Aug. 20, 1929. H. G. MOBLEY 1,725,593

PLUNGER WIPING DEVICE

Filed Jan. 25, 1926 2 Sheets-Sheet 1

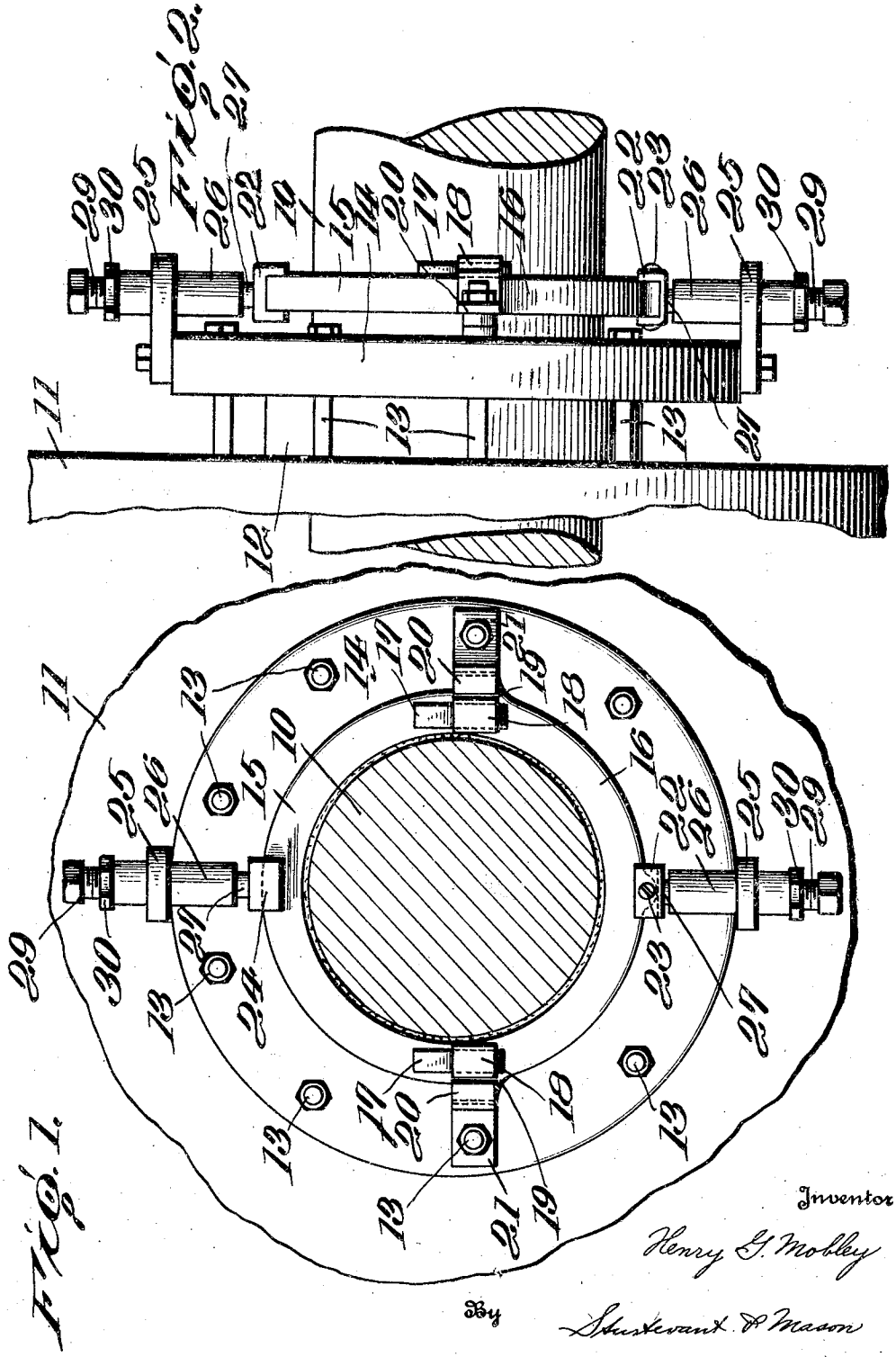

Fig. 1.

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Fig. 4.

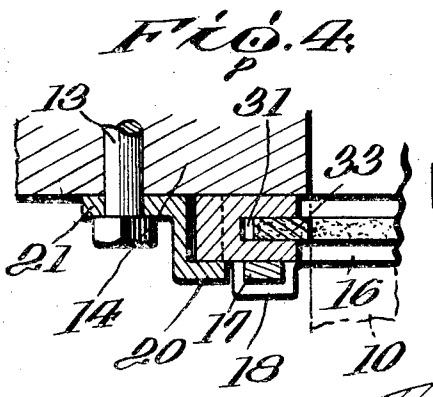

Fig. 3.

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UNITED STATES PATENT OFFICE.

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PLUNGER-WIPING DEVICE.

Application filed January 25, 1926. Serial No. 83,619.

This invention relates to a device for wiping the reciprocating plunger of a pump or like mechanism to maintain the plunger clean and prevent contamination of the fluid handled by the pump and of the lubricant with respect to each other.

One of the objects of this invention is to provide a structure which may be readily attached to the packing gland of a pump or engine and readily separated therefrom.

Another object is to provide a device of this type in which the wiping element is held in resilient contact with the plunger to be wiped at all points of its periphery.

A further object is to provide a device of this type in which the device readily and automatically adjusts itself to variations in the position of the plunger rod with respect to the frame.

