

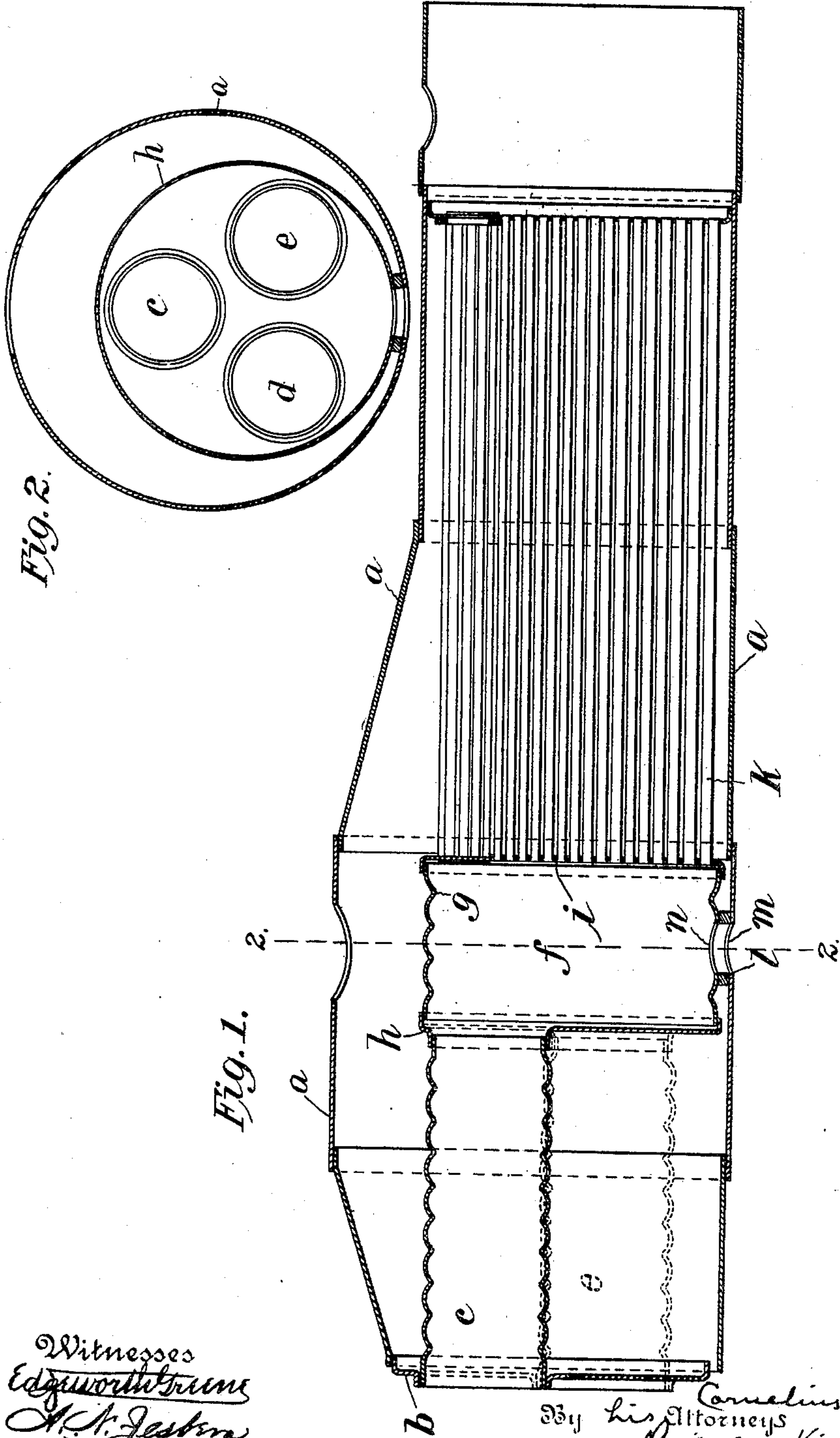
No. 707,657.

Patented Aug. 26, 1902.

C. VANDERBILT.  
LOCOMOTIVE BOILER.

(Application filed Mar. 3, 1902.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## LOCOMOTIVE-BOILER.

SPECIFICATION forming part of Letters Patent No. 707,657, dated August 26, 1902.

Application filed March 3, 1902. Serial No. 96,499. (No model.)

*To all whom it may concern:*

Be it known that I, CORNELIUS VANDERBILT, a citizen of the United States, residing in the borough of Manhattan, city and State of New York, have invented certain new and useful Improvements in Locomotive-Boilers, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

10 This invention relates particularly to locomotive or other boilers which are adapted for the use of oil as fuel and in which, therefore, two or more furnaces or furnace-flues communicate with a common combustion-chamber, from which the tubes extend forward, as usual.

15 The invention is particularly concerned with the furnaces and combustion-chamber, and has for its object to provide a structure which shall be sufficiently strong to resist the pressure within the boiler without the use of stay-bolts.

20 The invention will be fully described hereinafter with reference to the accompanying drawings, in which—

25 Figure 1 is a longitudinal central section of enough of a boiler to illustrate the application of the present improvement thereto. Fig. 2 is a transverse section on the line 2 2 of Fig. 1 looking toward the rear.

30 The boiler-shell *a* may be of any suitable form, that represented in the drawings being well adapted for the particular use for which the boiler is intended. To the rear end of the shell the rear head *b* is secured in any suitable manner and itself receives and supports the rear ends of the cylindrical corrugated furnaces or furnace-flues *c*, *d*, and *e*. Forward of the furnaces or furnace-flues is located the cylindrical combustion-chamber *f*, which is made up of a cylindrical corrugated shell *g*, a flat circular rear head *h*, which receives and supports the forward ends of the furnaces or furnace-flues *c*, *d*, and *e*, and the tube-sheet *i*, in which the rear ends of the tubes *k* are secured as usual. The cylindrical combustion-chamber is supported upon

the bottom of the boiler-shell *a*, as by a filling-piece *l*, secured between the shell *g* of the combustion-chamber and the boiler-shell *a*, around registering openings *m* and *n*, formed in the shell *a* and in the shell *g*, respectively.

As the combustion-chamber *f* is cylindrical and corrugated, it is sufficiently strong to withstand the pressure in the boiler without the use of stay-bolts, which are commonly employed between the fire-box and the boiler-shell and are essential when the fire-box or combustion-chamber is made in the form hitherto usual. Furthermore, the cylindrical form of the combustion-chamber permits the arrangement of the furnaces or furnace-flues shown in the drawings, two being below the third, which is centrally disposed, all of the flues being located within the circumference of the rear head of the combustion-chamber. This arrangement is obviously advantageous in the generation of steam. The cylindrical form of the combustion-chamber also permits the furnaces or furnace-flues to have a large diameter, while the rear head of the combustion-chamber is supported by the furnace-flues in such a manner as to be capable of withstanding the pressure in the boiler.

I claim as my invention—

In a locomotive-boiler, the combination with the boiler-shell and rear head, of a cylindrical, corrugated combustion-chamber having a flat circular rear head and three cylindrical, corrugated furnace-flues communicating with the combustion-chamber and supported by the rear head of the combustion-chamber and the rear head of the boiler and located within the circumference of the rear head of the combustion-chamber, one of the furnace-flues being disposed above and between the other two, substantially as shown and described.

This specification signed and witnessed this 1st day of March, A. D. 1902.

CORNELIUS VANDERBILT.

In presence of—

EDWIN C. FARLOW,  
LOUIS A. SHEPARD.