J. D. CONNER.

LUBRICATING DEVICE.

APPLICATION FILED DEC. 17, 1909.

983,874. Patented Feb. 14, 1911.

Fig. 1.

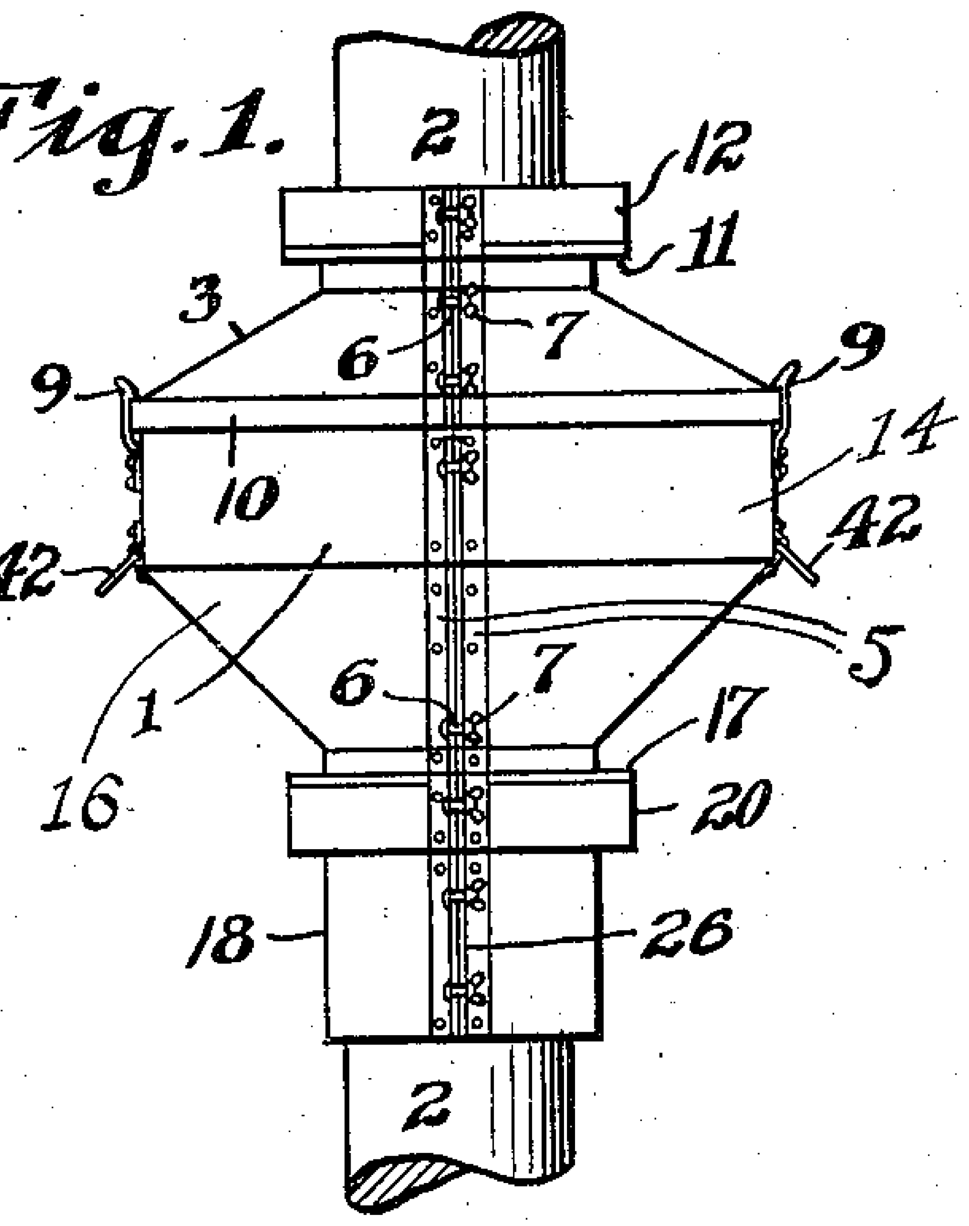


Fig. 3.

