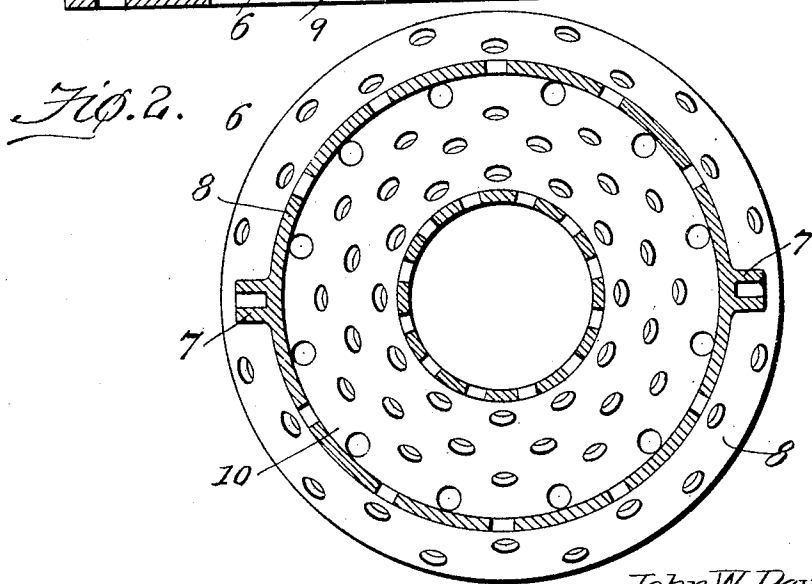
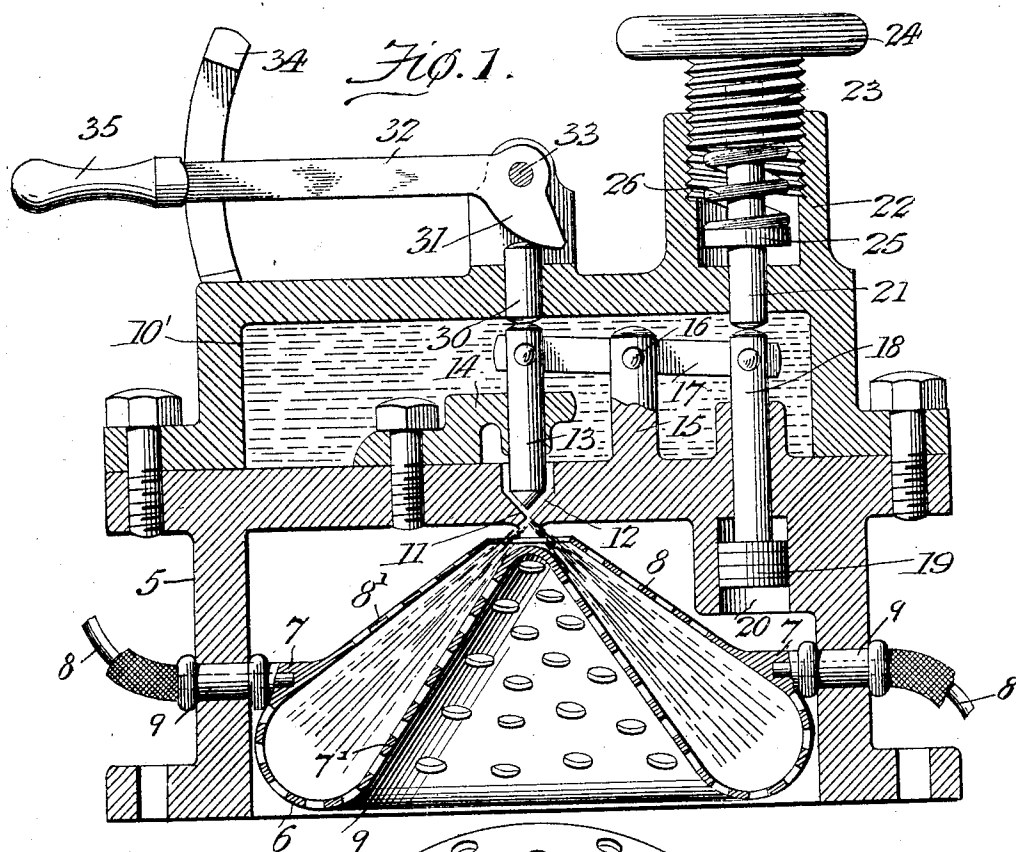


No. 809,839.

PATENTED JAN. 9, 1906.

J. W. PAYNE.
STEAM GENERATOR.
APPLICATION FILED JULY 20, 1903.



Witnesses
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UNITED STATES PATENT OFFICE.

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STEAM-GENERATOR.

No. 809,839.

Specification of Letters Patent.

Patented Jan. 9, 1906.

Application filed July 20, 1903. Serial No. 166,352.

To all whom it may concern:

Be it known that I, JOHN WILLIAM PAYNE, a citizen of the United States, residing at Alexandria Bay, in the county of Jefferson and State of New York, have invented a new and useful Steam-Generator, of which the following is a specification.

This invention relates to improvements in steam-generators, and has for its principal object to provide a novel form of flasher by means of which steam may be generated instantaneously.

A further object of the invention is to provide a form of flasher in which the walls of the steam-generating vessel or chamber are arranged on lines substantially parallel with the outer lines of a diverging jet or stream of liquid.

