

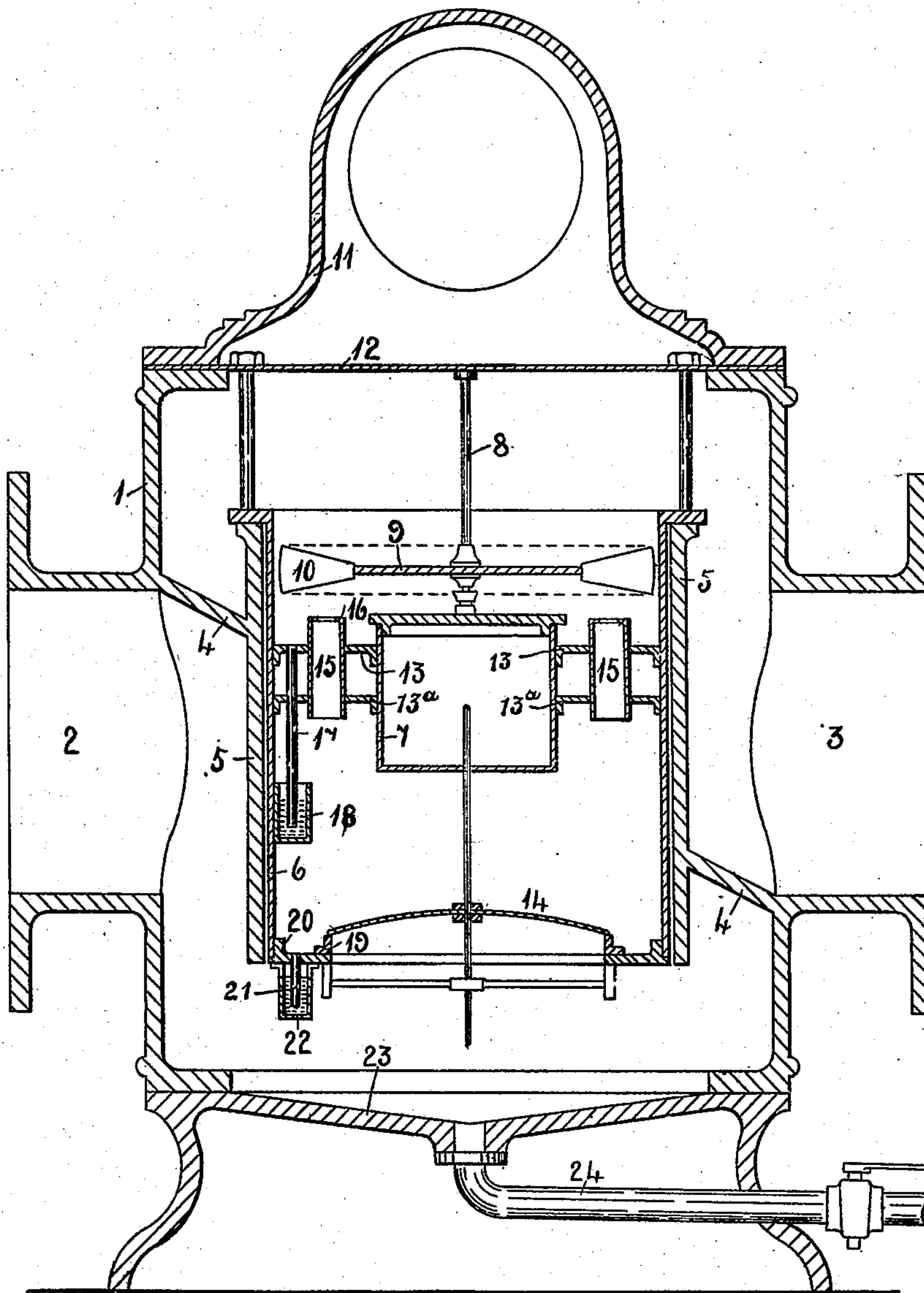
No. 867,766.

PATENTED OCT. 8, 1907.

