

No. 720,336.

PATENTED FEB. 10, 1903.

G. A. EDE.
VAPORIZER FOR GASOLENE ENGINES.

APPLICATION FILED JULY 29, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. I.

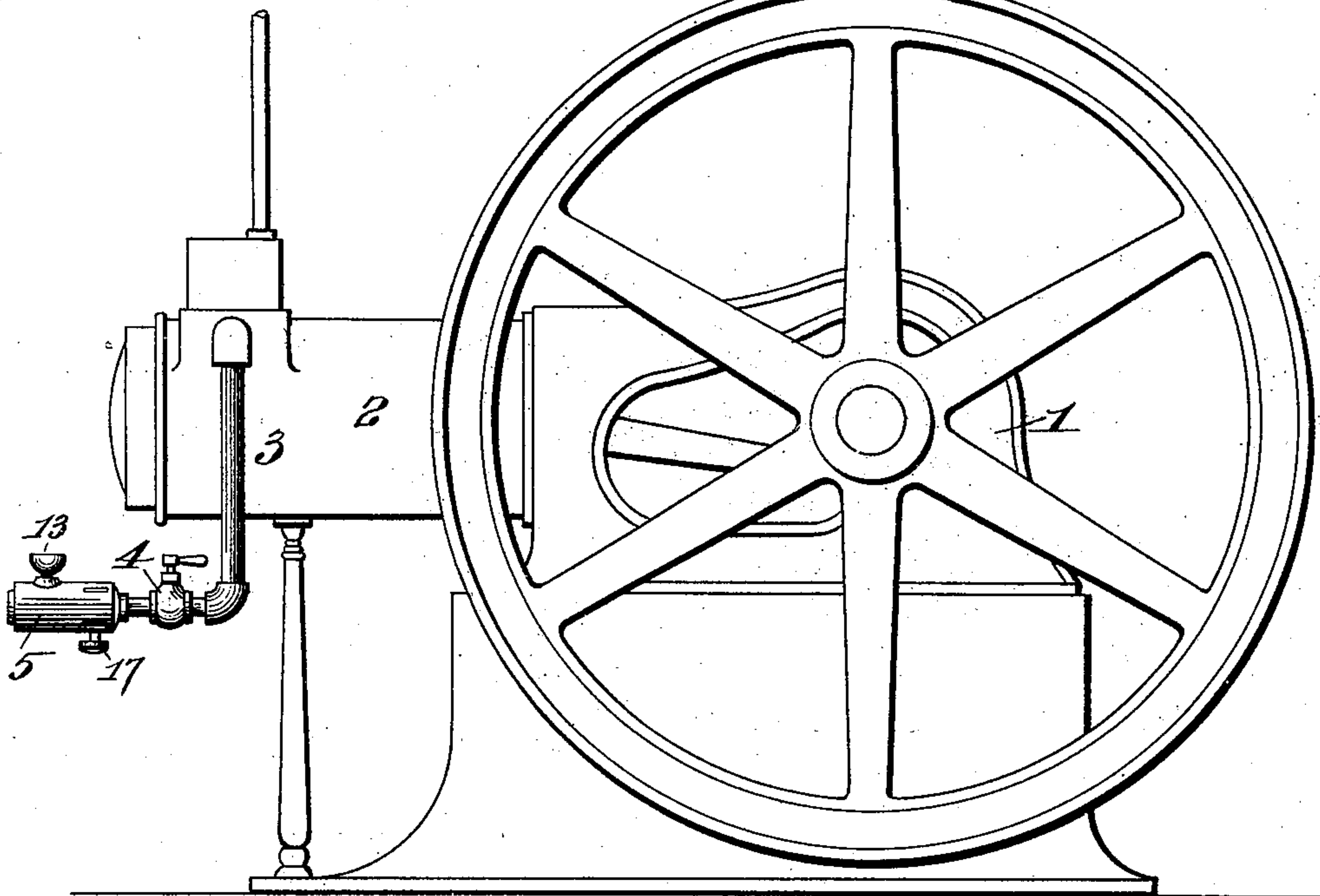


Fig. II.

