

(No Model.)

2 Sheets—Sheet 1.

R. F. WALSH.
WATER HEATER.

No. 480,913.

Patented Aug. 16, 1892.

Fig. 1.

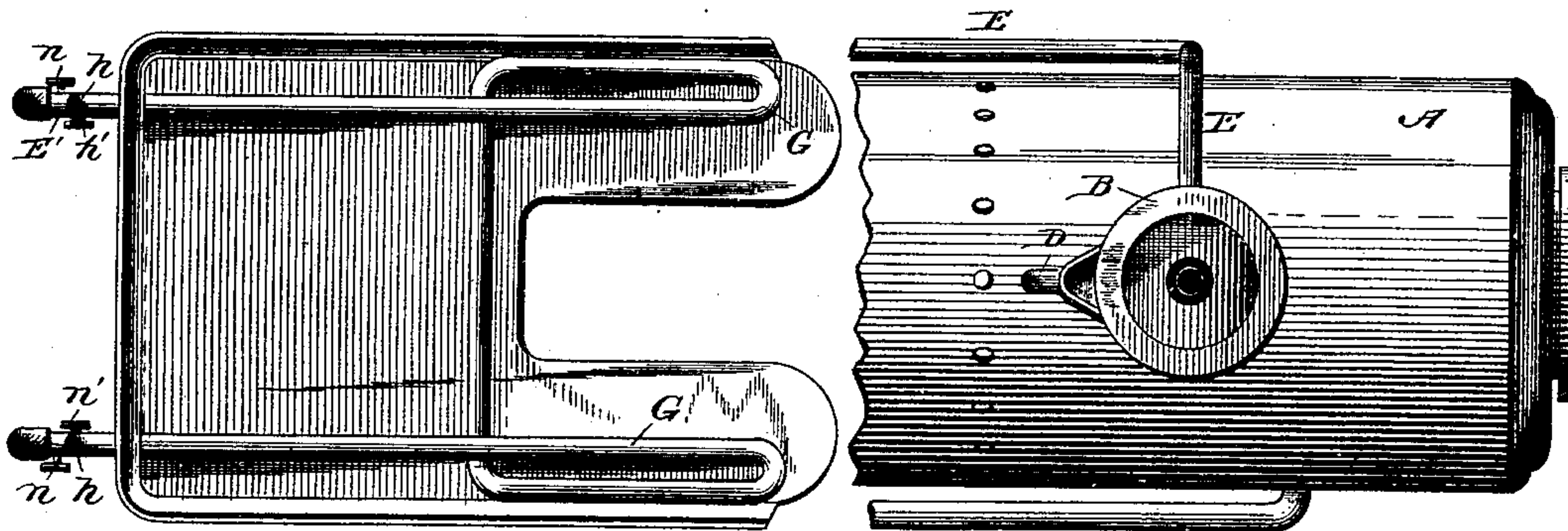
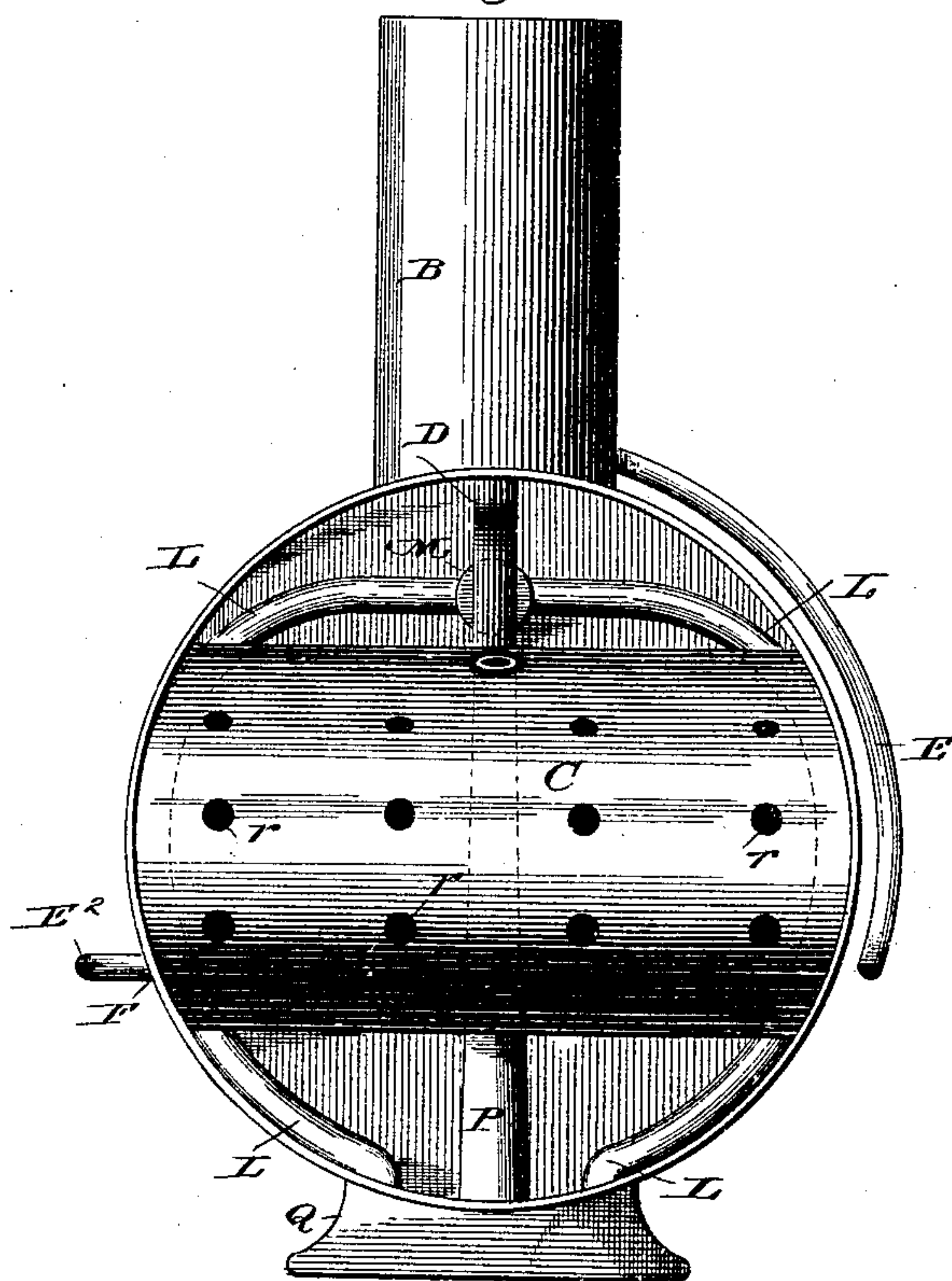