T. THORP.
ROTARY GAS METER.
APPLICATION FILED JULY 24, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

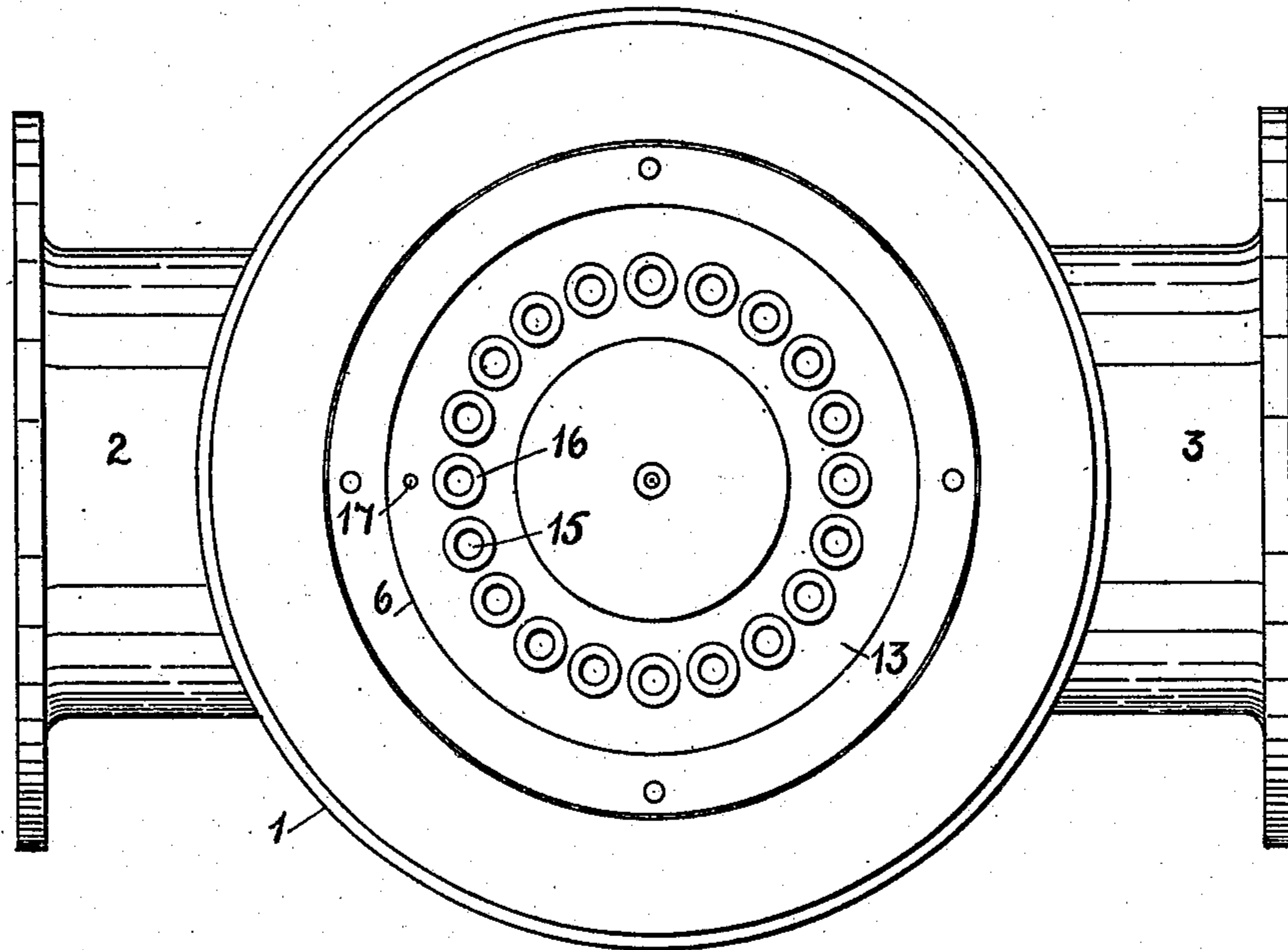
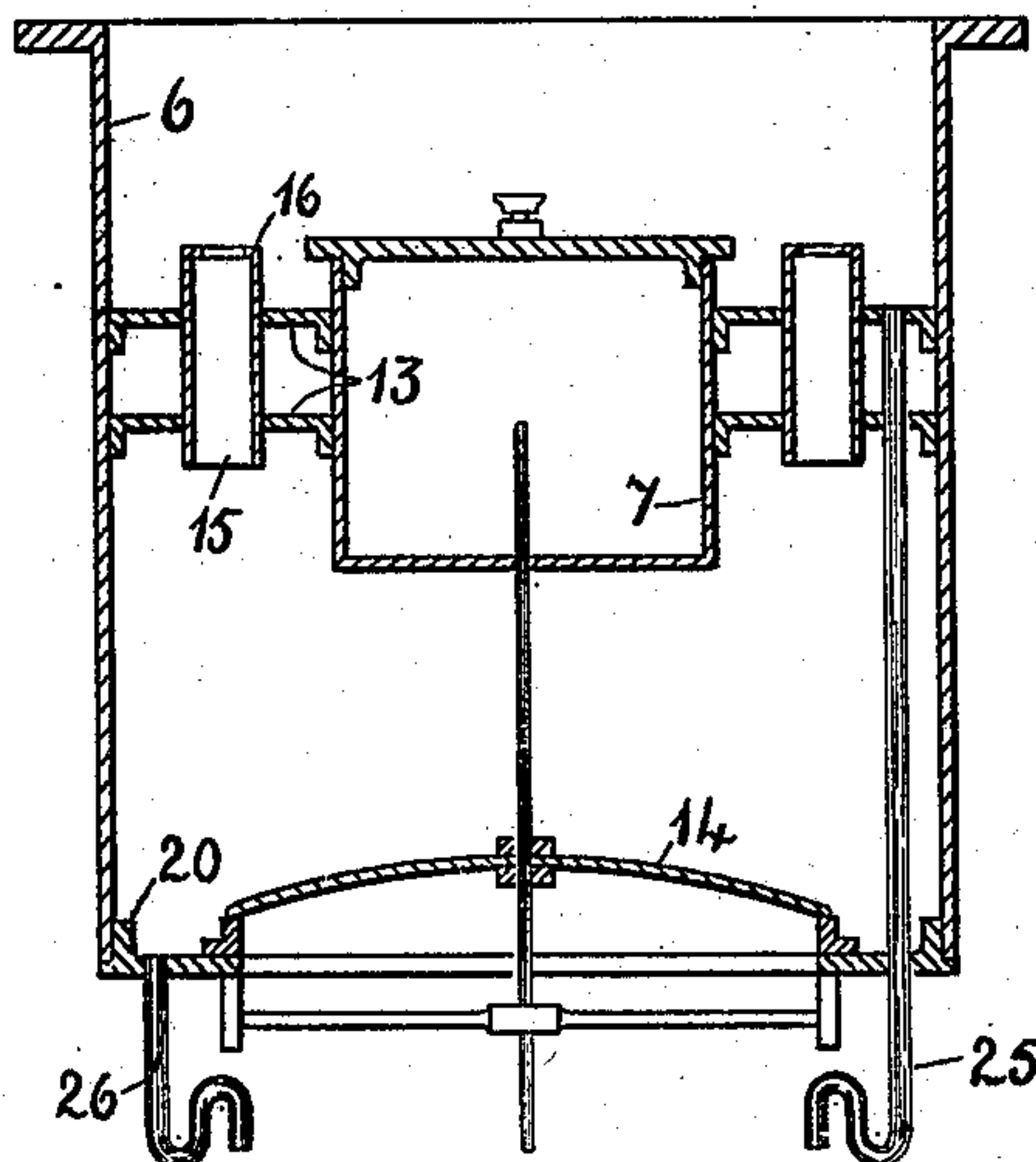


Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS THORP, OF WHITEFIELD, NEAR MANCHESTER, ENGLAND.

ROTARY GAS-METER.

No. 867,766.

Specification of Letters Patent.

Patented Oct. 8, 1907.

Application filed July 24, 1906. Serial No. 327,545.

To all whom it may concern:

Be it known that I, THOMAS THORP, a subject of the King of Great Britain and Ireland, and a resident of Whitefield, near Manchester, in the county of Lancaster and Kingdom of Great Britain, have invented certain new and useful Improvements in Rotary Gas-Meters, of which the following is a specification.

This invention relates to improvements in rotary or inferential gas meters of the kind for which Letters Patent No. 73,285 have been granted to me in the United States. It has been found that when using the meter as constructed as described in my specification for said Letters Patent with the tubular guides of uniform area throughout and with their top ends level with the plate in which they are fixed, and such meters are used for carbureted water gas, enriched coal gas, oil gas and the like, oily liquids of condensation are deposited in the meters, and in consequence of the friction of the gas on the walls of the annularly arranged guide passages or tubes under the fan wheel the oily deposit therein is retained near the upper ends of said passages or tubes and forms more or less conical orifices prejudicially affecting the correct registration of the meter. The deposits also tended to affect the proper working of the inlet valve if its seating is level with the bottom of the cylinder, as described in my said specification, by accumulating round it and directing the flow of the gas in streams instead of uniformly distributing it.

The object of my improvements is to eliminate these objections by preventing the oily deposits from impairing the efficiency and correctness of the meter when using oily gases of the kinds named above.

On the drawing appended hereunto a rotary gas meter with my improvements applied thereto is shown in Fig. 1 in vertical section. Fig. 2 shows a plan of the meter with the top plate, cover and fan wheel removed. Fig. 3 is a section of the internal cylinder with a modified arrangement of the drain pipes.