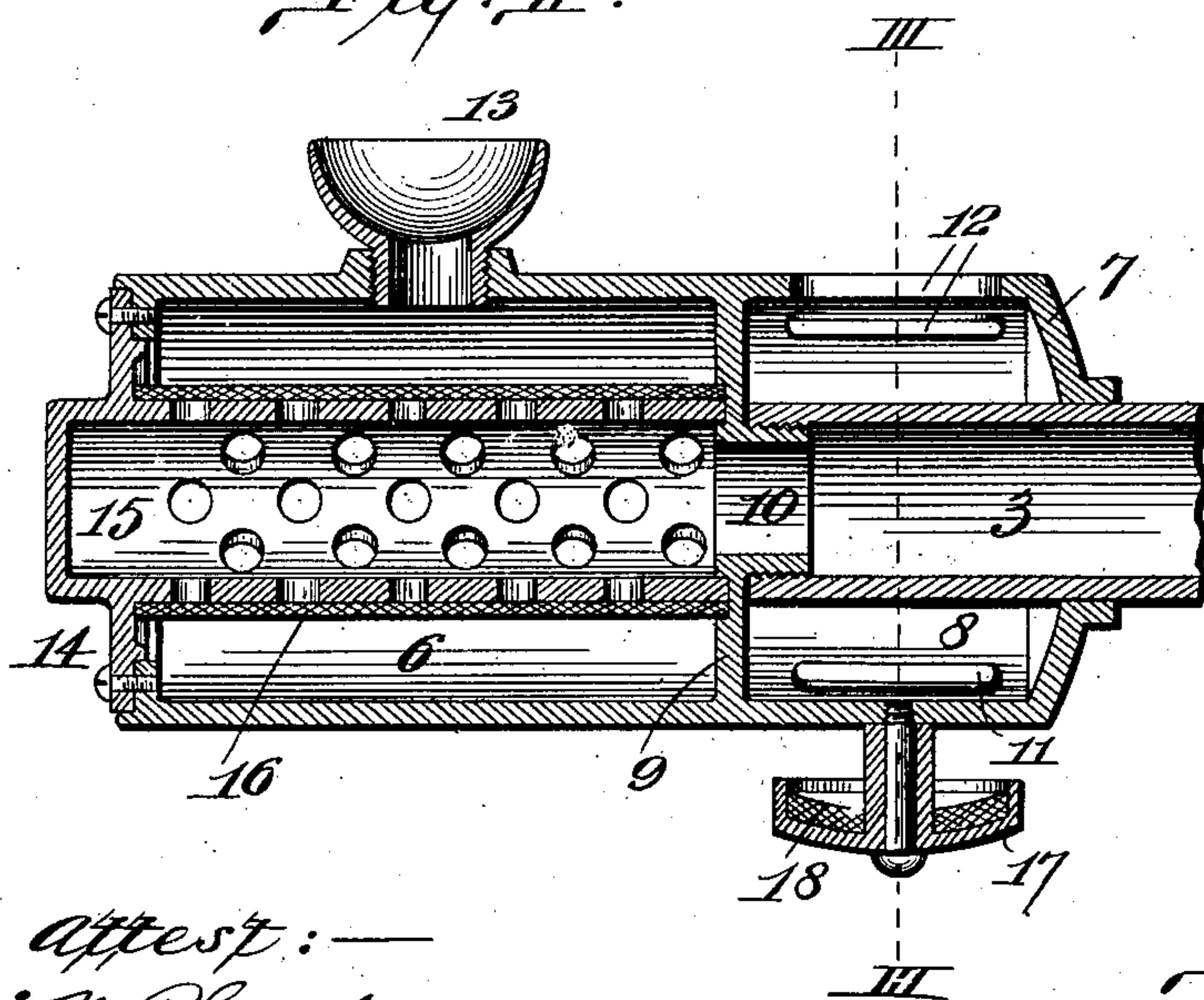
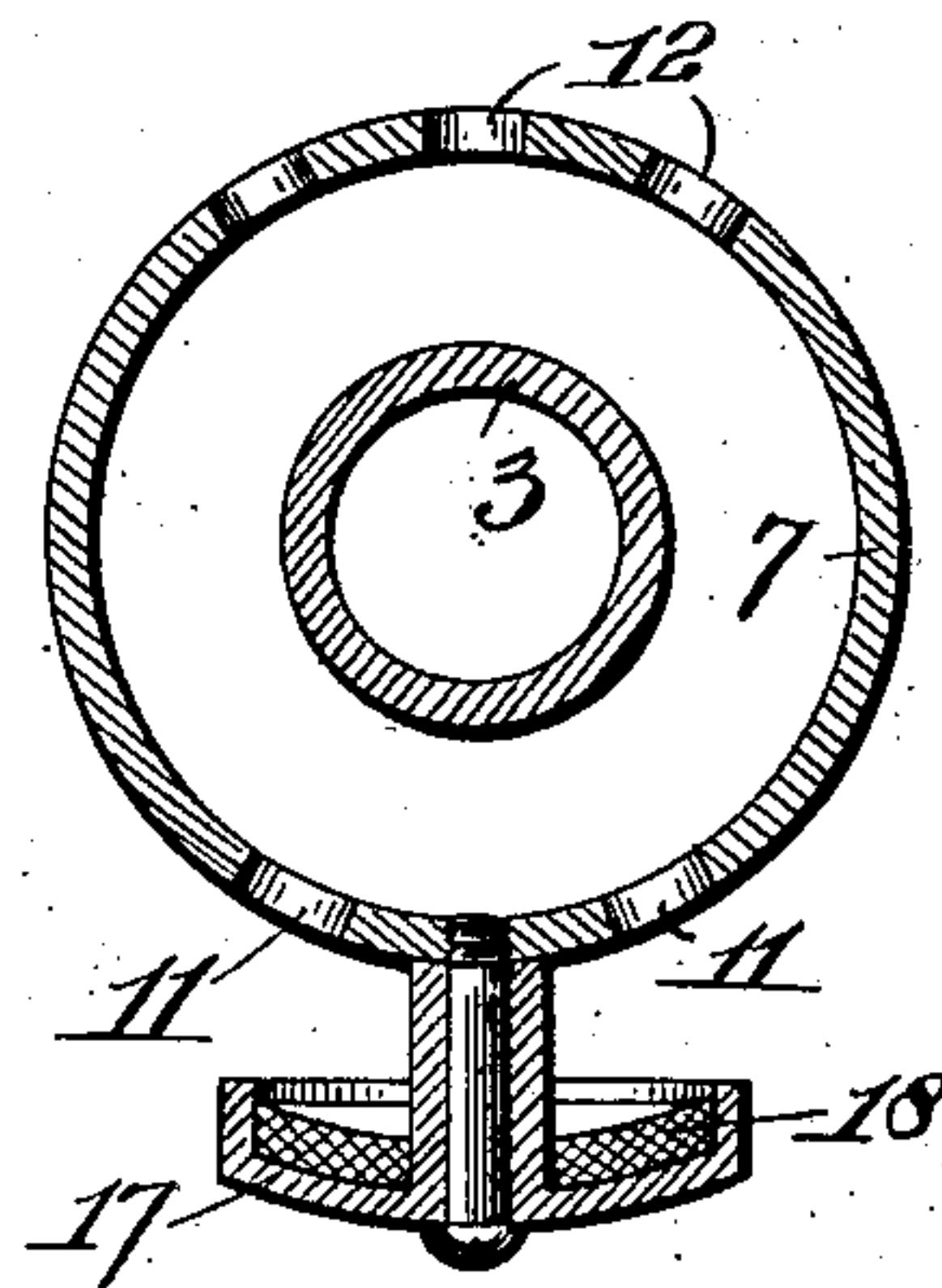


