

No. 804,973.

PATENTED NOV. 21, 1905.

JEAN-VICTORIN POPLAWSKI.

WICK STEAM GENERATOR.

APPLICATION FILED APR. 17, 1905.

2 SHEETS—SHEET 1.

Fig. 1

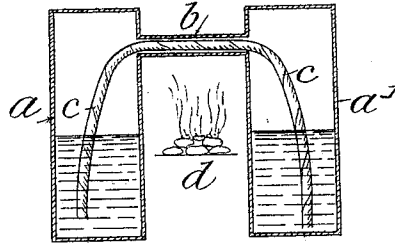


Fig. 2.

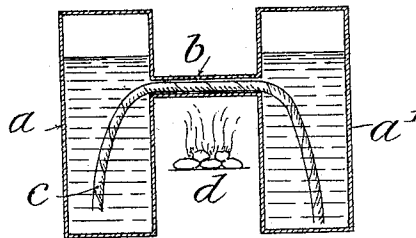
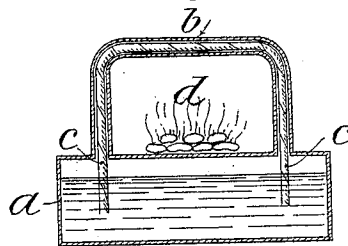


Fig. 3



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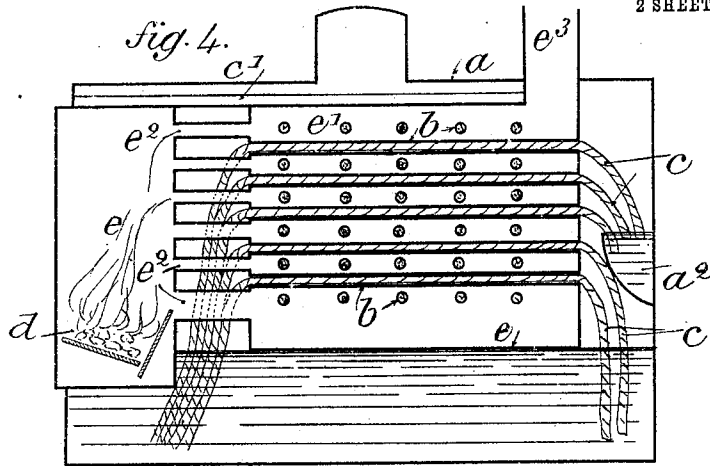
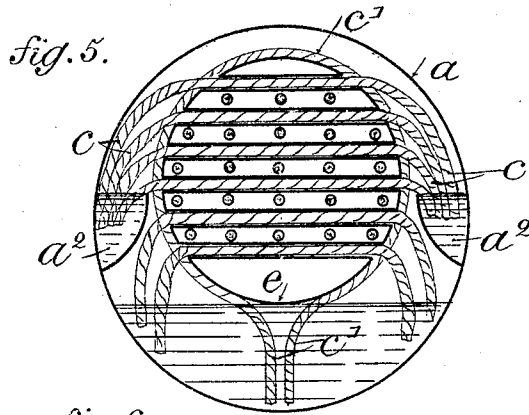
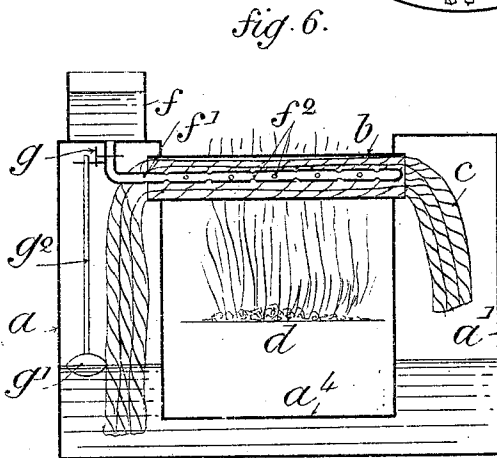
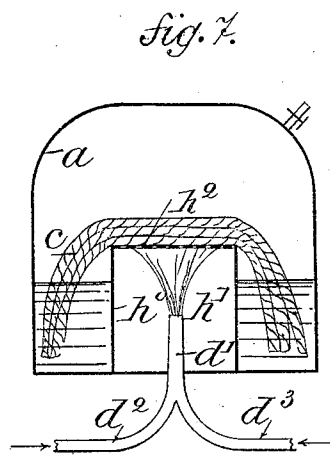
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JEAN-VICTORIN POPLAWSKI, OF PARIS, FRANCE.

WICK STEAM-GENERATOR.

No. 804,973.

Specification of Letters Patent.

Patented Nov. 21, 1905.

Application filed April 17, 1905. Serial No. 256,070.

To all whom it may concern:

Be it known that I, JEAN-VICTORIN POPLAWSKI, a subject of the Emperor of Russia, residing at 31 Rue Delambre, Paris, in the Republic of France, have invented certain new and useful Improvements in a Wick Steam-Generator, of which the following is a specification.

This invention relates to a wick generator of steam; and it has for its object to provide a device of this character in which the hot gases of the furnace heat wicks to which water is fed either by the sole effect of capillarity or by the combined effect of capillarity and of gravitation. The steam produced is given off in an inclosed space with which the wicks communicate.

