

No. 667,718.

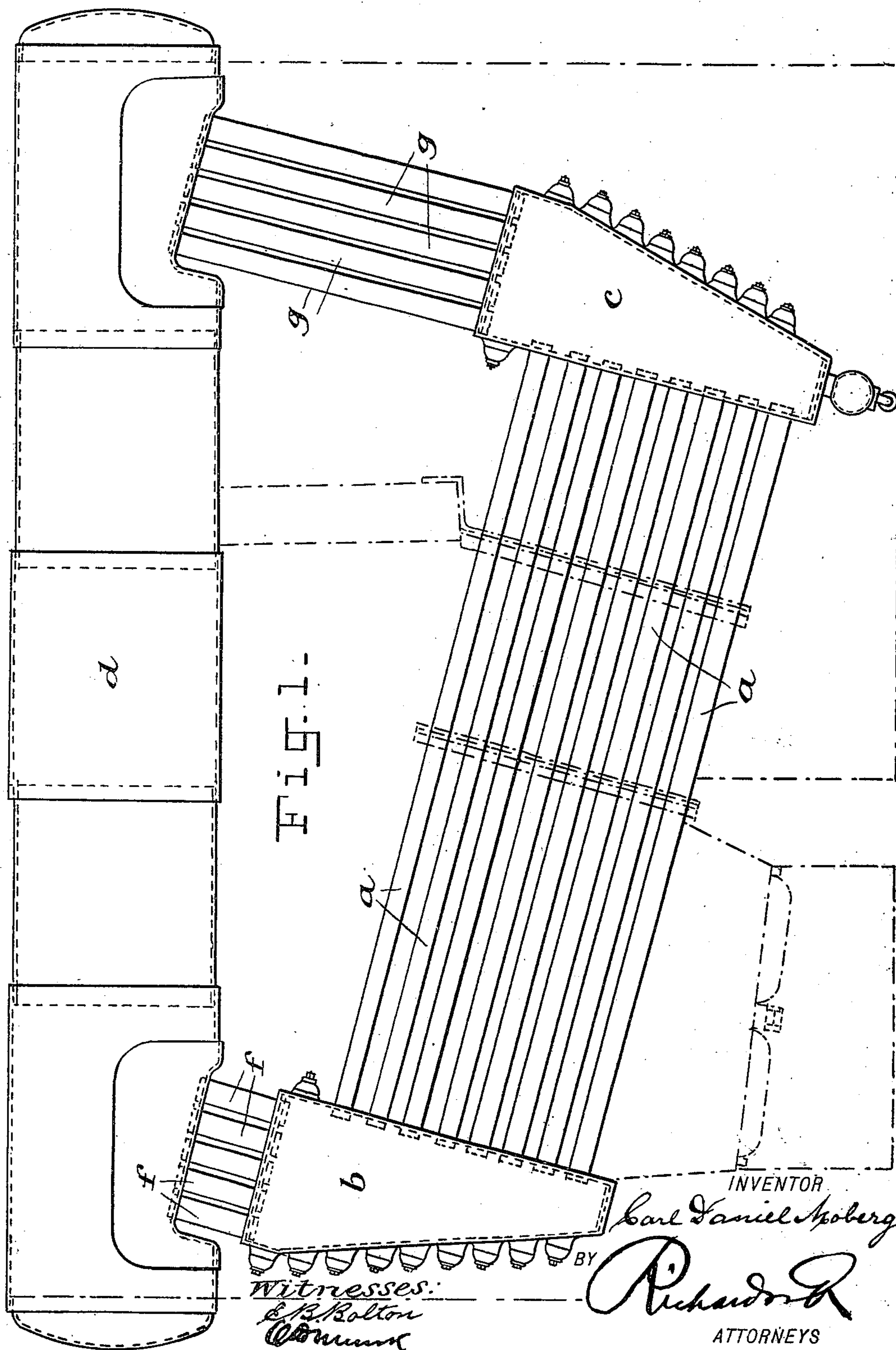
Patented Feb. 12, 1901.