Fig. 2.



Witnesses:

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Inventor:

Robert F. Walsh
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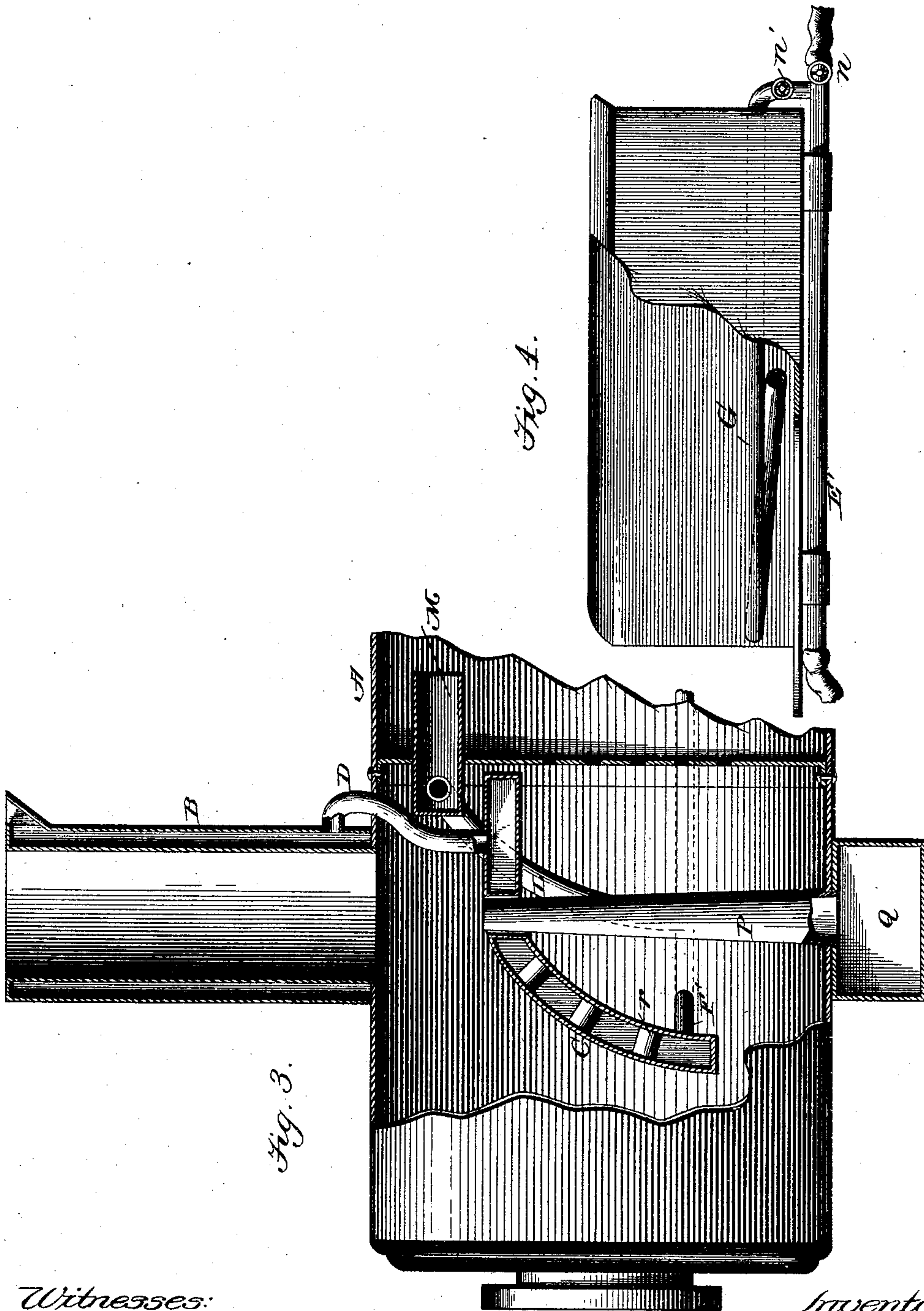
(No Model.)