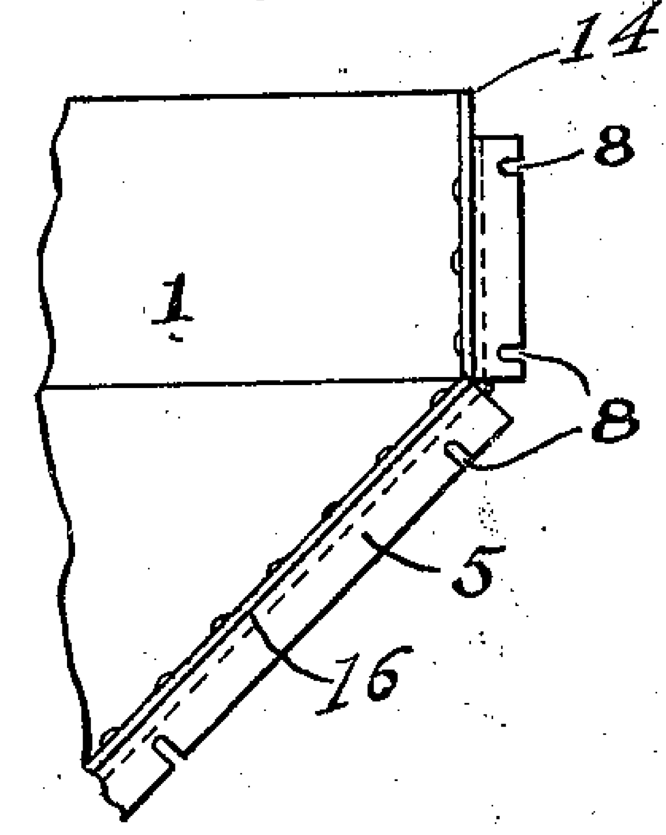
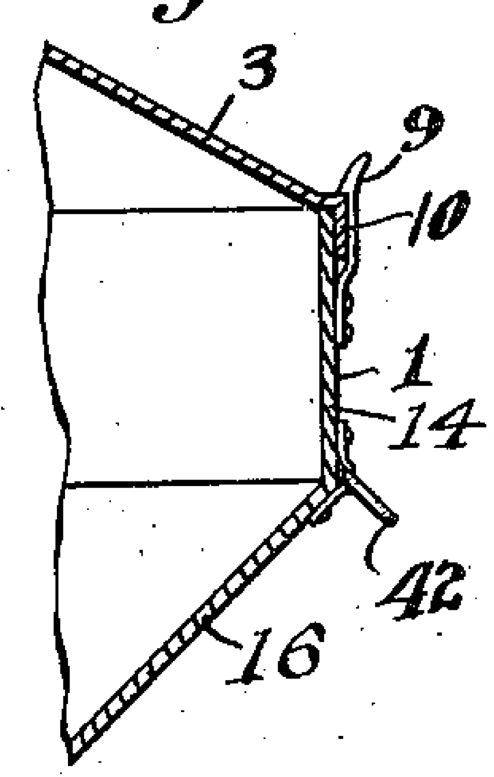


Fig. 4.



