

No. 736,652.

PATENTED AUG. 18, 1903.

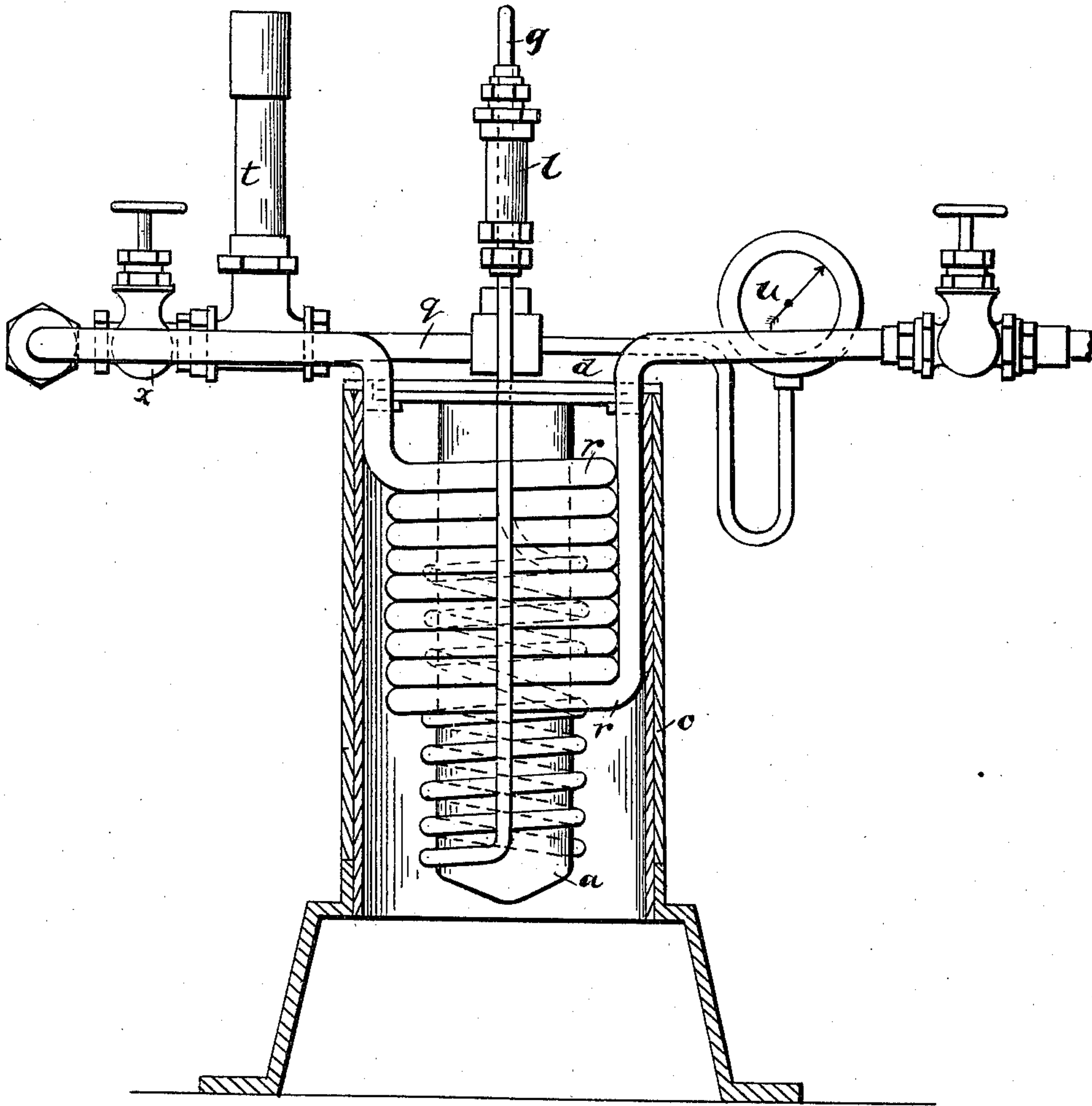
W. TABOULEVITSCH.
STEAM GENERATOR.

APPLICATION FILED MAY 14, 1902.

NO MODEL.

2 SHEETS—SHEET 1

Fig. 1.



Witnesses:
Berlin & Brann
S. C. Brattan

Inventor:
Valdemar Taboulevitsch,
by
Collamer & Co., Attorneys.

