

No. 709,655.

Patented Sept. 23, 1902.

H. WEBSTER.

METHOD OF SUPERHEATING STEAM.

(Application filed Dec. 12, 1901.)

(No Model.)

2 Sheets—Sheet I.

Fig. 1.

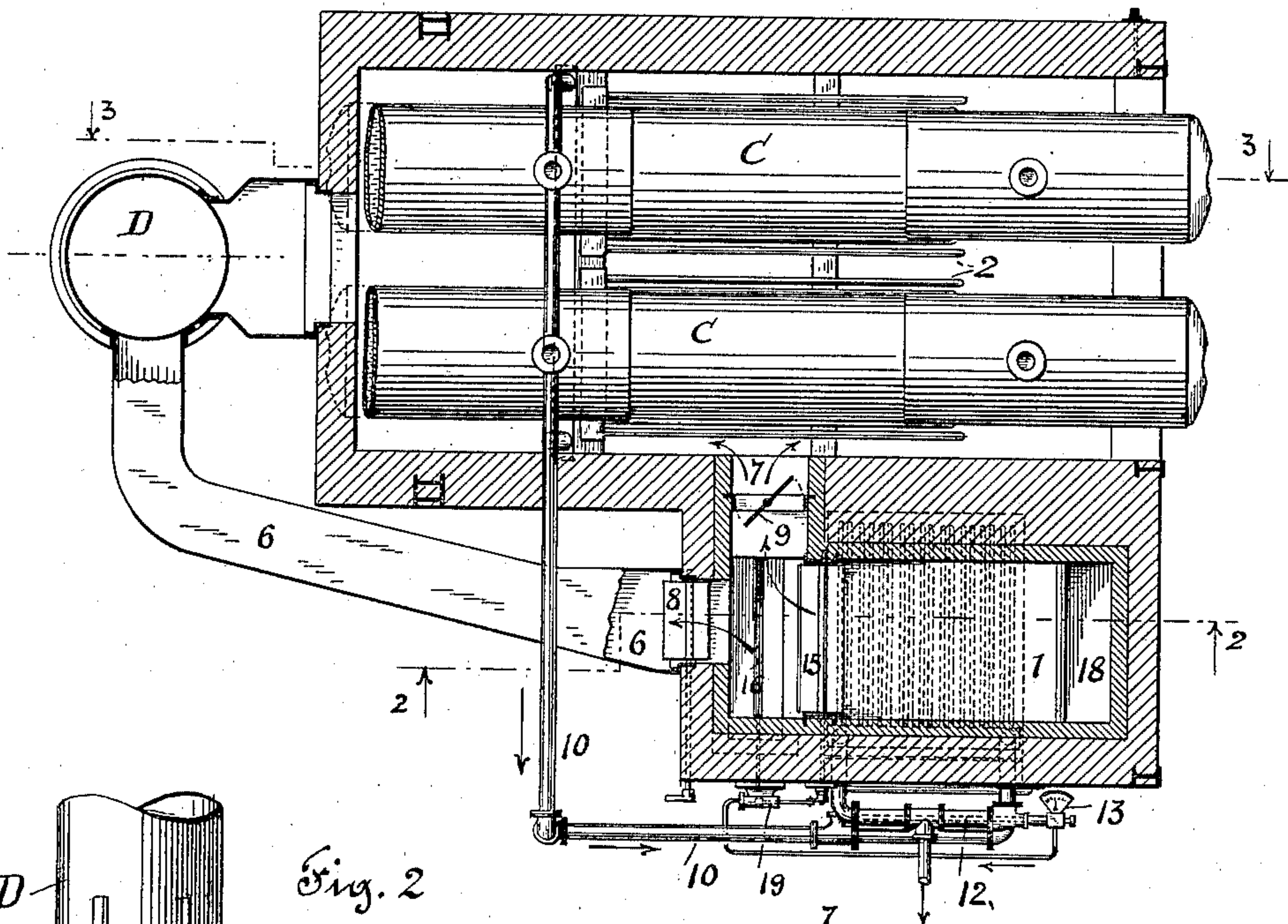
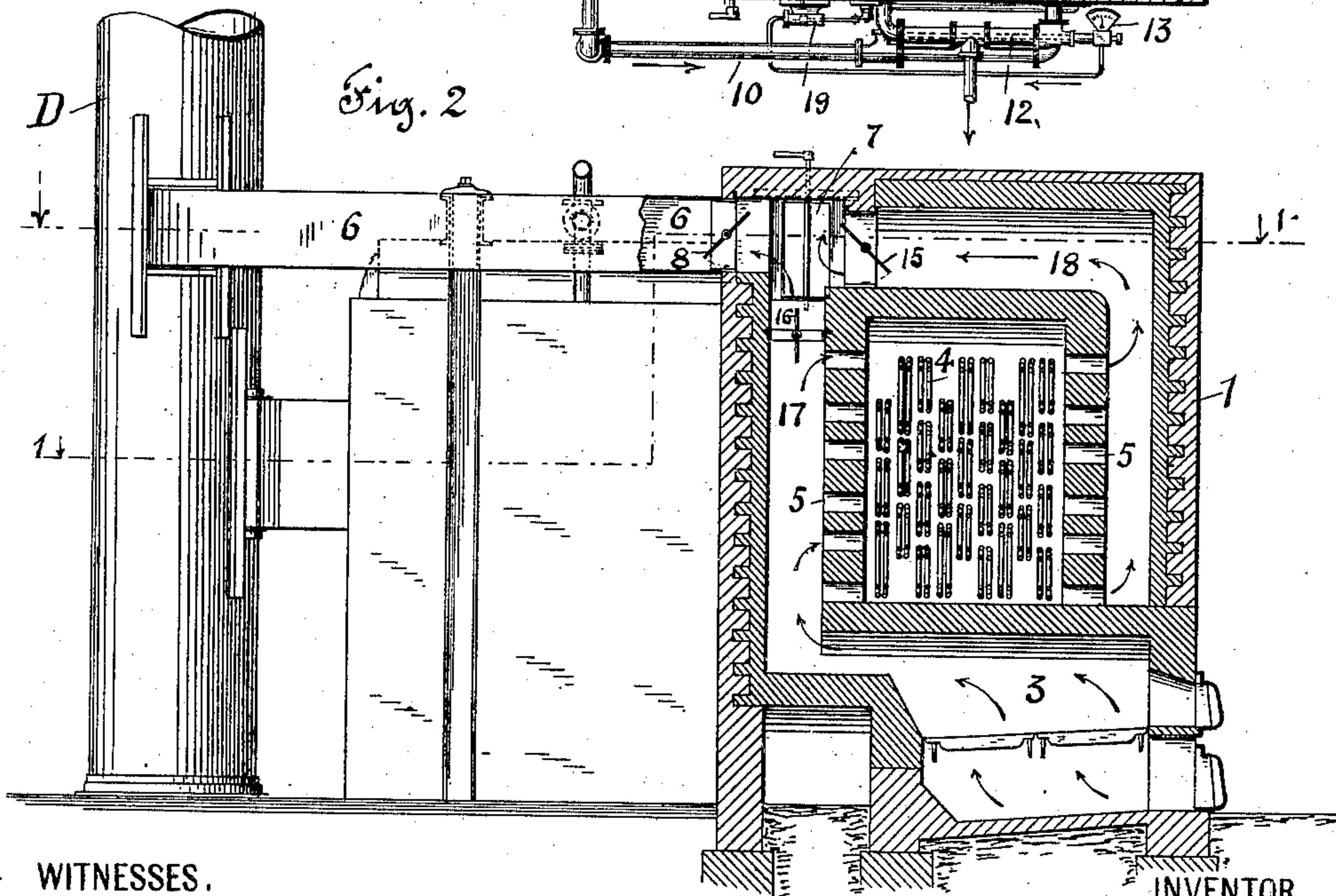


Fig. 2.



WITNESSES.

