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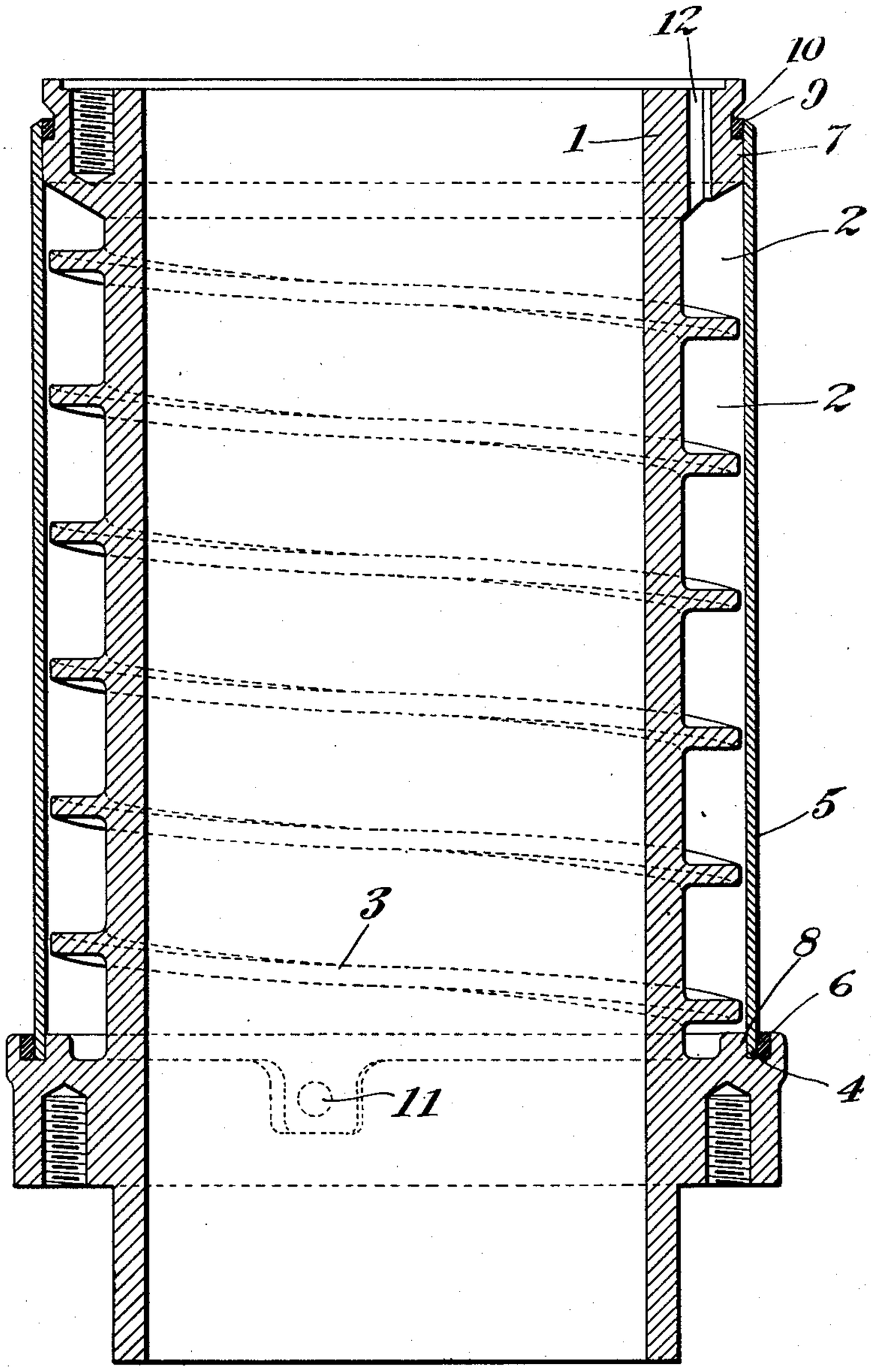
F. W. BRADY.

JACKETED ENGINE CYLINDER.

APPLICATION FILED OCT. 13, 1905.



WITNESSES:

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FRANCIS W. BRADY, OF ENGLEWOOD, NEW JERSEY.

JACKETED ENGINE-CYLINDER.

No. 843,068. Specification of Letters Patent. Patented Feb. 5, 1907.

Application filed October 13, 1905. Serial No. 282,588.

To all whom it may concern:

Be it known that I, FRANCIS W. BRADY, a citizen of the United States, residing in the city of Englewood, county of Bergen, and State of New Jersey, have invented certain new and useful Improvements in Jacketed Engine-Cylinders, of which the following is a full, clear, and exact specification.

