(No Model.) 2 Sheets—Sheet 1.

H. R. ANDREWS.

LUBRICATOR.

No. 551,522. Patented Dec. 17, 1895.

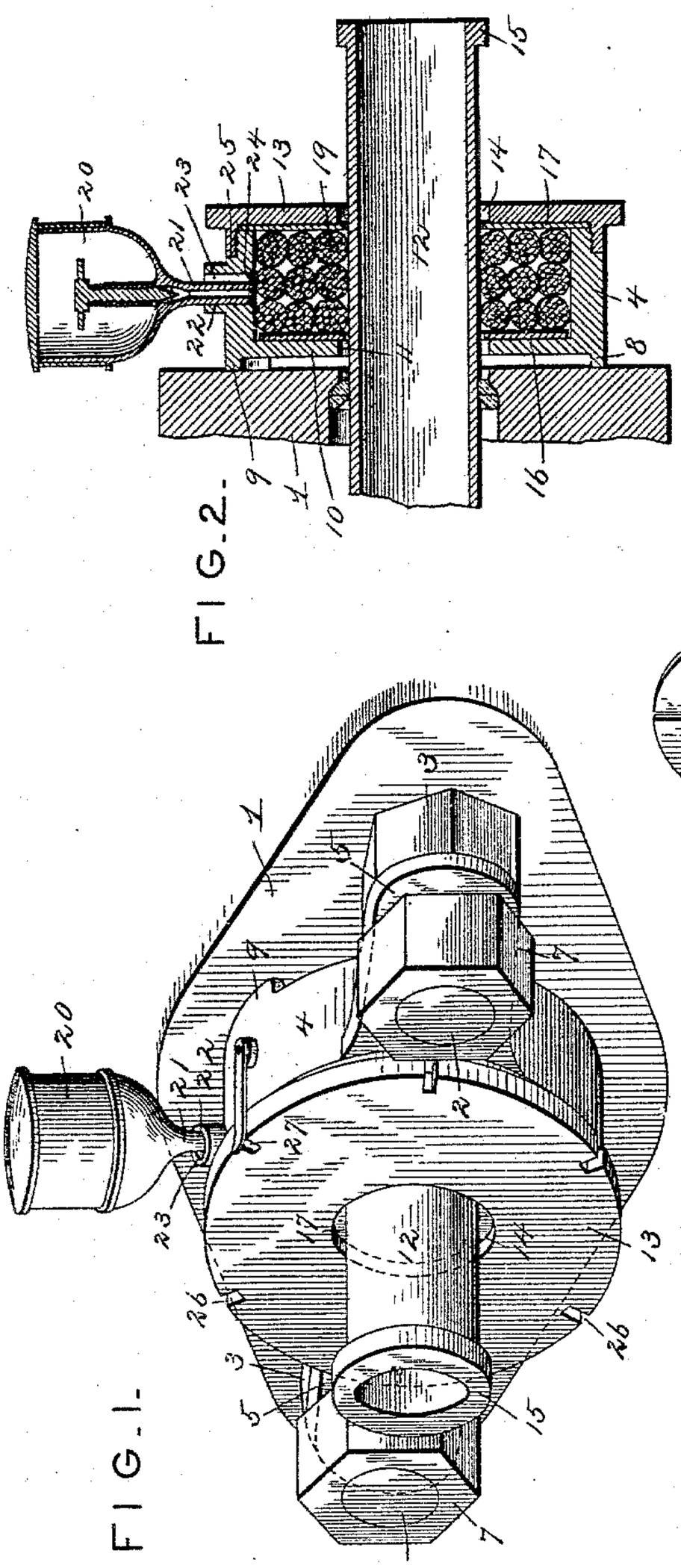

FIG. 2.

