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C. B. WENNER.

DEVICE FOR CONDUCTING OIL TO PISTON RODS AND ENGINE CYLINDERS.

APPLICATION FILED APR. 27, 1905.

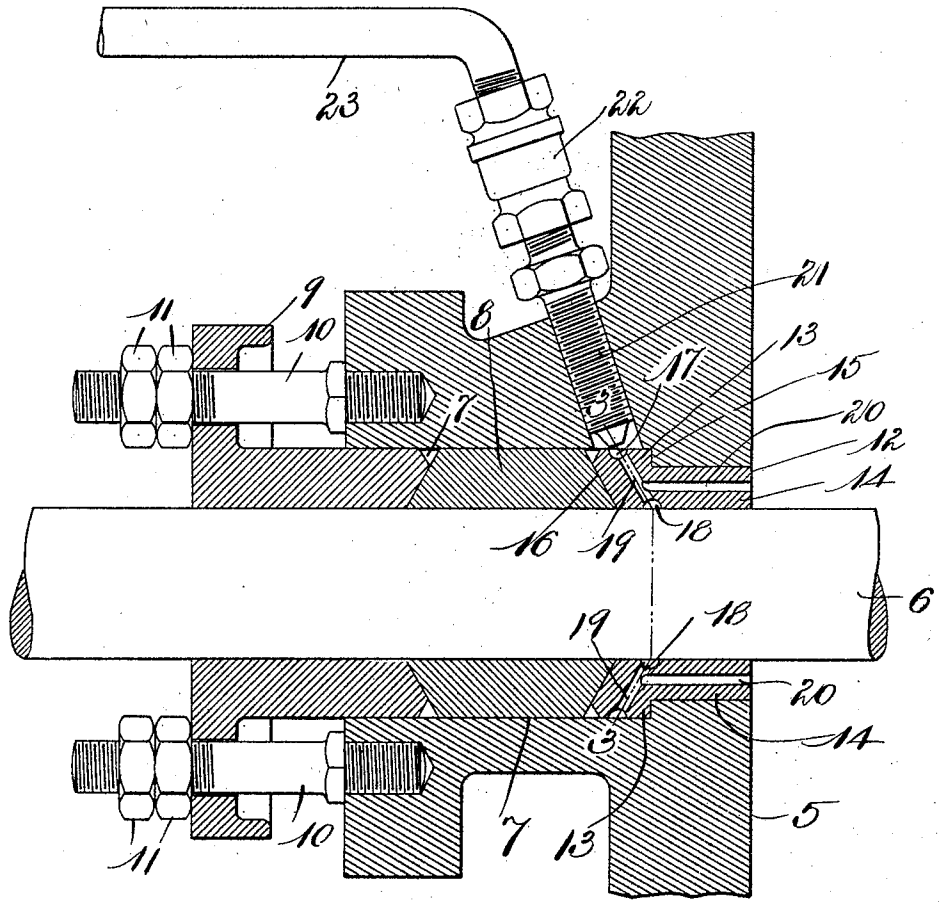


Fig. 1.

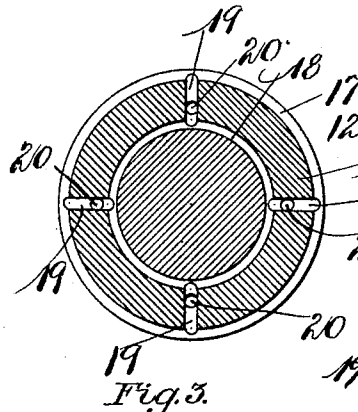


Fig. 3.

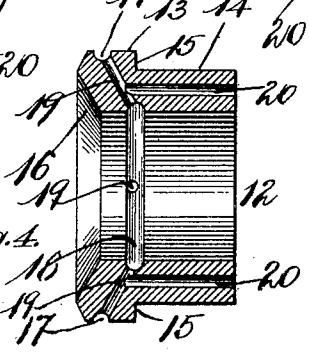


Fig. 4.

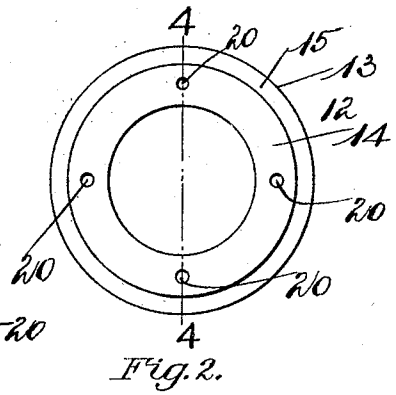


Fig. 2.

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UNITED STATES PATENT OFFICE.

CARL BERNHARD WENNER, OF BOSTON, MASSACHUSETTS.

DEVICE FOR CONDUCTING OIL TO PISTON-RODS AND ENGINE-CYLINDERS.

No. 796,618. Specification of Letters Patent. Patented Aug. 8, 1905.

Application filed April 27, 1905. Serial No. 257,719.

To all whom it may concern:

Be it known that I, CARL BERNHARD WENNER, a subject of the King of Sweden and Norway, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Devices for Conducting Oil to Piston-Rods and Engine-Cylinders, of which the following is a specification.

The object of this invention is to provide a device for conducting lubricating material to piston-rods and to the interior of cylinders.

The invention consists in a bushing provided with oil-passages leading from its periphery to the inner end thereof, said bushing encircling the piston-rod of the engine and being located in the stuffing-box chamber at the inner end of said chamber. The device is applicable to either the piston-rod and cylinder or to the valve-rod and valve-chest.

The invention further consists in the combination and arrangement of parts set forth in the following specification, and particularly pointed out in the claims thereof.

