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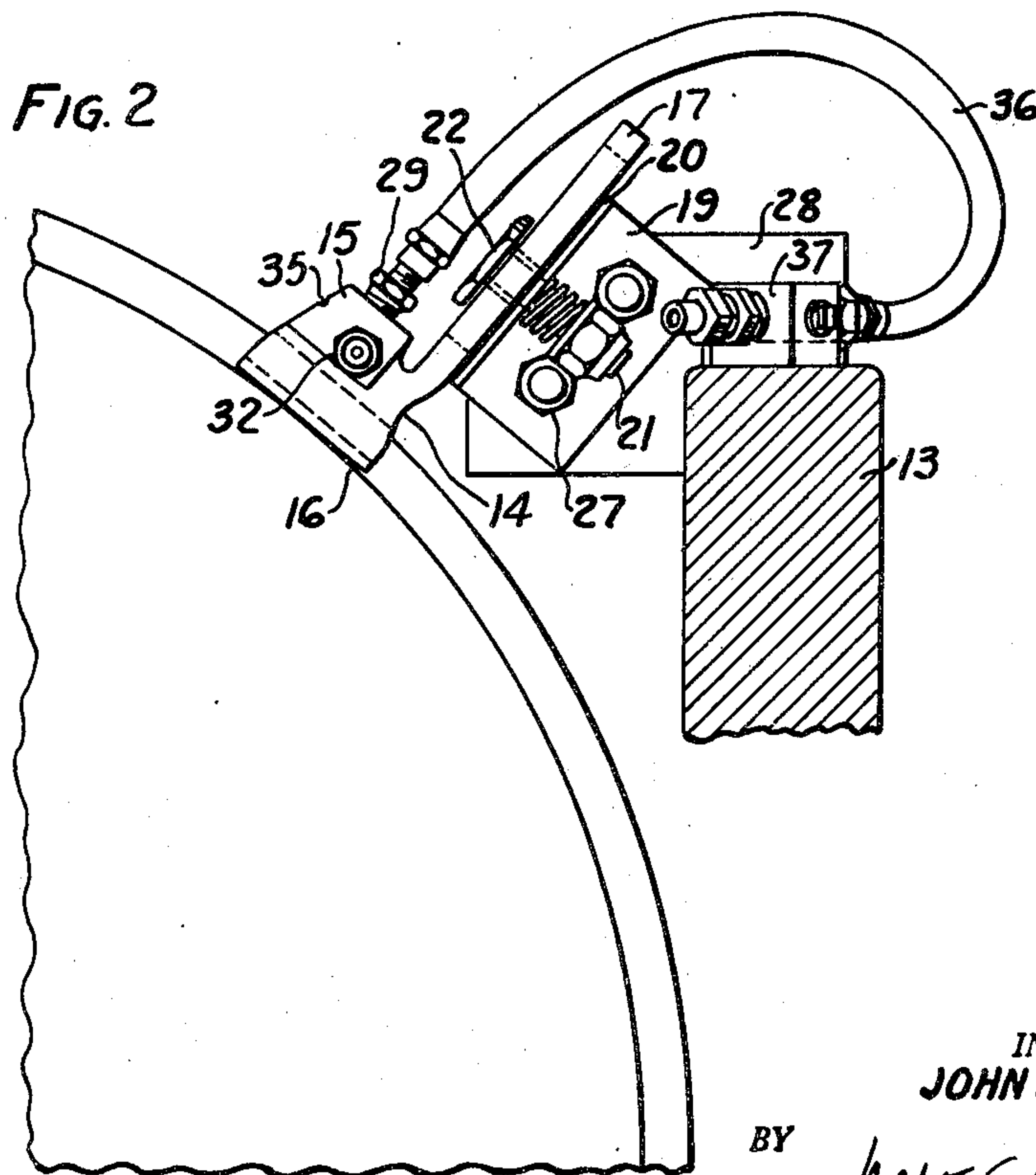