Some embodiments of such a steam-generator are shown in the accompanying drawings, in which—

Figures 1 to 3 are vertical sectional views of simple forms of generators. Figs. 4 and 5 are respectively a longitudinal view and a cross-sectional view of a tubular wick-generator. Fig. 6 is a cross-sectional view of a generator comprising a feed-tube in the wick, and Fig. 7 is a vertical sectional view of a generator having naked wicks and a furnace under pressure.

The generator shown in Fig. 1 comprises two closed reservoirs a and a' , connected by a tube b , a wick c passing through the tube b and hanging down within the reservoirs a a' , and a furnace which heats the tube b . When the said reservoirs are charged with water up to a level underneath the tube b , the water rises through capillarity into the wick c and becomes vaporized in the heated part within the tube b . The steam is given off through the ends of the tube into the reservoirs a a' , where its pressure may reach any required degree. Vaporization takes place quickly and it increases proportionally to the intensity of the heat.

Fig. 2 shows a generator similar to that of Fig. 1, in which the reservoirs a a' are charged with water up to a level above the tube b . In this case water is fed to wick c by the combined effect of capillarity and of gravitation. The steam is given off through the ends of the tube b and rises through the water up into the upper part of the reservoirs.

In Fig. 3 the generator comprises a single closed reservoir a , into the top of which open the ends of a U-shaped tube b and through which passes a wick c . When the reservoir a is

charged with water up to a level allowing the ends of the wick to dip into the liquid, the latter rises in the tube and is vaporized by the heated part of the furnace d . The steam is given off through the tube b into the reservoir a .

The generator shown in Figs. 4 and 5 comprises a closed reservoir a , within which is located a fire-box e , containing a furnace d and a smoke-box e' . The latter is connected with the fire-box by tubes e^2 and with the outside by a chimney e^3 . It is traversed by longitudinal and transversal wick-tubes b , in which pass the wicks c , some of which dip into the water placed in the bottom of the reservoir and others in the water placed in troughs a^2 , fixed at suitable levels in the reservoir a . A single trough a^2 is shown in the drawings, but there may be several of the same located above one another. A wick c' is also arranged around the boxes e and e' , so that the ends of the same hang down into the reservoir a . The water which rises in these several wicks is vaporized by contact with the walls of the tubes b and the boxes e e' , and the steam is given off into the reservoir a either through the tube b or directly.

Fig. 6 shows a generator comprising two closed reservoirs a a' , connected at the top by a wick-tube b , which is heated by a furnace d , and at the bottom by a water-tube a^4 . A wick c passes through the tube b and dips at one end into the water of the reservoir a . Above the latter is located a water-reservoir f , open to the atmosphere, and the bottom of which is provided with a pipe f' , which extends through the reservoir a and the tube b . The part of the pipe f' located within the tube b , and consequently within the wick c , is provided with perforations f^2 , so that the water of the reservoir f flows into the wick c at the same time that the water of the reservoir a rises by capillarity into the same. The feed through the pipe f' is regulated by means of a cock g on the pipe and of a float g' , connected by a rod g^2 with the cock g , so that when the level of the water rises in the reservoir a the float moves up and closes the cock g , while as the level of the water falls in the reservoir a the float opens the cock g to a greater extent. The end of the wick c which hangs down into the reservoir a' may also be so lengthened as to dip into the water of the said reservoir.

In Fig. 7, a designates a closed reservoir, on the bottom of which are fixed partitions h , which form a fire-chamber h' , open at the top.

Into the bottom of the said chamber open burner-nozzles d' , to which a liquid or gaseous fuel under pressure and air under pressure are fed through pipes $d^2 d^3$, so as to produce fire under pressure in the chamber h' .
5 Naked wicks are located above the chamber h' . They rest either simply on the upper edge of the partitions h or on a grate h^2 , carried by the partitions, and the ends of the wicks hang
10 down on the outer sides of the chamber h' . When the reservoir a is charged with water up to a level underneath the upper edge of the partitions h , the water rises in the wicks c and is vaporized in the heated part above
15 the chamber h' . The steam is given off directly into the reservoir a with the products of combustion.
The several forms hereinbefore described clearly show how much the construction of the
20 wick steam-generator may be varied without departing from this invention. For instance, in the case of Figs. 1 and 2 the tubes b may be placed in a direction inclined from the horizontal, and thus feed the reservoirs $a a'$ up to
25 different levels. The furnace may be so arranged as to heat the water-reservoirs at the same time as the wicks. The number of the wick-tubes may be varied.

I claim—

1. A steam-generator comprising a closed reservoir, a tube communicating with the said reservoir, a wick in the tube, and a furnace arranged to heat the tube.

2. A steam-generator comprising a closed reservoir, a tube communicating with the said reservoir, a wick in the tube, a furnace arranged to heat the tube, a perforated pipe extending through the wick, and means to feed water to the said pipe.

3. A steam-generator comprising a closed reservoir, a tube communicating with the said reservoir, a wick in the tube, a furnace arranged to heat the tube, a perforated pipe extending through the wick, a reservoir arranged to feed water to the said pipe, a feed-cock, and means for controlling the said cock operated by the level of the water in the reservoir.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JEAN-VICTORIN POPLAWSKI.

Witnesses:

JOHN BAKER,
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