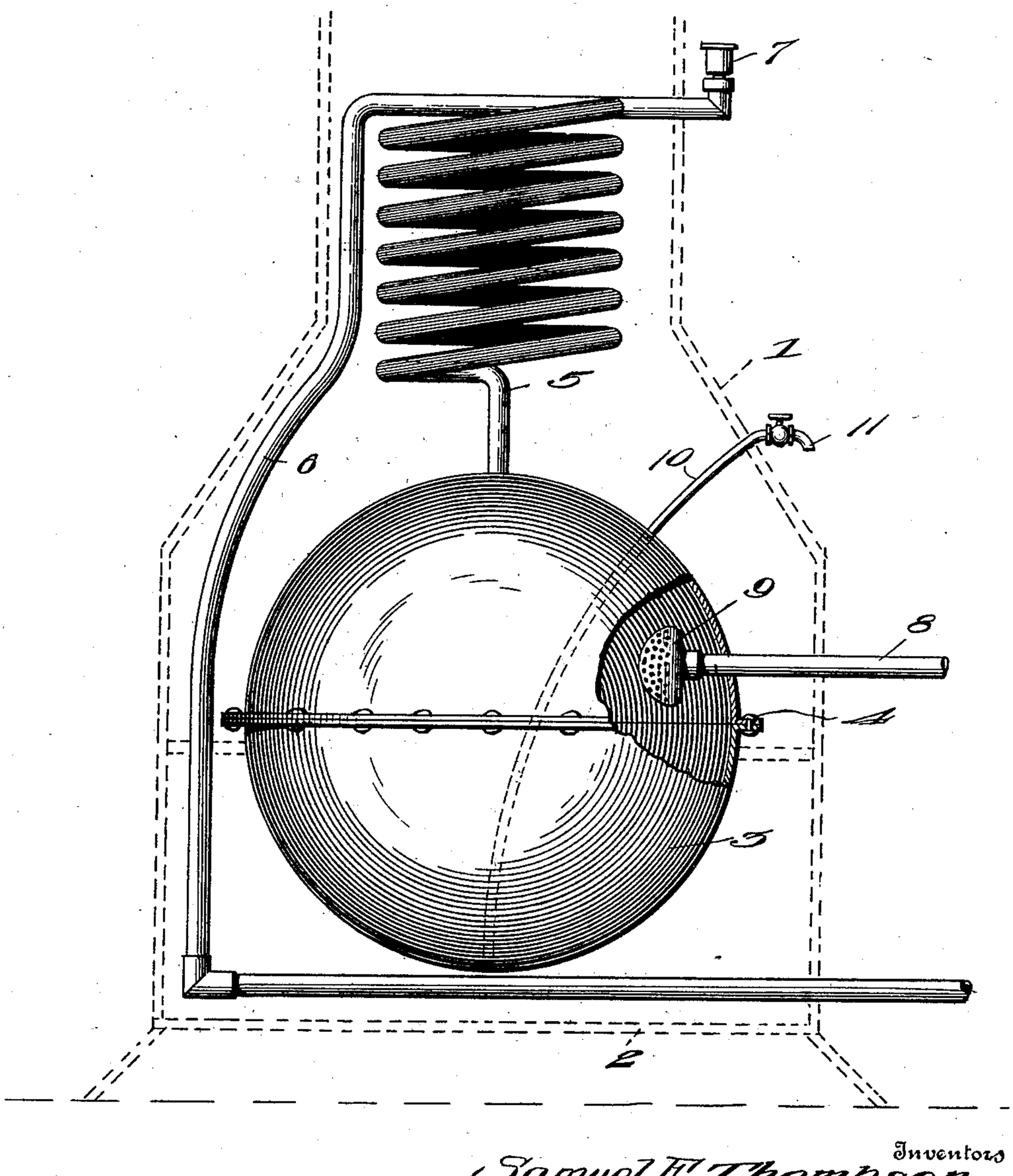
No. 671,713. Patented Apr. 9, 1901.

S. F. THOMPSON & R. H. BARNES.

STEAM GENERATOR.

(No Model.) (Application filed July 28, 1900.)



Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL F. THOMPSON AND ROBERT H. BARNES, OF CUERO, TEXAS.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 671,713, dated April 9, 1901.

Application filed July 28, 1900. Serial No. 25,179. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL F. THOMPSON and ROBERT H. BARNES, citizens of the United States, residing at Cuero, in the county of Dewitt and State of Texas, have invented new and useful Improvements in Steam-Generators, of which the following is a specification.

