

No. 668,529.

Patented Feb. 19, 1901.

J. T. LINDSTROM.
STEAM SEPARATOR.

(Application filed Oct. 1, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

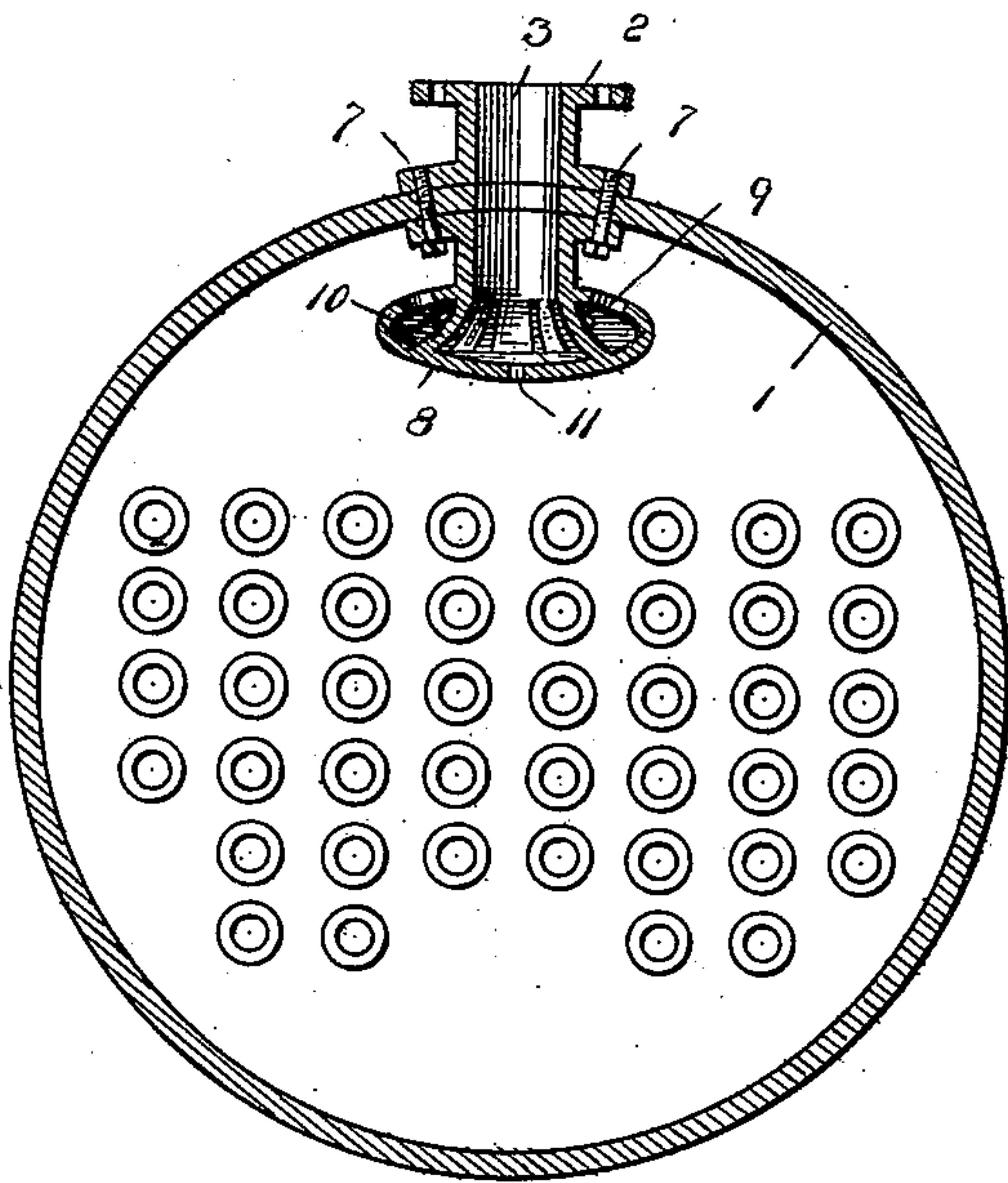


Fig. 2.

