

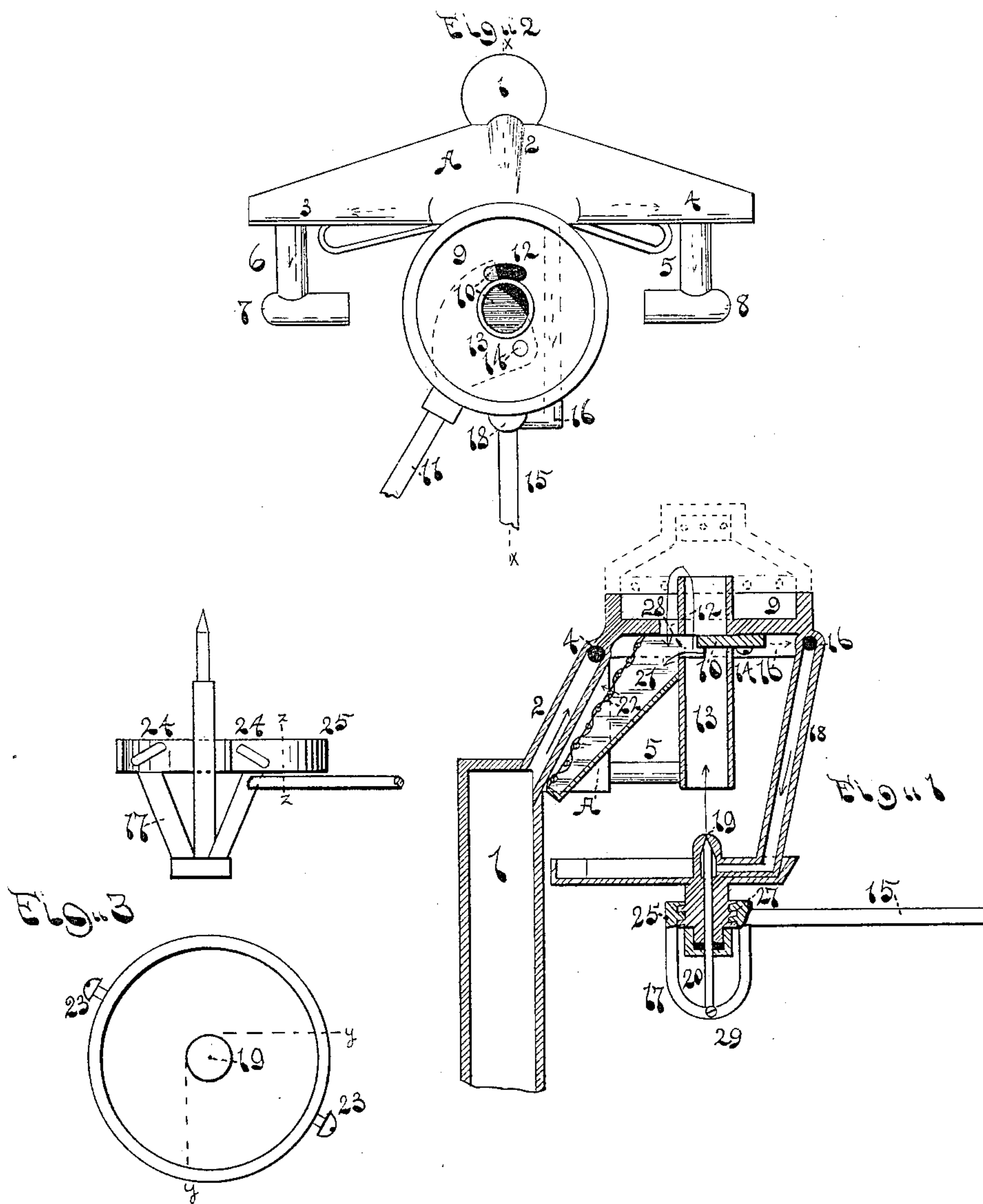
(No Model.)

2 Sheets—Sheet 1.

B. REIN.
VAPOR STOVE.

No. 362,660.

Patented May 10, 1887.



Witnesses
Sumner Collins
C. M. Mason.

Inventor
Bernard Rein
by Geo. H. Lothrop
att'y.