Fig. III.



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2 SHEETS—SHEET 2.

Fig. IV.

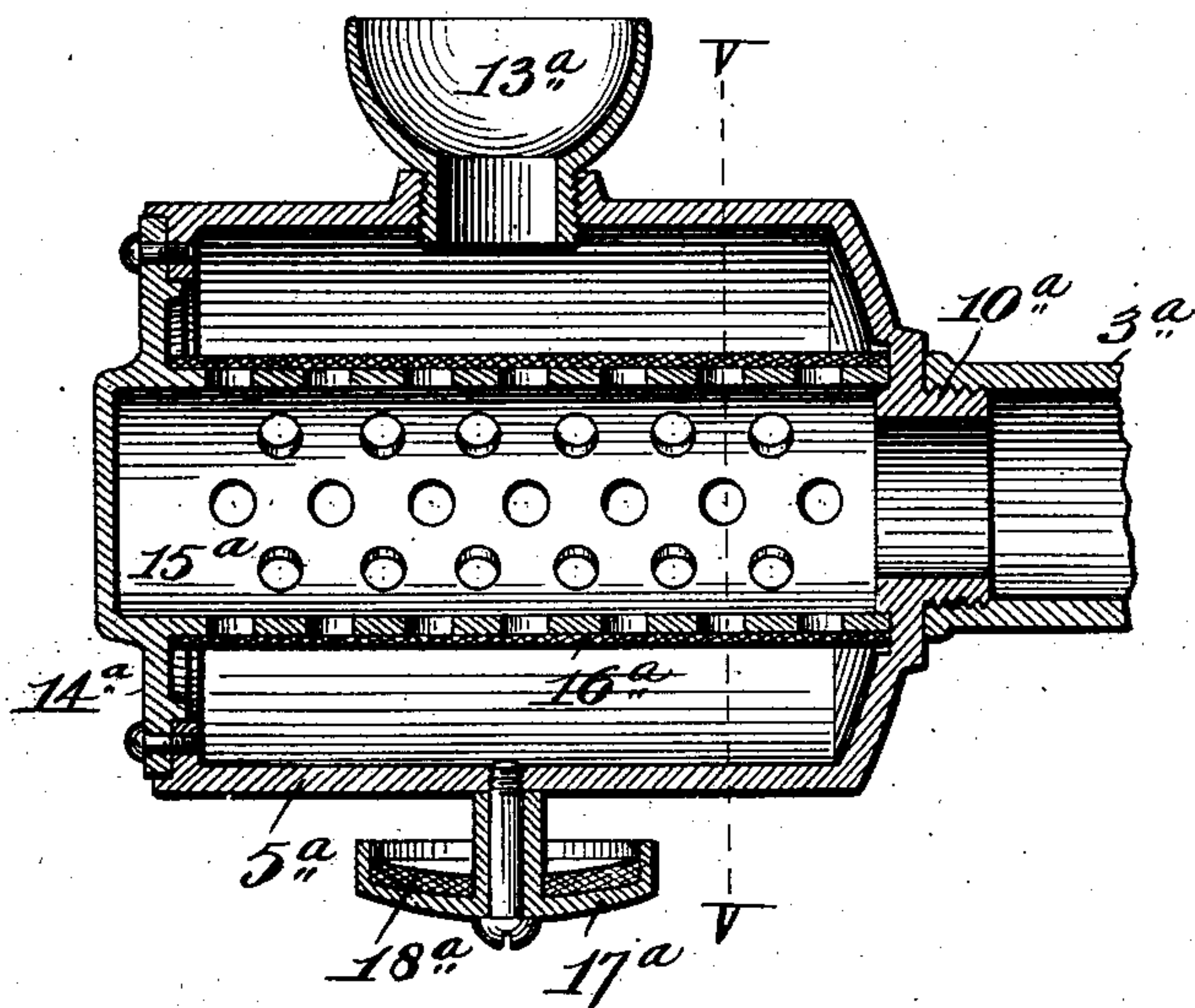


Fig. V.