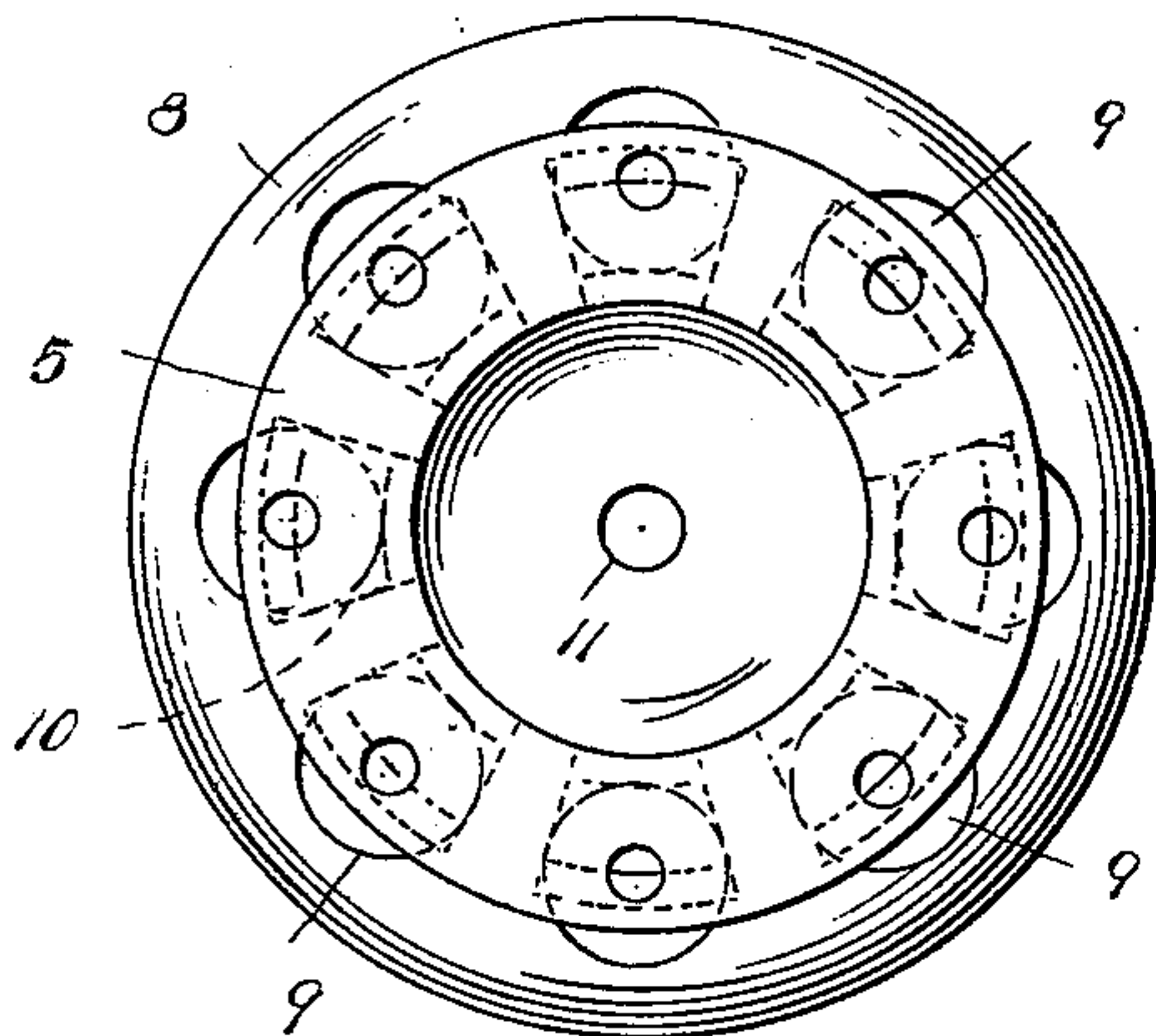