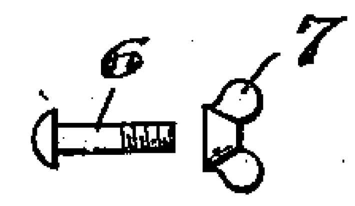
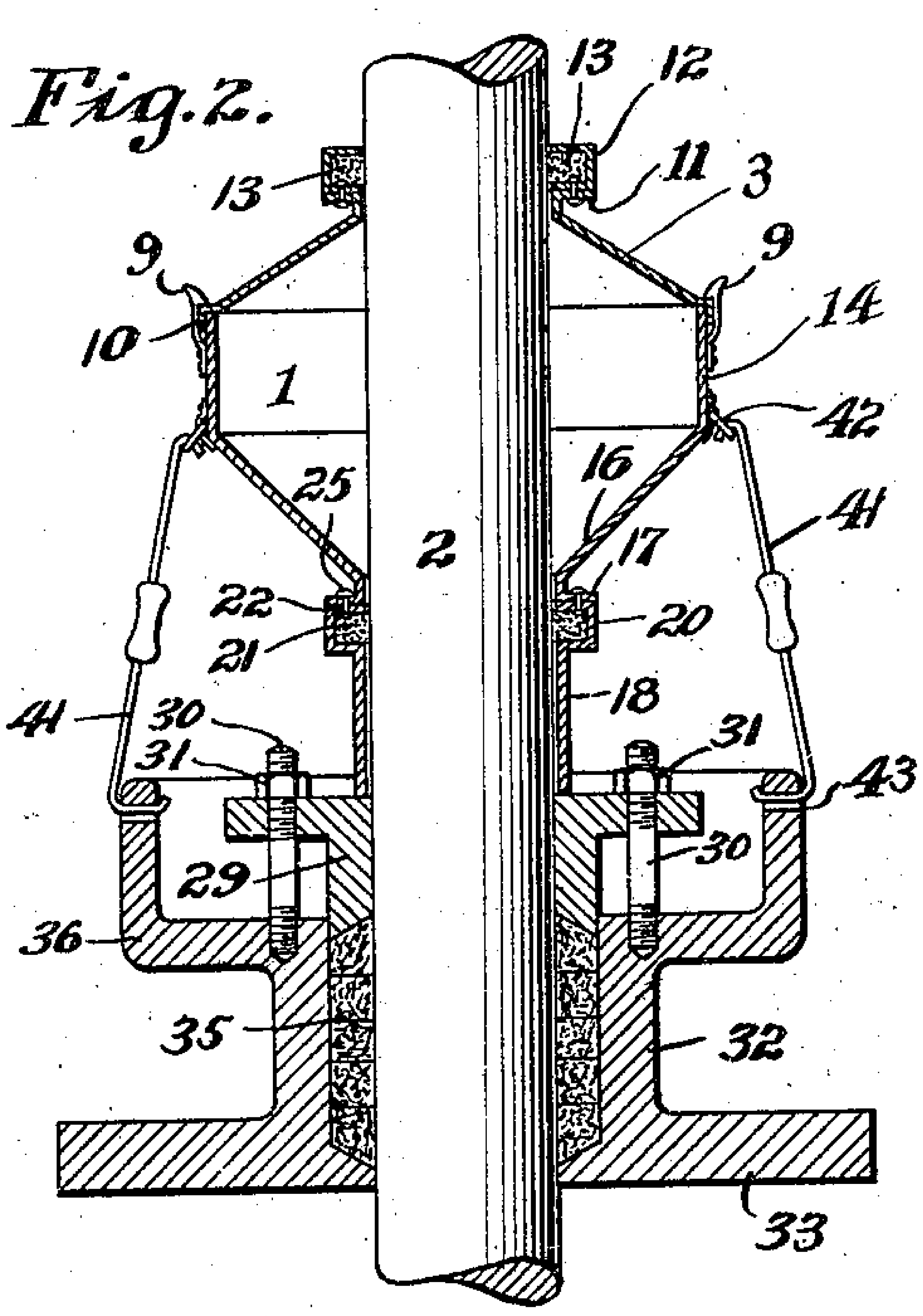


Fig. 5

Fig. 2.



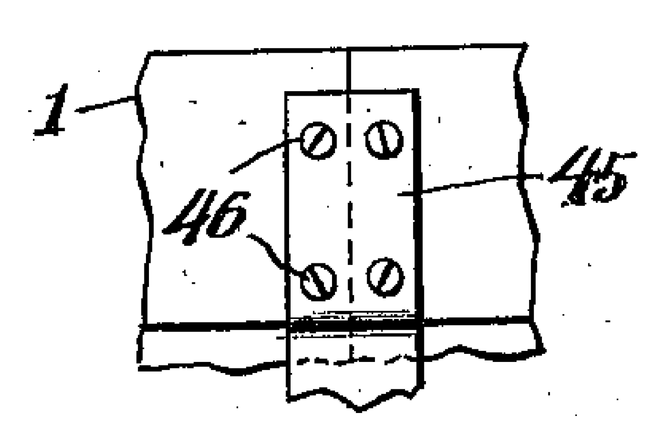


Fig. 6.

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LUBRICATING DEVICE.

983,874. Specification of Letters Patent. Patented Feb. 14, 1911.

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To all whom it may concern:

Be it known that I, JOHN D. CONNER, a citizen of the United States, residing in Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Lubricating Devices, of which the following is a specification.

My invention relates to improvements in lubricating devices, and it has for its object to provide means by the use of which a shaft, piston rod or similar object may be constantly lubricated with a minimum of cost consistent with efficient and complete lubrication.

My invention may be applied in many ways and to different objects but as a convenient means of illustration I have shown it as applied to the plunger of a hydraulic elevator of the direct plunger type.

My invention, broadly speaking, comprises an improvement in the means for supporting and holding a greater or less quantity of lubricating material in a receptacle through which the plunger, piston rod or similar object operates.

A convenient embodiment of my invention is illustrated in the accompanying drawings but it is to be understood that changes in the details of construction may be made and that different applications of the said invention may also be made without departing from the scope of my invention as the same is hereinafter set forth.

In the drawings:—Figure 1 is a side elevation of a lubricating device embodying my invention, the said device being supported upon an elevator plunger, a portion only of which is shown; Fig. 2 is a longitudinal section of the same; Fig. 3 is a view of an edge of one of the sections of which the lubricant holding receptacle is composed; Fig. 4 is a transverse section of a portion of the said receptacle somewhat enlarged; Fig. 5 is a view of a bolt and wing nut employed for securing the sections of the receptacle together; and Fig. 6 is a view in side elevation of a portion of the receptacle showing a modified construction of means for securing the edges of the parts forming the receptacle together.