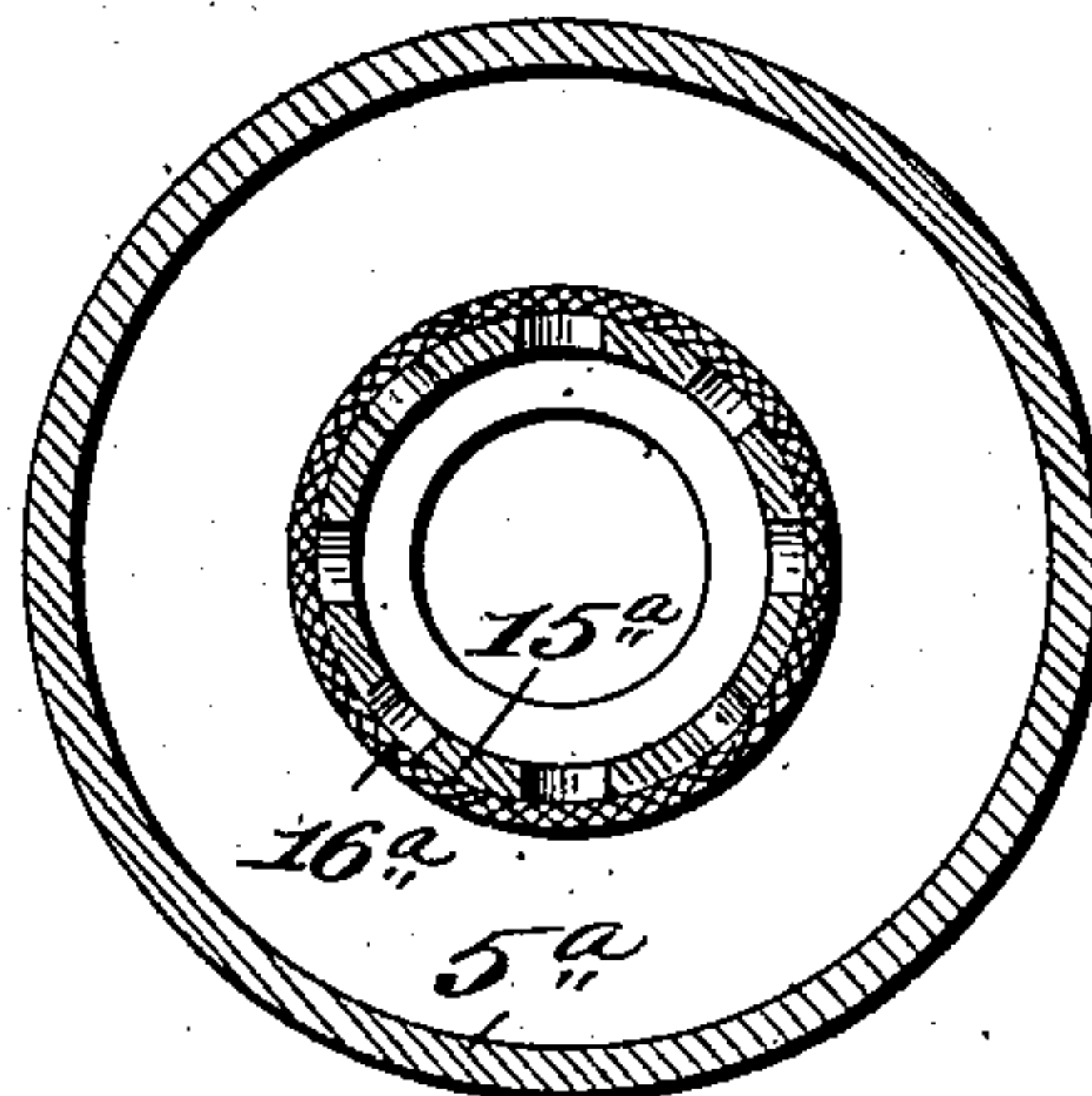