Another object is to provide such an apparatus which may be easily and readily inspected and dismounted, and quickly and accurately reassembled.

With these and other objects in view as will appear in the course of the following specification and claims, one form of execution of the invention has been illustrated on the accompanying drawings, in which:

Figure 1 is an elevation of the device mounted about a plunger which is shown in section.

Fig. 2 is a side elevation of the same device, with parts of the pump or engine cylinder shown in section.

Fig. 3 is an end elevation with partial sections, showing the assemblage of the several parts.

Fig. 4 is a section on line 4—4 of Fig. 3.

This device is intended to wipe the plunger or piston rod 10 during its reciprocation to and fro in the cylinder 11. Since the invention relates to the wiper and not to any particular cylinder or plunger construction, the latter elements have been only fragmentarily shown. The plunger 10 is packed by a clamping bushing 12 for the packing material, which is drawn tight by means of the cap screws 13 which pass through the flange 14 of the bushing 12.

The wiping device according to the present invention has two half-rings or ring sections 15, 16. The half-ring 15 has a pair of pins 17 which extend across the bracket between the half-rings into the sleeves 18 of the half-ring 16. These hold the two half-rings in position in plane. The lower half-ring 16 has a pair of projecting lugs 19 at its upper edge, which are received between the flange 14 of the packing bushing and the outer end 20 of guide members 21, which are clamped rigidly to the flange 14 by means of certatin of the cap screws 13, as shown in Fig. 1. By virtue of this arrangement, the half-rings 15 and 16 are held against planar horizontal movements, but are permitted to move vertically as a whole by the engagement of the lugs 19 with the guides 20 and the flange 14. In order to force the half-rings resiliently toward each other, a yoke 22 is pivoted at 23 to the lower half-ring 16, and a yoke 24 is loosely mounted over the edge of the upper half-ring 15; these yokes also serve as guides for the half-rings 16, 16. The brackets 25 are rigidly secured to the flange 14 at the upper and lower portions of the same and carry the aligning bushings 26 integral therewith. The bushings 26 receive the pins 27 and are pressed resiliently in contact with the yokes 22 and 24 by means of the coil springs 28. The compression of these coil springs may be adjusted by means of the cap screws 29 which are threaded into the outer ends of the bushings 26, and which may be locked in adjusted position by means of the lock nuts 30.

The half-rings 15 and 16 are formed of U-shaped cross section as shown in Fig. 4, and carry at the bottom of the concavity a plurality of individual leaf springs 31, which are perforated near their middles and are held in permanent relation to the half-rings 15 and 16 by means of the rivets 32. It will be understood that the normal tendency of the free ends of these springs 31 is to move inward toward the plunger rod.

A packing ring 33 of leather, felt, or similar material is placed within the concavity of the half-rings 15 and 16 and is guided and supported thereby, with its inner periphery projecting slightly beyond the inner periphery of the half rings and into contact with the plunger rod 10. It is preferable to lap the ends of the ring 33 as shown at 34; it likewise will be understood that this ring may be made of one or more parts without departing from the spirit of the invention.

In operation, when the device is assembled upon the plunger rod, the screws 29 are turned until a substantially uniform tension is exerted upon the upper and lower halves, and with respect to the plunger rod 10 itself. In this condition, the packing 33 is

forced uniformly against the plunger rod by the action of the individual springs 31, so that the entire periphery of the plunger rod is wiped at each reciprocation, and when the plunger rod is employed as an element of a pump for feeding crude oil, for example. It is apparent that no mingling of the crude oil from the pump and of the lubricating oil from the engine or pump cross-head can occur, since the latter may be stripped off by this wiping device, and returned for reuse.

It is apparent that the form and arrangements of the several parts may be modified without departing from the scope of the appended claims.

I claim:

1. In a wiping device for a rod, a member located about said rod and having movement axially relative thereto, a plurality of ring sections, interengaging means mounted on said ring sections to hold said ring sections together in a plane, brackets on said member, means to hold said ring sections in position about said rod including resilient devices carried by the brackets to force the ring sections against the rod, and a wiper material carried by said ring sections.

2. In a wiping device for a rod, a member located about said rod and having movement axially relative thereto, a plurality of ring sections, interengaging means mounted on said ring sections to hold them together in a plane and permitting movement toward and from each other, fixed guides mounted on said member and cooperating with said sections to restrict the movements of said sections axially with respect to said rod, guide supports mounted on said member, sliding guides in said guide supports engaging said ring sections, springs acting upon said sliding guides to force the ring sections toward each other and upon the rod while permitting movements of said ring sections so that they may accommodate themselves to the position of the rod with respect to said guides and guide supports, and a wiper material carried by said ring sections.

3. In a wiping device for a rod, a split ring of U-shaped section, interengaging means on said ring sections to hold the sections of said ring in plane and to prevent movements of said ring out of said plane, means to force the sections of said ring toward each other to surround said rod, a wiper material carried in said rings, and a plurality of leaf springs carried in the concavity of said ring to hold said material against said rod.

4. In a wiping device adapted to be mounted on the end of a cylinder to wipe the reciprocating rod thereof, a pair of brackets carried by said cylinder, a split ring, pin and socket members on the sections of said ring to hold the same in plane, guides to prevent movement of said ring out of such plane and to permit movement of its sections toward said rod, said guides including yokes carried by said brackets and resiliently forcing said sections toward each other, and a wiping material carried by said ring and resiliently forced into contact with said rod.

In testimony whereof, I affix my signature.

HENRY GRADY MOBLEY.