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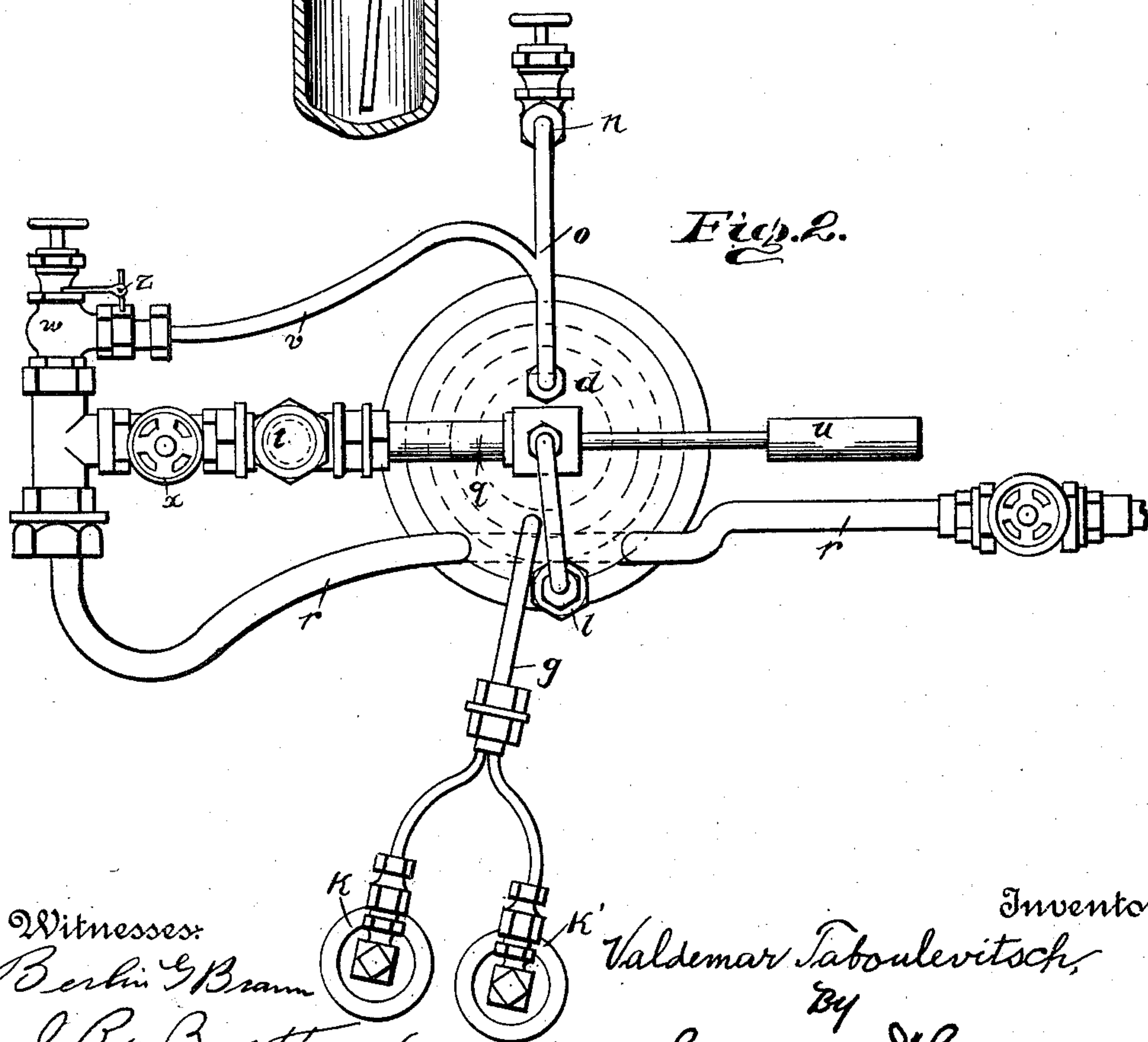