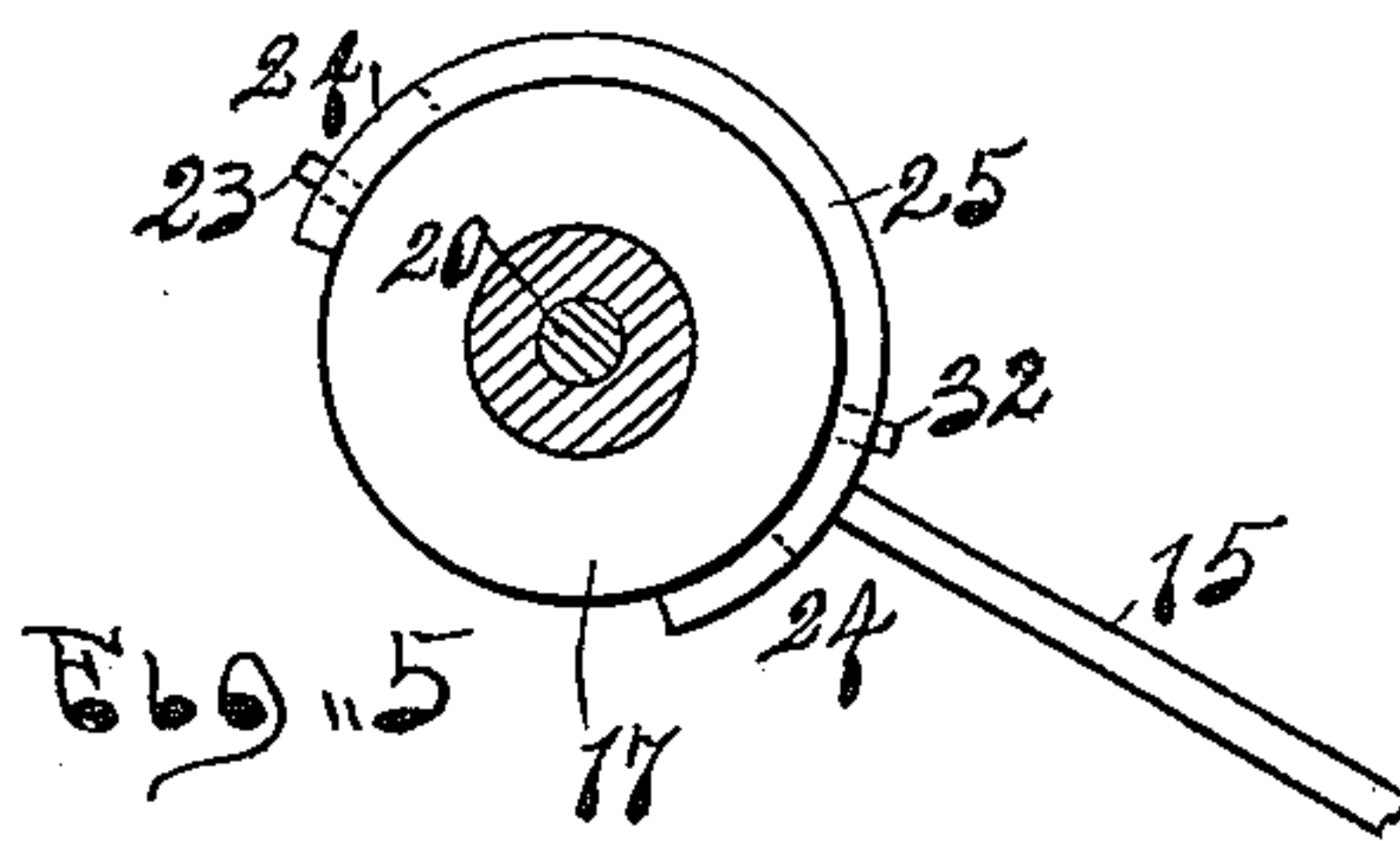
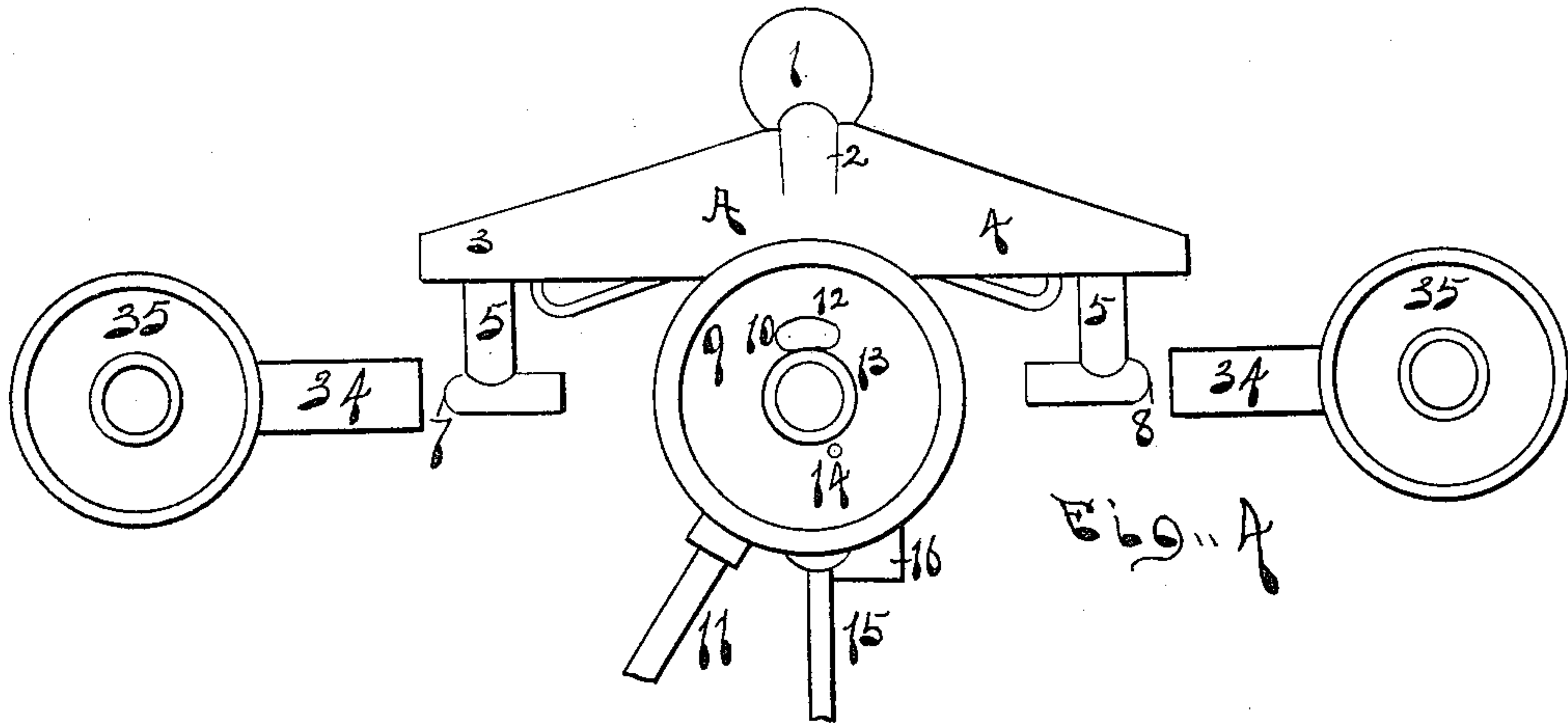
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2 Sheets—Sheet 2.

