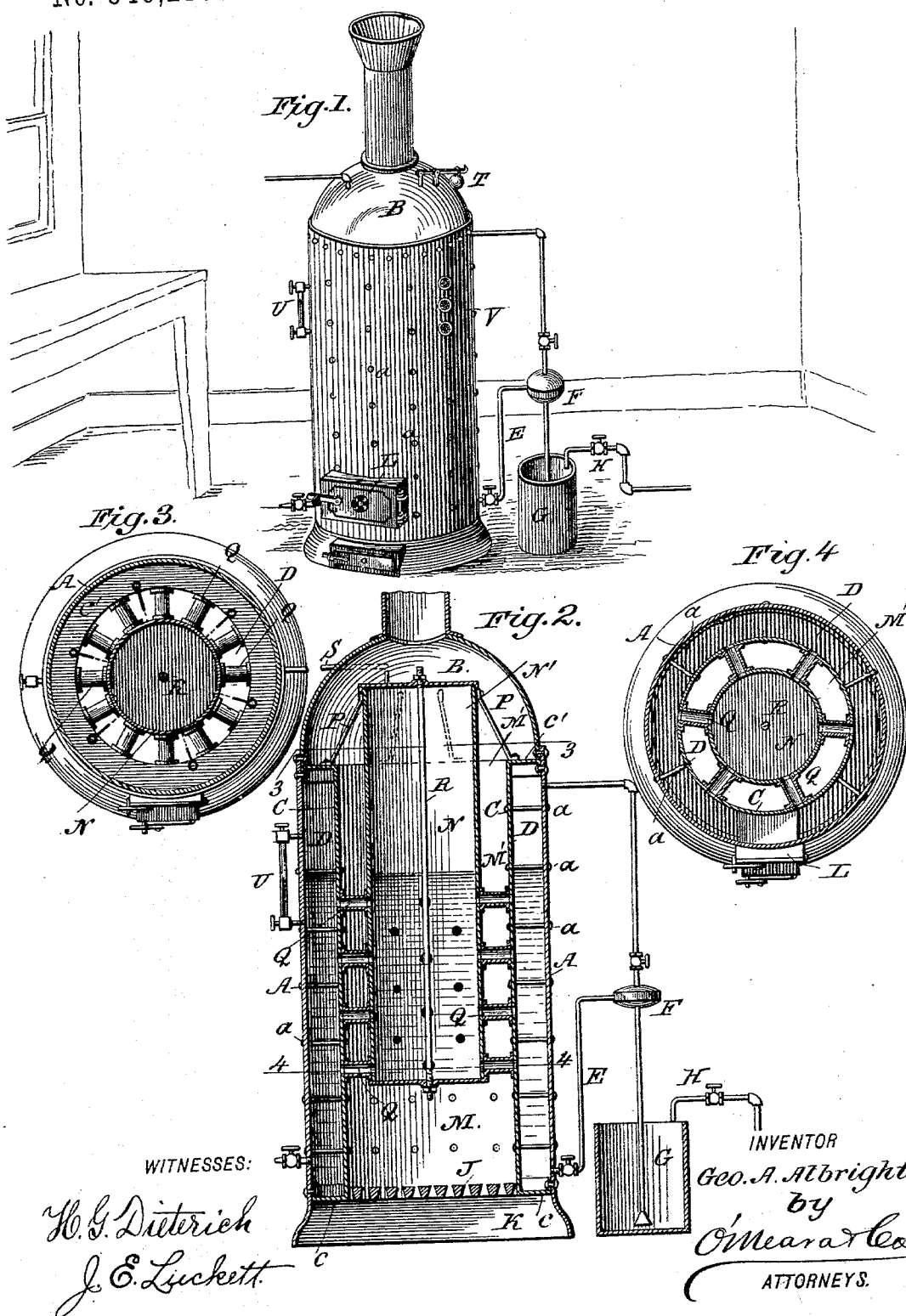


(No Model.)

G. A. ALBRIGHT.  
BOILER.

No. 546,215.

Patented Sept. 10, 1895.



# UNITED STATES PATENT OFFICE.

GEORGE A. ALBRIGHT, OF BURLINGTON, NORTH CAROLINA.

## BOILER.

SPECIFICATION forming part of Letters Patent No. 546,215, dated September 10, 1895.