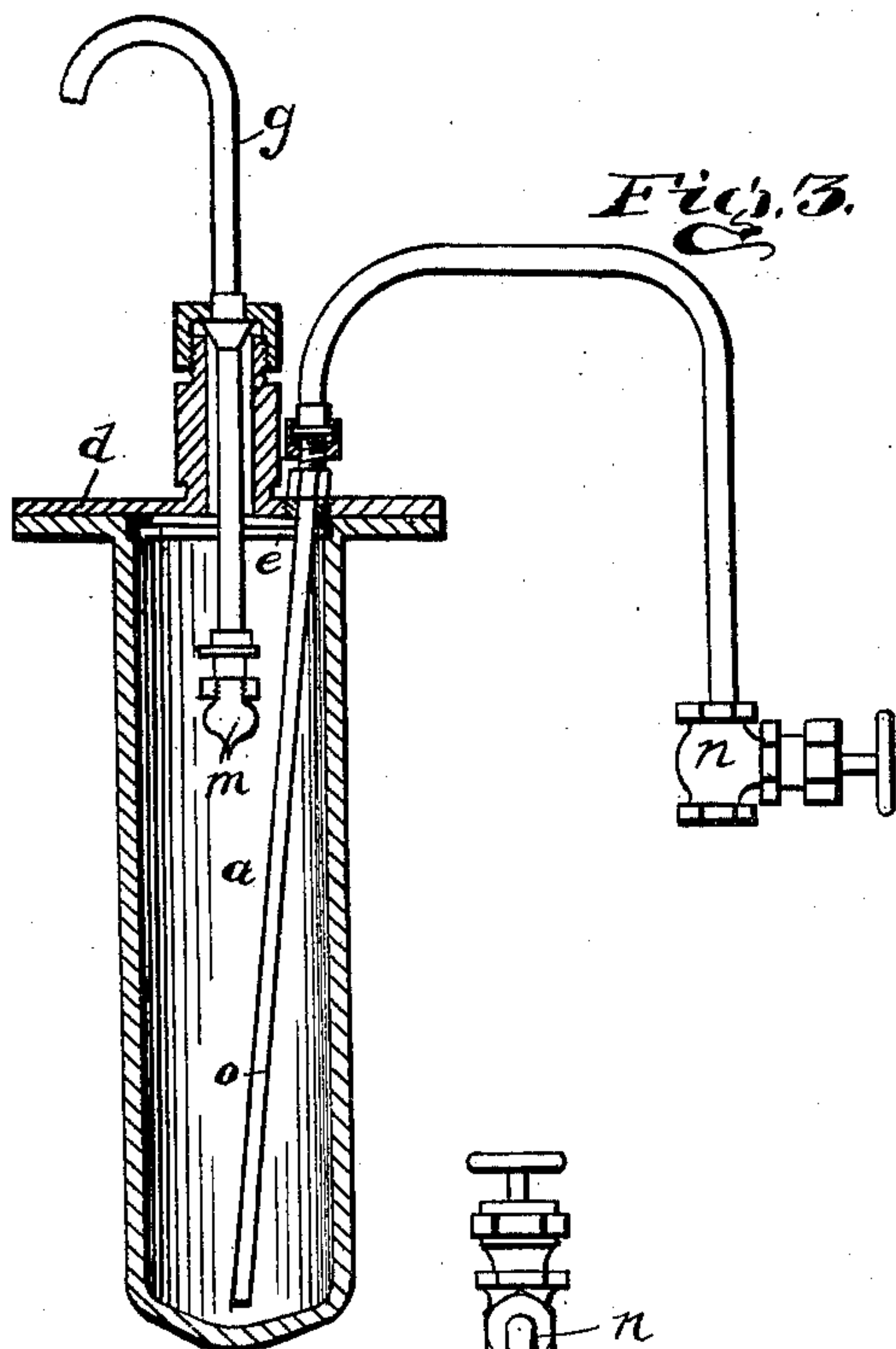
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UNITED STATES PATENT OFFICE.

