Dec. 11, 1945. A. R. MAIER 2,390,602

PUMP PISTON ROD PACKING ASSEMBLY

Filed March 20, 1944

FIG. 1.

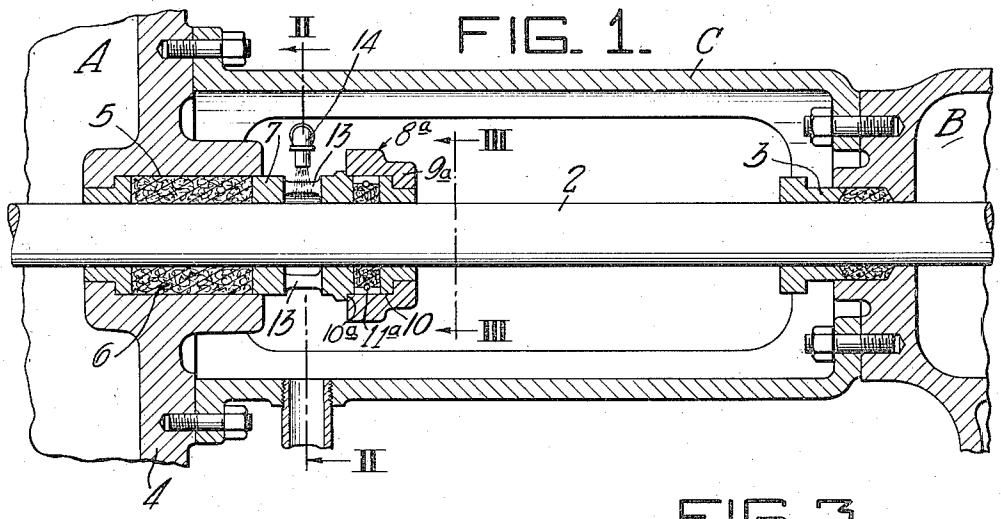


FIG. 2.

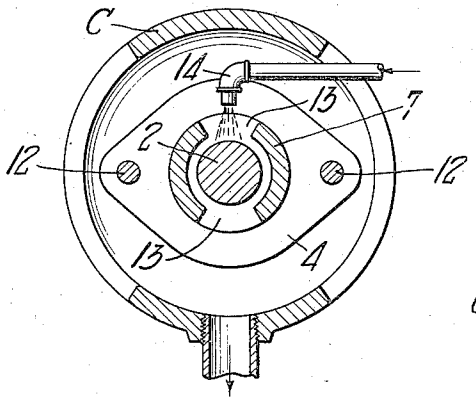


FIG. 3.

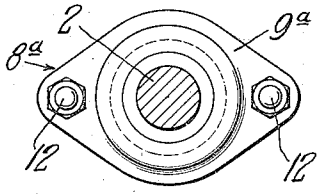


FIG. 4.

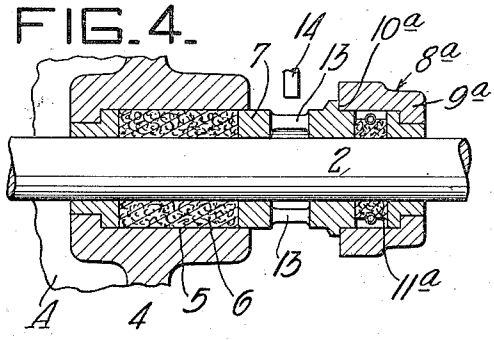
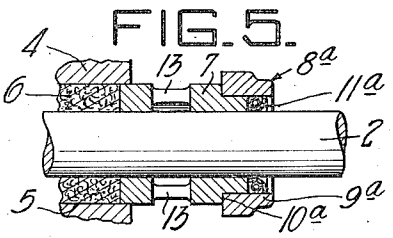


FIG. 5.



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PUMP PISTON ROD PACKING ASSEMBLY

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1 Claim. (Cl. 286—19)

This invention relates to improvements in a piston rod packing assembly, particularly adapted for the fluid end of reciprocating slush pumps.

The fluid or mud delivered by this type of pump in well drilling operations is highly abrasive and the power portion of the pump must be protected therefrom, as for example, in the event that such fluid cuts through and escapes from the fluid end rod packing. It has been found that such leakage will follow the piston rod and eventually enter the power end of the pump, contaminating the lubricating system or scoring the working parts of said power end.