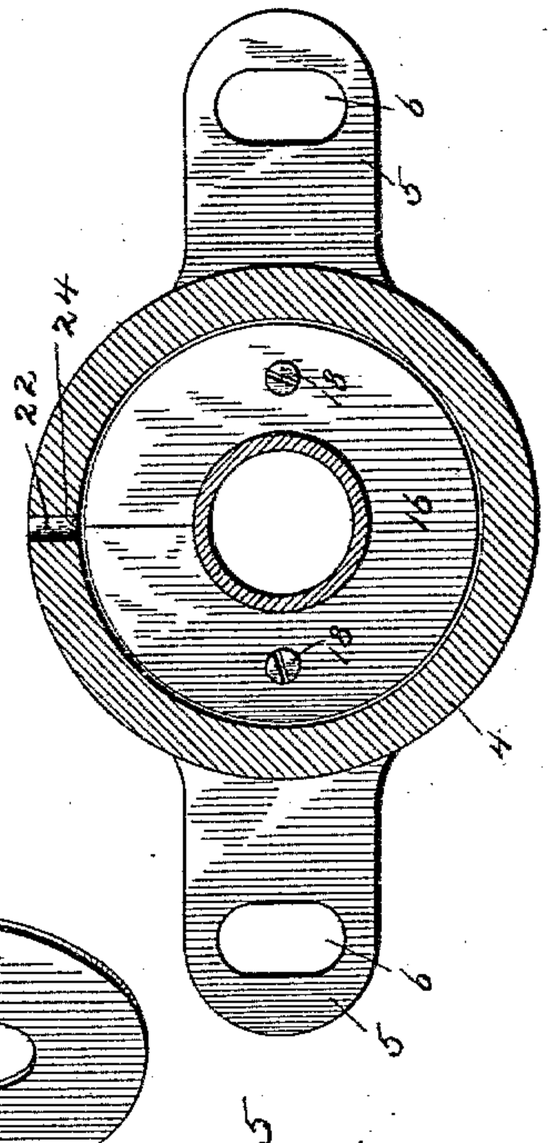

FIG. 4.

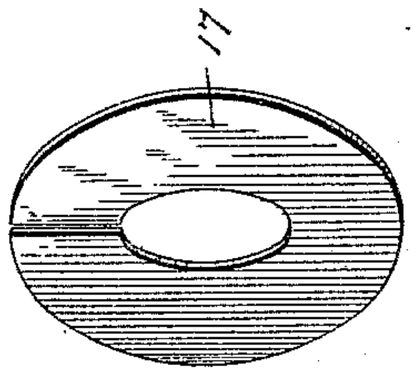

FIG. 5.

FIG. 1.