This invention relates to new and useful improvements in steam-generators adapted for use with engines of various sizes and forms; and its primary object is to provide a device of simple construction which utilizes but the minimum amount of fuel in generating steam and which is so constructed as to prevent accidental explosion thereof.

To this end the invention consists in providing a preferably spherical receptacle having a coil-pipe extending from the upper end thereof, and this pipe communicates at its upper end with a pipe which is adapted to conduct steam to the engine or other device to be operated. A safety-valve is mounted adjacent to the coil-pipe and may be adjusted to operate under any desired pressure. A water-inlet is provided within the spherical receptacle, and this inlet is provided with means whereby the water may be sprayed upon the walls of the receptacle.

The invention also consists in the further novel construction and combination of parts hereinafter more fully described and claimed and illustrated in the accompanying drawings, showing the preferred form of our invention, and which is an elevation thereof showing the casing in dotted lines.

Referring to the drawing by numerals of reference, 1 is the casing of the device, which is provided with a suitable grate 2, adapted to support fuel. Within the casing, at a point above said grate, is arranged a preferably spherical receptacle 3, formed in semispherical sections provided with flanges at their edges, which are securely riveted together in any suitable manner, as shown at 4. A coil-pipe 5 extends upward from the top of the receptacle 3 for a suitable distance and communicates at its upper end with a pipe 6, which is adapted to conduct steam down through the fire upon the grate and out to an engine or other device. (Not shown.) An automatic safety-valve 7 is mounted at a point adjacent to the coil-pipe and is adapted to be so adjusted as to operate under any desired pressure.

Projecting into the receptacle 3 is a water-inlet pipe 8, provided at its inner end with a nozzle 9, through which water is adapted to be sprayed upon the inner surface of the walls of the receptacle. This nozzle is located at a point adjacent to the wall, so as to permit the water to be sprayed evenly over the entire inner surface of the sphere. A pipe 10 also projects through the walls of the receptacle to a point adjacent to the bottom thereof and is provided at its upper end with a valved outlet 11.

In operation fuel is placed on the grate 2 and will obviously heat the receptacle 3 and the coil 5, arranged thereabove. Water is then sprayed in desired quantities through the nozzle 9, the same discharging it evenly upon the walls of the sphere. As soon as the water contacts with the walls of the receptacle it will, as will be readily understood, be at once converted into steam. The steam will pass upward into the coil 5, where it will be more thoroughly separated, and will then pass down through pipe 6 into the fire upon the grate, where the separation will be completed. The steam is then conducted by said pipe 6 to the engine. The valve 7 can be so regulated as to open automatically when the steam-pressure reaches a point above that required in order to operate the engine receiving power from the generator. Should water accumulate upon the bottom of the receptacle 3, the same may be readily withdrawn therefrom by opening the valve-outlet of the pipe 10. It will be seen that the steam-pressure within the receptacle will force the water up and out through the pipe 10. The same may be then readily closed. It will be seen that by this construction the water is converted into steam as soon as admitted into the generator, and as the same contains practically no water it will be seen that accidental explosion of the generator is prevented. As but a small amount of water is sprayed upon the heated walls of the receptacle at one time it will be obvious that but a small amount of fuel will be necessary to convert the same into steam, and hence it will be seen that the generator is extremely inexpensive in operation.

While we have described the receptacle as

being spherical in form, it will be understood that we do not limit ourselves to this particular shape, as any desired form of receptacle may be employed. Also in lieu of providing a grate for fuel a burner of any desired form may be employed.

In the foregoing description we have shown the preferred form of our invention; but we do not limit ourselves thereto, as we are aware that modifications may be made therein without departing from the spirit or sacrificing any of the advantages thereof, and we therefore reserve the right to make all such changes as fairly fall within the scope of our invention.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

The combination with a casing; of a burner therein, a spherical receptacle suspended within the casing above the burner and formed of semispherical sections, flanges to said sections secured together, an inlet-pipe in the receptacle, a nozzle thereto adapted to spray water evenly upon all parts of the wall of the receptacle, a coil-pipe extending upward from the top of the receptacle, an end to said pipe extending downward and under the receptacle, a pipe extending from the top of the coil, a valve therein, and a valved pipe extending through the receptacle from a point adjacent to the bottom thereof.

In testimony whereof we affix our signatures in presence of two witnesses.

SAMUEL F. THOMPSON.
ROBERT H. BARNES.

Witnesses:
WM. H. HOARE,
WM. BARNES.