Referring to the drawings:—1 designates the lower portion of a receptacle which is adapted to be secured about the plunger 2 of a hydraulic elevator or about a similar object such as a piston rod. A cover 3 is provided for the said receptacle, the said cover constituting practically a portion of the said receptacle.

In the construction shown the body portion 1 and cover 3 each consists of two members or parts. The edges of each member or part are provided with angle irons 5, one flange of each of which is secured to the respective members or parts of the receptacle and cover while the other flange of each of the said angle irons extends outwardly as clearly shown in Figs. 1 and 3 of the drawings. The parts or members of the body portion 1 of the receptacle and its cover 3 are secured together around the part to be lubricated by means of bolts 6 and wing nuts 7,—the bolts extending through slots 8 in the outwardly extending flanges.

While the body part 1 and the cover 3 of the receptacle are each made up of two parts or halves it will be understood that this is merely a matter of convenience and economy and that a greater number of parts may be employed for constructing the members 1 and 3 of the receptacle.

The cover 3, as will be noted, is, generally speaking, of truncated cone shape and its lower edge is provided with a flange 10 which extends over and around the upper edge of the member 1 of the receptacle. The said cover 3 is secured upon the main or body portion 1 of the receptacle by means of spring catches 9 fastened to the body portion 1 and which are adapted to extend over the outer peripheral edge of the said cover in the manner shown particularly in Figs. 2 and 4 of the drawings.

The upper edges of the cover 3 are provided with flanges 11 to which are secured holders 12 for packing material 13 which is adapted to be saturated with the lubricating material in the receptacle 1. While the said holder 12 is rectangular in cross section, it will be understood that it may be of any other cross sectional contour desired.

It is desirable that the cover 3 be inclined as shown for the reason that when so inclined it will shed water, dust, etc., instead of collecting and holding it as it would if the cover were horizontal or concaved. I have also found by experience that if the surface of the lubricant is located in close proximity to the cover of the receptacle, it is difficult to prevent too large a quantity of the lubricant from adhering to the piston rod or other object and passing out of the said receptacle. This objection is obviated by inclining the cover upwardly from the top of the body or main portion of the receptacle as indicated in Figs. 1 and 2 so as to leave a considerable space between the top of the lubricating material and the cover. By providing this space, as indicated, I have found that while the lubricant may be lifted by the piston rod or similar object as it passes through the same, such lubricant is returned into the receptacle by the cover.

From the lower edge of the central portion 14 of the receptacle 1 its sides are inclined inwardly and downwardly toward the plunger 2 or similar object as indicated at 16. The lower edges of the receptacle 1 are flanged as at 17. The collar 18 surrounds the part 2 adjacent to the edges of the lower end of the receptacle 1. The portion of the said collar next to the receptacle 1 is provided with a groove 20 adapted to hold packing material 21. The said groove is illustrated as being rectangular in cross section but it may be of any other contour desired and is formed by stamping or pressing the metal of the collar to the shape desired. The flange-like portion 22 constituting one side of the groove 21 is secured by means of rivets 25 to the flange 17.

In the construction shown, the collar 18 consists of two parts or members but may consist of a greater number if desired. Angle irons 26 are secured by means of rivets to the edges of the parts or members of the said collar and the said parts or members are secured and held together about the part 2 by means of bolts and nuts in the same manner as the parts of the body portion 1 and cover 3 of the receptacle are secured and held together.

The lower edge of the collar 18 is adapted to rest upon a gland 29 which surrounds the part 2, which in the drawing is a portion or section of a plunger of a hydraulic elevator. The said gland is held in position and may be tightened or moved downwardly by means of bolts 30 and nuts 31, the said bolts having screw-threaded connection with a packing or stuffing box 32 which, in the construction shown, is formed integrally with the head 33 of a cylinder (not shown). The packing 35 is located in the said stuffing box and held in position by the gland 29. The stuffing box is provided with an angular flange 36 forming a receptacle surrounding the part 2 for the purpose of catching water, grease, etc.

By providing an elongated collar such as 18 the receptacle is held away from the stuffing box 32, gland 29, etc., to permit access thereto for the purpose of tightening or loosening the gland holding nuts, attending to the packing 35 and for similar purposes. The said collar also causes a more efficient and perfect lubrication of the rod or plunger which it surrounds by reason of the fact that a sufficient quantity of lubricating material escapes from the lubricant holding receptacle to form a layer of the lubricating material between the said collar and the said rod or plunger.