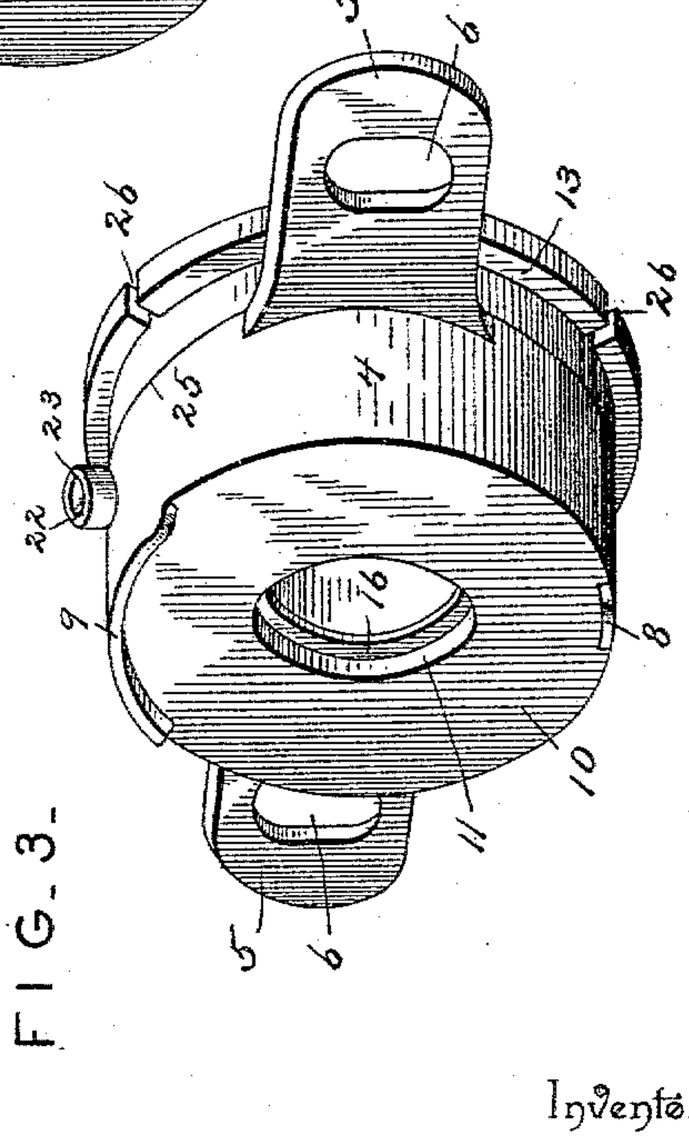

FIG. 3.

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(No Model.) 2 Sheets—Sheet 2.

H. R. ANDREWS.

LUBRICATOR.

No. 551,522. Patented Dec. 17, 1895.

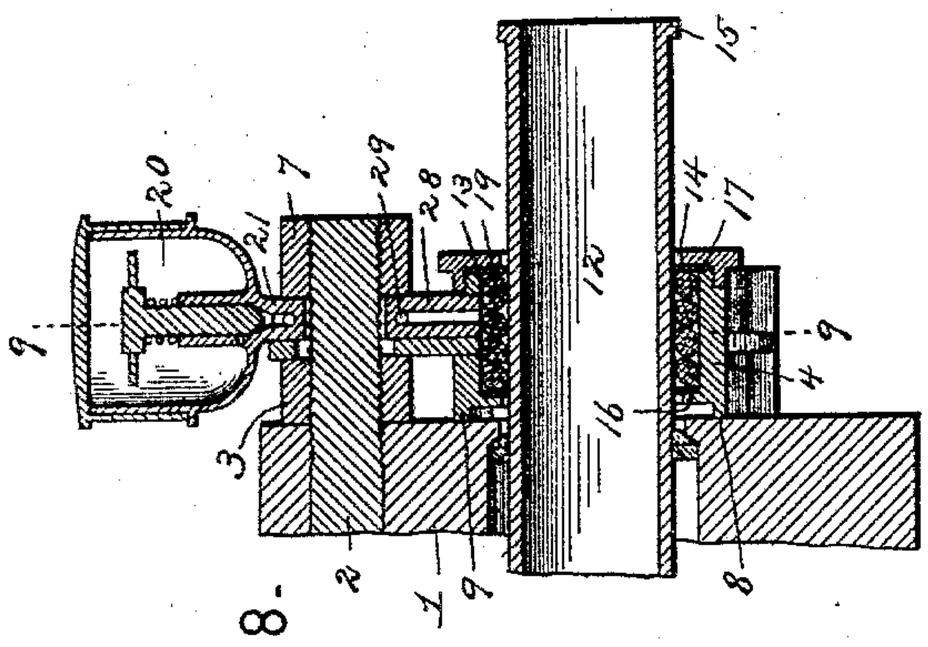

FIG. 8.

