

No. 773,245.

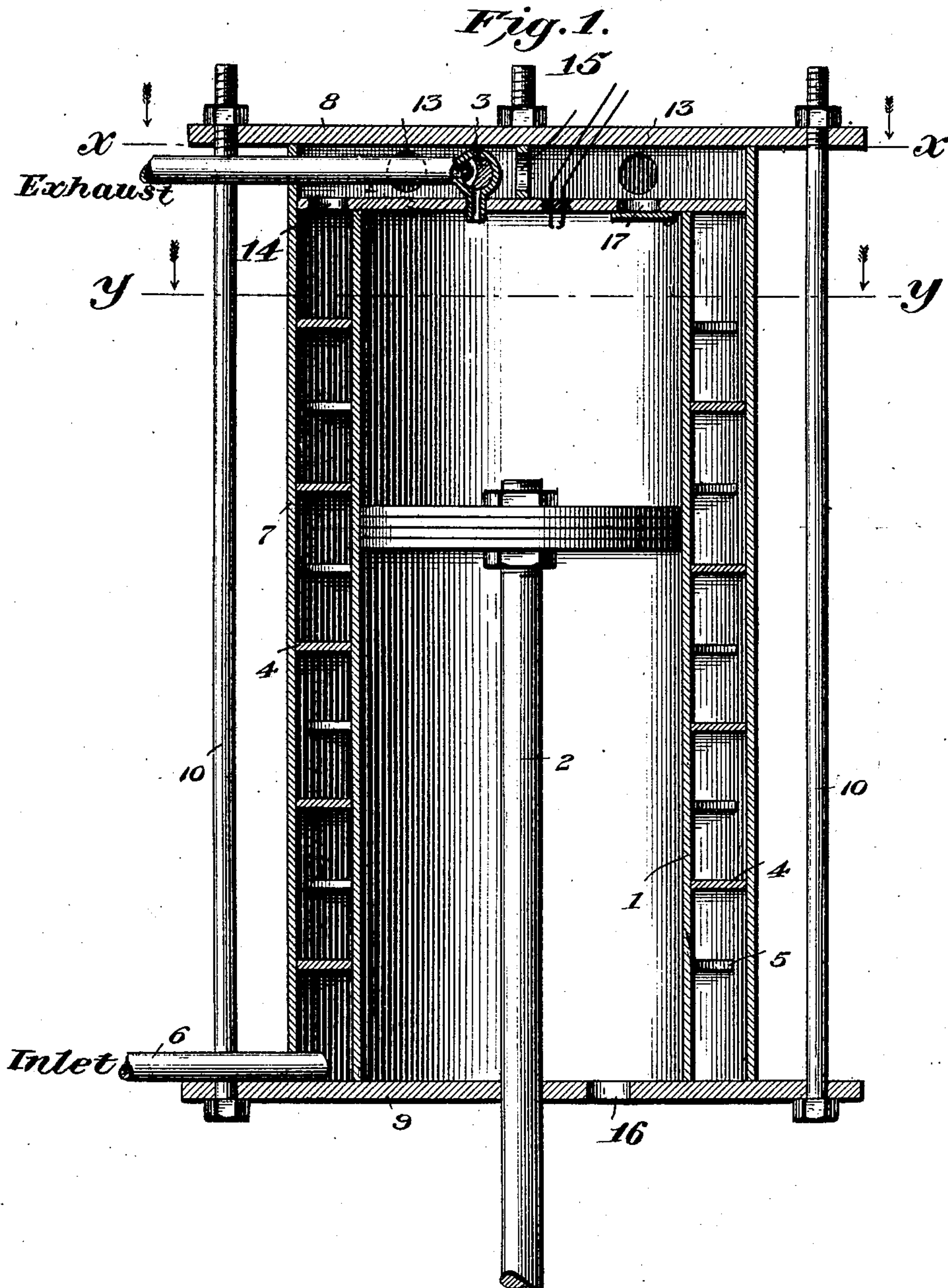
PATENTED OCT. 25, 1904.