Referring to the drawings, Figure 1 is a section of a portion of the head of the cylinder of an engine, showing my improved oil-distributing bushing, together with the stuffing-box, packing-ring, and piston-rod, partly in section and partly in elevation. Fig. 2 is an end elevation of the oil-distributing bushing. Fig. 3 is a transverse section of the same, taken on line 3 3 of Fig. 1. Fig. 4 is a sectional elevation taken on line 4 4 of Fig. 2.

In the drawings, 5 is a portion of the cylinder of an engine, the same representing the stuffing-box head of said cylinder.

6 is a portion of a piston-rod, the same being connected to a piston in the interior of the cylinder 5, said piston not being shown in the drawings, but being of any of the ordinary well-known types of engine-pistons.

7 is a stuffing-box chamber.

8 is a packing-ring; 9, the stuffing-box gland; 10 10, studs, and 11 11 nuts by means of which said stuffing-box gland is forced against the packing-ring 8.

12 is my improved oil-distributing bushing, the same fitting in the right-hand end of the stuffing-box chamber and consisting of a head portion 13 and a shank 14. The shoulder 15, formed at the juncture of the head and shank, bears against a corresponding shoulder formed in the stuffing-box chamber 7.

The outer end of the bushing 12 is formed with an annular conical recess 16, into which the conical right-hand end, Fig. 1, of the packing-ring 8 projects. The bushing 12 is provided upon the outer periphery of the head thereof with an annular oil-distributing channel 17, and the inner periphery of said bushing is provided with another annular channel 18. These channels 17 and 18 are connected at intervals throughout by transverse oil-passages 19, and the transverse oil-passages 19 are connected to the interior of the cylinder 5 by longitudinal oil-passages 20, said longitudinal oil-passages 20 and transverse oil-passages 19 forming as a whole an oil-passage which extends longitudinally of the bushing from the inner end thereof to the outer periphery of said bushing, the point of termination of the transverse oil-passages in the outer periphery of the bushing being the inlet-orifice thereof and the point of termination of each of said longitudinal passages 20 at the right-hand end of the bushing 12 being the outlet-orifice of said oil-passages.

An oil-supply pipe 21 is inserted in the cylinder-head 5 and has attached thereto a check-valve 22, which is connected to an oil-supply pipe 23, leading to a suitable receptacle containing the supply of oil.

The operation of the device hereinbefore specifically described is as follows: The oil enters the channel 17 through the supply-pipes 23 and 21 and flows around said channel into the different transverse passages 19 19, thence to the annular channel 18 and also through the longitudinal passages 20 to the interior of the cylinder. The oil which flows into and around the annular channel 18 thoroughly lubricates the piston-rod 6, and the oil which passes through the oil-passages 20 thoroughly lubricates the interior of the cylinder and the piston whether said piston be the main piston and cylinder of the engine or whether they be the interior of a valve-chest and the valve located therein.

The bushing 12 is held firmly in position by the packing-ring 8, which is forced thereagainst by the stuffing-box gland 9 in a manner well known to those skilled in this art. The outer edges of the right-hand end of the stuffing-box gland 9 and also of the left-hand end of the bushing 12 are beveled to assist in crowding the packing-ring against the periphery of the piston-rod 6.

The advantage secured by my improved oil-distributing bushing is that the oil is supplied to the piston-rod throughout the entire periphery thereof and is also drawn into the cyl-

inder in the form of jets or sprays and is thoroughly distributed throughout the interior of the cylinder and upon the piston by the steam contained therein.

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

1. In an engine, a cylinder, a piston-rod, and a bushing encircling said piston-rod and provided with oil-passages leading from its outer periphery to the interior of said cylinder.

2. In an engine, a cylinder, a piston-rod, a bushing located in a stuffing-box chamber provided in the head of said cylinder and encircling said piston-rod, said bushing provided with oil-passages leading from its outer periphery to the interior of said cylinder.

3. In an engine, a cylinder, a piston-rod, a bushing located in a stuffing-box chamber provided in the head of said cylinder and encircling said piston-rod, said bushing provided with oil-passages leading from its outer periphery to the interior of said cylinder, a packing-ring encircling said piston-rod adjacent to the outer end of said bushing and having conical ends thereon, a stuffing-box gland, and means to force the inner conical end of said packing-ring into a conical recess formed in the outer end of said bushing.

4. A device of the character described consisting of a hollow bushing provided with an oil-passage extending longitudinally of said bushing, with its inlet-orifice in the periphery and its outlet-orifice at one end of said bushing.

5. A device of the character described consisting of a hollow bushing provided with an annular channel in its periphery and with an oil-passage extending longitudinally of said bushing, with its inlet-orifice opening into said channel and with its outlet-orifice at one end of said bushing.

6. A device of the character described consisting of a hollow bushing provided with an annular channel in its outer periphery and with an annular channel in its inner periphery, said channels connected by a transverse oil-passage, and with an oil-passage extending from said transverse passage to one end of said bushing.

7. A device of the character described consisting of a hollow bushing provided with an annular channel in its outer periphery and with an annular channel in its inner periphery, said channels connected by a series of transverse oil-passages, and with a series of oil-passages extending from said transverse passages to one end of said bushing.

8. A device of the character described consisting of a hollow bushing provided with an annular channel in its outer periphery and with an annular channel in its inner periphery, said channels connected by a series of transverse oil-passages, and with a series of oil-passages extending from said transverse passages to one end of said bushing, the other end of said bushing having a conical face.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CARL BERNHARD WENNER.

Witnesses:
CHARLES S. GOODING,
ANNIE J. DAILEY.