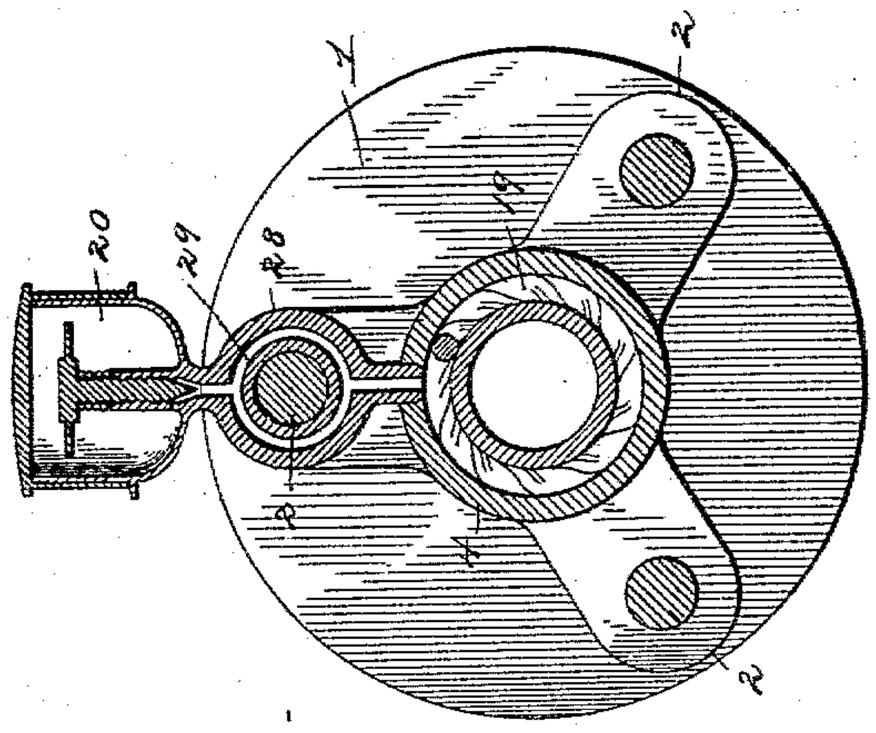

FIG. 9.

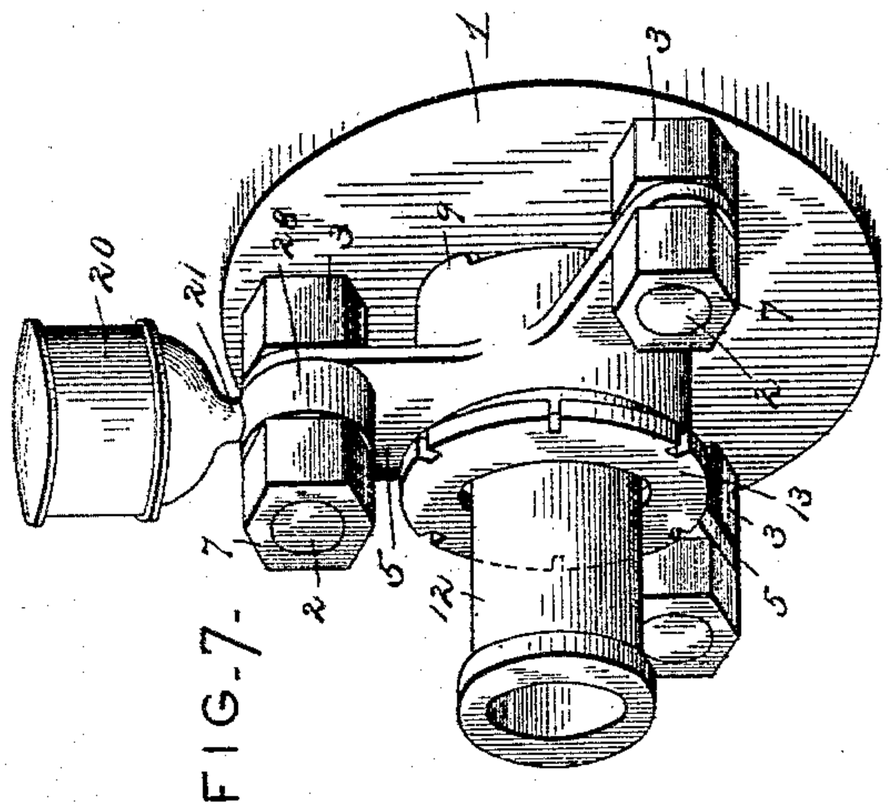

FIG. 7.