VALDEMAR TABOULEVITSCH, OF SSELO ALEXANDROWSKOJE, NEAR
ST. PETERSBURG, RUSSIA.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 736,652, dated August 18, 1903.

Application filed May 14, 1902. Serial No. 107,326. (No model.)

To all whom it may concern:

Be it known that I, VALDEMAR TABOULEVITSCH; colonel, of Obuchowwerke, Sselo Alexandrowskoje, near St. Petersburg, in the
5 Empire of Russia, have invented certain new and useful Improvements in Steam-Generators; and I do hereby declare the nature of my invention and in what manner the same is to be performed to be particularly described and
10 ascertained in and by the following specification.

This invention relates to steam-generators, and particularly to that class in which the steam is produced at high temperature and
15 pressure, the feed-water being introduced into the vaporizer in a finely-divided condition.

The object of my invention is to produce an apparatus in which the generation of steam shall be continuous and in which the steam
20 shall be superheated before passing to the engine.

Other objects and advantages of my invention will be apparent from the following specification and from the annexed drawings, in
25 which—

Figure 1 is a vertical section. Fig. 2 is a plan view. Fig. 3 is a vertical section of the vaporizer.

The vaporizer *a*, heated by means of a suitable heating device, is inclosed in the casing *c*,
30 which may be placed on an ordinary fire-box. The vaporizer has a suitable shape and very thick walls, so as to be capable of serving as an accumulating-reservoir for a great quantity of heat, which assures a continuous vaporization. A thick cover *d* is fixed on the vaporizer,
35 and an elastic ring *e*, preferably of L-shaped section, serves as a packing for closing it, said ring being placed on a shoulder in the wall of the vaporizer. The horizontal branch of the
40 ring has an upward tendency and when the cover is fixed it is forced back inward. The steam presses the branches of the said ring against the walls of the vaporizer and the cover,
45 and thus secures a tight closure. A tube *g* passes through the cover for the purpose of admitting feed-water to the vaporizer and is preferably connected with two filters *k k'*, from
50 which a mixture of any two desired liquids—as, for instance, oil and water—can be furnished to the vaporizer. The tube *g* passes in a spiral

around the vaporizer for the purpose of heating the feed-water before it comes in contact with the interior of the vaporizer, whereby sudden reduction of the heat of the latter is obviated. A purifying apparatus *l* may be inserted in tube *g* for the purpose of purifying the mixture before it enters the vaporizer. The two filters may be provided with valves for regulating the passage of the liquids which
55 are subjected to the division after having been mixed, superheated, and purified. The mixture is caused to fall onto the suitably-heated walls in the form of small drops or, still better, in the form of fine spray. The division
60 of the mixture may be effected by means of any suitable apparatus *m*.

Since the presence of water in the vaporizer is liable to produce shocks and sudden changes in the pressure, the tube *o*, reaching
70 down to the bottom of the vaporizer and showing the presence of the free water, is used. On opening the cock *n* the pressure of the steam immediately drives the water out. In order to avoid the accumulation of free water
75 during the working of the vaporizer, the pipe *v* is used, which branches off from pipe *o* and is provided with a cock or valve *w*, which communicates with the pipe *r*, which feeds the engine after passing around the vaporizer
80 several times in a serpentine manner. The tube *v* may be provided with an injector at its end. The pipe *r* communicates with the steam-space of the generator by means of a conduit *q*, which is provided with a safety-
85 valve *t* and a cock *x*. After having adjusted the openings of the cocks or valves *w* and *x* in accordance with the conditions of the working of the vaporizer the absence of free water in the generator can be ascertained from time
90 to time by opening the cock *n*, which normally remains closed.

It is evident that if water momentarily accumulates at the bottom of the vaporizer and closes the lower orifice of the tube *o* the
95 pressure of the steam forces the said water through the pipe *v* into the pipe *r*, where it is instantaneously vaporized, at the same time producing the superheated steam.

The steam-gage *u* and a pyrometer may be
100 placed at convenient points.

In order to ascertain the state of the mix-

ture in the tube *v* without opening the cocks *n* and *w*, which are already adjusted, the cock *z* is opened, which shows the condition of the liquid or steam mixture passing out there-
5 from.

Apart from the advantages described above, the apparatus presents the further advantages of being of a very reduced size, capable of very high pressures, and particularly
10 very economical in working.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

15 1. In a steam-generator, the combination with the vaporizer and means for admitting the feed-water in a state of division thereto; of the steam-pipe leading from the vaporizer and a second pipe leading from the interior
20 of the vaporizer near its bottom and connected with the steam-pipe at a point without the vaporizer.

2. In a steam-generator, the combination with the vaporizer and means for admitting
25 the feed-water in a state of division thereto; of the steam-pipe leading from the vaporizer and passing in a spiral about the exterior thereof and a second pipe leading from the interior of the vaporizer near its bottom and

connected with the steam-pipe at a point be- 30
tween the spiral formed therein and the vaporizer.

3. In a steam-generator, the combination with the vaporizer and means for admitting the feed-water in a state of division thereto; 35
of the steam-pipe leading from the vaporizer, an overflow-pipe leading from the interior of said vaporizer near its bottom and provided with means for indicating the presence of non-evaporated water therein, and a branch
40 pipe connecting the steam-pipe and the overflow-pipe.

4. In a steam-generator, the combination with the vaporizer provided with a cover and packing-ring of L-shaped section, and means 45
for admitting the feed-water in a state of division thereto; of the steam-pipe leading from the vaporizer through said cover, and a second pipe leading from the interior of the vaporizer near its bottom through the cover and
50 connected with the steam-pipe.

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

VALDEMAR TABOULEVITSCH.

Witnesses:

H. A. LOVIAGUINE,
E. W. LOURIE.