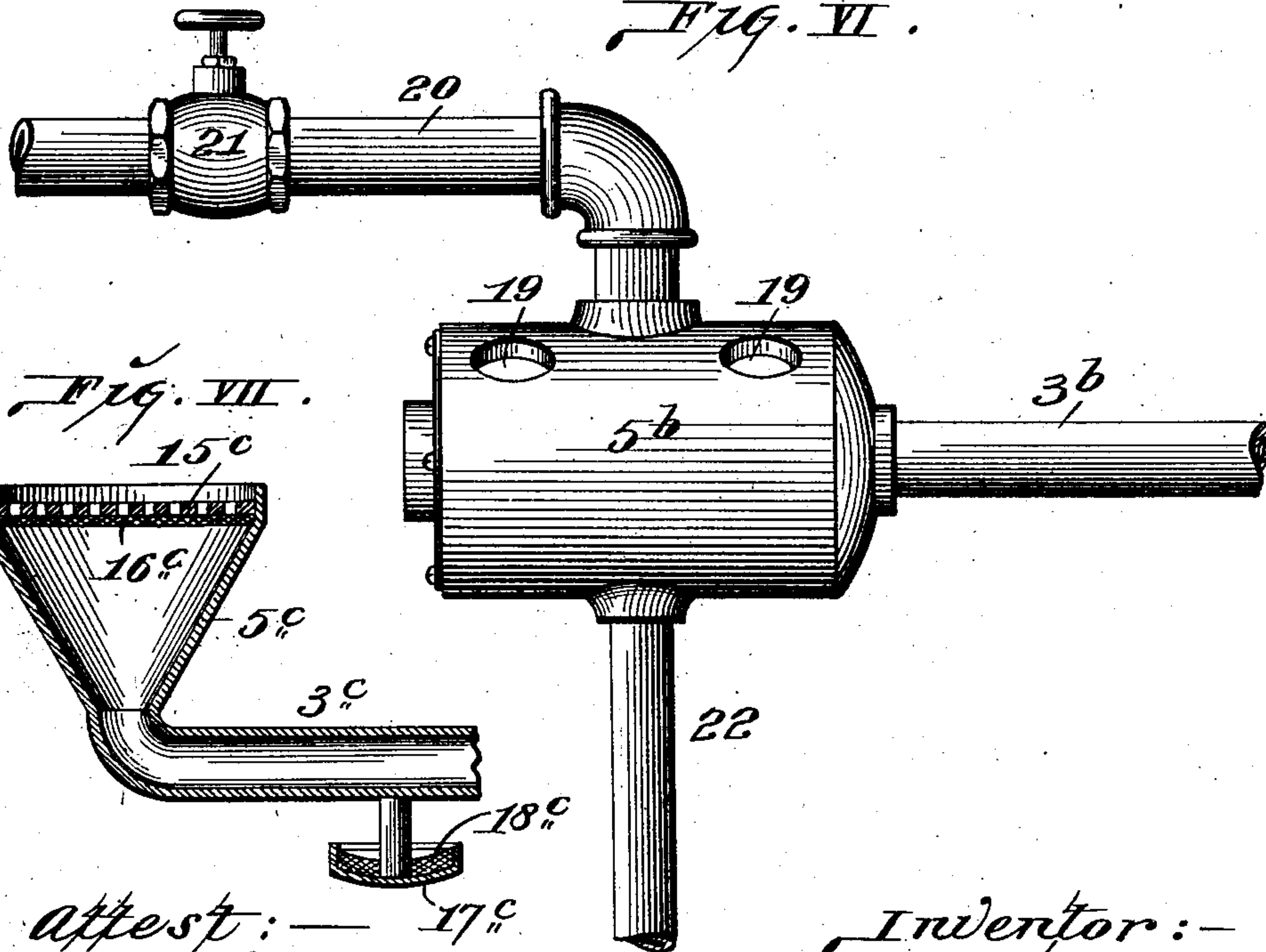