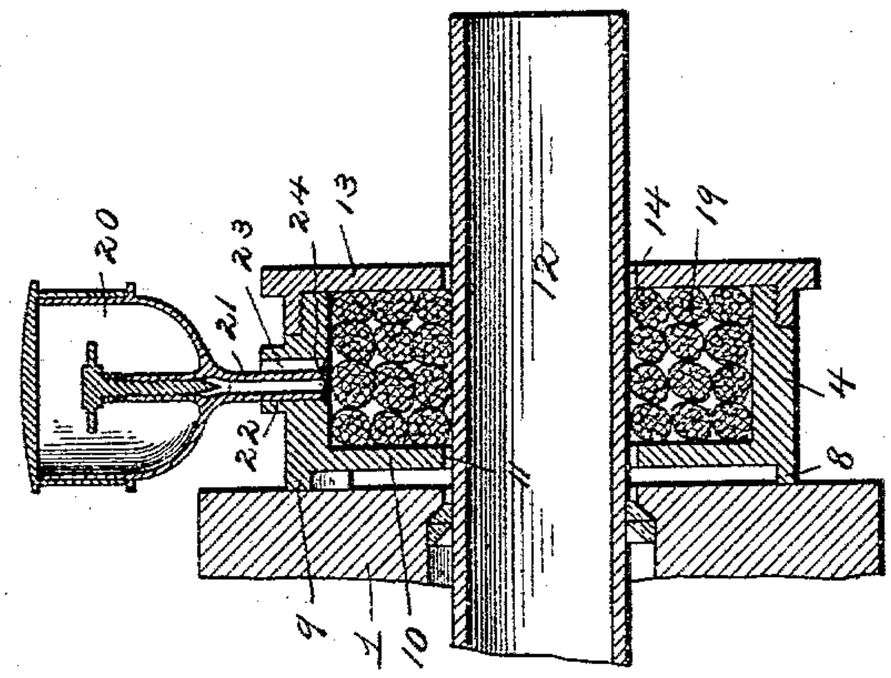

FIG. 6.

Inventor

Harry R. Andrews

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UNITED STATES PATENT OFFICE.

HARRY R. ANDREWS, OF HARRISBURG, PENNSYLVANIA.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 551,522, dated December 17, 1895.

Application filed March 7, 1895. Serial No. 540,834. (No model.)

To all whom it may concern:

Be it known that I, HARRY R. ANDREWS, a citizen of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented a new and useful Lubricator, of which the following is a specification.