The meter similarly to that described in the specification for my said Letters Patent consists of a casing 1 with inlet branch 2 and outlet branch 3 with a partition plate 4 between them and an open ended cylinder 5 in the center, into which the measuring apparatus is inserted. The latter consists of a flanged cylinder 6 having near to the top an inner cylinder 7 closed at the top on which the spindle 8 of the fan or turbine wheel 9 formed with inclined blades 10 is supported, said spindle driving the index mechanism contained in the casing 11 above the top plate 12. The annular space between the cylinders 6 and 7 is closed by plates 13 and 13^a containing annularly arranged tubular guides 15 for the gas. The bottom of the cylinder 6 contains an orifice closed by a free lifting inlet valve 14.

For the purpose of preventing the accumulation of oil deposits in the annularly arranged tubular guides

15 these are formed with a shallow annular constriction 16 at the outlet immediately under the fan wheel and stand for a convenient distance above the annular plate 13, which as shown is placed lower down than the top of the cylinder 7. The effect of this device is to prevent the formation of any oily deposit in the annular constriction or the tubes 15, for the reason that these constrictions confine the current of gas more or less to the central part of the tube, so that there is little if any friction of the gas on the wall of the tube and any oil deposited thereon can flow away and drop down by gravity. Thus the area of the orifices remains unaffected, while any other deposit of oil that may collect on the top of the plate 13 cannot enter the orifice of the tubes projecting above it. A drain pipe 17 trapped by dipping into a cup 18 allows the oil collecting on the top of the plate to flow down into the bottom of the cylinder 6. Or a drain pipe 25 may be carried through the bottom of the cylinder 6 and trapped by a siphon bend as shown in Fig. 3. To prevent the oil collecting on this bottom to affect the proper working of the inlet valve 14, the seating 19 of the same is raised above the bottom, or a sunk channel 20 surrounding the same is formed in the bottom, and this channel is also provided with a drain pipe 21 trapped by means of a cup 22 or by a siphon pipe 26 as shown on the left of Fig. 3 from which the oil overflows and falls on to the bottom 23 of the meter casing, whence it is drawn off by the drain pipe 24, which may be closed by a tap or trapped with a hydraulic seal.

I claim as my invention.

1. In a gas meter, a rotary wheel, vanes arranged thereon, an annularly arranged series of tubes directing the gas on to the vanes, and a plate in which the tubes are fixed, the tubes being constricted at their outlet ends and projecting above said plate.

2. In a gas meter, a rotary wheel, vanes arranged thereon, an annularly arranged series of tubes directing the gas on to the vanes, and a plate in which the tubes are fixed, the tubes being constricted at their outlet ends and projecting above said plate, and a trapped drain pipe adapted to drain off any oil collecting on said plate.

3. In a rotary fan wheel gas meter the combination of an outer casing having an inlet and an outlet branch, a central open ended cylinder in said casing, a partition plate between the inlet and outlet branches, a second cylinder inserted into said central cylinder and having a bottom and an orifice therein, a valve adapted to close said orifice, a smaller and shorter cylinder closed at the top in the center of said second cylinder an annular plate between these cylinders, annularly arranged tubes fixed in said plate so as to project above the same and having restricted orifices at the top, a trapped drainpipe fixed to said plate, a fan wheel mounted on a vertical spindle and bearings for supporting the same.

4. In a rotary fan wheel gas meter the combination of an outer casing having an inlet and an outlet branch, a central open ended cylinder in said casing, a second cylinder inserted into said central cylinder and having a bottom, an orifice therein surrounded by a raised valve seat-

ing, a valve adapted to fit said casing, and a trapped drain pipe fixed to said bottom and adapted to drain off any oil collecting thereon.

- 5 In a rotary fan wheel gas meter the combination of an outer casing having an inlet and an outlet branch, a central open ended cylinder in said casing, a second cylinder inserted into said central cylinder, a bottom to said second cylinder having a central orifice, a valve adapted to close said orifice, a sunk channel surrounding the seating of said valve and a trapped drain pipe adapted to drain off the oil collecting in said channel.
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6. In a rotary fan wheel gas meter the combination of an outer casing having an inlet and an outlet branch, a central open ended cylinder in said casing, a partition plate between the inlet and outlet branches, a second cylinder inserted into said central cylinder and having a bottom and an orifice therein, a raised valve seating sur-
- 15

rounding said orifice and a valve adapted to close the same, a trapped drain pipe adapted to drain off any oil collecting on said bottom, a smaller and shorter cylinder closed at the top in the center of said second cylinder an annular plate between these cylinders, annularly arranged tubes fixed in said plate so as to project above the same and having restricted orifices at the top, a trapped drain pipe fixed to said plate and adapted to drain off any oil collecting thereon, and a fan wheel mounted on a vertical spindle and bearings for supporting the same.

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

THOMAS THORP.

Witnesses:

FRANKLIN THORP,
ISAAC WHITTAKER.