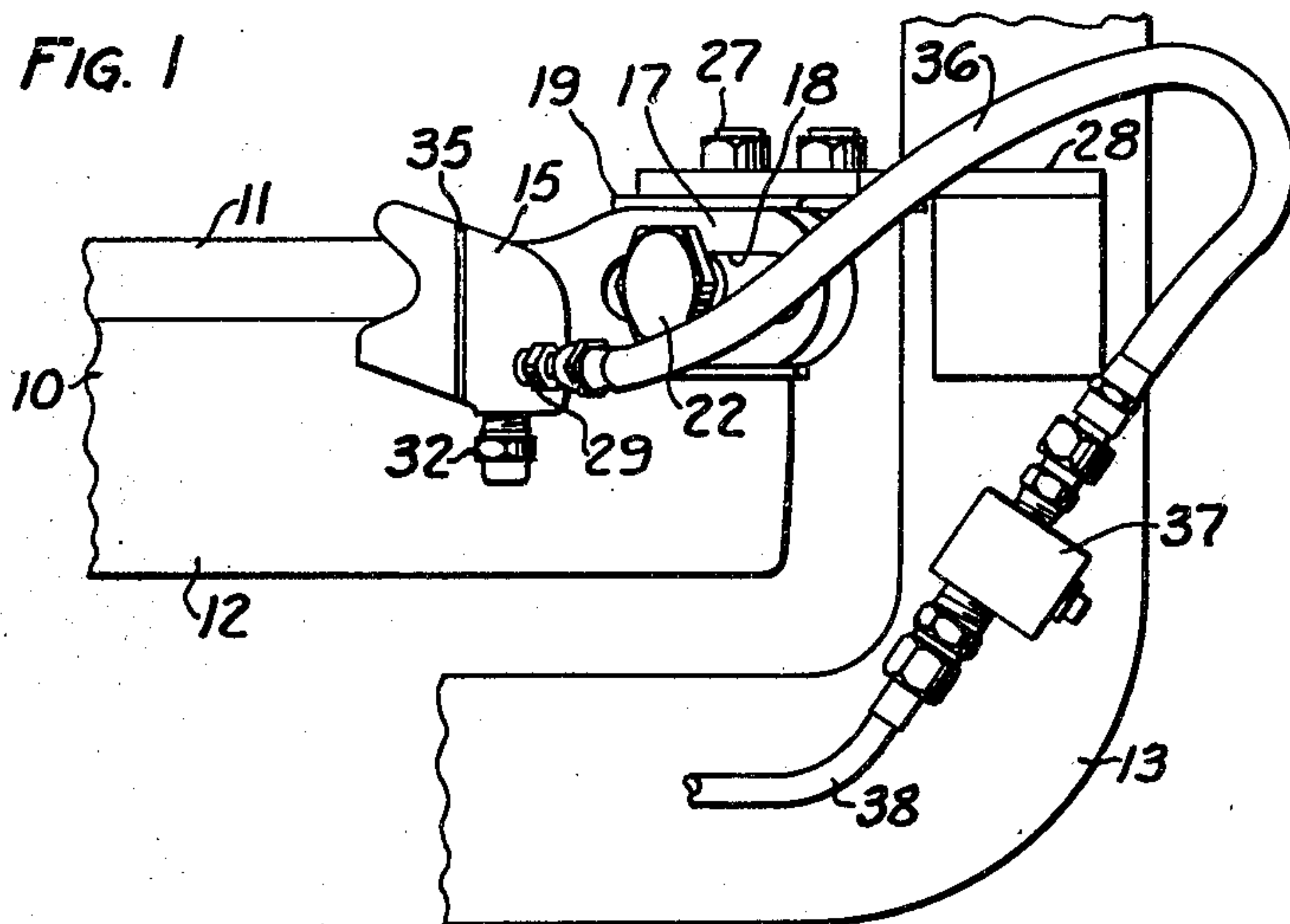
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SHOE FOR WHEEL FLANGE LUBRICATION

