

(No Model.)

C. F. LUFKIN.
STUFFING BOX.

No. 599,852.

Patented Mar. 1, 1898.

FILE 2.

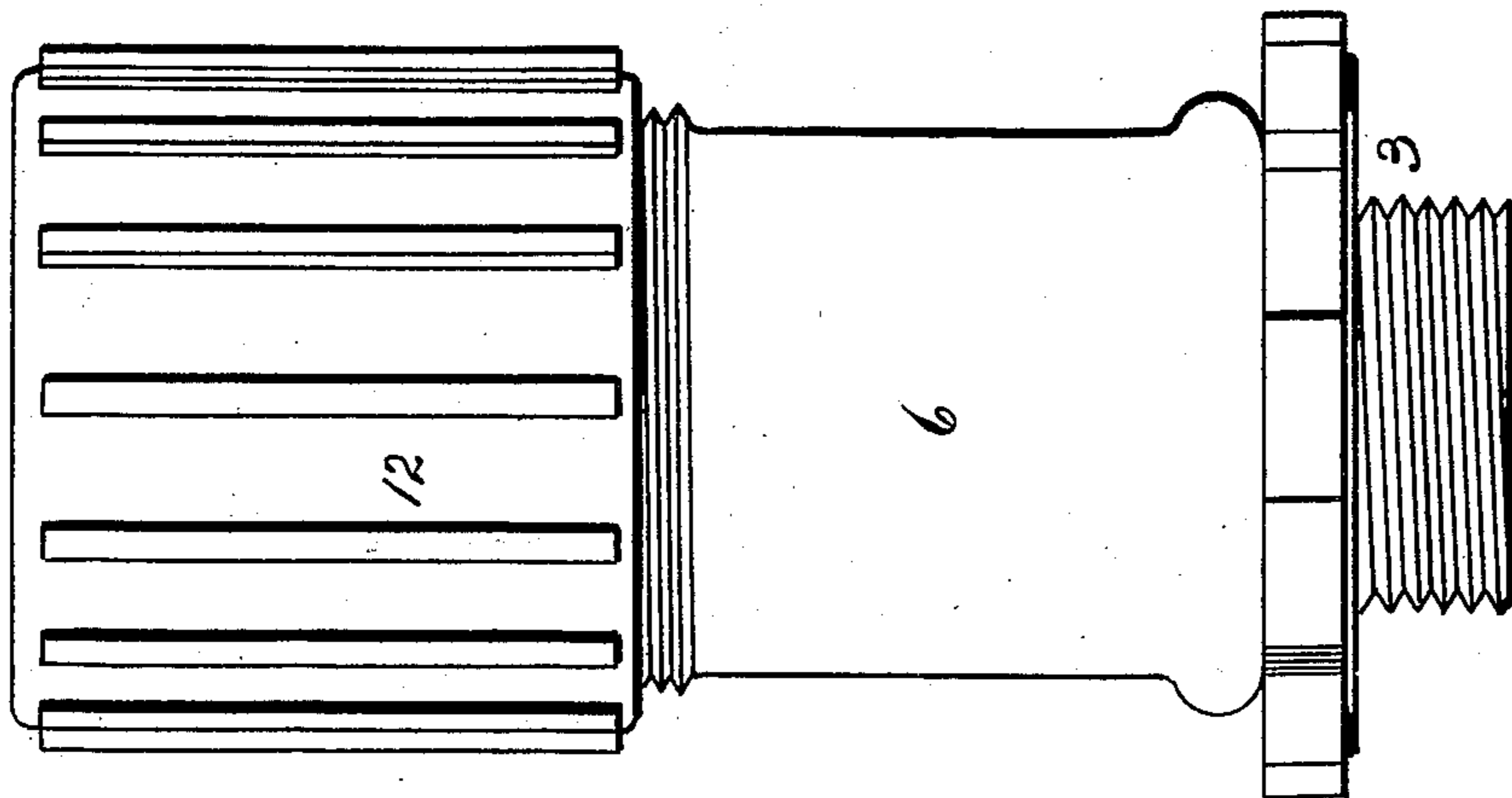
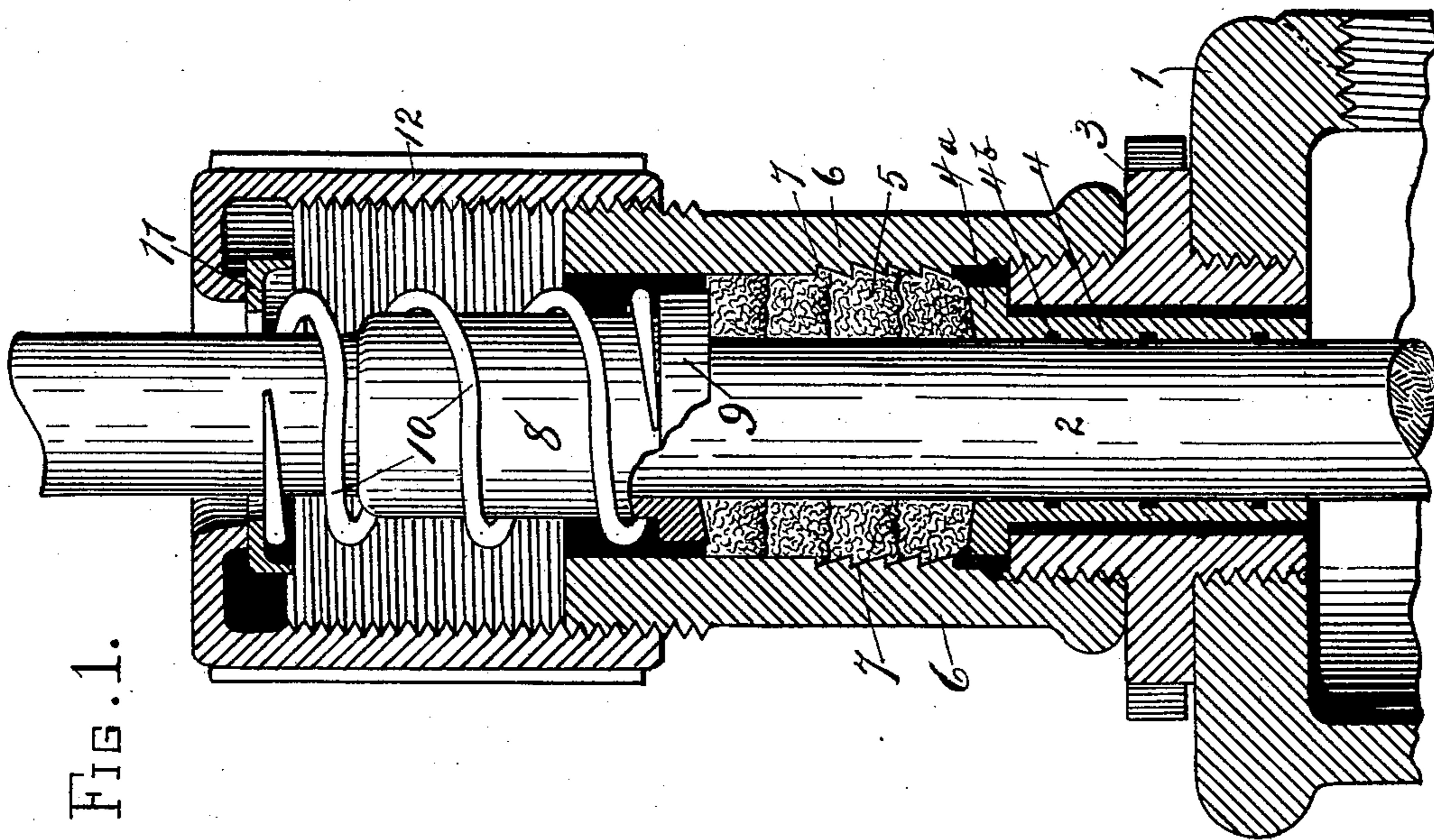