My invention contemplates a pump piston rod packing assembly for the fluid end of such a pump or the like, in addition to the conventional packing or stuffing box thereof, which assembly will serve to both divert the escaping fluid and prevent the same from following the piston rod to the power end of said pump. I also have in view the provision of such an assembly which is capable of ready application to existing as well as new pumps in combination with the conventional packing or stuffing box at the fluid end thereof. Additional objects and advantages will become apparent from the following description taken in connection with the accompanying drawing wherein:

Fig. 1 is a sectional view through portions of the fluid and power ends of a reciprocating slush pump, showing the application of my invention thereto;

Fig. 2 is a cross section taken on the line II—II of Fig. 1;

Fig. 3 is a cross section taken on the line III—III of Fig. 1; and

Figs. 4 and 5 are sectional views illustrating different forms of the packing assembly of my invention.

Referring to the drawing, A designates the fluid end or cylinder of a reciprocating slush pump or the like having a power end B connected by an intervening frame portion or cradle C. The piston rod 2 extends between the pump ends A and B within the cradle C, passing through a stuffing box or gland structure in each of the said pump ends, the stuffing box or gland at the power end B being designated at 3.

The end wall 4 of the fluid cylinder A is usually counterbored at 5 to contain a packing 6 surrounding and sealing the reciprocation of the piston rod 2. Formerly, the packing 6 was compressed by a conventional sleeve or follower (not shown), secured to the wall 4 as by means of studs or bolts. However, when the abrasive fluid or mud being pumped cuts through packing 6, it escapes under considerable velocity, flowing along the piston rod 2 and entering the power end B through stuffing box 3, to the ultimate injury of the power mechanism.

To obviate the destructive effects of such escaping fluid, I provide an additional packing assembly in conjunction with the packing 6 which assembly will both divert the flow of escaping fluid and prevent the same from following the piston rod 2. This assembly includes a gland or cylindrical sleeve 7 fitting the counterbore 5 and a second stuffing box or packing means, generally designated at 8^a in the drawing. The second packing means includes a packing container 9^a engaging a shoulder 10^a of the gland 7 and to containing a packing 11^a. The container 9^a is secured to the end wall 4 by means of studs 12, whereby a compression pressure may be applied through the gland 7 to the packing 6 to displace said packing into sealing engagement with the piston rod 2.

The gland 7 is provided with upper and lower openings 13, through which a cleansing liquid such as water or oil may flow from a supply pipe 14 to continually wash the surface of the rod 2 between the packing means. The cylindrical portions of the gland 7 disposed laterally on either side of the rod 2, confine the passage of such cleansing liquid and insure the contact thereof with substantially the entire periphery of the piston rod. In the event of failure of the packing 6, the discharging fluid escaping therefrom along the rod 2 will be diverted and discharged through the openings 13 in the gland 7, thereby preventing the major portion of said fluid from passage thereof in the direction of the power end B of the pump. Also, in the event of such leakage, any escaping fluid reaching the packing 11^a will be prevented from continuing along the piston rod toward said pump power end.

As particularly shown in Figs. 4 and 5, the second packing means 8^a includes the packing container 9^a having abutting engagement with a shoulder of the gland 7 at 10^a for compression of the packing 6 as described, the packing 11^a in the member 9^a being of the self-sealing type, whereby said packing prevents the passage of escaping fluid outwardly along the piston rod through the container irrespective of the adjusted position of the latter.

It will readily be seen that the packing assembly of my invention may be applied to and incorporated with the usual packing 6, the gland 7 acting as the follower therefor and upon which a

second packing means is mounted in the manner described. The said assembly provides an effective means for diverting and preventing an escaping flow of fluid from passing along the piston rod to the power end of the pump or the like.

Various changes and modifications are contemplated within the scope of the following claim.

I claim:

A piston rod packing assembly for the fluid end of reciprocating slush pumps and the like having a conventional rod packing, including a cylindrical gland on the rod having one end thereof engaging said conventional packing, said gland having upper and lower openings and cylindrical side portions spaced from the rod for the application of a washing fluid to and the discharge thereof from said rod, a packing container on the rod abutting the other end of said gland, means for adjusting the position of said container in relation to the rod packing to adjust the latter through the intervening gland, and a self-acting packing on the rod in said container operable to prevent the passage of fluid from said gland outwardly along the rod through said container irrespective of the adjusted position of the latter.

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