My invention relates to lubricating devices adapted for use in connection with piston and valve rods and other reciprocatory bars and rods of machinery, the objects in view being to provide an apparatus for attachment to the gland of a stuffing-box or to a similar fixed part of the mechanism concentric with the reciprocatory rod or bar, and to provide means for supplying the lubricator with oil which is distributed uniformly upon the surface of the moving member, and to provide means whereby the blow-off or escape of steam or other motive agent from the interior of a cylinder or valve casing, which passes through the stuffing-box around the reciprocatory rod or bar, shall not pass through the lubricator, whereby the disadvantages heretofore existing in devices of this class, and consisting of the blowing out of the packing and of the lubricant, are avoided; to provide means whereby the packing of fibrous material which is used in connection with the improved lubricator may be removed and replaced by fresh packing without loss of time and without detaching or disarranging any portion of the mechanism in connection with which the lubricator is employed, whereby access may be had to the interior of the lubricator at all times; to provide improved means for supplying lubricant to the interior of the lubricator whereby fresh packing arranged in the casing may be saturated at once by means of an ordinary oil-can without waiting for the necessary amount of oil to be supplied by the usual oil-cup, said initial saturation of the packing being accomplished without the removal or displacement of the oil-cup; and, furthermore, to provide simple means for securing the parts of the lubricator against displacement by the jarring of the mechanism.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a lubricator constructed in accordance with my invention. Fig. 2 is a longitudinal section of the same. Fig. 3 is a rear perspective of the lubricator detached. Fig. 4 is a transverse vertical section to show the means for attaching the inner washer to the shell. Fig. 5 is a detail view of the outer washer. Fig. 6 is a vertical longitudinal section of the device as seen when used in connection with a piston or valve rod of even cross-sectional area, the washers being omitted. Fig. 7 is a perspective view of a lubricator having a shell or casing of slightly-modified construction. Fig. 8 is a longitudinal section of the same. Fig. 9 is a transverse vertical section on the line 9 9 of Fig. 8.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the gland of an ordinary stuffing-box secured in place, as usual, by means of gland-bolts 2 having nuts 3, and 4 represents the shell or casing of the lubricator embodying my invention, the same being provided with radially-disposed ears 5 having transversely-elongated bolt-openings 6 to receive said gland-bolts, the outer or lock nuts 7, which are ordinarily employed in connection with stuffing-box glands, being threaded upon the gland-bolts and bearing upon the exterior surfaces of said ears. The transverse elongation of said openings in the ears of the shell or casing is for the usual purpose of allowing adjustment of the shell or casing as the reciprocatory rod or bar and contiguous parts become worn to bring said parts in contact with the under side of the rod or bar.

The casing is provided upon its rear or inner side with projections to bear against the exterior surface of the gland, and thus provide a space between the face of the gland and the rear surface of the shell or casing through which may escape the steam or other motive agent which escapes through the stuffing-box, whereby the said steam or motive agent is prevented from passing through the lubricator. The lower projection 8 is small in cross-section in order to provide the maxi-

mum space for the escape of steam, while the upper projection 9 is constructed in the form of a web which is flush with the upper surface of the shell or casing, and is of sufficient length to extend over and project at its extremities beyond the sides of the reciprocatory bar or rod, whereby dust and other foreign substance are prevented from descending through the space between the gland and the shell or casing and adhering to the surface of said bar or rod.

In the construction illustrated in the drawings, the shell or casing is cylindrical in cross-section, and its rear or inner side 10 is provided with a concentric opening 11 through which a piston or valve rod 12 extends. The cap or closure 13, which is threaded upon the shell or casing to close the open outer side thereof, is provided with a similar concentric opening 14 for the rod, and, as in the construction shown in Figs. 1 to 4, the piston-rod is provided with an annular projection 15 which must pass through said registering openings in the body portion and cap of the shell or casing. Said openings are made of a size to accommodate this projection. In order to close the annular space between the surface of the rod and the peripheries of the openings in the body portion and cap of the shell, I employ thin metallic washers 16 and 17, the former being arranged against the inner surface of the inner or rear side of the shell, and being secured in place by means of screws 18, the circumference of said inner washer being equal to the bore or interior measurement of the shell, while the outer washer bears against the outer edge of the body portion of the shell or casing, and is clamped and secured in contact therewith by the pressure of the inner surface of the cap or closure when the latter is screwed to place, as illustrated in Fig. 2. These washers are split or divided at one side to provide for the separation of their extremities to arrange them upon the rod or bar, and the inner peripheries thereof are designed to closely fit the portion of the rod or bar which passes through the lubricator.

The space between the washers is filled with fibrous packing 19, which I find preferable to metallic packing, and in order to supply the same with oil or other suitable lubricant I employ an oil-cup 20, the outlet-tube 21 of which is inserted at its extremity in an opening 22 in the upper side of the shell or casing. This opening is elongated longitudinally of the shell or casing to provide a small space 23 at one side of the outlet-stem of the oil-cup, whereby the nozzle of an ordinary oil-can may be inserted to saturate the packing with oil when said packing has been applied fresh to the lubricator, and in order to prevent the admission of dust through this space a fine wire gauze or screen guard 24 is arranged over the opening at the inner surface of the shell or casing. The cap is flanged flush with its outer surface, as shown at 25, and said flange is provided with a plurality of notches 26 adapted to be engaged by a small spring dog or catch 27, which is attached to the shell or casing in a convenient position, to prevent the loosening of the cap by the jarring of the machinery.

