipple 22.

As supplemental to the passages 35 for conducting the lubricant from the top of the lower shoe into the chambers 34, the transverse grooves 40, 41, 42 and 43 are provided with passages 44, 45, 46 and 47 respectively, which also communicate with the chambers 34, so that the conservation of the oil dropped upon the lower shoe is made more complete by conducting it from several sources through the several passages into the said chambers 34.

By this means the oil introduced in the cup 15 passes through the several passages in the upper way 10 to the shoe and through the shoe into the oil cup 23 and from the oil cup 23 through the several passages to the pin 21, dripping from the said pin 21 to the lower shoe and through the several passages to the chambers 34, and from the chambers 34 through the lower shoe to the lower way 10. All of the moving parts are, therefore, subjected properly to lubrication by the introduction of the lubricant at a given point.

What I claim to be new is:

1. In combination with a cross head having adjustable grooved shoes and guide bars engaged thereby, a pitman pivoted to a wrist pin upon the cross head, said shoes and pitman having oil ducts, the duct in said pitman having an oil pocket from which the same leads to the bearing surface for the wrist pin, a perforated closure over said pocket, ribs projecting from the upper surface of the closure to prevent oil passing over the sides thereof as the cross head reciprocates.

2. In combination with a cross head having adjustable grooved shoes and guide bars engaged thereby, a pitman pivoted to a wrist pin upon the cross head, said shoes and pitman having oil ducts, the duct in said pitman having an oil pocket from which the same leads to the bearing surface for the wrist pin, a perforated closure having its ends bent to engage parts of the pitman to hold the closure over said pocket.

3. In combination with a cross head having adjustable grooved shoes and guide bars engaged thereby, a pitman pivoted to a wrist pin upon the cross head, said shoes and pitman having oil ducts, the duct in said pitman having an oil pocket from which the same leads to the bearing surface for the wrist pin, a perforated closure having its ends bent to engage parts of the pitman to hold the closure over said pocket, said closure having struck-up ribs to prevent oil from running over the sides thereof as the cross head reciprocates.

4. In combination with a cross head having adjustable grooved shoes and guide bars engaged thereby, a pitman pivoted to a wrist pin upon the cross head, said shoes and pitman having oil ducts, the duct in said pitman having an oil pocket from which the same leads to the bearing surface of the wrist pin, a perforated closure having its

ends bent to engage parts of the pitman to hold the closure over said pocket, said closure having struck-up ribs to prevent oil from running over the sides thereof as the cross head reciprocates, and integral fingers upon the closure engaging recesses in the pitman.

5. A crosshead comprising a central portion, upper and lower shoes adjustable laterally relative to the central portion and having transverse and longitudinal grooves, guides in the longitudinal grooves, adjustable securing members in the transverse grooves, said shoes being provided with ducts, the ducts of the upper one registering at times with an inlet duct in the upper guide and also provided with a storage chamber communicating through passages with the transverse grooves and with the exterior of the shoes, and a pitman pivoted within the central portion having an opening positioned to receive lubricant from some of the ducts of the upper shoe and to drip the excess upon the transverse grooves of the lower shoe.

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

THEODORE ROGATCHOFF.

Witnesses:
J. H. SHAILER,
P. R. SHAILER.