My invention relates to certain new and useful improvements in cooling means for engine-cylinders; and it consists of the combinations and parts hereinafter more particularly described.

My invention relates particularly to water-cooling means for apparatus of all kinds, and while I have shown it applied to an engine-cylinder it will be readily understood that this is but one use to which it can be put and that it can be employed wherever it is desirable to cool a cylinder or mechanical structure of any kind or character.

In water-jackets of the ordinary type as used heretofore one objectionable feature has been the unequal distribution or circulation of the fluid through the chamber from its inlet to the outlet; and one of the objects of my invention is to obviate this difficulty. Another disadvantage has been the difficulty found in obtaining a light and compact construction which shall be easily rendered water-tight, but which at the same time can be opened for cleaning or any other purpose should the same become necessary or desirable. By my invention these features are readily obtained.

In the drawing illustrating one form of my invention the figure represents a sectional view of a portion of an engine-cylinder embodying my improvements.

In the drawing aforesaid, 1 represents the cylinder-casting, which may be of any desired form or nature. This casting is provided with a water chamber or recess 2, extending around its circumference, and within this water-chamber a vertically-arranged helical flange 3 is provided, as will be readily seen in the drawing. The bottom portion of the casting is provided with a recess 4, against the lower end of which the shell 5 permanently abuts, and the remaining space in the recess 4 is adapted to be filled by a sealing means which consists of a metal having a relatively low melting-point and which may be inserted in the said recess in a melted form or in the form of a ring or strip of metal which can be calked in place, so as to form a water-tight sealed joint. The sealing means that I prefer to use is an alloy of lead and tin; but any other similar alloy or plastic material—such, for instance, as copper, lead, &c.—may be used for this purpose. The shell 5 may be made of any suitable metal and its ends contact with sealing-surfaces 7 and 8 on the casting, the upper end being sealed to the casting by the sealing material 9, located in the recess 10 in the casting and over which recess the shell is adapted to slide when it is placed in position. The flange 3 extends or projects from the casting outwardly into the water-chamber almost up to the casing or shell; but a slight space is left between through which sediment, grit, or other impurities in the water may drop to the bottom of the casting and be removed, so as not to interfere with the free circulation of the water in the helical passage formed by the two adjacent ranges of the flange. The water may be furnished to the water-jacket in any suitable manner—such, for instance, as by means of the inlet 11—and it passes therefrom through the outlet 12 at the upper end thereof and empties into the head of the cylinder. (Not shown in the drawing, as it forms no part of my present invention.)

It is obvious that many modifications and changes may be made from the exact structure illustrated without departing from the spirit of my invention, and I do not limit myself to the particular form shown and described; but

What I claim, and desire to secure by Letters Patent, is—

1. A jacketed engine-cylinder comprising a water-chamber having inner and outer walls and a helical flange projecting from one wall across the water-chamber, and close to, but not in contact with the other wall, so as to direct the flow of water, and to permit sediment, dirt, &c., to drop between the flange and the other wall, substantially as described.

2. A jacketed engine-cylinder comprising a casting having a recessed water-chamber therein, a shell on said casting and inclosing said chamber, and a vertically-arranged helical flange projecting from the casting across the water-chamber and extending close to, but not in contact with the shell, substantially as described.

3. A jacketed engine-cylinder comprising a casting having a recessed water-chamber therein, sealing-surfaces located at the ends

of the water-chamber, a cylinder or shell for inclosing the water-chamber, the ends of which contact with the sealing-surfaces aforesaid, a recess adjacent to one of the sealing-surfaces having a permanent abutment against which one end of the shell is adapted to rest and a space for the sealing material, a second recess adjacent to the other sealing-surface but over which the shell is adapted to pass, and a sealing means consisting of a metal having a relatively low melting-point in each of said recesses for forming the water-tight joint between the casting and the shell, substantially as described.

4. A jacketed engine-cylinder comprising a casting having a recessed water-chamber therein, sealing-surfaces located at the ends of the water-chamber, a cylinder or shell for inclosing the water-chamber, the ends of which contact with the sealing-surfaces aforesaid, a recess adjacent to one of the sealing-surfaces having a permanent abutment against which one end of the shell is adapted to rest, a space for the sealing material, a second recess adjacent to the other sealing-surface, but over which the shell is adapted to pass, a sealing means consisting of a metal having a relatively low melting-point in each of said recesses for forming a water-tight joint between the casting and the shell, the shell being adapted to slide over the sealing means in the second recess when the parts expand and contract, substantially as described.

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

FRANCIS W. BRADY.

Witnesses:
ADOLPH F. DINSE,
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