

No. 822,326.

PATENTED JUNE 5, 1906.

F. H. TRYON.
WATER JACKET.

APPLICATION FILED OCT. 3, 1903.

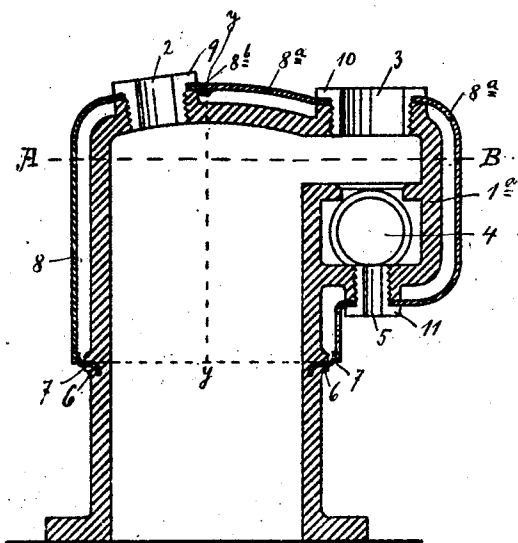


Fig. 1.

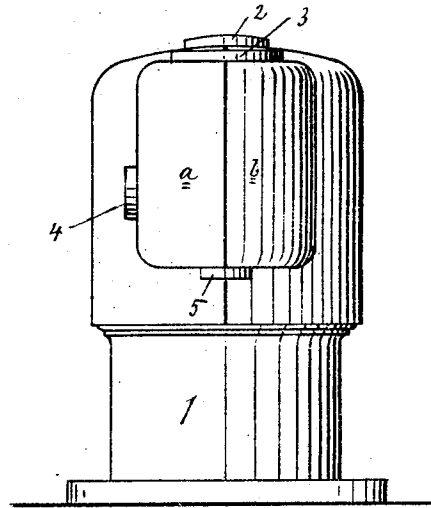


Fig. 2.

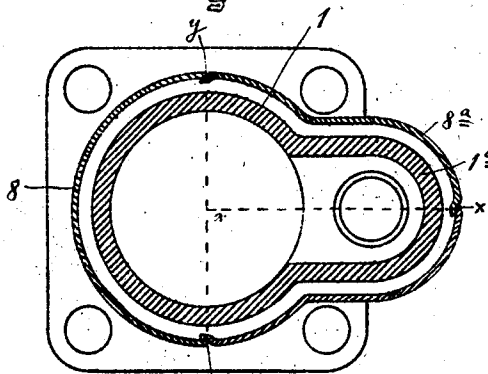


Fig. 3.

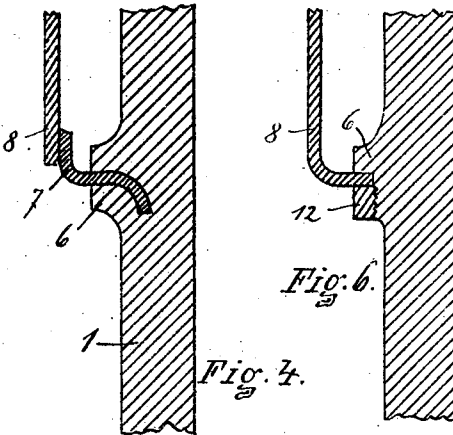


Fig. 4.

Fig. 6.

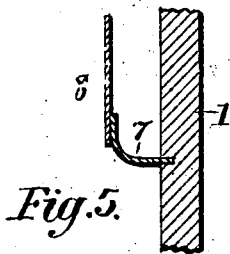


Fig. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

FRANK H. TRYON, OF UTICA, NEW YORK.

WATER-JACKET.

No. 822,326.

Specification of Letters Patent.

Patented June 5, 190.

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To all whom it may concern:

Be it known that I, FRANK H. TRYON, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Water-Jackets, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improvement in water-jackets for explosive and other engines and in the manner of attaching the same; and I do declare that the following is a full, clear, concise, and exact description thereof, sufficient to enable one skilled in the art to make and use the same, reference being had to the accompanying drawings, in which like numerals and letters refer to like parts throughout.

In the drawings, Figure 1 is a sectional view of a cylinder with valve-chambers thereon. Fig. 2 is an outside view looking toward the valve-chamber. Fig. 3 is a cross-sectional view of line A B of Fig. 1. Fig. 4 is a detail view shown in part, Fig. 1. Fig. 5 shows a slight modification from Fig. 4, and Fig. 6 illustrates a further modification of the mounting attaching the jacket to the cylinder.

Among the purposes of my invention is to provide a jacket which can be made of thin material and which can be readily secured in place, and thereby be more economical than water-jackets which are formed of a single casting with the cylinder and which require a greater amount of material and a greater degree of care. By the use of my style of jacket I avoid many of the inconveniences which attend such jackets and I avoid altogether the risk of poor casting and consequent loss.