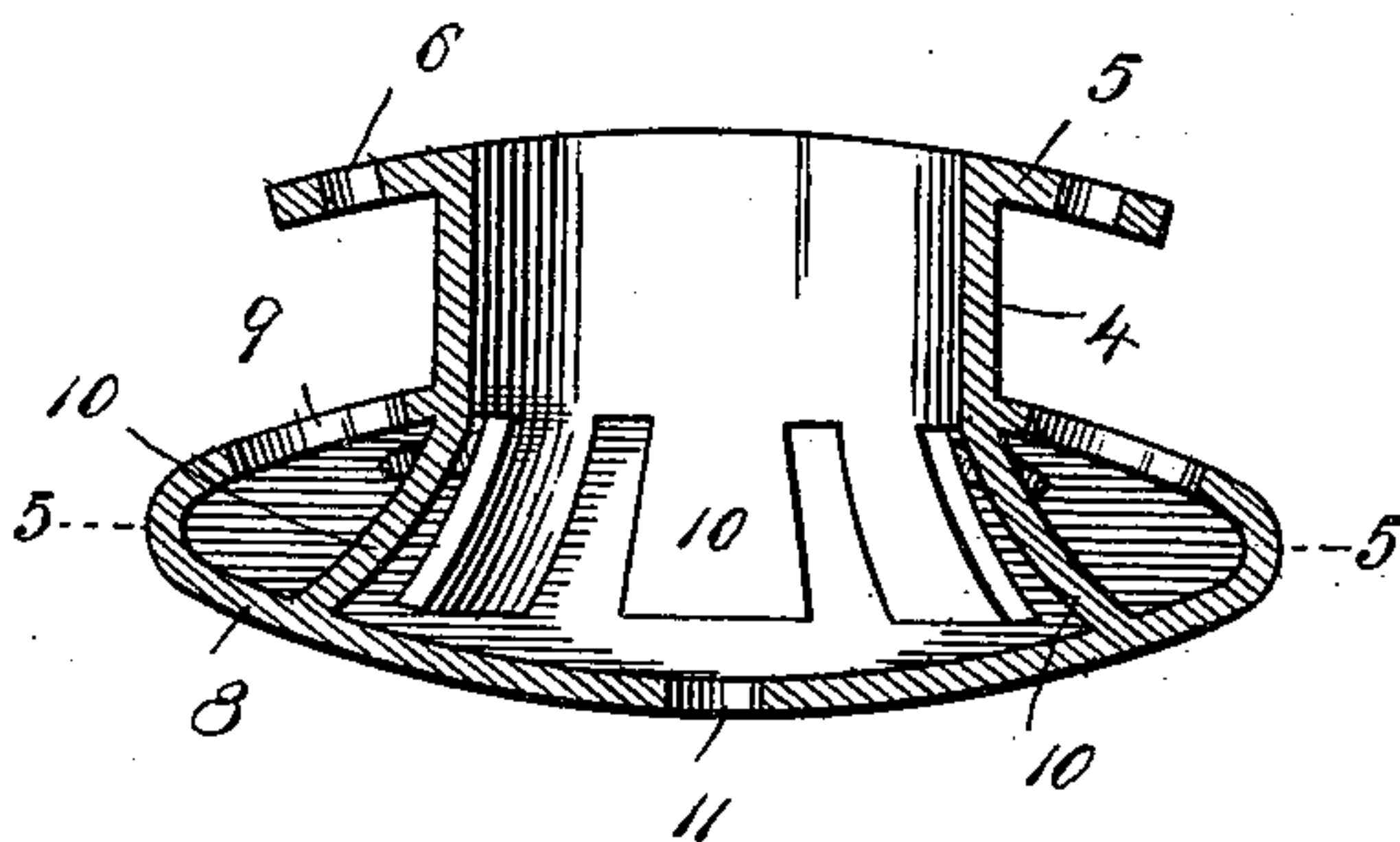


