Feb. 5, 1924.

1,482,665

H. STRONG

GENERATOR

Filed April 30, 1921

3 Sheets-Sheet 1

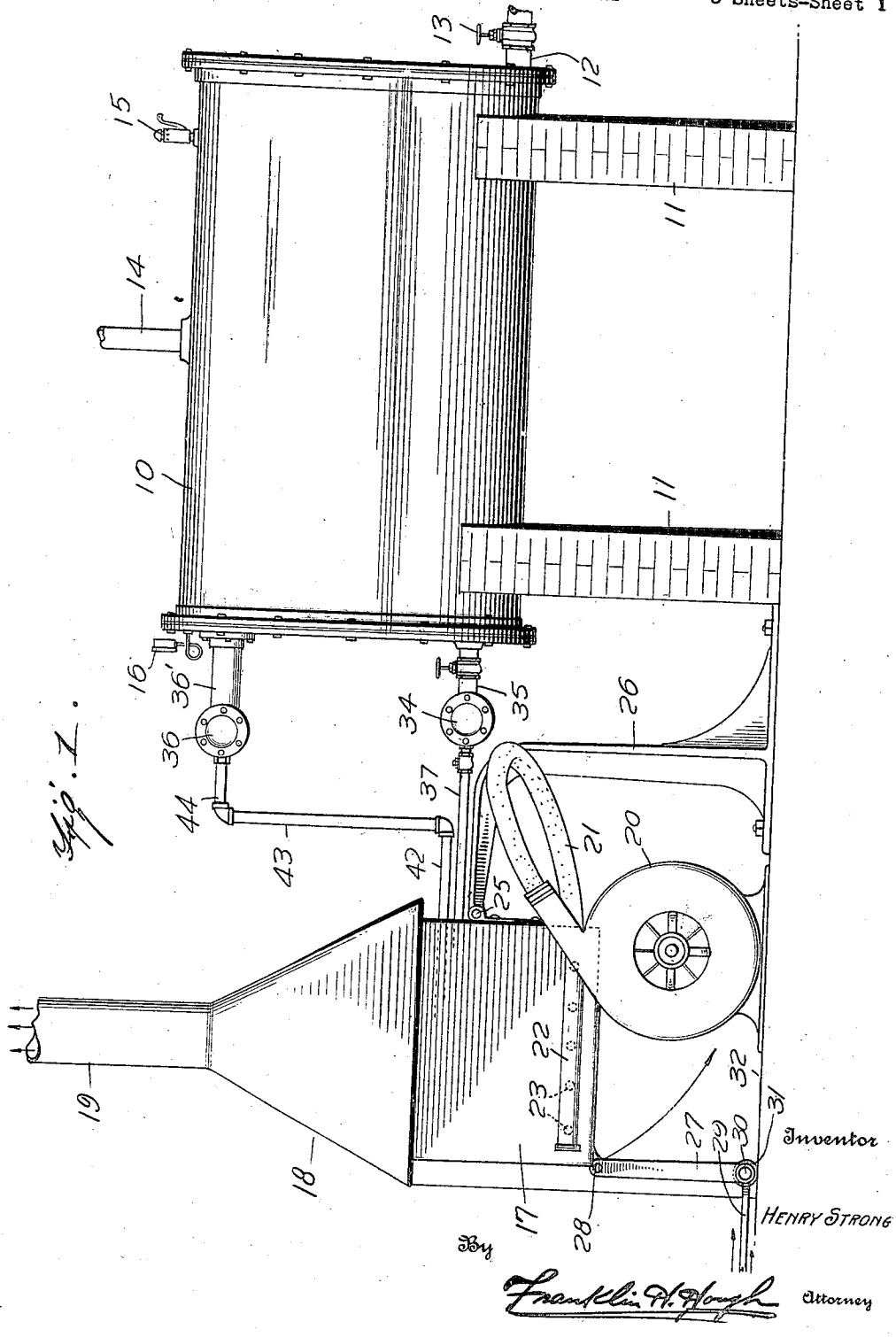


Fig. 1.

Inventor

HENRY STRONG

By

Franklin A. Hough

Attorney

Feb. 5, 1924.

