

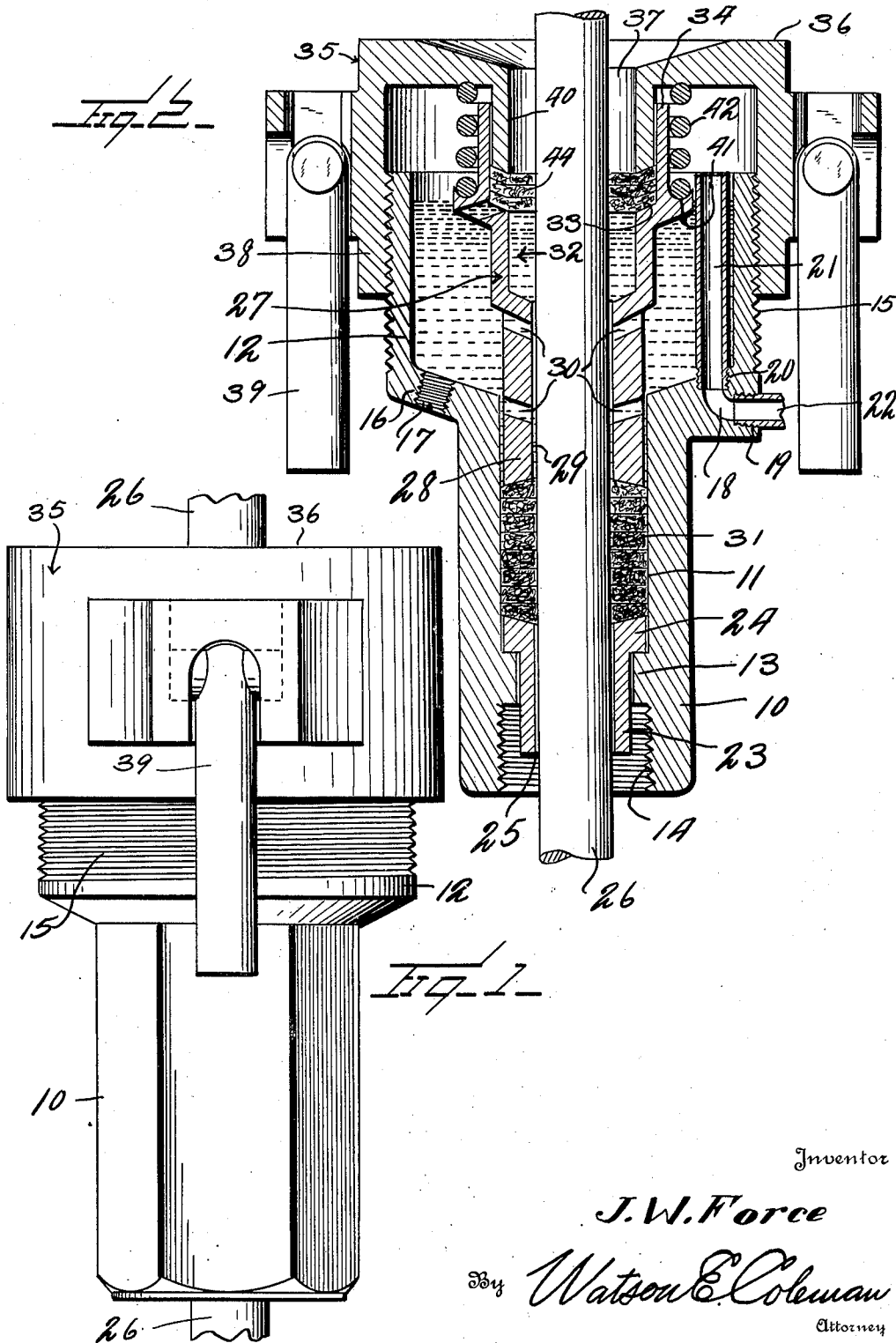
Aug. 3, 1926.

1,594,935

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STUFFING BOX

Filed March 7, 1925



UNITED STATES PATENT OFFICE.

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STUFFING BOX.

Application filed March 7, 1925. Serial No. 13,899.

This invention relates to stuffing boxes for polish rods of deep well pumps.

An important object of the invention is to improve the structure shown in my previously filed co-pending application, No. 667,774, filed October 10, 1923, for stuffing boxes.

An important object of the invention is to improve the structure of the stuffing box disclosed in this application by providing means for preventing oil fed to the rod from clinging to the rod and being carried thereby to the upper end of the stuffing box.

A further and more specific object is the provision of a stuffing box of this type having means for lubricating the rod and for collecting oil clinging to the rod, a wiper constructed in the form of an additional packing element arranged above or at the upper end of the lubricating chamber for removing from the rod all excess oil.

These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

Figure 1 is a side elevation of a stuffing box constructed in accordance with my invention; and

Figure 2 is a vertical sectional view thereof.

Referring now more particularly to the drawings, the numeral 10 indicates a body having a cylindrical bore 11 formed at its upper end with a bowl 12 provided by an enlargement of the body and of the bore thereof. The bore of the body adjacent the lower end is formed with an inwardly extending shoulder 13 and beneath this shoulder with screw-threads 14 for engagement with the flow pipe of a well, the exterior of this body preferably shaped for engagement by a wrench as shown. The exterior of the bowl is screw-threaded, as at 15, for a purpose presently to appear. In the bottom of the bowl, an opening 16 is provided which is normally sealed by a drain plug 17 and a second opening 18 screw-threaded at its opposite ends, as at 19 and 20, the first named screw-threads being for the reception of a conduit and the second named screw-threads for the reception of an overflow pipe 21, the upper end of which will be arranged approximately at the top of the bowl. The conduit 22 connecting with the threads 19 may lead

to any suitable storage vessel (not shown).