Charles Hanimann

W R Talbot

INVENTOR

Hora Webster

BY

Chas H. Forbes

ATTORNEY

No. 709,655.

Patented Sept. 23, 1902.

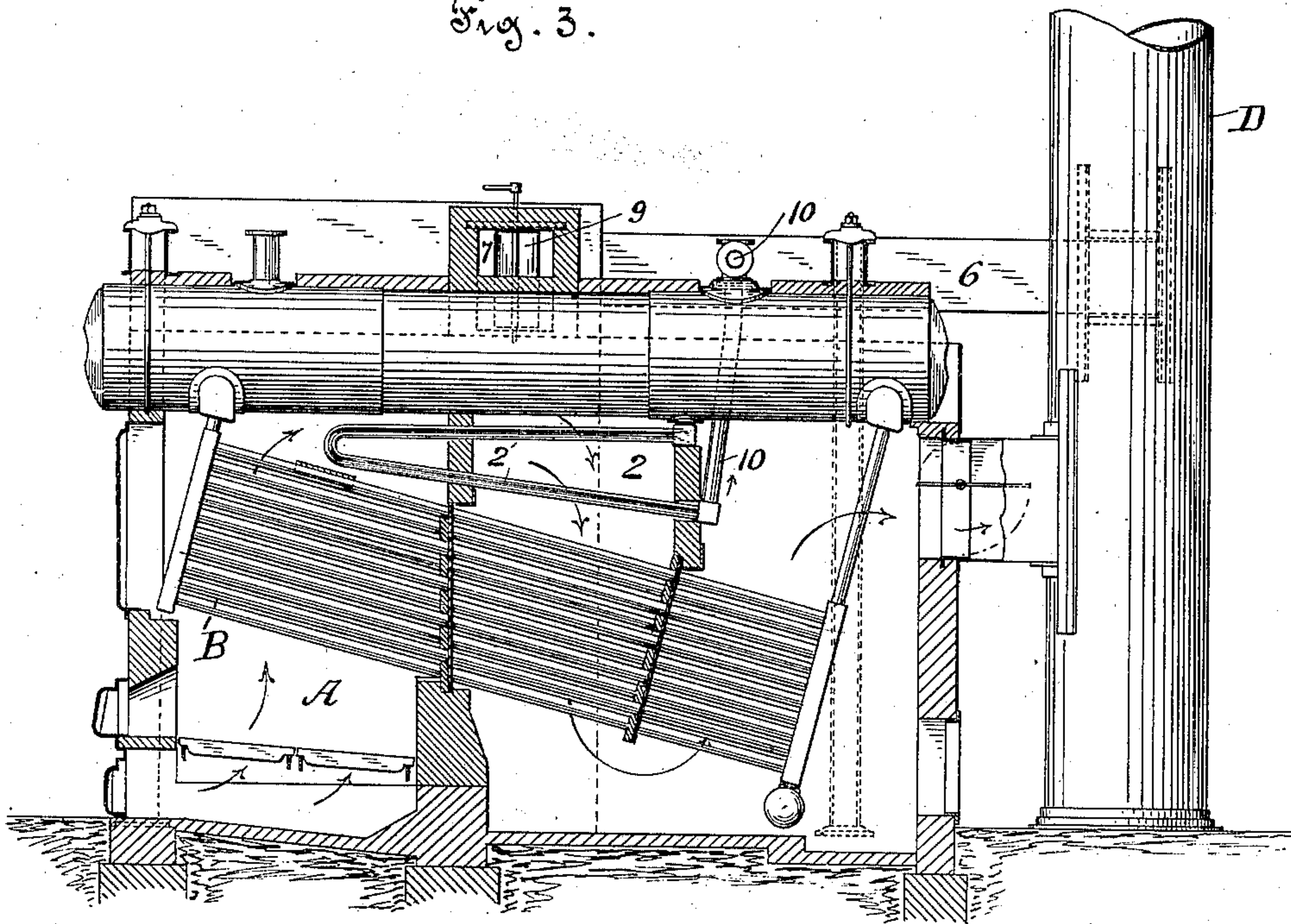
H. WEBSTER.
METHOD OF SUPERHEATING STEAM.