Filed Aug. 3, 1948

2 Sheets-Sheet 1



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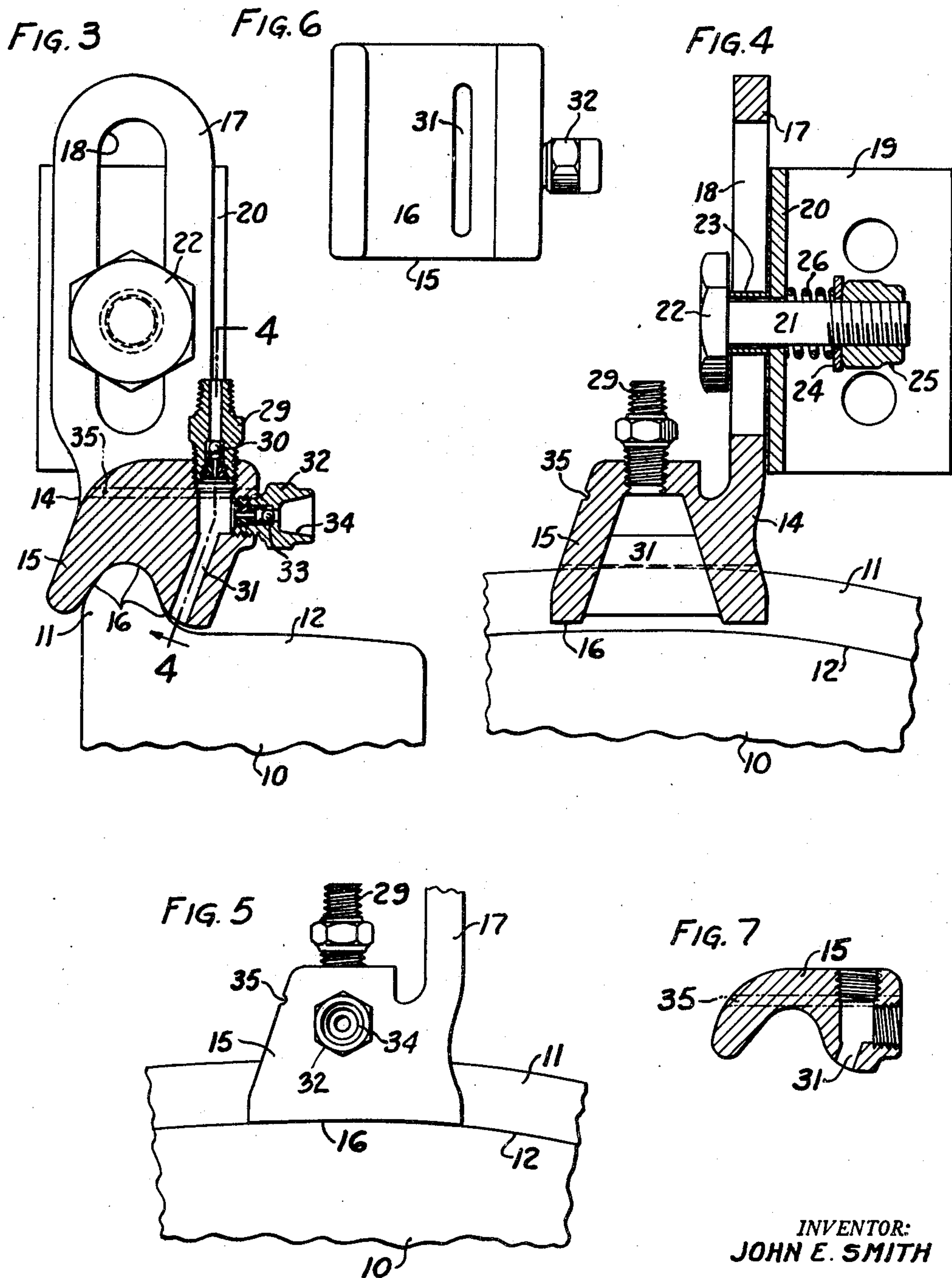
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## SHOE FOR WHEEL FLANGE LUBRICATION

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2 Sheets-Sheet 2



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# UNITED STATES PATENT OFFICE

2,486,071

## SHOE FOR WHEEL FLANGE LUBRICATION

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Application August 3, 1948, Serial No. 42,197

4 Claims. (Cl. 184—3)

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This invention relates to wheel flange lubrication for locomotives or other railway vehicles and refers particularly to shoes which ride upon flanges of wheels and serve to conduct oil efficiently from a source of supply to the wheel flanges while maintaining contact with the wheels during the swaying motion of the vehicle.

It is the particular object of the invention to provide simple and self adjusting means to force the shoe in contact with the wheel flange.

Another object is to provide a clean-out connection for the oil outlet in the shoe as well as for its contact surface with the flange.

A further object is to provide the shoe with marking indicative of its maximum wear when the shoe must be replaced.

Still further objects will become apparent in the following specifications and the accompanying drawings in which a preferred embodiment of the invention is disclosed.