C. D. MOBERG.  
STEAM BOILER.

(Application filed Dec. 20, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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Fig. 2.

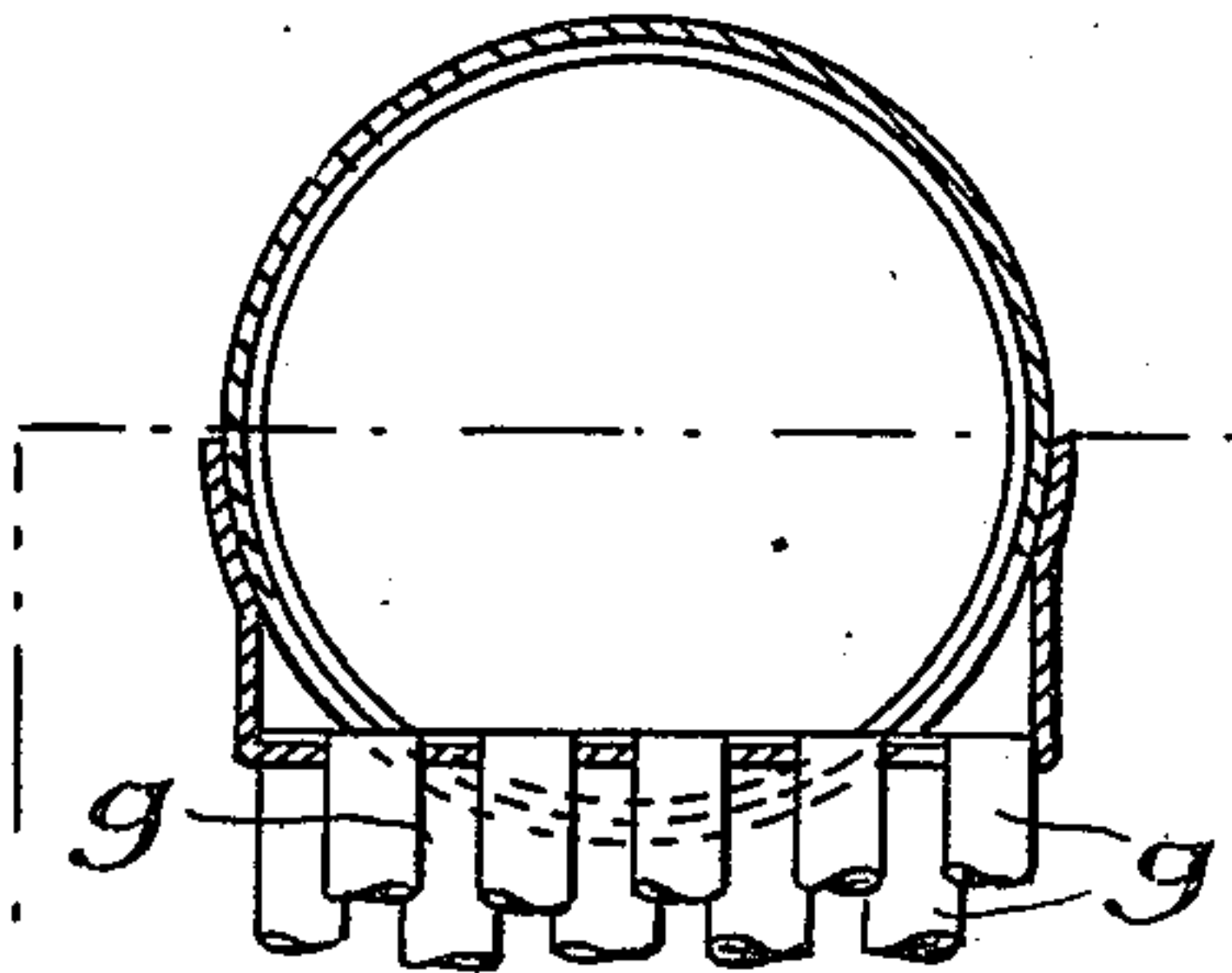


Fig. 3.