(Application filed Dec. 12, 1901.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 3.



WITNESSES:

Charles Hanemann
W. R. Talbot

INVENTOR

H. Webster

BY

Phas H. Forbes
ATTORNEY

UNITED STATES PATENT OFFICE.

HOSEA WEBSTER, OF MONTCLAIR, NEW JERSEY.

METHOD OF SUPERHEATING STEAM.

SPECIFICATION forming part of Letters Patent No. 709,655, dated September 23, 1902.

Application filed December 12, 1901. Serial No. 85,554. (No model.)

To all whom it may concern:

Be it known that I, HOSEA WEBSTER, a citizen of the United States, residing at Montclair, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Methods of Superheating Steam, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a method of superheating steam to a high degree and also in controlling the temperature of the same.

In order that others may understand and practice the invention, I will first proceed to describe a steam-generator fitted with devices whereby the invention may be carried out and subsequently to point out in the appended claims its novel characteristics.

In the accompanying drawings, forming a part of this specification, Figure 1 is a top view, partly in section, on the line 1 1, Fig. 2; Fig. 2, a side view of a steam-generator and a separate superheating apparatus shown in section on the line 2 2, Fig. 1; and Fig. 3 is a side view of the steam-generator on the line 3 3, Fig. 1, embodying a superheating device within its combustion-space in which the method of operation claimed is carried out.

The main parts of the generator consist of the furnace A, water-circulating tube B, steam and water drums C, and uptake D. In the several figures a steam-superheating device is shown at 1 located outside of the generator and at 2 in Figs. 1 and 3 within the combustion-space of the generator. The exterior superheater 1 includes a furnace 3, incased steam tubes or coils 4, and passages 5, leading from the furnace to and among the tubes 4 and to the uptake D direct by the conduit 6 or to the combustion-space of the steam-generator through the passage 7, the products of combustion from the superheater being diverted to either the conduit 6 or passage 7 by means of the dampers 8 and 9, arranged therein and adapted to open or close the respective passages, as required, the course of the products of combustion being indicated by the arrows in the respective figures. The steam-superheating pipes or coils 4 communicate with the steam-drums C of the generator through the pipe 10 and with the steam-outlet through the pipe 12. The pipe 12, leading from the superheater, is fitted with a thermostat 13, which is connected with the dampers 15 and

16 in the escape-passages 17 and 18 to open or close the same automatically, and thereby control the temperature of the superheated steam.

The superheating device 2 is located within the combustion-space of the generator, as shown in Figs. 1 and 3, and is exposed to the direct combustion of the generator-furnace and communicates with the steam-space of the drum C and the pipe 10, leading to the coil 4 of the auxiliary superheater 1.

In operation the saturated steam taken from the steam-space of the drum C is superheated in the primary superheating device 2, then directed through the coil 4 of the auxiliary superheater 1, wherein its temperature is augmented, and then conveyed to the steam-outlet. When the temperature of the superheated steam reaches a maximum degree desired, the thermostat-valve opens to admit steam to the cylinder and piston 19, from which movement is transmitted to the respective dampers 15 or 16 in the manner well understood in similar uses.

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

1. The method herein described, consisting in superheating steam, primarily by the heat of the combustion in the generator, and then augmenting the temperature of the steam superheated, by a separate and independent source of heat, as set forth.

2. The method herein described, consisting in superheating steam, primarily by the heat of the combustion in the generator, then augmenting the temperature of said superheated steam by a separate and independent source of heat, and then utilizing the waste products of the latter combustion to augment the primary superheating of the steam in the generator, as set forth.

3. The method herein described, consisting in first superheating steam by the heat of combustion in the generator, second, augmenting the temperature of the steam superheated by an auxiliary source of heat, and third, regulating the temperature of the superheated steam, as set forth.

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

HOSEA WEBSTER.

Witnesses:

EMMA BLAINE WILSON,
HARRIS R. GREENE.