H. STRONG

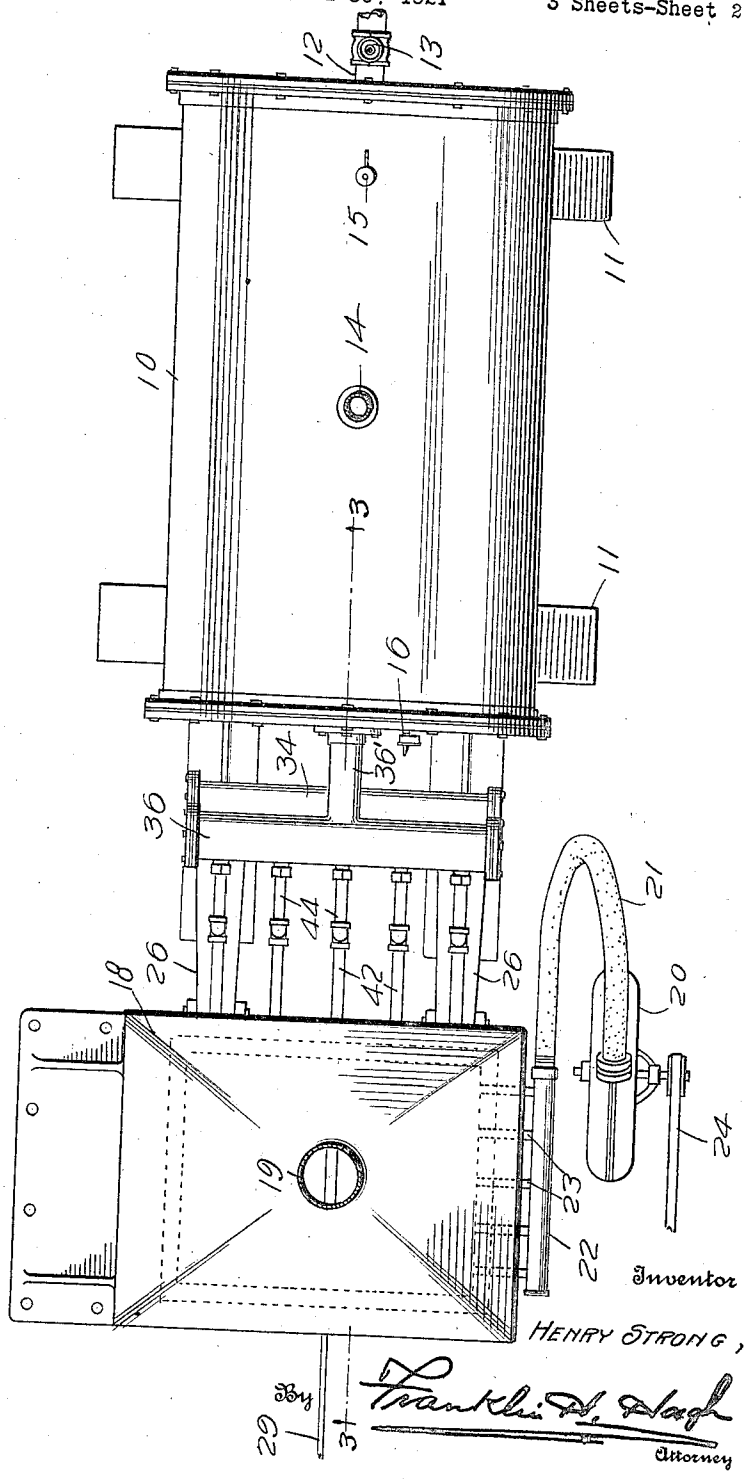
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Fig. 2.



Inventor

HENRY STRONG,

By Franklin D. Haigh

Attorney

Feb. 5, 1924.