Fig. 3.



Witnesses

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Fig. 6.

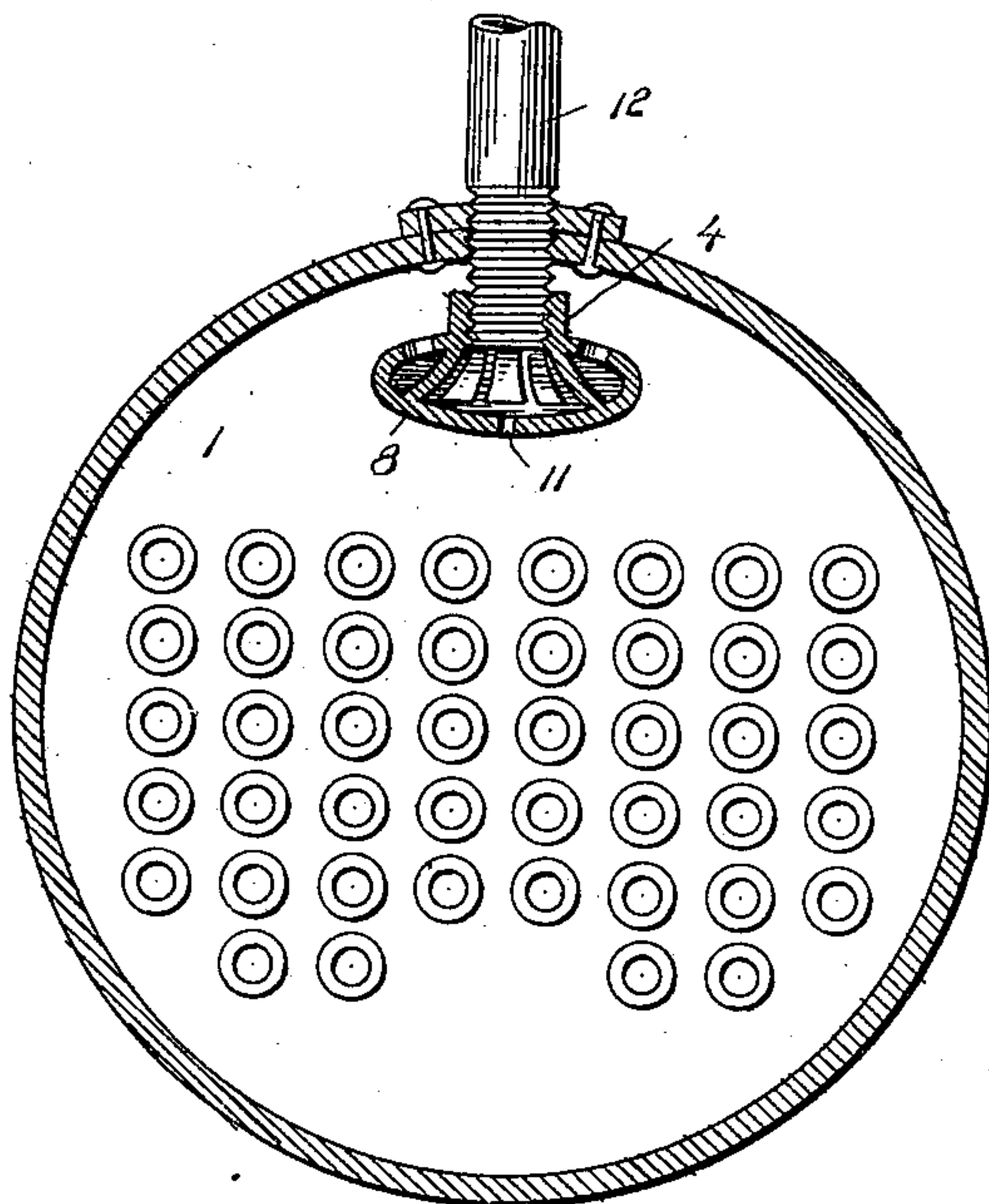


Fig. 5.