Arranged within the bore of the body at the shoulder thereof is a guide 23, the upper end of which has a head 24 opposing the upper face of the flange 13. This guide loosely fits within the flange and has a bore 25 closely receiving the polish rod 26. Arranged within the bowl is a combined packing, compressing and lubricant feeding element 27 having a skirt 28 extending into the bore 11 of the body 10, this skirt having a bore 29 loosely receiving the polish rod 26. Through the walls of the skirt, perforations 30 are formed so that lubricant from the bowl 12 may pass through these openings to the polish rod. Between the lower end of the skirt and the upper surface of the packing compressing ring, packing 31 is arranged. At the upper end of the skirt 28, the packing compressing element is interiorly enlarged to form about the polish rod a chamber 32. Above this chamber, the wall of the packing compressing element is flanged outwardly, as at 33, to provide a shoulder from which a circular flange arranged approximately centrally of the shoulder, extends upwardly, as indicated at 34. The upper end of this flange projects considerably above the upper end of the bowl and the upper end of the overflow pipe 21.

A cap 35 is provided for the bowl including a top 36 having a central opening 37 of considerably greater diameter than the polish rod and an outer depending flange 38 interiorly screw-threaded for coaction with the screw-threads upon the exterior of the bowl. On this cap at opposite sides thereof are handles 39. Depending from the top 36 about the edges of the central opening 37 is a vertical flange 40 fitting within the vertical flange 34 of the packing compressing element and this flange 40 has its lower end opposed to the portion of the shoulder 33 lying inwardly of the flange 34. That portion of the shoulder 33 lying exteriorly of the flange 34 is grooved, as at 41, to form a seat for the lower end of a coil spring 42, the upper end of which abuts the under surface of the top. Between the lower end of the flange 40 and the opposed portion of the shoulder 33, a packing element 44 is disposed.

In the use of the device, the bowl 12 is initially filled with lubricant which passes

though the opening 30 downwardly about the polish rod to provide proper lubrication for the packing 31. The packing compressing element or follower 27 exerts a constant pressure on this packing which may be regulated by adjustment of the cap 38. This adjustment of the cap 38 likewise serves to force the packing 44 more closely into engagement with the polish rod. As the polish rod is moved upwardly, this packing 44 removes therefrom oil fed through the openings 30 or which may have passed the packing 31 and causes the same to be returned to the bowl 12. The packing 44 does not need to fit tightly as it acts mainly as a wiper for cleansing the rod and preventing the rod from carrying oil up above the upper end of the stuffing box where it might drip upon the floor of the pump house.

It will be obvious that the structure hereinbefore set forth is capable of a considerable range of change and modification without in any manner departing from the spirit of my invention and I accordingly do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. In a stuffing box of the character described, a body through which the rod passes and having arranged therein a packing engaging element limiting movement of packing within the body in one direction, a bowl arranged at one end of the body, a follower within the bowl and having a skirt extending into the bore of the body about the rod openings for placing the bore of the skirt into communication with the bowl, a cap for said bowl, a shoulder formed on said follower above said openings, a flange depending from said cap and opposing the shoulder, a packing disposed between the flange and shoulder and a spring extending between the cap and follower to urge the follower toward said packing engaging element.

2. In a stuffing box of the character described, a body through which the rod passes and having arranged therein a packing engaging element limiting movement of packing within the body in one direction, a bowl arranged at one end of the body, a follower within the bowl and having a skirt extending into the bore of the body about the rod openings for placing the bore of the skirt into communication with the bowl,

a cap for said bowl, a shoulder formed on said follower above said openings, a flange depending from said cap and opposing the shoulder, a packing disposed between the flange and shoulder, and a spring extending between the cap and follower to urge the follower toward said packing engaging element, the follower immediately below the packing shoulder having an enlargement forming a chamber for the reception of lubricant removed by said packing.

3. In a stuffing box of the character described, a body through which the rod passes and having arranged therein a packing engaging element limiting movement of packing within the body in one direction, a bowl arranged at one end of the body, a follower within the bowl and having a skirt extending into the bore of the body about the rod openings for placing the bore of the skirt into communication with the bowl, a cap for said bowl, a shoulder formed on said follower above said openings, a flange depending from said cap and opposing the shoulder, a packing disposed between the flange and shoulder, and a spring extending between the cap and follower to urge the follower toward said packing engaging element, the follower having an upstanding flange at the packing shoulder thereof slidably abutting the flange of the cap and extending above the upper end of the bowl.

4. In a stuffing box of the character described, a body through which the rod passes and having arranged therein a packing engaging element limiting movement of packing within the body in one direction, a bowl arranged at one end of the body, a follower within the bowl and having a skirt extending into the bore of the body about the rod openings for placing the bore of the skirt into communication with the bowl, a cap for said bowl, a shoulder formed on said follower above said openings, a flange depending from said cap and opposing the shoulder, a packing disposed between the flange and shoulder, and a spring extending between the cap and follower to urge the follower toward said packing engaging element, said follower at the skirt thereof loosely receiving the rod.

In testimony whereof I hereunto affix my signature.

JOHN WILMINGTON FORCE.