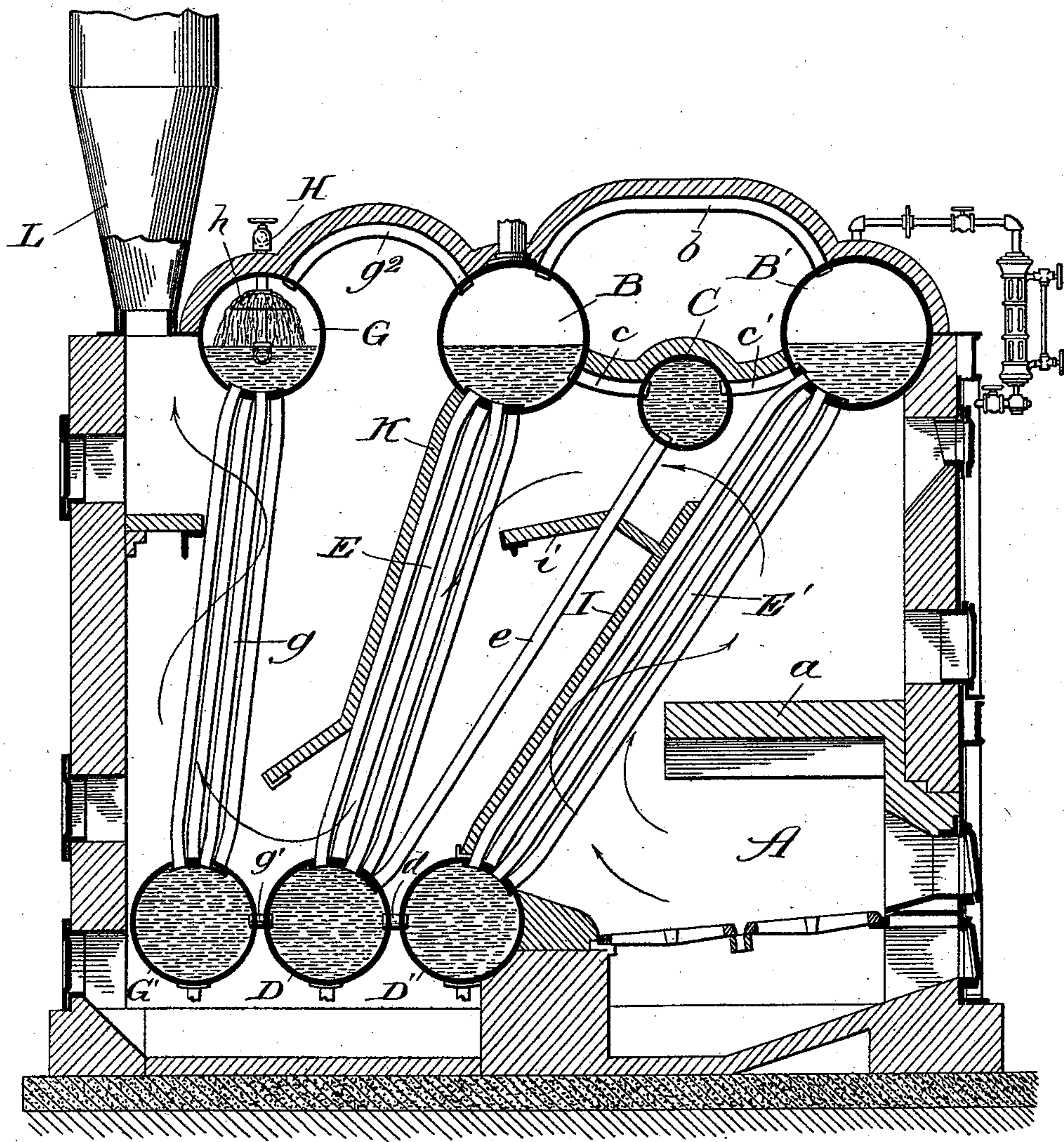


(No Model.)

J. E. SCHLIEPER.
STEAM BOILER.

No. 526,947.

Patented Oct. 2, 1894.



Witnesses:
E. E. Gaylord
Lute L. Alter

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UNITED STATES PATENT OFFICE.

JOHN E. SCHLIEPER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE
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STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 526,947, dated October 2, 1894.

Application filed June 28, 1894. Serial No. 516,010. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. SCHLIEPER, of
Pittsburg, Pennsylvania, have invented a new
and useful Improvement in Steam-Boilers, of
5 which the following is a specification.

The object of my invention is to improve
the Stirling boiler; and the invention consists
in the features and combinations hereinafter
described and claimed.

10 The accompanying drawing represents a
vertical section taken through the fire box
from front to rear of my improved boiler.

