

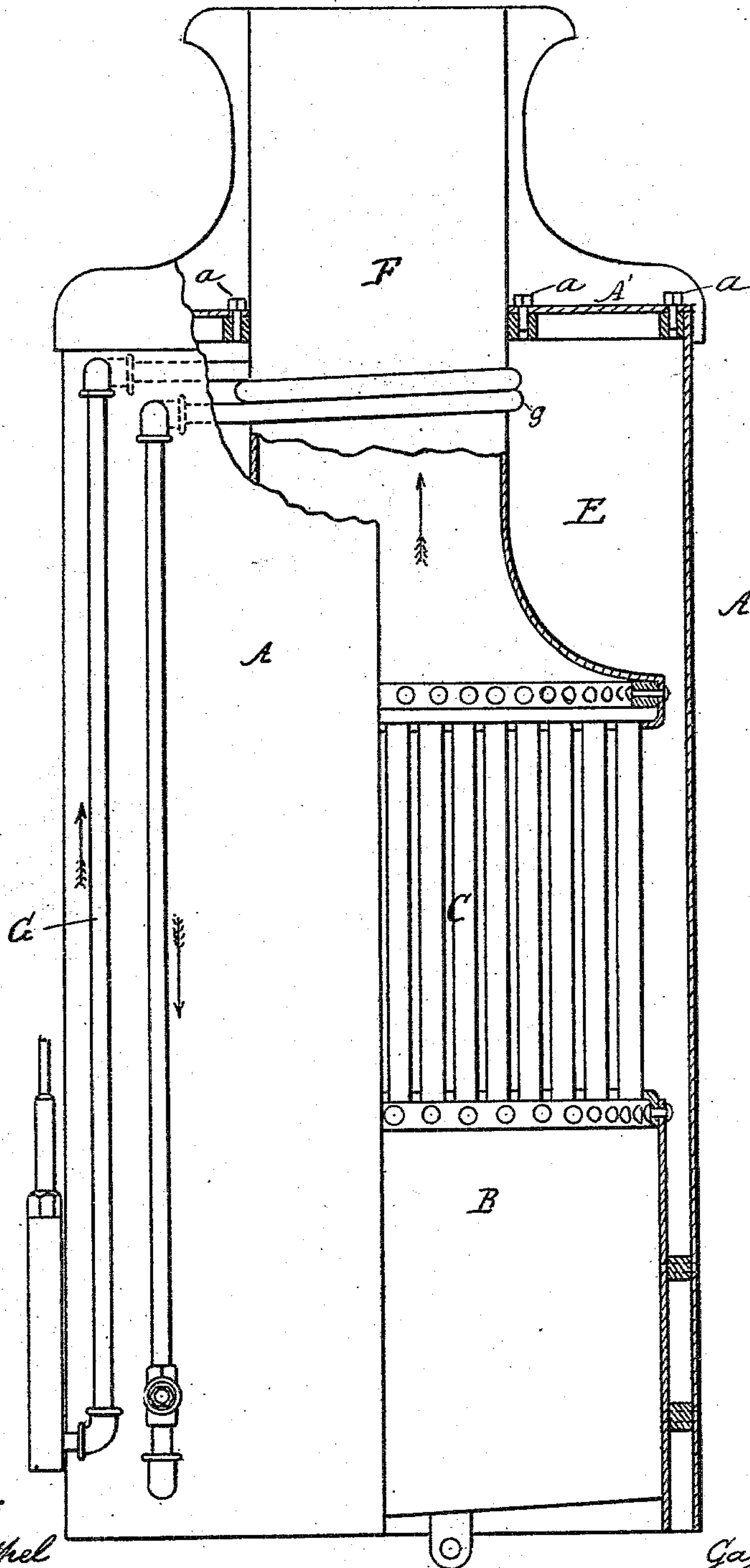
(No Model.)

G. L. TUCKER.

MEANS FOR HEATING FEED WATER.

No. 287,982.

Patented Nov. 6, 1883.



Attest:
A. Parthel
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UNITED STATES PATENT OFFICE.