A still further object of the invention is to provide a novel and effective means for governing the pressure of the steam-generator and in so doing regulate the speed and horsepower of an engine driven by the steam-pressure.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a sectional elevation of a steam-chamber forming a part of the steam-chest of an engine, showing a flasher constructed in accordance with the invention. Fig. 2 is a sectional plan view of the flasher detached.

Similar numerals of reference are employed to indicate corresponding parts throughout both figures of the drawings.

In the drawings there is shown a casing 5, which may form a part of or be connected to the steam-chest of an engine, said casing being provided with upper and lower bolting-flanges. This casing contains an instantaneous steam-generator 6, being one of that class of devices generally known in the art as "flashers," wherein small quantities of water or other fluid are injected into a heated vessel

or against a heated surface and instantly flashed into steam.

The flasher forming the subject of the present invention comprises a substantially bowl-shaped body formed of a material which will offer high resistance to the passage of an electric current and when used as an electrical conductor will become highly heated, so that water or other fluid injected thereinto will be instantly converted into vapor. The vessel is provided with a pair of diametrically-opposed lugs 7, to which are connected the terminals of current-conductors 8, passing through insulating-sleeves 9 in the opposite side walls of the casing 5. The conical inner wall 7' and the conical outer walls 8' of the flasher 6 are arranged on lines which gradually diverge from an upper central point to the lower outer portion of the bowl, the inner and outer walls being connected at their lower ends by a curved bottom 10, and the whole surface being perforated in order that any steam which may be formed may instantly escape to the interior of the casing 5 and the steam-chest of the engine or other point where the steam is to be utilized.

To the top of the casing 5 is bolted a water-containing chamber 10', which is placed in communication with the interior of the casing 5 by a central opening 11, formed in the top of the latter, the opening being so arranged as to deliver a jet or spray of water, the outlines of which conform approximately to the lines of the bowl, the inner walls of the latter and the outer lines of the jet being practically parallel, so that heat is conducted by radiation to the jet until said jet strikes against the bottom of the bowl. In some cases portions of the liquid will be deflected against the walls of the bowl by the steam-generated; but as the water in the upper chamber is highly heated by the steam in the generating-chamber before entering the latter it will be found that the entering jet will for the most part assume the form of a vapor before it actually makes contact with the walls of the bowl, thus avoiding liability of damage to the latter.

The opening 11 is provided with a valve-seat 12 for the reception of a valve carried by or forming part of a vertically-movable stem 13, which is guided in an opening formed in a bracket 14, carried by the top of the casing 5, and this portion of the casing is further pro-

vided with a bracket or standard 15, carrying a pin 16, on which is fulcrumed a lever 17. The lever is pivotally connected at one end to the valve-stem 13 and at its opposite end is
 5 similarly connected to a plunger-rod 18, passing through a suitable guiding-opening in the top of the chamber 5 and connected at its lower end to a plunger 19, arranged within an open-bottom cylinder 20, which may form a
 10 part of the casing 5, said plunger being provided with packing-rings and having its lower surface exposed to the pressure of steam in the generating-chamber, so that if the pressure is excessive the plunger will be
 15 raised and the valve-stem 13 lowered to reduce the quantity of water forced into the generating-chamber, and thus reduce the quantity and pressure of steam.

Immediately over the top of the plunger-rod 18 is a pin 21, passing through a guiding-opening in the top of the casing 10' and extending into a hollow boss 22, forming a part of said casing, the bore of the boss being provided with an internal screw-thread to receive an adjustable plug 23, having a hand-wheel 24. The upper end of the pin 21 is guided in a suitable opening in the plug 23, and at a point intermediate of its length said
 25 pin is provided with a flange or collar 25, against which bears one end of a helical compression-spring 26, the upper end of which bears against the lower face of the plug 23, and by turning the plug in one direction or the other the stress of the spring may be adjusted in order to regulate the pressure under
 30 which the plunger 19 becomes operative, the spring resisting upward movement of the plunger and serving to return the latter to its lowest position as the pressure within the
 35 steam-generating chamber is decreased, and thus open the water-supply passage in order that an increased quantity of steam may be manufactured.

Immediately above the valve-stem 13 is a

pin 30, guided through suitable openings in the top of the casing 10', and its upper end being arranged immediately below a cam 31, carried by or forming part of a throttle-lever 32, fulcrumed at 33 to a bracket or standard on top of the casing. The outer portion of the throttle-lever passes through a slotted
 50 segmental guide 34 and is provided with a terminal operating-handle 35, so that when necessary the handle may be raised and the cam forced against the pin 30, to thereby depress the valve-stem 13 and shut off the flow
 55 of water to the generating-chamber, or by lowering said handle the spring 28 may be allowed to act to raise the valve-stem and start the operation of the mechanism.

Having thus described the invention, what I claim is—

1. In a steam-generator, a flasher, comprising a substantially conical bowl having inner and outer conical walls, the lower ends
 65 of which are connected, the distance between said walls gradually decreasing toward the contracted open top of the bowl, said walls being provided with perforations, and means for spraying water into the bowl.

2. In a device of the class specified, a steam-chamber, a flasher therein, a water-chamber having a ported communication with the steam-chamber, a valve for the port, a plunger exposed to the steam-pressure, means
 75 connecting the valve and plunger, means for regulating operative movement of the plunger, a throttle-lever, and a cam carried by the throttle-lever and adapted to close the valve to stop the flow of water to the steam-chamber.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN WILLIAM PAYNE.

Witnesses:

A. RAYMOND CORNWALL,
 JOHN BOLTON.