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N. E. EGGE.

COOLING MEANS FOR GAS ENGINE CYLINDERS AND PISTONS.

APPLICATION FILED NOV. 19, 1903.

NO MODEL.

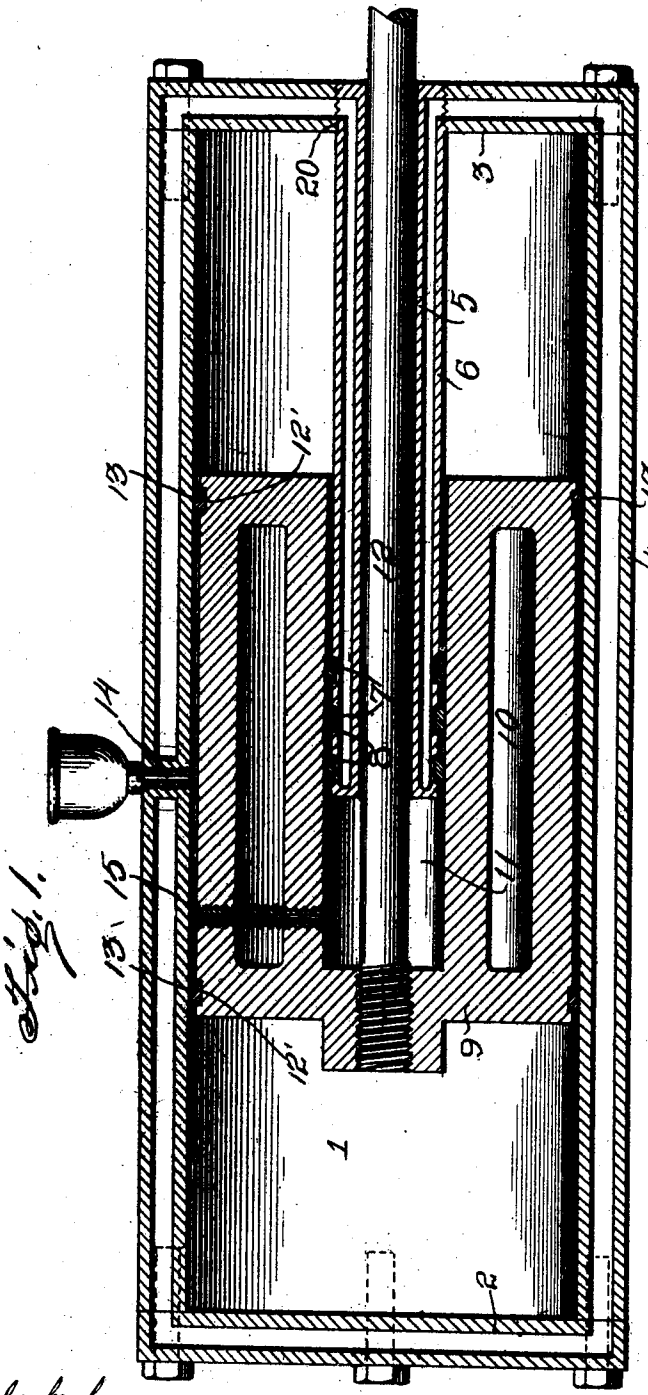


Fig. 1.

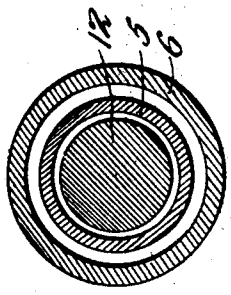


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

NELS E. EGGE, OF WELCOME, MINNESOTA.

COOLING MEANS FOR GAS-ENGINE CYLINDERS AND PISTONS.

SPECIFICATION forming part of Letters Patent No. 767,556, dated August 16, 1904.

Application filed November 19, 1903. Serial No. 181,833. (No model.)

To all whom it may concern:

Be it known that I, NELS E. EGGE, a citizen of the United States, residing at Welcome, in the county of Martin and State of Minnesota, have invented certain new and useful Improvements in Cooling Means for Gas-Engine Cylinders and Pistons; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in cooling means for gas-engine cylinders and pistons, and particularly with reference to means to prevent leakage through the cylinder-head around the piston-rod; and it consists in the construction and combination of devices hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a vertical central longitudinal sectional view of a gas-engine cylinder and piston constructed in accordance with my improvements. Fig. 2 is a detail transverse sectional view on a larger scale and taken on a plane intersecting the sleeve 5, its jacket 6, and the piston-rod.

The cylinder 1, with its heads 2 3, may be of the usual form. The cylinder is here shown as provided with a water-jacket 4, which extends into the outer head 3. The latter is provided with a central opening 20, in which is screwed the outer end of a tubular sleeve 5. The said sleeve is hollow to form a water-jacket 6, which extends from end to end thereof and communicates with the water-jacket in the head 3. The function of the water-jacket 6, as will be understood, is to reduce the temperature of the tubular sleeve. The said sleeve is provided near its inner end with a plurality of peripheral annular grooves 7, in which are rings 8, the said rings projecting outwardly from said tubular sleeve.

The piston-head 9, which operates in the cylinder, is chambered, as at 10, to reduce its weight and has a central longitudinal cylindrical chamber 11 open at its front or outer end and of suitable diameter to receive the sleeve 5. The rings 8 around the jacket 6 of the sleeve 5 and which project radially therefrom snugly fit and bear against the bore of the said chamber, as shown, and effect a tight packing between it and the tubular sleeve. The piston-rod 12 is of less diameter than the interior diameter of the tubular sleeve and extends through the latter without touching it. The inner end of the piston-rod is connected by any suitable means to the inner end of the piston-head. It is here shown as provided with screw-threads for this purpose. The piston-head is provided with peripheral annular grooves 12 at its ends, in which are rings 13, which bear against the bore of the cylinder and are packing-rings.

The cylinder is here shown as provided with an opening 14 for the admission of lubricating-oil to the space between the packing-rings 13, and the piston-head is shown as provided with a lubricant-conducting tube 15, which leads from the said space to the chamber 11 to conduct the lubricant to the said chamber and hence to the packing-rings 8.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. A cylinder of the class described, having a water-jacket, a sleeve-tube attached to one head of the cylinder, extending inwardly into the same and having a water-chamber, said cylinder being further provided with a duct to convey lubricant to the bore thereof; in combination with a piston-head to travel in the cylinder, and having a bore to receive the sleeve-tube, said piston-head being further provided with a duct to convey lubricant from the bore of the cylinder to the bore of the piston-head which moves upon the sleeve-tube, substantially as described.

2. A cylinder of the class described, having a fixed tubular sleeve disposed longitudinally therein, in combination with a piston-head to operate in the cylinder and having a

longitudinal bore to clear the tubular sleeve, and a piston-rod attached to the piston-head and extending through the tubular sleeve and out of contact therewith, substantially as described.

3. A cylinder of the class described, having a tubular sleeve disposed longitudinally therein and attached to one of the cylinder-heads, in combination with a piston-head having packing-rings at its ends and provided with a central longitudinal chamber to clear said tubular sleeve, the latter being provided with packing-rings engaging the bore of said chamber, and a piston-rod attached to the piston-head and extending through the tubular sleeve and out of contact therewith, substantially as described.

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

NELS E. EGGE.

Witnesses:
JOHN WOLFORD,
A. W. GAMBLE.