In my construction the casting can be thoroughly cleaned before the jacket is applied, and no sand or matter can get into the parts of the cylinder.

Another particular feature of my device as applied is the freedom in expansion and contraction without undue strain on the jacket or its connections.

It will be readily understood that provision can be made in any suitable manner for the circulation of water in the jacket, although I make no claim here of any particular method or construction for such purpose, as the skilled mechanic will readily make such application as desired.

Referring to the figures more in detail, 1 is a cylinder-casting having an opening 2, where the igniter-plug is to be seated. It has at the side an ordinary valve-chamber into which there is opening 3 for the inlet and opening 4 for the outlet. At 5 I show an opening for the valve-stem. I do not attempt to show the form or position of the valves, as those features will be readily understood and employed.

Upon the cylinder I cast a ridge or rib 6, which passes around the cylinder and forms a ring thereon. Rigid with the cylinder-casting and rib 6 I provide the ring 7, which is cast into the cylinder and the rib 6. The ring 7 may have its inner edge bent or turned so as to secure a firm bed in the cylinder. The outer edge of the ring is turned, as shown, so as to form a convenient seat for the jacket 8. The jacket may be secured on the ring 7 in any suitable manner by soldering or by any other suitable means or combination of means.

The ring 7 is preferably of steel and is made of thin material and is of curved section, as shown, in order to allow for the variation in expansion and contraction, which are readily and naturally taken up at that point, although the jacket 8 will in a large measure assume this strain. I illustrate the jacket as formed in three portions, although it may be made in such size and shape of pieces as may be desired. The portion 8 is extended, as shown in Fig. 1, to the line *yy*, having an opening to slip over the hub formed for igniter-plug 2.

Part 8^a is formed to unite with the part 8, as shown at 8^b, where the parts may be secured in any suitable manner. The part 8^a has the openings for the inlet 3, outlet 4, and the exhaust-valve 5. In Fig. 2 I show the part 8^a as divided into parts *a* and *b*, which are united on the seam *xx*. I do not of course limit myself to any method of securing these parts to the casting or to each other. The part 8, as already stated, is perforated to fit over the igniter-plug opening 2. Into the latter is fitted bushing 9, which screws firmly into place and forms a suitable gasket or packing at that point. It will be understood, however, that in case some other material than copper or the like is used suitable packing can be employed. In the same manner the bushing is shown at 10 and at 11.

In Fig. 5 I show how the rib may be omit-

ted and the ring cast into the cylinder without having its inner periphery previously upset or turned.

The rib 6 may be cast in such a form as largely to answer the purposes of the ring 7, and a flat ring may be cast in the cylinder to take the place of the rib 6 and the ring 7.

In Fig. 5 I illustrate how the rib 6 may be omitted and its place be taken by the ring 7. It is not thought essential that there should be a rib 6; but I have illustrated such a construction in the drawings. Of course the proportions between the rib 6 and the ring 7 may be modified without departing from the spirit of my invention, which is to provide with a thin jacket a thin mounting connection between it and the cylinder, so as to make easy provision for expansion and contraction. A prime object of rib 6 is to provide a mounting for the ring 7, and thus save unnecessary material in the cylinder. In Fig. 6 I show a modification where the rim is provided with a shoulder against which the jacket fits and where it is held by ring or nut 12 to be screwed onto threads formed on the rib 6 or the cylinder 1 and which forms a suitable bushing or seat for the jacket and where it may be suitably secured.

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

1. In an engine of the character described provided with a water-jacket and a cylinder, means for connecting the same, the said means comprising a ring cast in the cylinder and having its edges turned to secure it in the casting and to provide a surface for the attachment of the jacket thereto, substantially as shown.

2. In an engine-cylinder, a ring curved in cross-section and of thin material cast into

the cylinder upon the periphery thereof and a water-jacket secured to the ring, in combination, substantially as shown.

3. In an engine-cylinder provided with a water-jacket, a peripheral ring rigid with the cylinder formed of thin material curved in cross-section to provide a surface substantially parallel with the wall of the jacket for the connection of the jacket thereto, substantially as shown.

4. In an engine of the character described, a cylinder, a jacket of thin sheet metal mounted to inclose the same, a ring of thin sheet metal cast in the cylinder and providing a mounting for the said jacket, the said ring being turned at the edge to provide secure mounting and for expansion and contraction, in combination, substantially as shown.

5. In an engine, a cylinder, a water-jacket, an annular member of thin metal cast in the cylinder providing a surface substantially parallel with the wall of the jacket for the mounting of the jacket thereon and having its body formed to be securely engaged in the casting of the cylinder, in combination, substantially as described.

6. In an engine, the combination with the cylinder of a water-jacket of thin material mounted on the cylinder by means of a curved portion thereof extending from the body of the jacket to the body of the cylinder and secured thereto, the said curve providing for the expansion and contraction of the water-jacket, substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK H. TRYON.

Witnesses:

E. E. RISLEY,
G. C. ELLIS.