

No. 666,341.

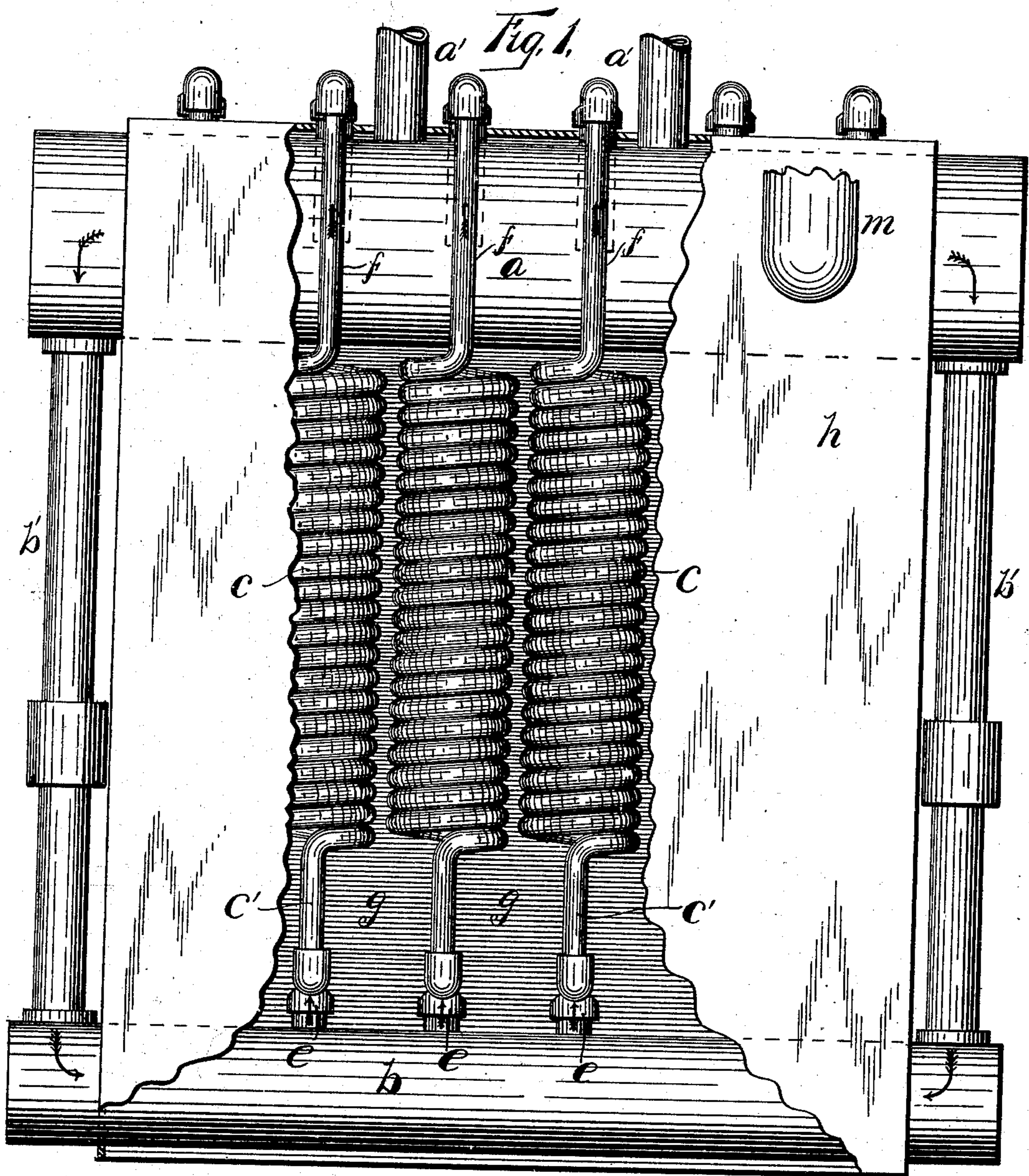
Patented Jan. 22, 1901.

F. BENNETT.  
STEAM BOILER.

(Application filed Feb. 26, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:  
*Chas. Schoeneck*  
*Charles H. Binson*

INVENTOR  
*Fred Bennett*  
BY  
*Smith & Wisdon*  
ATTORNEYS.