Fig. VI.



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UNITED STATES PATENT OFFICE.

GEORGE A. EDE, OF COBDEN, ILLINOIS.

VAPORIZER FOR GASOLENE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 720,336, dated February 10, 1903.

Application filed July 29, 1901. Serial No. 70,113. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. EDE, a citizen of the United States, residing in Cobden, in the county of Union and State of Illinois, have invented certain new and useful Improvements in Vaporizers for Gasolene-Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a device for attachment to the air-inlet pipe of a gasolene-engine in which gasolene may be mingled with the air admitted to the engine-cylinder. The device is more particularly intended for use in providing the initial vaporization of the gasolene in starting the engine, but is also suitable for use in furnishing vapor to the engine throughout the operation thereof.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a view in side elevation of a gasolene-engine with my improvement applied thereto. Fig. II is an enlarged longitudinal sectional view of the vaporizer. Fig. III is a cross-sectional view taken on the line III III, Fig. II. Fig. IV is a longitudinal sectional view of a modification of the vaporizer. Fig. V is a cross-sectional view taken on the line V V, Fig. IV. Fig. VI is a view in side elevation of a form of the vaporizer suitable for use in providing a continuous supply of vapor therefrom to the engine-cylinder. Fig. VII is a view in section of a modification of the vaporizer.

1 designates an engine having a cylinder 2 and of any common construction.

3 designates a feed-pipe leading into the cylinder 2, the said pipe being connected to said cylinder in a similar position to that of the ordinary air-inlet of a gasolene-engine. The pipe 3 contains a valve 4, by which the passage-way therein is controlled.

5 designates a housing containing a vaporizing-chamber 6 and having a heater extension 7, that contains a heating-chamber 8, that is separated from the vaporizing-chamber 6 by a partition 9, having a central nipple 10. The heater extension 7 is provided with lower apertures 11 and upper apertures 12.

13 is an inlet-cup, through which gasolene

may be introduced into the vaporizing-chamber 6.

14 designates an end cap attached to the outer end of the housing 5. The end cap or wall 14 carries a horizontal tube, perforated throughout its length, extending inwardly longitudinally of the vaporizing-chamber 6 and seated against the partition or wall 9. By this construction a vaporizer is produced occupying a minimum space having a maximum vaporizing-surface. Surrounding the perforated tube 15 is an absorbent sleeve 16, preferably of fibrous material, such as bur-lap, canvas, or asbestos. The feed-pipe 3 extends into the heater extension 7 of the housing 5, and the vaporizer is connected to said pipe by the attachment of the nipple 10 to the pipe, as seen in Fig. II.