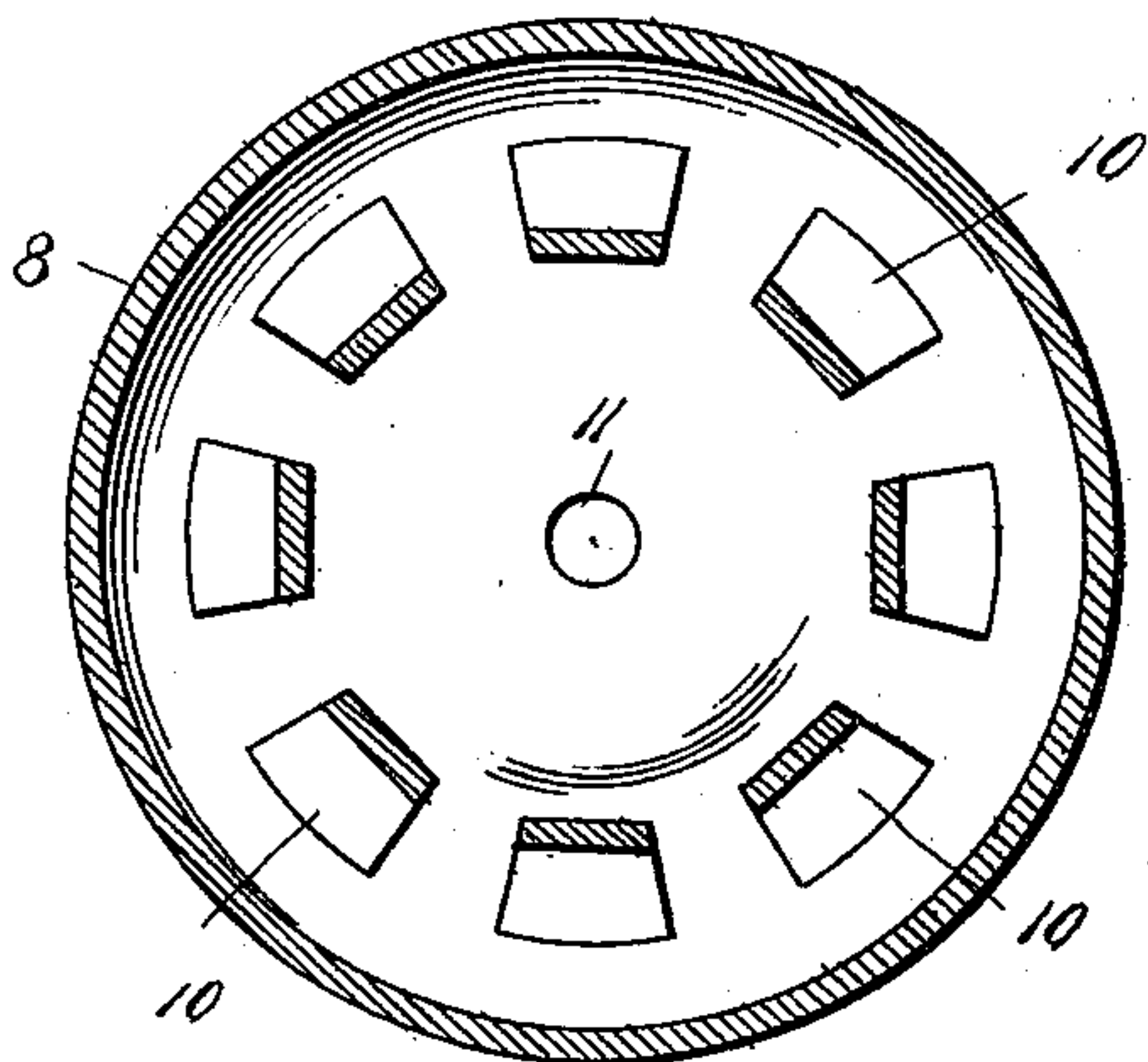