FIG. 1.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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STUFFING-BOX.

SPECIFICATION forming part of Letters Patent No. 599,852, dated March 1, 1898.

Application filed January 14, 1897. Serial No. 619,192. (No model.)

To all whom it may concern:

Be it known that I, CHAUNCEY F. LUFKIN, a citizen of the United States, residing at Lima, Allen county, Ohio, have invented certain new and useful Improvements in Stuffing-Boxes, of which the following is a specification.

Some of the objections and difficulties encountered in stuffing-boxes heretofore in common use are, first, that the nipple and packing sleeve or case have been formed integral, and hence when the interior became much worn by the moving rod it has been necessary to discard the principal part of the whole device; second, that the parts of the stuffing-box which closely embrace the rod have been so rigid and unyielding that when there is any lateral motion of the traveling rod undue friction and wear take place; third, that the packing within the stuffing-box when caused to tightly embrace the rod tends to travel to and fro, causing rapid wear and deterioration of the packing both on its inner and outer circumference, the confined fluid tending constantly to force the packing outwardly, and, fourth, that in removing old packing it becomes necessary to dig it out piecemeal with a hook or like implement at the expense of considerable time and labor.

My invention relates to and its object is to provide a stuffing-box which shall obviate the objections and difficulties here pointed out, and more particularly to furnish such a construction and arrangement of parts as will permit the convenient renewal of those parts upon which falls the greatest wear; to provide for a laterally-yielding motion of the parts which are in immediate contact with the reciprocating rod; to provide means for holding the packing against travel with the rod and from yielding to the outward pressure of the confined fluid, and to make provision for the quick and convenient expulsion of the old packing when it becomes necessary to repack the stuffing-box.

The further object of my invention is to furnish a stuffing-box which shall be especially well adapted for use in connection with the pumping or "polish" rod of oil-wells.

I attain these objects by means of the device and arrangement of parts hereinafter

described, and shown in the accompanying drawings, making part hereof, in which—

Figure 1 is a central longitudinal sectional elevation of my device, and Fig. 2 is a side elevation of the same.

Like numerals of reference indicate like parts in both views.

In the drawings, 1 is a casing-head or other body into which leads the reciprocating rod 2 and into or upon which is screwed the nipple 3. Within the bore of the nipple is a removable sleeve 4, preferably of brass or bronze, having upon its outer end a flange or head 4^a, the inner side of which rests against the outer end of the nipple and the outer side of which head supports and forms a stop for the compressible packing 5. The sleeve 4 may be provided with the interior annular recesses 4^b.

6 is the stuffing-box case, cylindrical in form and open at both ends, threaded interiorly at its inner end and exteriorly at its outer end, the interior diameter of the case being such as to leave an annular space between the case and the rod 2, into which space the packing 5 is crowded. The interior surface of the case 6 is circumferentially notched, as at 7, in such fashion that the sloping surfaces of the ridges permit the packing to move inwardly, while the surfaces which are at a right angle to the axis of the case prevent the retreat or withdrawal of the packing. A sleeve 8, serving as a follower or gland and having a flange 9, (shown in the drawings as partly broken away,) rests against the outer end surface of the packing 5, the flange being next to the packing. The sleeve 8 is also preferably of brass or bronze. Surrounding this sleeve is a helical spring 10, the inner end of which rests upon the flange 9 and the outer end of which rests in the interior of a cup-shaped washer 11. A screw-cap 12, screwed upon the outer end of the case 6 and pressing against the washer 11, completes the device. The rod 2, it will be understood, passes axially through each of the other parts above referred to.

The operation of my device will be understood without further description. It will be seen that the principal friction and wear are upon the two removable sleeves 4 and 8 and

the packing 5; that the two sleeves, the spring, the washer, and the packing have sufficient lateral play to accommodate themselves to the lateral movement of the rod without undue attrition or wear; that the packing, owing to the ridges 7 having a gentle slope on one side and an acute angle on the other side, is permitted to travel forward, but not backward, and that by unscrewing the casing 6 from the nipple 3 the expansion of the spring 10 will expel the packing from the casing.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a stuffing-box, a nipple, a sleeve loose within the bore of the nipple, a flange on said sleeve resting against the outer end of the nipple, packing resting against said flange, a casing screwed upon said nipple, a follower or gland pressing upon said packing and a screw-cap controlling said follower in combination with a rod running axially of said other parts, substantially as and for the purpose specified.

2. In a stuffing-box, in combination with a rod disposed axially of said box, an open-mouthed case, means for removably securing said casing to its support, packing within said casing around said rod, a flanged gland or follower pressing upon the outer end of said packing, a cap screwed upon said casing and a spring resting against the flange of said gland and adapted to be compressed by said

screw-cap, whereby said packing will be expelled from the case when the case is removed from its support, substantially as and for the purpose specified.

3. A stuffing-box, comprising a casing, means for securing said casing to its support, a shoulder within the bore of said casing near its inner end, a removable sleeve loose within said bore, a flange on said sleeve resting against said shoulder, a follower or gland, a flange upon said gland, packing between said two flanges, a screw-cap adapted to be screwed upon the outer end of the casing, a spring interposed between the flange of the gland and the screw-cap, a cup-shaped washer taking the outer end of the spring, and a rod disposed axially of said other parts, all substantially as and for the purpose specified.

4. In a stuffing-box, the casing thereof, a rod running axially of said casing, packing in the annular space between the casing and the rod, a series of surfaces upon the interior of said casing disposed at an angle to the curved plane of the bore of said casing, the arrangement of said angular surfaces being such that said packing is permitted to advance toward one end of the stuffing-box, but is held against retreat, substantially as and for the purpose specified.

CHAUNCEY F. LUFKIN.

In presence of—

JOHN M. ORMOND,
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