In Fig. 6 I have shown a slightly-modified arrangement of parts in which the metallic washers are omitted, this being possible from the fact that the bar or rod which passes through the lubricator is of even cross-sectional area, and hence may be inserted without providing the shell, as in the form shown in Figs. 1 to 4, with an opening larger than the intermediate portion of the rod.

In Figs. 7, 8 and 9 I have shown a modified form of the device in which three instead of two lugs or ears are employed on the shell or casing, this arrangement being preferred in the art for use in connection with the lubricators of valve-rods in particular. The employment of three lugs and the arrangement of one of them above the center of the rod necessitates a slightly different arrangement of the oil-cup, which is provided with a disk-shaped enlargement 28 through which the upper gland-bolt extends, and in which is formed an oil-duct 29, whereby the oil is carried around said bolt. The essential features of the construction of the lubricator are the same as those described in connection with Figs. 1 to 4 of the drawings, and, therefore, further explanation thereof is unnecessary.

It will be understood that in operation the steam or other motive agent which escapes from the cylinder or valve casing instead of passing through the lubricating device is discharged laterally between the face of the gland and the rear or inner side of the shell or casing of the lubricator, whereby the packing and oil in the lubricator remain undisturbed and a proper distribution of oil upon the surface of the reciprocatory member may be attained. It will be seen, furthermore, that the packing may be renewed by unscrewing the cap of the shell or casing, allowing it to remain upon the piston or valve rod, and the entire device may be attached to a machine without altering the construction of the mechanism and without the use of any fastening devices, except those which are ordinarily employed. It will be understood, furthermore, that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A lubricator having a shell or casing to encircle a lubricator-rod adjacent to the plane of a gland and containing packing extending entirely around the rod, the rear side of the shell being spaced from the surface of the gland by interposed projections, whereby motive agent exhausted through the gland

escapes laterally between the gland and the shell or casing without passing through the latter, substantially as specified.

2. A lubricator for attachment to a gland having a shell or casing provided upon its rear side with spaced projections to bear against the gland and space the shell or casing therefrom, one of said projections being extended to form a shield to cover a reciprocatory rod extending through the gland and the shell or casing, and packing arranged in the shell, the steam exhausted through the gland being allowed to escape laterally between the face of the gland and the rear side of the shell, substantially as specified.

3. A lubricator adapted to be mounted upon a gland having a shell or casing provided with rear projections to space the same from the front surface of the gland, and also provided at the opposite side with a removable cap, said shell being adapted to contain packing, substantially as specified.

4. A lubricator adapted to be mounted upon a gland and having a shell or casing comprising a cylindrical body portion spaced from the face of the gland to form an outlet for motive fluid escaping through the gland, and a cap threaded upon the front side of the body portion, the body portion being provided in its rear side with an opening for a reciprocatory rod extending through the gland and the cap being provided with a registering opening, said shell or casing being adapted to contain fibrous packing which may be introduced and adjusted by the removal of the cap without disarranging the rod or connections, substantially as specified.

5. A lubricator having a shell or casing adapted for the reception of packing and provided in its upper side with an elongated oil hole designed for the reception of the outlet stem of an oil cup, said oil hole being elongated to provide a space in communication with the interior of the shell when the oil cup is arranged in operative position therewith, and a wire gauze or screen guard covering said oil hole at the inner surface of the casing to exclude dust, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HARRY R. ANDREWS.

Witnesses:

JOHN A. WILKINSON,

JOSEPH THOMASSON.