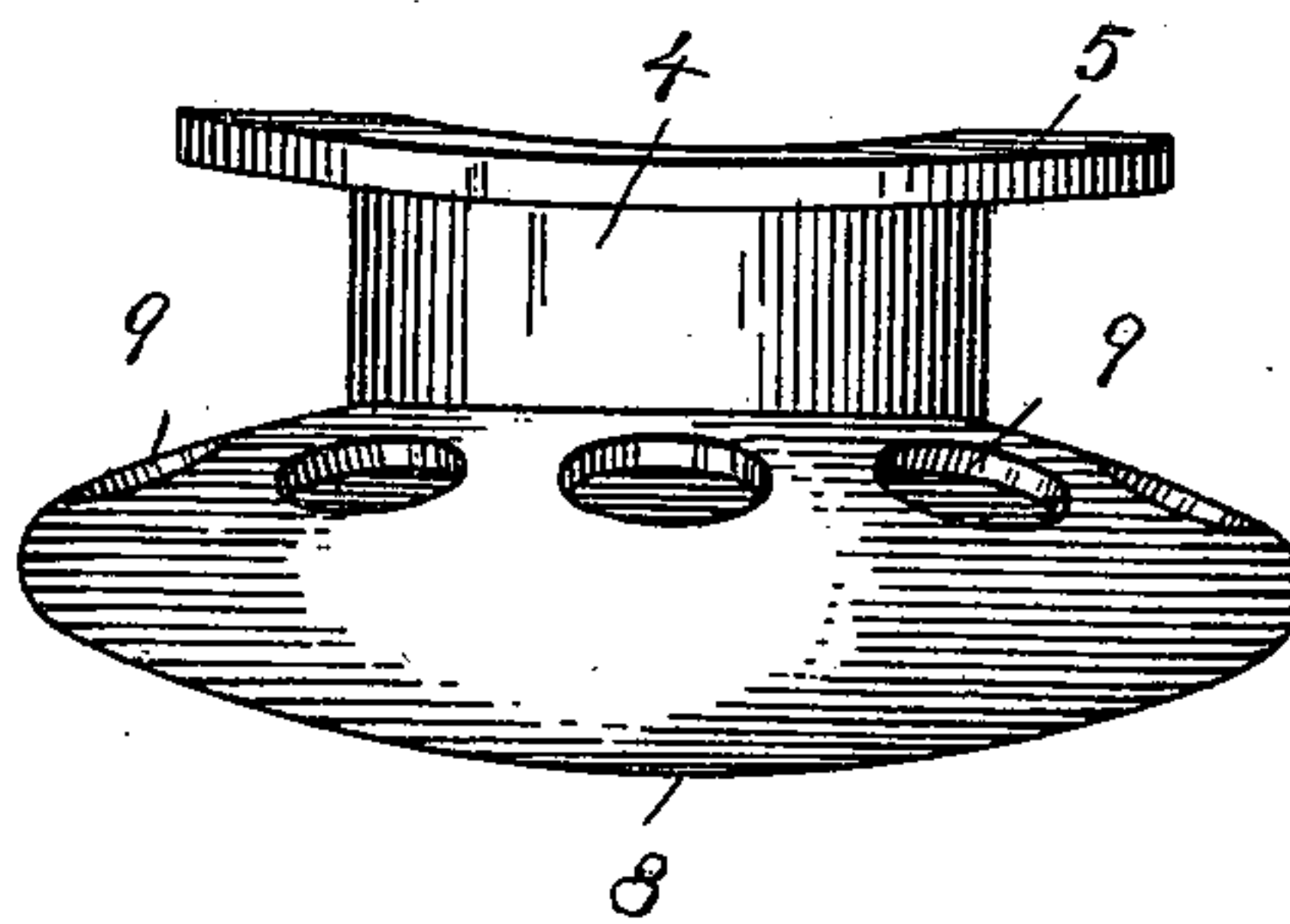