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VAPOR STOVE.

No. 362,660.

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Witness..

C. M. Mason
Cyrus C. Lothrop

Inventor..

Bernard Rein
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UNITED STATES PATENT OFFICE.

BERNARD REIN, OF DETROIT, MICHIGAN, ASSIGNOR TO THE DETROIT
STOVE WORKS, OF SAME PLACE.

VAPOR-STOVE.

SPECIFICATION forming part of Letters Patent No. 362,660, dated May 10, 1887.

Application filed September 20, 1886. Serial No. 214,048. (No model.)

To all whom it may concern:

Be it known that I, BERNARD REIN, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Vapor-Stoves, of which the following is a specification.

My invention consists in an improvement in vapor-stoves, hereinafter fully described.

Figure 1 is a vertical section of the center burner of a vapor-stove on the line *xx*, Fig. 2. Fig. 2 is a plan view of the same. Fig. 3 is a plan and elevation of an equivalent for the needle-operating device shown in Fig. 1; Fig. 4, a view similar to Fig. 1, showing two side burners, making an ordinary three-burner stove; and Fig. 5, a sectional view taken just above the top edge of the cage-rim shown in side elevation, Fig. 3.

1 represents the pipe ordinarily employed to carry gasoline and vapor to the burner.

A represents a casting mounted on the top of pipe 1, in which are the usual pipes, 3 6, 4 5, and 16 18, for conducting vapor to the three needle-orifices 7, 8, and 19. Vapor from the needle-orifice 19 operates the central burner, and vapor-needle orifices 7 and 8 deliver vapor in the usual manner to pipes 3 4, which conduct the same to side burners, 3 5, to constitute a three-burner stove, as in Fig. 4.