In the drawings,

Fig. 1 is a plan view of a fragmentary part of a vehicle frame and a wheel showing the flange oiler shoe and its oil connection mounted thereon;

Fig. 2 is an elevational view of the shoe and wheel with part of the frame in section;

Fig. 3 is a longitudinal sectional view through a part of the shoe;

Fig. 4 is a sectional view along the plane of line 4—4 in Fig. 3;

Fig. 5 is a fragmentary part of the shoe resting on the wheel flange, the end face of the shoe being worn;

Fig. 6 is a view of the end face of the shoe proper; and

Fig. 7 is a sectional view of part of the shoe, corresponding to Fig. 3, showing the shoe at the limit of its wear.

Like characters of reference denote similar parts throughout the several views and the following specification.

10 is a wheel of a locomotive or other railway vehicle having a flange 11 and a tread 12. 13 is a frame within which the axles of the wheels are journaled. 14 is a shoe having a block 15 of considerable weight curved at its end face 16 to conform to the contour of the flange. 17 is an extension to the block 13 having a slot 18.

19 is a plate preferably of angular shape having one of its legs 20 adjacent extension 17. 21 is a bolt through leg 20 having its head 22 at the other side of the extension and a loose bushing 23 around its diameter and within the

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slot 18, the bushing being slightly longer than the thickness of the extension. A washer 24 and nut 25 at the threaded end of the bolt hold, by means of a spring 26 around the bolt, the extension 17 and the leg 20 of the plate closely together while permitting the extension to move pivotally around the bolt in the slot as well as longitudinally with respect to the plate. Plate 19 is fastened by bolts and nuts 27 to a supporting bracket 28 which is preferably welded to the frame.

29 is an oil connection screwed into the top of block 15 having a non-return valve 30 at its inner or outlet end. 31 is a substantially fan-shaped conduit from the outlet end of the oil connection so disposed that it terminates in the end face 16 of the block at approximately the junction of the wheel flange 11 and the wheel tread 12 as clearly shown in Fig. 3.

At, preferably, the side of shoe 14 is a clean-out nipple 32 having a non-return valve 33 at its inner or outlet end and a tapered inlet 34 adapted to receive the end of a rubber hose or the like connected to an air supply. The outlet of the clean-out nipple communicates with the fan-shaped conduit 31 between the outlet of oil connection 29 and the outlet of the conduit 31 in the end face 16.

35 is a marking groove or line substantially parallel to the axle of the wheel and on that side of the block 15 opposite the side having extension 17.

Oil connection 29 has coupled thereto a hose 36 which is connected to a nipple 37 fastened to the frame 13 and which in turn has a pipe 38 leading to the outlet end of a mechanical lubricator or other source of oil supply under pressure.

In operation, oil from a suitable source of supply is forced through oil connection 29, past its non-return valve 30, into fan-shaped conduit 31 and is directed against the junction of the wheel flange 11 and tread 12 whence it is carried over the flange, the end face 16 of the block 15 acting as a spreader. During the lateral motion of the wheel with respect to the frame, the shoe will pivot about bolt 21 and still maintain contact with the flange. In case of vertical motion of the wheel with respect to the frame the shoe by its own weight and particularly that of its block 15 will also maintain its contact with the flange by virtue of the slotted extension 17 which permits the bolt 21 to travel lengthwisely in the slot 18. It is clear, therefore, that the shoe has radial as well as transverse movement with respect to the wheel, thus insuring contact be-



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tween the shoe and the wheel under all normal operating conditions.

It is advantageous to clean out periodically the conduit 31 as well as the contacting surface between the face 16 and the wheel. To accomplish this, the clean-out nipple 32 has been provided for. The plain end of a rubber hose can easily be held by hand within the tapered inlet 34 of the nipple and air admitted under pressure through its non-return valve 33 into conduit 31. In doing so, the non-return valve 30 of the oil connection prevents air from passing into the oil line. The force of the air admitted into conduit 31 not only is instrumental in cleaning out the conduit but also raises slightly the end face 16 of the block 15 and permits the entire face to be cleaned at the same time. While oil is passing into the conduit 31 from oil connection 29, the non-return valve 33 of the clean-out nipple prevents waste of oil at that point.