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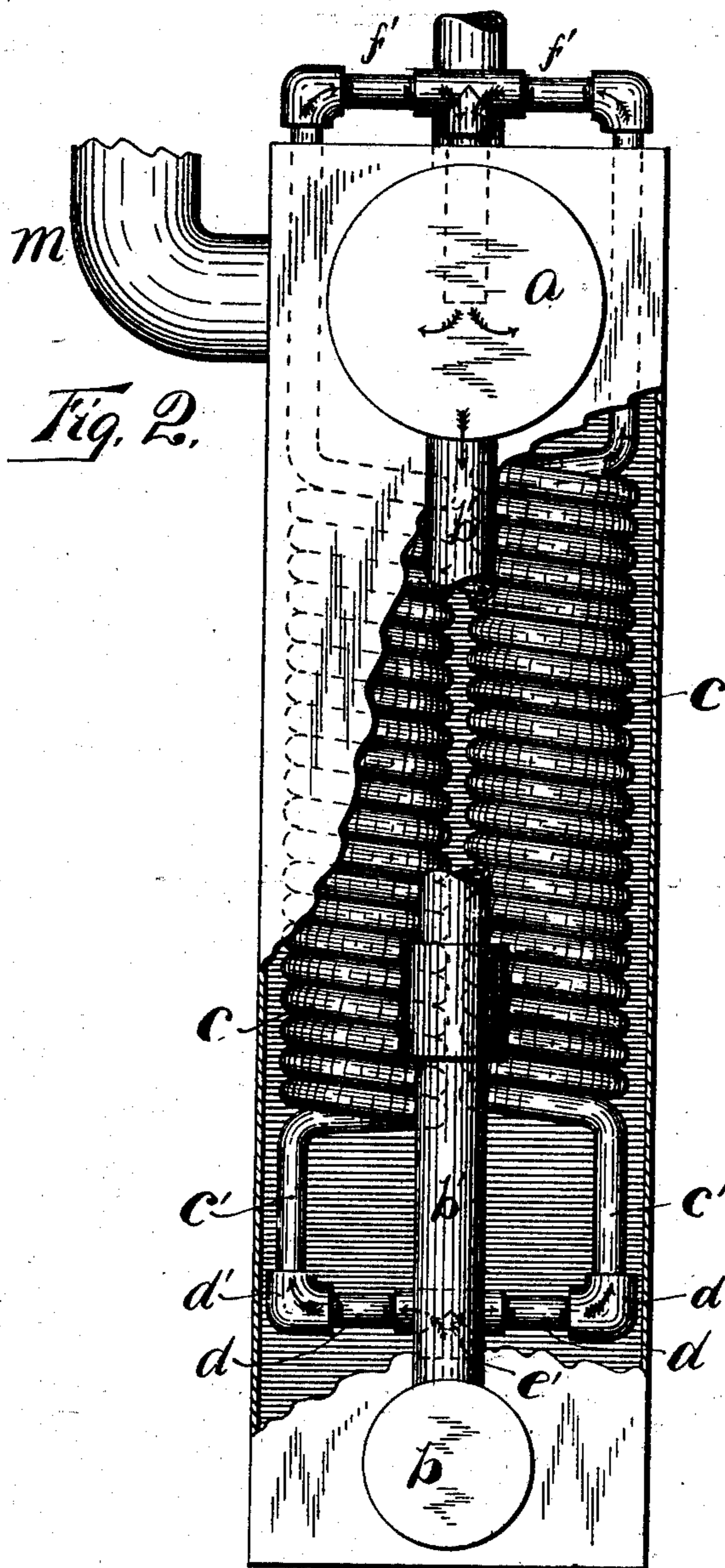
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WITNESSES:

*Chas. Schoeneck*  
*Charles H. Benson*

INVENTOR

*Fred Bennett*  
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ATTORNEYS.

# UNITED STATES PATENT OFFICE.

FRED BENNETT, OF BINGHAMTON, NEW YORK, ASSIGNOR OF ONE-HALF TO CLARENCE F. HOTCHKISS, OF SAME PLACE; WILLIAM P. KENNEDY ADMINISTRATOR OF SAID BENNETT, DECEASED.

## STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 666,341, dated January 22, 1901.

Application filed February 26, 1900. Serial No. 6,479. (No model.)

*To all whom it may concern:*

Be it known that I, FRED BENNETT, of Binghamton, in the county of Broome, in the State of New York, have invented new and useful  
5 Improvements in Steam-Boilers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in  
10 steam-boilers, having particular reference to that class in which coiled tubes are used in generating the steam.

My object is to construct a boiler having tubular coils in which the steam is generated  
15 located in the path or line of the heat, the coils being continuous, so that there will be no chance to loosen, no damage caused by the result of uneven expansion and contraction, and hence no possibility of explosion.