J. T. CAPPELL.
COOLING MOTORS.

APPLICATION FILED JULY 7, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Inventor

John T. Cappell

Witnesses

Elmer Seavey
Frank C. Gou,

By

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Attorney.

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2 SHEETS—SHEET 2.

Fig. 3.

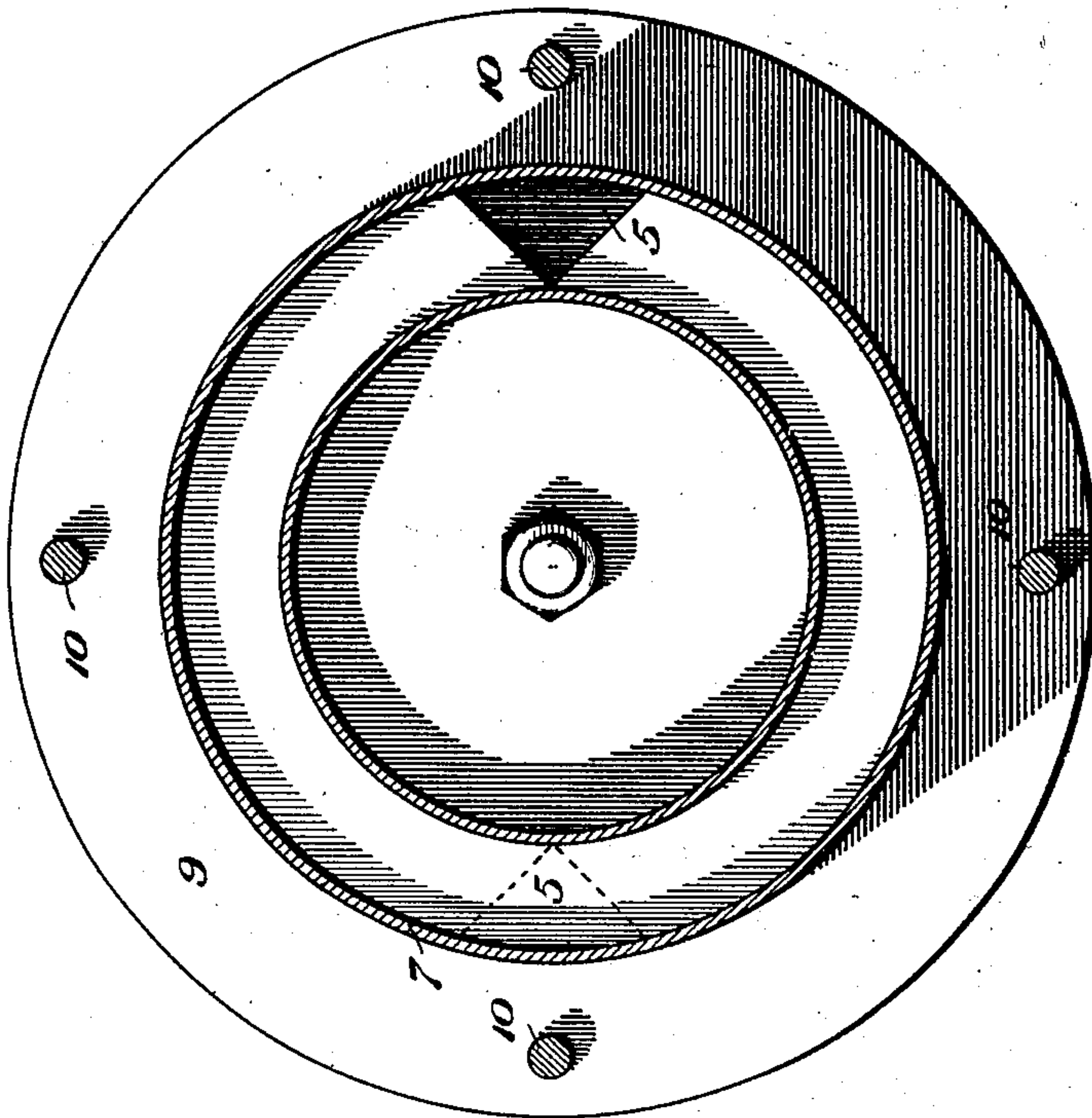
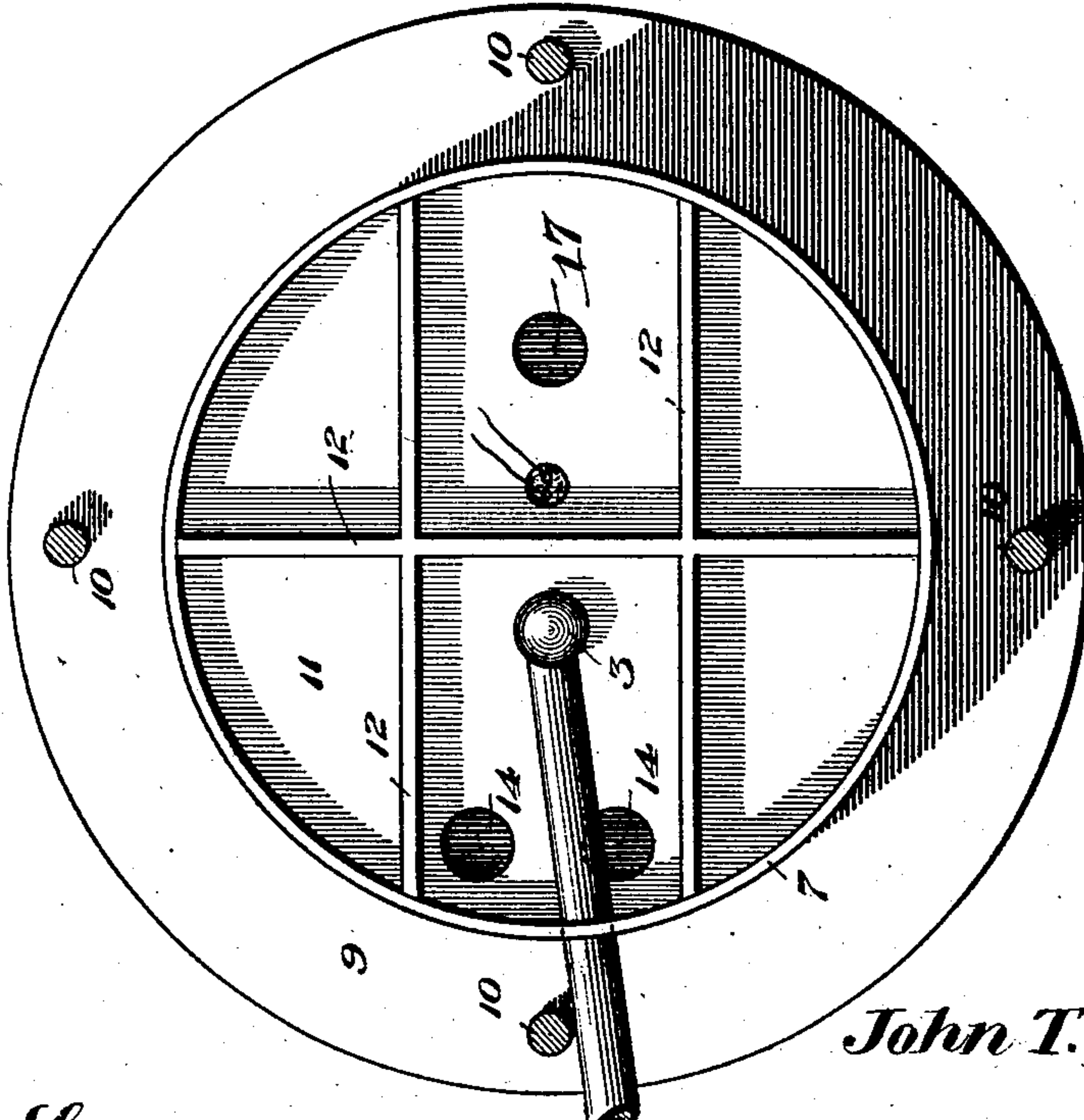


Fig. 2.