The shoe in contact with the wheel is subject to wear and, to prevent wear of an extent detrimental to the performance of the shoe, the marking groove 35 has been provided. As soon as that point of the end face 16 which rests on the top of the flange 11 of the wheel reaches the marking groove 35 due to wear, the shoe must be discarded. At this point which is illustrated in Fig. 7 there is still sufficient material left to define the fan-shaped conduit 31, but further use of the shoe reduces this material to a dangerous condition. In Fig. 4 the end face 16 of the block is shown in a nearly straight line as it is when newly applied, and contact with the tread is not throughout the end face. After some wear contact between the entire end face and the flange and tread of the wheel takes place. This is shown in Fig. 5 where the shoe is shown somewhat worn.

While I have described the application of the flange oiler shoe to a locomotive, it is obvious that it can be applied equally as well to any vehicle running on tracks and the term "railway vehicle" is to be interpreted broadly. It is also possible, of course, to eliminate the angular plate 19 and combine it directly with bracket 23 if so desired. However, from a commercial point of view it has been found advantageous to supply the plate with the shoe because the bolt can be better fitted to it.

Many other changes in the form, proportion and combination of parts and minor details of construction may be resorted to without departing from the principles or sacrificing any of the advantages of the invention as defined in the appended claims:

What I claim as new, is:

1. A shoe for lubricating the wheel flange of a railway vehicle, comprising a weighted block having an end face contacting the wheel flange, an oil connection to the block, having a non-return valve, The block having an inner fan-shaped conduit from the connection with its outlet terminating in the end face of the block at the junction of the flange and tread of the wheel, a clean-out nipple having a tapered inlet for the reception of the end of a hose, a non-return valve and an outlet between the oil connection and the outlet in the end face, the block having a marking line at its outer surface indicative of the maximum permissible wear of the end face at which sufficient thickness is left in the block between the oil connection and the clean-out nipple, respectively, and the end face.

2. A shoe for lubricating the wheel flange of a railway vehicle, comprising a weighted block hav-

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ing an end face contacting the wheel flange, an extension to the block, a bracket fastened to the vehicle, means holding the extension and bracket together while permitting the extension and the block to travel radially and transversely with respect to the wheel and the end face of the block to maintain contact with the wheel flange during the swaying motion of the vehicle, an oil connection to the block, having a non-return valve, the block having an inner fan-shaped conduit from the connection with its outlet terminating in the end face of the block at the junction of the flange and tread of the wheel, a clean-out nipple having a tapered inlet for the reception of the end of a hose, a non-return valve and an outlet between the oil connection and the outlet in the end face, the block having a marking line at its outer surface indicative of the maximum permissible wear of the end face at which sufficient thickness is left in the block between the oil connection and the clean-out nipple, respectively, and the end face.

3. A shoe for lubricating the wheel flange of a railway vehicle, comprising a weighted block having an end face contacting the wheel flange, an extension to the block having a longitudinal slot, means to clamp the extension to a bracket fastened to the vehicle including a bolt mounted in the bracket and projecting through the slot in the extension and resilient means holding the extension and bracket together while permitting the extension and the block to travel radially and transversely with respect to the wheel and the end face of the block to maintain contact with the wheel flange during the swaying motion of the vehicle, an oil-connection to the block, having a non-return valve, the block having an inner fan-shaped conduit from the connection with its outlet terminating in the end face of the block at the junction of the flange and tread of the wheel, a clean-out nipple having a tapered inlet for the reception of the end of a hose, a non-return valve and an outlet between the oil connection and the outlet in the end face, the block having a marking line at its outer surface indicative of the maximum permissible wear of the end face at which sufficient thickness is left in the block between the oil connection and the clean-out nipple, respectively, and the end face.

4. A shoe for lubricating the wheel flange of a railway vehicle, comprising a weighted block having an end face contacting the wheel flange, an extension to the block having a longitudinal slot, a plate adjacent the extension, a bracket fastened to the vehicle and supporting the plate, means to clamp the extension to the plate including a bolt mounted in the plate and projecting through the slot in the extension and resilient means holding the extension and plate together while permitting the block to travel radially and transversely with respect to the wheel and the end face of the block to maintain contact with the wheel flange during the swaying motion of the vehicle, an oil connection to the block, having a non-return valve, the block having an inner fan-shaped conduit from the connection with its outlet terminating in the end face of the block at the junction of the flange and tread of the wheel, a clean-out nipple having a tapered inlet for the reception of the end of a hose, a non-return valve and an outlet between the oil connection and the outlet in the end face, the block having a marking line at its outer surface indicative of the maximum permissible wear of the end face at which sufficient thickness is left in the block between the oil con-



nection and the clean-out nipple, respectively,  
and the end face.

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