In order to prevent movement of the receptacle away from the position in which it is shown, for instance, in Fig. 2 of the drawings, when the part 2 is moved outwardly through the said receptacle, I have provided holding stays or rods 41 having hooks at their opposite ends. These hooks are adapted to engage holes or openings in lugs 42 secured upon the receptacle and openings 43 formed in the edge of the flange 36 having connection with the packing or stuffing box 32.

In Fig. 6 I have shown a modified construction of the means for connecting or securing together the adjacent edges of the parts of which the body portion 1 of the receptacle and cover 3 and the collars 12 and 18 are constructed. In the said modified construction the edges of the said parts are brought in juxtaposition with respect to each other, preferably in contact, as indicated, and are held in such position by means of an overlapping strip 45 which is secured to each of the said parts by means of screws or equivalent devices 46.

My invention comprehends other improvements in details of construction which will be pointed out and specifically set forth in the claims.

In the specification and claims the terms "plunger" and "piston rod" are intended to include any reciprocating member employed in mechanical constructions and which require lubrication.

Having thus described my invention, I claim:—

1. The combination of a reciprocating member with means for lubricating said member, the said means comprising a receptacle surrounding said member and adapted to hold a lubricant, and said receptacle having a wall of conical shape which meets the said member at an acute angle, an elongated collar connected to the lower end of said wall and surrounding the said member and being in close proximity thereto, and stationary means against which the lower end of said collar abuts, the said stationary means being separate and disconnected from said collar.

2. The combination of a reciprocating member with means for lubricating said member, the said means comprising a receptacle surrounding said member and adapted to hold a lubricant, and said receptacle having a conical wall arranged to meet the said

member at an acute angle, an elongated collar connected to the lower end of the said wall and surrounding the said member, packing rings surrounding the said member which respectively are located at the opposite ends of the said receptacle, and a stuffing-box structure against which the end of the said collar rests, the said collar being separate and disconnected from the said stuffing-box structure.

3. In combination a piston rod or plunger, a stuffing box structure through which the said plunger or piston operates, a lubricant holding receptacle surrounding the said plunger or piston rod, and a collar interposed between the said receptacle and the said stuffing box structure and resting against the latter, the said collar surrounding the said plunger or piston rod.

4. In combination a piston rod or plunger, a stuffing box structure through which the said plunger or piston operates, a lubricant holding receptacle surrounding the said plunger or piston rod, a collar interposed between the said receptacle and the said stuffing box structure and resting against the latter, the said collar surrounding the said plunger or piston rod, and means for connecting the said receptacle to the said stuffing box structure.

5. The combination of a reciprocating member, a receptacle for holding a lubricant surrounding said member, a stuffing box structure, and a collar connected to said receptacle and surrounding said member and resting against said stuffing box structure.

6. In a device of the character described, the combination of a vertical reciprocatory rod or plunger, a stuffing box structure through which the said rod or plunger operates, a lubricant holding receptacle surrounding the said rod or plunger, a collar or sleeve connected to the said receptacle, surrounding the said rod or plunger and resting upon the said stuffing box structure, parts on the said receptacle and parts of the said stuffing box structure having eyes or openings therein, and rods having hooks upon their opposite ends which hooks are adapted to engage in the said eyes or openings to retain the said receptacle in stationary position with respect to the said stuffing box structure.

7. In a device of the character described, the combination of a vertical reciprocatory rod or plunger, a stuffing box structure through which the said rod or plunger operates, a lubricant holding receptacle surrounding the said rod or plunger, parts on the said receptacle and parts of the said stuffing box structure having eyes or openings therein, and rods having hooks upon their opposite ends which hooks are adapted to engage in the said eyes or openings to retain the said receptacle in stationary position with respect to the said stuffing box structure.

8. In a lubricating device, the combination of a reciprocating rod or plunger, a stuffing box structure, a lubricant holding receptacle surrounding said rod or plunger, the said receptacle comprising parts separable longitudinally and transversely, means for detachably connecting the longitudinally separable parts, means for detachably connecting the transversely separable parts, a collar or sleeve consisting of longitudinally separable parts connected to the said receptacle and surrounding the said rod or plunger and resting against the stuffing box structure to support the said receptacle in predetermined relation to the said stuffing box structure, and means for retaining the said receptacle in position.

In testimony that I claim the foregoing as my invention, I have hereunto signed my name this 16th day of December, A. D. 1909.

JOHN D. CONNER.

In the presence of—
Geo. H. Weidner,
Cyrus N. Anderson.