Application filed June 25, 1895. Serial No. 553,993. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE A. ALBRIGHT, residing at Burlington, in the county of Alamance and State of North Carolina, have invented certain new and useful Improvements in Boilers, of which the following is a specification.

My invention relates more particularly to upright boilers, and it primarily has for its object to provide a boiler of this kind of a simple, strong, durable, and economical construction.

My invention also has for its object to provide a boiler of this kind having an internal steam-collecting cylinder arranged and connected in such a manner with the main water jacket or space that the steam will be fed to the engine in a dry or superheated form.

With other objects in view, which will hereinafter be referred to, the invention consists in the peculiar combination and novel arrangement of parts hereinafter first described in detail and then specifically pointed out in the appended claim, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved boiler. Fig. 2 is a vertical longitudinal section thereof. Fig. 3 is a horizontal section taken on the line 3 3 of Fig. 2. Fig. 4 is a similar view taken on the line 4 4 of Fig. 2.

Referring to the accompanying drawings, in which the same letters indicate like parts in all the figures, A indicates the outer shell of the boiler, the upper end of which connects with a dome-section B, as shown.

C indicates an inner shell or cylinder, which has an annular base member c and an upper annular member c', which members c and c' are riveted to the outer shell, as most clearly shown in Fig. 2. By reference to such Fig. 2 it will be seen the inner shell C extends from near the bottom of the outer shell, up to the upper end thereof, and with such shell it forms the outer or water jacket or chamber D, which is fed by the supply-pipe E, injector F, reservoir G, and supply-pipe H, arranged in the ordinary manner.

J indicates a grate at the bottom of the inner cylinder or shell, and K the ash-pit, which extends the full internal diameter of the outer shell.

L indicates the door for the fire-chamber,

which chamber comprises a fire-pot proper M, disposed below a supplemental internal cylinder N, and the annular vertical heat-space M', which surrounds the cylinder N and communicates with the dome-space B. The cylinder N, it will be noticed, projects above the outer or main water-space up into the dome-space, as indicated by N', and is secured at such end by the stay-braces P P, which are secured to such end and the top of the main jacket, as clearly shown in Fig. 2. The lower portion of the cylinder N communicates with the outer water-jacket by a series of horizontal tubular braces Q, arranged in tiers, each tier being disposed alternately over the other, whereby they will serve to project over the fire-view to obtain the greatest heat-area, such tubular braces in practice being made heavy enough to effectively support and brace the lower end of the said internal cylinder N.

R indicates a stay bolt, which braces the top and bottom plates of the cylinder N.

S indicates the steam-outlet pipes, T the weight or prop-valve, U the water-gage, and V the gage-cocks, all of which are of the ordinary construction.

From the foregoing description, taken in connection with the drawings, it will be readily seen that my improved boiler is composed of a few parts simply and economically arranged. It will also be observed that by arranging the inner and outer water cylinders or jackets as shown a maximum of heat-surface is attained, which is so distributed as to produce a quick steam-generating action with a minimum amount of fuel consumption. Furthermore, the tubular braces form a convenient and simple way of connecting the two water-jackets and bracing the inner jacket.

By extending the inner cylinder above the outer or main water-space, a supplemental steam-space is provided, which, owing to its peculiar relation with the fire-chamber, the outer dome-space, and the outer water-jacket, will serve to subject the collected steam to a superheated action, thereby turning the steam in such upper end to dry steam before it passes off into the pipe S. To strengthen the outer jacket or cylinder D, the outer and inner walls thereof are connected by a series of horizontal stay-bolts a a, as clearly shown in Fig. 2, in the practical construction one of such bolts

being used between each pair of tubular braces. By providing such stay-bolts the outer jacket or cylinder will be strong enough to withstand a very high pressure of steam.

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

10 The hereinbefore described boiler comprising an outer casing having an annular water jacket on its internal face, a dome member extended over the water jacket, a grate disposed over the lower end of the internal space formed by the annular water jacket, an inter-

nal cylinder N, having the lower end held in the fire pot and its upper end extended above 15 the outer water jacket and into the dome space, the horizontal tubular braces Q connecting the outer water jacket and cylinder N, the braces P, the steam pipe S, and the feed devices all arranged substantially as 20 shown and for the purposes described.

GEORGE A. ALBRIGHT.

Witnesses:

JAS. P. ALBRIGHT,  
A. TATE.