GAYLON L. TUCKER, OF DETROIT, MICHIGAN, ASSIGNOR OF TWO-THIRDS
TO JAMES BATTLE, OF SAME PLACE.

MEANS FOR HEATING FEED-WATER.

SPECIFICATION forming part of Letters Patent No. 287,982, dated November 6, 1883.

Application filed August 1, 1883. (No model.)

To all whom it may concern:

Be it known that I, GAYLON L. TUCKER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful
5 Improvements in Means for Heating Feed-Water; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, which forms a part of this
10 specification.

This invention relates to certain new and useful improvements in the means for heating water to be supplied to boilers, by means of which the heaters ordinarily employed
15 are dispensed with and a supply of water furnished to the boiler at a very high temperature.

A steam fire-engine on leaving its engine-house upon an alarm will carry, for instance,
20 three gages of water in her boiler. The engineer, in his uncertainty as to the length of the run before reaching the fire, and of the means for securing a further supply of water for his boiler, dare not, as a matter of
25 safety, force his steam high enough to obtain a sufficient working-pressure. Consequently on arriving at the place where his engine is required to do first-class duty his steam is not in a condition to work his engine to her
30 full capacity. He obtains a supply of water, which, by means of his pump, is forced into the boiler cold, thereby rapidly reducing his steam-pressure until the same has been regained by extra firing. This is one of the
35 many places where it will be found very desirable to adopt my system of water-heating.

In the accompanying drawing, which forms a part of this specification, A represents an upright tubular boiler—such as is usually at-
40 tached to steam fire-engines—although I do not propose to confine myself to this class of boilers, but to adapt my improvement to all classes of boilers.

B is the fire-box; C, the flues; E, the super-
45 heated-steam space, and F the smoke-stack, all constructed in the usual way.

G is a pipe provided at its lower end with suitable means for coupling the same to a force-pump. This pipe enters the super-

heated-steam space of the boiler, and is coiled 50
one or more times around the smoke-stack, as shown at *g*, and let down to near the bottom of the boiler, and its opposite end carried through the shell of the same. The water is
55 pumped into this pipe, through which it is fed to the boiler, being very highly heated in its passage through the coil around the smoke-stack in the superheated-steam space. By this method of heating the water to a
60 high temperature before it enters the boiler steam is very easily kept up to any desired pressure without any additional expenditure for fuel, and will be found of great utility in enabling the engineer to keep his steam at
65 the desired pressure without the variations which occur in injecting cold water into the boiler.

I am aware that it is not new to provide a steam-boiler with an annular chamber in the steam-space surrounding the smoke-stack, 70
whereby water is heated before entering the boiler, and that pipes for heating feed-water by the exhaust-steam have been coiled around the smoke-pipe without touching it, and therefore do not claim such constructions. 75

I deem it important that a pipe formed independent of but coiled around the smoke-stack be used, for by this construction the water is very highly heated before entering the boiler, and the rapid passage of the wa- 80
ter through the pipe tends to always keep the pipe clear of sediment, and thus prevent any formation of scale on the inside of the pipe.

In order that the coil may be easily and 85
readily cleaned or repaired when necessary, I secure the head A' to the boiler A by a series of bolts, *a*. When it is required to clean or repair the coil *g*, all that is necessary to be done is to withdraw the bolts and remove the 90
head, as will be readily understood.

What I claim as my invention is—

1. In combination with a steam-boiler and the smoke-stack thereof, the pipe G, formed independent of but coiled around and in con- 95
tact with the smoke-stack within the steam-space of said boiler, and having one of its ends connected to the boiler and the other end to

the feed apparatus, substantially as and for the purpose specified.

2. In combination with a steam-boiler having removable head, and the smoke-stack
5 thereof, the pipe G, formed independent of but coiled around and in contact with the smoke-stack within the steam-space of said boiler, and having one of its ends connected

to the boiler and the other end to the feed apparatus, substantially as and for the purpose so specified.

GAYLON L. TUCKER.

Witnesses:

E. SCULLY,

H. S. SPRAGUE.