H. STRONG

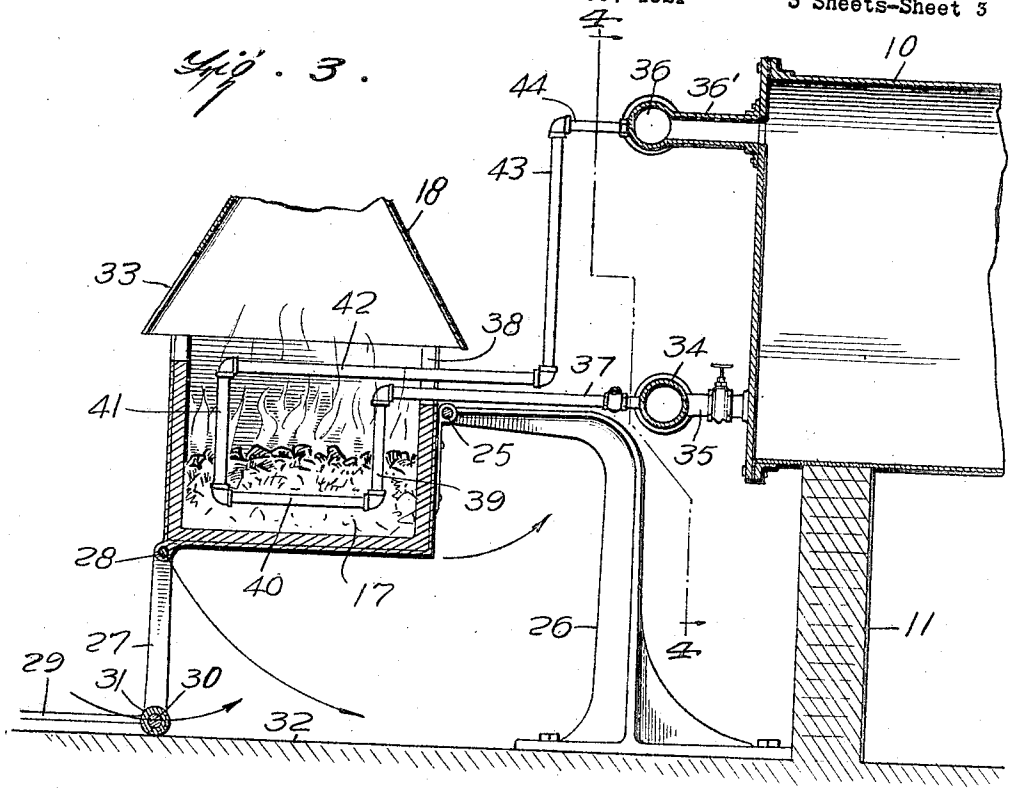
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GENERATOR

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Fig. 3.



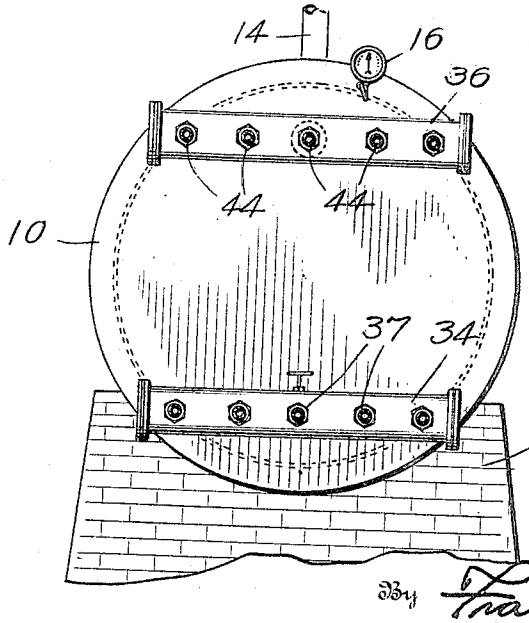


Fig. 4.

Inventor

HENRY STRONG,

By Franklin H. Hough

Attorney

Patented Feb. 5, 1924. 1,482,665

UNITED STATES PATENT OFFICE.

HENRY STRONG, OF MILLINOCKET, MAINE.

GENERATOR.

Application filed April 30, 1921. Serial No. 465,806.

To all whom it may concern:

Be it known that I, HENRY STRONG, a citizen of the United States, residing at Millinocket, in the county of Penobscot and State of Maine, have invented certain new and useful Improvements in Generators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to steam generators and has for an object to provide a steam generating plant embodying new and improved features of construction and reliability of operation.

A further object of the invention is to provide an improved type of fire box for flashing water into steam.

A further object of the invention is to provide improved tubular circulating means between the water supply and the steam storage, including a fire box and steam flashing apparatus.

With these and other objects in view the invention comprises certain novel elements, parts, units, combinations, mechanical movements, functions and combinations, as disclosed in the drawing together with mechanical equivalents thereof as will be hereinafter more fully described and claimed.

In the drawings:

Figure 1 is a view of the improved steam generator in side elevation.

Figure 2 is a view of the improved steam generator in top plan.

Figure 3 is a sectional view through the improved steam generator and fire box.

Figure 4 is a sectional view taken on line 4, 4 of Figure 3.

Like characters of reference indicate corresponding parts throughout the several views.

While the present invention is intended more particularly to provide a flash system of steam generation, it is of such nature that it may be employed for generating steam by the evaporation of water rather than by flashing and is adapted to be used at will for either purpose and in either manner.

The device comprises a tank 10 which may contain the water to be evaporated and also in the top is contained generated steam. The tank 10 is supported in any approved manner as by the brickwork 11, the manner of supporting being wholly immaterial to the present invention. The tank is provided with an inlet pipe 12 controlled by a valve 13 which may communicate with any usual and ordinary type of pump when used for such purpose or other means for maintaining the water level within the tank. It is also provided with an outlet pipe 14 which will communicate with an engine or other mechanical means for employing the generated steam and will be provided with the usual accompaniments such as the safety valve 15 and steam gauge 16.