Fig. 4.



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STEAM-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 668,529, dated February 19, 1901.

Application filed October 1, 1900. Serial No. 31,699. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. LINDSTROM, a citizen of the United States, residing at Allentown, in the county of Lehigh and State of Pennsylvania, have invented new and useful Improvements in Steam-Separators, of which the following is a specification.

This invention relates to new and useful improvements in steam-separators; and its primary object is to provide a device formed in one piece which may be readily attached within boilers of different forms and which will effectually separate the steam from the water prior to being drawn off from the boiler.

With these and other objects in view the invention consists in providing a hollow casting formed in one piece and having apertures within the upper surface thereof. This casting is adapted to inclose a steam-outlet, and webs are formed therein in alinement with the apertures before referred to. An aperture is formed within the bottom of the casting, whereby the condensed steam within the device may flow back into the boiler.

The invention also consists in the further novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a transverse section through a boiler and the separator in position therein. Fig. 2 is a top plan view of the separator detached. Fig. 3 is an enlarged transverse section therethrough. Fig. 4 is an elevation thereof. Fig. 5 is a section on line 5 5, Fig. 3; and Fig. 6 is a view similar to Fig. 1, showing the separator attached within a boiler which is not provided with a nozzle.

Referring to the figures by numerals of reference, 1 is a boiler having a nozzle 2 thereon, arranged about the outlet 3. Arranged in the boiler in alinement with the nozzle is the separator forming the subject-matter of this invention. Said separator comprises a cylindrical portion 4, having an annular flange 5 at one end thereof. This flange is provided with apertures 6 for the reception of securing-bolts 7, as shown. Arranged at the opposite end of the cylindrical portion 4 is a hollow knob-like portion 8, forming the separator-chamber. The upper surface of this

part of the separator is provided with a suitable number of openings 9, the combined area of which is equal to the area of the cylinder 4. Webs 10 connect the inner end of the cylinder with the bottom of the portion 8 and are arranged at points below and in vertical alinement with the apertures 9. The separator-chamber is provided at the center of the bottom thereof with an aperture 11.

Where the separator is to be employed in connection with a boiler which is not provided with a nozzle, a pipe 12 is screwed into said boiler, as shown in Fig. 6, and engages threads formed within the cylindrical portion 4 of the separator. With this construction the flange 5 is dispensed with.

Steam passes into the separator through apertures 9 and spreads laterally upon the webs 10. It then passes therebetween and out through the cylinder 4. The condensed steam will be deposited upon the webs and the walls of the portion 8 and will flow downward through the aperture 11.

It will be seen that the separator is formed in but one piece, and there is therefore nothing which can get out of order.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make all such changes as fairly fall within the scope of my invention.

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

1. A separator for boilers comprising a casting having an enlarged portion at its lower extremity, inlets within the casting, webs in the paths of the inlets, openings between said webs, and a water-outlet in the bottom of said casting.

2. A separator for boilers comprising a casting having an enlarged portion at its lower extremity and downwardly-extending inlets, webs in the paths of the inlets extending to the bottom of said enlarged portion, and a water-outlet in the bottom of said casting.

3. A separator for boilers formed of a single casting and comprising a cylindrical portion, an enlarged end thereto having inlets at its

upper surface, webs within the enlarged end, said webs connecting the inner end of the cylindrical portion with the bottom of said enlarged end and lying in the paths of the inlets, 5 and a water-outlet in the bottom of said end.

4. A steam-separator for boilers formed in one piece and comprising a hollow cylindrical portion; a flange at one end thereof; an enlarged portion at the opposite end having in- 10 lets in its upper surface; webs within said end portion and in the paths of the inlets; and a water-outlet between said webs.

5. The combination with a boiler having a nozzle thereto; of a steam-separator secured

in alinement with the nozzle and comprising 15 a hollow cylindrical portion; a flange at one end thereof; an enlarged portion at the opposite end having inlets in its upper surface; webs within said end portion and in the paths of the inlets; and a water-outlet between said 20 webs.

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

JOHN T. LINDSTROM.

Witnesses:

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