20 My further object is to produce a boiler which can be readily and easily taken apart for repairs and again assembled.

Another object is to produce a boiler so constructed that the sediment will be automatically separated from the water and it can be  
25 drawn off when it has accumulated; and to that end my invention consists in the several other new and novel features of construction and operation which are hereinafter described, and specifically set forth in the claims hereunto annexed. It is constructed as follows, reference being had to the accompanying drawings, in which—

30 Figure 1 shows a side view of the boiler, the jacket partially broken away, showing a series of tubular coils. Fig. 2 is an end view thereof, showing the jacket broken away.

Similar letters of reference indicate corresponding parts.

40 *a* is the steam-chamber, suitably mounted, having service-pipes *a'* leading therefrom.

*b* is the mud-drum, located substantially in horizontal alinement with the steam-chamber and is connected by return-pipes *b'*.

45 *c* represents tubular coils and comprise the steam-generating portion of the boiler and are located either singly or in sets between the steam-chamber and the mud-drum, as shown, and are connected thereto substantially as

shown—that is, the lower end *c'* of the coil is 50 connected to a pipe *d*, having a right and left hand thread, by a joint *d'*, and the pipe *d'* connects with the pipe *e*, having a T *e'* leading to the top of the mud-drum, by which drum the coils are fed, the drum being connected 55 with the water-supply in any ordinary manner. The upper end *f* of the coil is connected with the steam-chamber by a pipe *f'*, having a right and left hand thread similar to the pipe *d*, connecting the lower end of the 60 coil with the mud-drum. By the use of this pipe having a right and left hand thread I am able to readily remove the same and am therefore able to easily withdraw the coil for the purpose of cleaning and repairs. 65

The space *g*, located beneath the coils and above the mud-drum, I use for heating-space. Here I may place a gasolene-burner or provide heat in any other suitable manner. In view of the fact, however, that the particular 70 method of heating the tubular coils forms no part of my invention, I will not further describe the same.

*h* is the jacket, and *m* is the smoke-pipe.

I am the first, so far as I am aware, to make 75 use of tubular coiled steam-generating pipes connecting with the steam-chamber and mud-drum, and I therefore claim the same broadly. It will also be evident that by connecting the steam-chamber and the mud- 80 drum with a pipe outside of the casing and out of the sphere of influence of the heat I produce a slow circulation within the mud-drum, and this allows for the settling of the impurities in the water. It will also be evi- 85 dent that the construction herein set forth may be modified in various details.

I do not desire to limit myself to the precise details shown.

Having described my invention, what I 90 claim, and desire to secure by Letters Patent, is—

1. A boiler comprising a shell having a mud-drum in its base and a combustion-chamber above the mud-drum, said mud-drum being 95 extended beyond the outer walls of the shell, a steam-drum extending through the combustion-chamber and beyond its outer walls,

a tubular coil within the combustion-chamber connecting the steam and mud drums, and a conduit at the outside of the combustion-chamber connecting the outwardly-  
5 extending portions of the steam and mud drums.

2. A boiler comprising a combustion-chamber, a mud-drum beneath the combustion-chamber, a steam-drum extending through  
10 the combustion-chamber, said drums being united at the outside of the walls of the combustion-chamber, and a tubular coil within the combustion-chamber and detachably united to said drums at points outside of the  
15 combustion-chamber.

3. A boiler comprising a shell having a mud-drum in its base and a combustion-chamber above the mud-drum, a steam-drum extending through the combustion-chamber, and a  
20 tubular coil connected to the mud-drum and detachably united to the steam-drum at a point outside of said shell.

4. A boiler comprising a shell having a combustion-chamber, a mud-drum extending through the base of the shell beneath the  
25 combustion-chamber and beyond the outer walls of the shell, a steam-drum extending through the combustion-chamber and beyond the outer walls of the shell, a series of tubular coils having their lower ends detachably  
30 connected to the mud-drum at a point beneath the combustion-chamber and their upper ends extended through the walls of the shell and detachably united to the steam-drum at a point outside of the shell, and con-  
35 duits detachably uniting the outwardly-extending portions of said drums.

In witness whereof I have hereunto set my hand this 22d day of February, 1900.

FRED BENNETT.

Witnesses:

FRANK STEWART,  
RALPH G. KILMER.

It is hereby certified that Letters Patent No. 666,341, issued January 22, 1901, upon the application of Fred Bennett, of Binghamton, New York, for an improvement in "Steam-Boilers," was erroneously granted to "William P. Kennedy, as administrator;" that said Letters Patent should have been granted to said *William P. Kennedy, as executor*; and that the said Letters Patent should be read with this correction therein that that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 19th day of February, A. D., 1901.

[SEAL.]

F. L. CAMPBELL,  
*Assistant Secretary of the Interior.*

Countersigned:

C. H. DUELL,  
*Commissioner of Patents.*