Adjacent the tank 10 a fire box is erected, indicated as an entirety at 17. The fire box comprises a substantially rectangular box structure covered by a cowl 18 with flue 19. Adjacent the fire box a fan blower 20 is erected communicating by means of a flexible tube 21 with a header 22 carrying a plurality of tuyères 23. The tuyères 23 extend into the side of the fire box and by operating the blower through the medium of the belt 24 combustion is supported in the fire box in the usual well known manner.

The fire box is hinged at 25 to an upright 26 and adapted to swing about such hinge 25 as indicated by the arrow at Figure 3. To support the fire box in normal raised position, a strut 27 is pivoted at 28 and an operating handle 29 pivoted thereto at 30, which latter pivot also preferably journals a roller 31 adapted to roll upon the floor or other structure 32. By reference to Figure 3, it will be noted that by moving the handle 29 and therewith the pivot point 30 along the floor 32 it will move also about the pivot 28, permitting such pivot 28 to follow the arrow to swing the fire box downward, as indicated by the two arrows in said figure, so that the contents and residuum of said fire box may be dumped. For the purpose of supplying fuel to said fire box, an opening 33 is formed in the front side of the cowl 18.

A header 34 communicates with the tank 10 by means of a valved pipe 35, and a similar header 36 communicates with the tank by means of a pipe 36′. From the header 34 a plurality of small pipes 37 extend through an opening 38 in the rear of the fire box and then downwardly at 39, forwardly at 40, upwardly at 41, rearwardly at 42 through the opening 38, upwardly at 43 and by the nipple 44 connected with the header 36.

It will thus be seen that the several small pipes with their connections starting as the pipes 37 at the header 34 and ending as the pipes 44 at the header 36 form

each a downwardly extending loop within the fire box, as shown more particularly at Figure 3, and into the zone of intense heat. By manipulating the valve of the pipe 35 the water flow from the tank 10 into and through the several pipes 37 may be so regulated that only a very small amount of water enters the coils within the fire box whereby, owing to the intense heat generated by the blower 20, the water is at once flashed into steam, passing upwardly through the communicating pipes into the upper part of the tank 10. It is also apparent that by opening the passage through the pipe 35 to a greater extent the pipes 37 to 42 inclusive may be entirely filled with water whereby the water in the pipe 43 will stand at the level of the water in the tank 10 and the evaporation of the water taking place forming steam in the coils will pass upwardly through said pipes into the tank. The device is, therefore, adapted to operate selectively either as an ordinary steam generator or as a flash generator as circumstances may make desirable.

What I claim is:

1. A heating plant comprising an upright having a substantially horizontal offset, a fire box hinged at one side to the extremity of the offset and capable of swinging upon said hinge to dump the contents, a strut pivoted to the under side of the fire box proportioned to engage the floor and retain the fire box in operating position, a roller carried by the strut, and a lever pivoted to the strut and extending to a remote point for actuating the strut to dump the fire box.

2. A heating plant comprising an upright having a substantially horizontal offset, a fire-box hinged at one side of the extremity to the offset and capable of swinging upon said hinge to dump the contents, the rearward side of said box being lower than other upper limits, a strut pivoted to the under side of the fire-box, proportioned to engage the floor and retain the fire-box in operating position, a roller carried by the strut, a lever pivoted to the strut and extending to a remote point for actuating the strut to dump the fire-box, a plurality of coils extending downwardly within the box and having their connections introduced over the said lower side and a boiler connected with the coils.

3. A heating plant comprising a fire-box hinged at one side and capable of swinging downwardly upon said hinge to dump the contents, a strut pivoted to the under side of the fire-box proportioned to engage the floor and retain the fire-box in operating position, a roller carried by the strut, a lever pivoted to the strut and extending to a remote point for actuating the strut to dump the fire-box.

4. A heating plant comprising a fire-box hinged at one side and capable of swinging downwardly upon said hinge to dump the contents, the rearward side of said box being lower than other upper limits, a strut pivoted to the under side of the fire-box proportioned to engage the floor and retain the fire-box in operating position, a roller carried by the strut, a lever pivoted to the strut and extending to a remote point for actuating the strut to dump the fire-box, a plurality of coils extending downwardly within the box and having their connections introduced over the said lower side, and a boiler connected with the coils.

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

HENRY STRONG.

Witnesses:
HARRY J. GONYA,
MARY E. DONNELLY.