In constructing my improved boiler, I pro-
vide a fuel chamber, A, of any desired form
15 and size, preferably covering it with an arch,
a, which also acts to deflect the heated gases
and products of combustion into the furnace
chamber, or boiler proper, for the purpose of
raising the temperature and generating steam
20 therein.

Arranged in the upper part of the boiler
are two large steam and water drums, B B',
which have steam communication by means
of the pipe, b, and water communication
25 through a secondary water drum, C, by means
of the pipes, c c'—these connecting pipes be-
ing direct or circuitous as desired. The sec-
ondary water drum, which may be of any de-
sired size, is preferably placed at a lower level
30 than the main steam and water drums, so as
to reduce the water level therein and thus
prevent priming or foaming. It also provides
additional heating surface and aids in regu-
lating the circulation.

35 Arranged in the lower part of the boiler are
two mud drums, D D', having water com-
munication with each other by means of the
pipe, d, which may be direct or circuitous as
desired. The rear elevated steam and water
40 drum, B, is connected with the lower mud
drum, D, by means of a bank of tubes, E, and
the front elevated steam and water drum, B',
is connected with the front lower mud drum,
D', by means of a bank of tubes, E', while the
45 secondary elevated water drum is connected
with one of the lower mud drums, preferably
the middle one, by means of a series of
tubes, e.

50 The feed water is introduced through an
elevated feed water drum, G, which is con-
nected with a rear lower mud drum, G', by

means of a bank of tubes, g, so that water may
pass from the elevated feed drum into the
rear lower mud drum. This rear mud drum
has communication with the forward mud 55
drum or drums by means of a tube or series
of tubes, g', this communication being direct
or circuitous as desired. The elevated feed
water drum also has steam communication
with the forward elevated steam and water 60
drums, by means of a tube or tubes, g², which
furnish an outlet for steam generated therein
and in the rear bank of tubes. Water is sup-
plied to the elevated feed water drum, from
any suitable source of water supply, by means 65
of a supply pipe, H, which may be provided
with a disk, h, inside the drum, for the pur-
pose of separating the water and conducting
it to the sides of the drum.

The front bank of tubes may be provided 70
with a baffle plate, I, for the purpose of guid-
ing the heated gases and products of combus-
tion up through the tubes, until it contacts
both the elevated water and steam drums and
the secondary water drum. This front baffle 75
plate may have an extended portion, i, to di-
rect the heated gases around the tubes ex-
tending down from the secondary drum as
they pass to the second bank of tubes, behind
which is arranged another deflecting plate, K, 80
which extends down almost to the lower mud
drum, so as to deflect or guide the heated
gases or products of combustion down through
such bank of tubes until they contact the
lower mud drums, after which they may pass 85
up through the rear bank of tubes, and out
through the chimney or stack, L.

In operation, the water enters the upper
feed drum and passes down into the rear mud
drum, being slightly warmed or heated in its 90
passage, so that a portion of its sediment may
be precipitated before it passes into general
circulation. The water then passes on into
the forward mud drum or drums, up into the
elevated drums, across from one drum to an- 95
other, down again to the mud drums, and so
on continuously—allowance being of course
made for evaporation. During this general
circulation, the secondary drum, being so ar-
ranged that a large part of the water passes 100
through it, performs the functions above
stated—reduces the water level, aids in regu-

lating the circulation and in preventing foaming or priming, and increases the heating surface.

5 The secondary elevated drum being capable of use in other positions and relations, it will of course be understood that I do not intend to limit myself to its use in the particular combination described. On the contrary, I
10 contemplate using it in any position or combination in which it may be found applicable; and, generally, I contemplate changing form and construction and omitting parts or using equivalents, as circumstances may suggest or render expedient.

15 I claim—

1. In a water tube boiler, a secondary drum having water communication with elevated steam and water drums and a lower mud drum, substantially as described.

20 2. In a water tube boiler, the combination of two elevated steam and water drums having communication with each other, a secondary drum arranged at a lower level than the elevated steam and water drums and having

water communication therewith, a lower mud 25 drum or drums having water communication with the elevated steam and water drums, and means for supplying and feeding water into the lower mud drum or drums, substantially as described.

3. In a water tube boiler, the combination 30 of two elevated steam and water drums having communication with each other, a secondary drum placed at a lower level than the elevated steam and water drums and having 35 water communication therewith, an elevated feed water drum, a front lower mud drum or drums having water communication with the elevated steam and water drums, and a rear 40 lower mud drum having water communication with the elevated feed drum and with the front mud drum or drums, substantially as described.

JOHN E. SCHLIEPER.

Witnesses:

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