17 is a heating-cup suspended beneath the heater extension 7 and containing an absorbent ring 18, of asbestos or other non-inflammable material.

In the practical use of the vaporizer in furnishing the vapor for the initial starting of the engine to which the device is applied gasolene is introduced through the inlet-cup 13 and falls upon the absorbent sleeve 16, that surrounds the perforated tube 15, the said sleeve being thereby saturated with the gasolene. Before introducing gasolene into the vaporizer gasolene, alcohol, or other inflammable liquid is introduced into the heating-cup 17 to saturate the absorbent ring 18, and such liquid is ignited and the resultant heat is imparted to the heater extension 7. The heat rising from the cup 17 enters the heating-chamber 8 of the extension 7 through the apertures 11 and circulates upwardly through said chamber to the upper apertures 12, thereby effectually heating the vaporizer and the portion of the feed-pipe 3 that extends thereinto. Air enters the vaporizing-chamber 6 through the inlet-cup 13, and on the starting of the engine suction is produced in the feed-pipe 3, which serves to draw said air through the absorbent sleeve 16, and as the air passes through said sleeve and through the perforations in the tube 15 to the interior of said tube it carries therewith vapor from the gasolene present in the sleeve, the air and gasolene being thereby mixed in desirable proportions and the gasolene being readily con-

verted into vapor by reason of the heat to which the vaporizer has been subjected, as explained.

In Figs. IV and V, I have shown a modification wherein the heater extension 7 is dispensed with and the heating-cup 17^a, containing the absorbent ring 18^a, is suspended beneath the housing 5^a. In this form of construction the housing 5^a is subjected to direct heat to start the vaporization, and the feed-pipe 3^a is attached directly to a nipple 10^a, that extends from the housing. The vaporizer of this modification is otherwise constructed similar to that hereinbefore described, having the cap 14^a, perforated tube 15^a, the absorbent sleeve 16^a, and the inlet-cup 13^a.

In the modification shown in Fig. VI the vaporizer is adapted for service in supplying vapor continuously to the engine-cylinder. In this construction the housing 5^b, which contains a perforated tube and absorbent sleeve similar to those hereinbefore described, is provided with air-inlet openings 19, and the gasolene is delivered thereinto through a supply-pipe 20, provided with a regulating-valve 21. The feed-pipe 3^b is connected to the housing 5^b in a similar manner to that shown in Fig. IV. The heating-cup is omitted and a drain-pipe 22 is attached to the housing 5^b beneath it, through which the surplus gasolene that may not be taken up by the absorbent sleeve of the vaporizer is carried from the vaporizing-chamber within the housing, said surplus being conducted to a suitable receiving-tank or being conducted back to the gasolene-supply tank by a suitable pump.

In Fig. VII, I have shown another modifi-

cation wherein the housing 5^c, connected to the feed-pipe 3^c, is of hopper shape, and an absorbent disk 16^c is positioned in said housing to receive a quantity of gasolene as absorbed thereby to be delivered in vapor into the feed-pipe. The disk 16^c is surmounted by a perforated disk 15^c, through which air passes to the absorbent disk to mix with the vapor derived from the gasolene with which the disk has been saturated. In this construction the heating-cup 17^c, with the absorbent disk 18^c therein, is suspended beneath the feed-pipe 3^c.

I claim as my invention—

1. In a vaporizer, the combination with a housing having a vaporizing-chamber, one of the walls of the housing being removable, of a hollow perforated member carried by the removable wall, and a feed-pipe communicating with the interior of the member.

2. In a vaporizer, the combination with a housing, of a horizontal perforated tube; said housing having a removable wall to which one end of the tube is secured and a fixed wall provided with an opening through which a feed-pipe connects with the tube.

3. In a vaporizer, the combination with a housing, of a horizontal perforated tube surrounded by absorbent material; said housing having a removable wall to which one end of the tube is secured, and a fixed wall provided with a seat for the free end of the tube and with an opening through which a feed-pipe connects with the tube.

GEORGE A. EDE.

In presence of—

E. F. BUCK,
JOHN FOWLEY.