13 represents the combining-tube of the central burner lying in the line of needle-orifice 19 and conducting vapor up through the bottom 9 of the central burner, where it is burned in any known form of cone, the commonest form being indicated by dotted lines.

21 represents an auxiliary vapor-burner, the combining-tube 13 of which is formed on the under side of the burner-bottom 9. The auxiliary burner extends down from said combining-tube 13 close to the inner side of the support A, and has its side adjacent to said support composed in part or in whole of foraminous material 22—such as wire-gauze—its side adjacent to part A made partly or wholly of wire-gauze or perforated metal, as shown at 22. The inside of this auxiliary burner 21 is connected with combining-tube 13 by a slot, 28, and with the space within the burner proper by a hole, 12.

10 represents a cut-off pivoted at 14 to the

under side of burner-bottom 9 and adapted to either open or close combining-tube 13 where it passes through the burner-bottom 9 by sliding in a slot formed in said tube. That side of the slot in which said cut-off slides which is next to the burner 21, and is marked 28, is wider than the thickness of the cut-off, so that when said cut-off is drawn into the position in which it closes the combining-tube 13 and hole 12 it still leaves an open passage through the lower part of the slot 28 beneath the cut-off into the auxiliary burner 21.

11 represents a lever by which cut-off 10 is operated. By this arrangement a flame can be kept constantly burning on the perforated side of burner 21, whereby the part A is heated and fuel for one or all the burners of the stove vaporized, and this without regard to whether the central burner is lighted or not. When said central burner is lighted, part of the mixture of vapor and air which passes through combining-tube 13 goes to auxiliary burner 21 through hole 12 and slot 28 and supports the flame of said auxiliary burner. When the central burner is extinguished by throwing cut-off 10 across the combining-tube 13, the mixture of vapor and air passing through combining-tube 13 passes into the auxiliary burner 21 through slot 28, thus keeping said burner going, and maintains a supply of vapor ready for use either in the central or other burners, and in this case needle-orifice 19 should be partly closed, as only a small amount of vapor is necessary for this purpose.

In operating needle-valves of vapor-burners two forms of motion are now employed, one a direct motion produced by pivoting one end of the needle-valve to a pivoted lever, and the other by cutting a thread on the valve-stem, attaching a hand-wheel thereto, and screwing the needle-valve to its seat, like an ordinary screw-cock.

It is desirable to provide a valve having the advantages of a quick motion and to rotate the valve as it passes its seat to keep the orifice clean.

I have devised a needle-valve attachment which combines the advantage of both of these forms without the disadvantage of either, and is as follows: On the shell of the needle-valve

I form an extension on which is a quick-threaded external screw, 27, and also a stuffing-box of any convenient form, through which the stem of the needle-valve passes.

5 17 represents a cage having its upper ring, 25, provided with an internal screw-thread to engage with screw-thread 27 and provided with a lever, 15, the arrangements being such that a partial rotation of the cage opens or
10 closes the valve.

20 represents the needle-point, valve, and stem, which is secured by said screw 29 (or in any other convenient way) in the lower part of cage 17 and passes through stuffing-box and
15 up to the valve-seat, and by simply moving the lever 15 slightly the needle-point is by a quick motion seated or unseated, rotated as it travels, and is firmly held to its seat.

The arrangement shown in Figs. 3 and 5 is
20 a simple mechanical equivalent for this device, the only change being that instead of cutting a screw-thread, 27, on the valve-shell and a corresponding screw on the rim 25 of the cage, I cut one or more inclined slots, 24, in said
25 rim 25, through which pass pins 23 into the wall of the valve-shell—a device which gives the same motion and same result for this purpose as the screw-thread.

What I claim as my invention, and desire to
30 secure by Letters Patent, is—

1. In combination with the vaporizing-pipe, combining-tube, and main burner of a vapor-stove, an auxiliary burner located beneath the main burner in close proximity to the vaporizing-pipe and connected with the vapor- 35 space of said main burner, a cut-off located in the combining-tube for stopping the flow of vapor to said main burner, and a connection from the combining-tube to said auxiliary burner below said cut-off, substantially as
40 shown and described.

2. In combination with a needle-valve for vapor-stoves, a valve-shell, a rotary cage having an operating-lever thereto attached, connected with the valve-shell by a quick-thread 45 screw or its equivalent, and having the stem of the valve secured thereto, substantially as shown and described.

3. In combination with the needle-shell valve 19, having thereon the quick-thread 50 screw 27, the threaded cage 17, having the valve-stem 20 secured thereto, and the operating-lever 15, substantially as shown and described.

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Witnesses:

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