2 Sheets—Sheet 2.


R. F. WALSH.
WATER HEATER.

No. 480,913.

Patented Aug. 16, 1892.



Witnesses:
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Frank H. Thatcher.

 Inventor:
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UNITED STATES PATENT OFFICE.

ROBERT FRANCIS WALSH, OF PEORIA, ILLINOIS.

WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 480,913, dated August 16, 1892.

Application filed February 10, 1892. Serial No. 420,971. (No model.)

To all whom it may concern:

Be it known that I, ROBERT FRANCIS WALSH, a citizen of the United States of America, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Water-Heaters, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to water-heaters, and belongs to the class in which water is made the vehicle for conveying and distributing the heat to distant compartments.

The object of my invention is to provide a safe, clean, and economical means for heating railway-coaches; and it consists in the means of utilizing the heated products of combustion as they pass from the furnace and flues of a locomotive-boiler to the smoke-stack for the purpose of heating water with which to heat the coaches.

It further consists in jacketing the smoke-stack and combining it with the other parts, so that the water may receive additional heat while on its way to the coach-pipes.

It further consists in providing means to keep the water in circulation after the furnace has been fired but before the coaches have been connected; and it further consists of the combination and arrangement of the several parts for accomplishing the end desired.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view showing the tender and a portion of a locomotive-boiler with my improvements attached. Fig. 2 is a front elevation of a locomotive-boiler, the end being removed to show my improvements in position. Figs. 3 and 4 are side elevations of a part of the boiler and tender, a portion of each being broken away to show my improvements connected therewith.

Like letters of reference indicate corresponding parts in the several views.

A indicates the front part of an ordinary locomotive-boiler, the smoke-stack B being made double and the intervening space being filled with water. Inside the boiler and in front of the flues I locate a water-box C and connect the same with the water-jacket of the smoke-stack by means of a pipe D. The wa-

ter in the box C is heated by the hot vapors as they issue from the flues after they have served the usual purpose of generating steam for the engine. The water-jacket of the smoke-stack B is connected with the train-pipe by means of a pipe E, (see Figs. 1 and 2,) this pipe passing down and along the side of the boiler to the tender, where it connects with the train-pipe E' by means of a hose or other suitable coupling and the water is thus passed from the boiler to the coaches or the tender, as occasion may require. If to the coaches, it passes through the pipes E' upon one side and is returned by way of pipes E² on the opposite side, entering the boiler at F and connecting with the water-box C at F'. (See Figs. 2 and 3.) A coil of pipe G is located in the tender and connected with the train-pipes E' E² at h h'. Each of the pipes are provided at the point h h' with cocks n n'. The purpose for which this coil of pipe and the cocks are used is that when the tender is disconnected from the train the cocks n are turned so as to prevent the water from wasting and to compel it to circulate through the coil G on the turning of cocks n'. This allows the water to circulate in the coil and to be cooled sufficiently to prevent its being turned into steam. When the coaches are connected, the position of these cocks will be reversed and the water passed through the coach-pipes without entering the coil G in the tender.

The water-box C is provided with a series of tubes or flues r, which pass through the water and give a greater heating-surface and at the same time permits the smoke and other products of combustion to pass readily off to the smoke-stack.

The pipes L and M are those ordinarily used to convey live steam from the boiler to the cylinders, and the box Q and exhaust P are the same as those usually found in locomotives and are only introduced here to better illustrate the location and arrangement of my improvements.

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

The water-box C, located in front of the boiler-flues, a jacketed smoke-stack over said

box, and a pipe connecting the box and jack-
eted smoke-stack, in combination with the
pipe E, leading from the smoke-stack to the
tender, and the pipes E' E², leading to the
5 tender and train for the circulation of the
heated water, and the coil G within the tender,
and the cocks *n n'*, by which the water is cut
off from the train and made to circulate

through the coil, substantially as described,
and for the purpose set forth. 10

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

ROBERT FRANCIS WALSH.

Witnesses:

JOHN PURCELL,

JAMES O'KEEFE.