Witnesses

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By

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UNITED STATES PATENT OFFICE.

JOHN T. CAPPELL, OF VINCENNES, INDIANA.

COOLING MOTORS.

SPECIFICATION forming part of Letters Patent No. 773,245, dated October 25, 1904.

Application filed July 7, 1902. Serial No. 114,689. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. CAPPELL, a citizen of the United States, residing in Vincennes, in the county of Knox and State of Indiana, have invented a new and valuable Improvement in Cooling Motor-Cylinders, of which the following is a full, clear, and exact description of the construction and operation of the same.

My invention relates to improvements in cooling motor-cylinders, and especially to that type using a jacket for surrounding the cylinder; and the object thereof is to provide means whereby the mixture of air and gasoline which is drawn into the explosion-chamber cools the cylinder before entering, thus avoiding accidental explosion.

With this object in view the invention consists in the novel features and combination of parts, which will be more fully described hereinafter and pointed out in the appended claims.

In the drawings, Figure 1 is a vertical section. Fig. 2 is a horizontal section on line *xx* of Fig. 1, and Fig. 3 is a horizontal section on line *yy* of Fig. 1.

Referring more especially to the drawings, 1 designates a cylinder, 2 the piston, and 3 the exhaust-valve, which may be operated by any suitable means, (not shown,) these parts being of the construction usually employed, and as my invention relates solely to the cooling of the engine I have not shown any parts other than those which show the application of my invention.

In carrying out my invention the cylinder is surrounded in parallel lines by a series of ribs 4, provided with alternating openings 5 on either side, which cause the gasoline, which enters at 6, to traverse a circuitous path to the head. Tightly surrounding the ribs 4 is an annular casing 7, closed at both ends by the plates 8 and 9, which are made larger in circumference than the casing, so as to receive locking-bolts 10, adapted to hold them in place and act as a brace to the cylinder. Between the head 11 and the top plate 8 are arranged a number of ribs 12, having openings 13, adapted to distribute the cooling charge over the entire surface of the head.

The operation is as follows: Gasoline after passing through the ordinary mixer enters the

space between the jacket and cylinder at 6 and coming in contact with air causes the gasoline to expand, thereby reducing its temperature. The consequent cooling is caused as follows: When the piston makes its outward stroke, a partial vacuum is produced in the space between the cylinder and casing, causing less pressure than that which the gasoline is subjected to before entering, and thus expanding it and causing cooling. This cool mixture then passes between the ribs 4 through the openings 5, causing it to traverse a circuitous course until the entire cylinder-surface is cooled. After leaving the space between the cylinder and casing it passes up and enters openings 14, then through holes cooling the exhaust-valve 3, thence through openings 13 and 15 in ribs 12 to the port 17, leading to the explosion-chamber, where it is exploded.

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

1. In a cooling device for explosion-engines, the combination with a cylinder, a head for said cylinder provided with apertures, a casing surrounding said cylinder, and an inlet-port to said casing, of plates secured to the top and bottom of said casing, ribs between the head of said cylinder and said top plate provided with openings adapted to cause circulation of the charge to be exploded, and a valve controlling the communication between the cylinder-head and the cylinder.

2. In a cooling device for explosion-engines, the combination with a cylinder, a head for said cylinder provided with apertures, a casing surrounding said cylinder, and an inlet-port to said casing, of plates secured to the top and bottom of said casing, ribs having alternating openings surrounding said cylinder, cross-ribs between the top plate and the head provided with openings adapted to cause circulation of the charge to be exploded, and a valve controlling the communication between the cylinder-head and the cylinder.

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

J. T. CAPPELL

Witnesses:

WILLIAM F. HINDS, Jr.,
KATE PENINGTON.