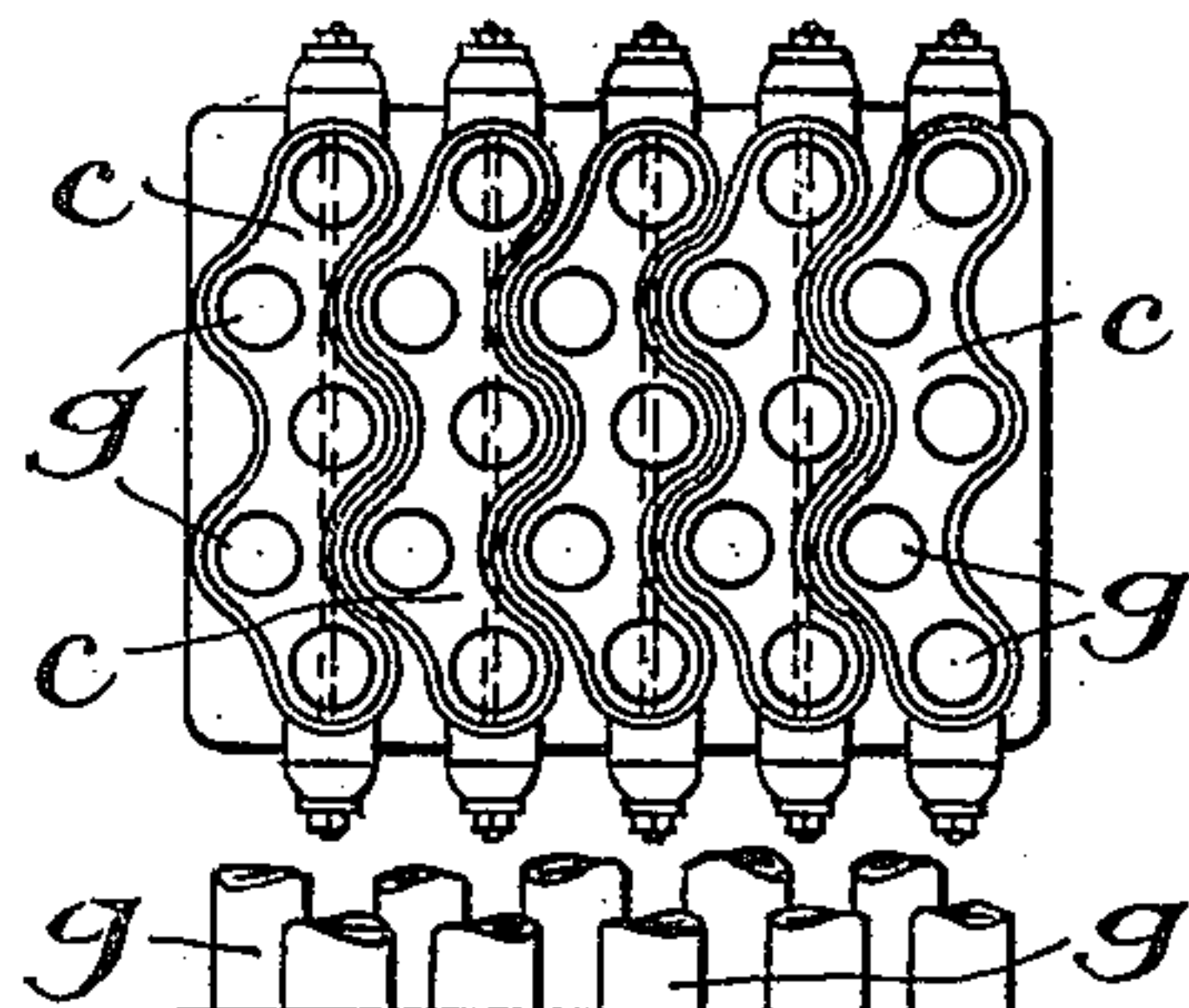
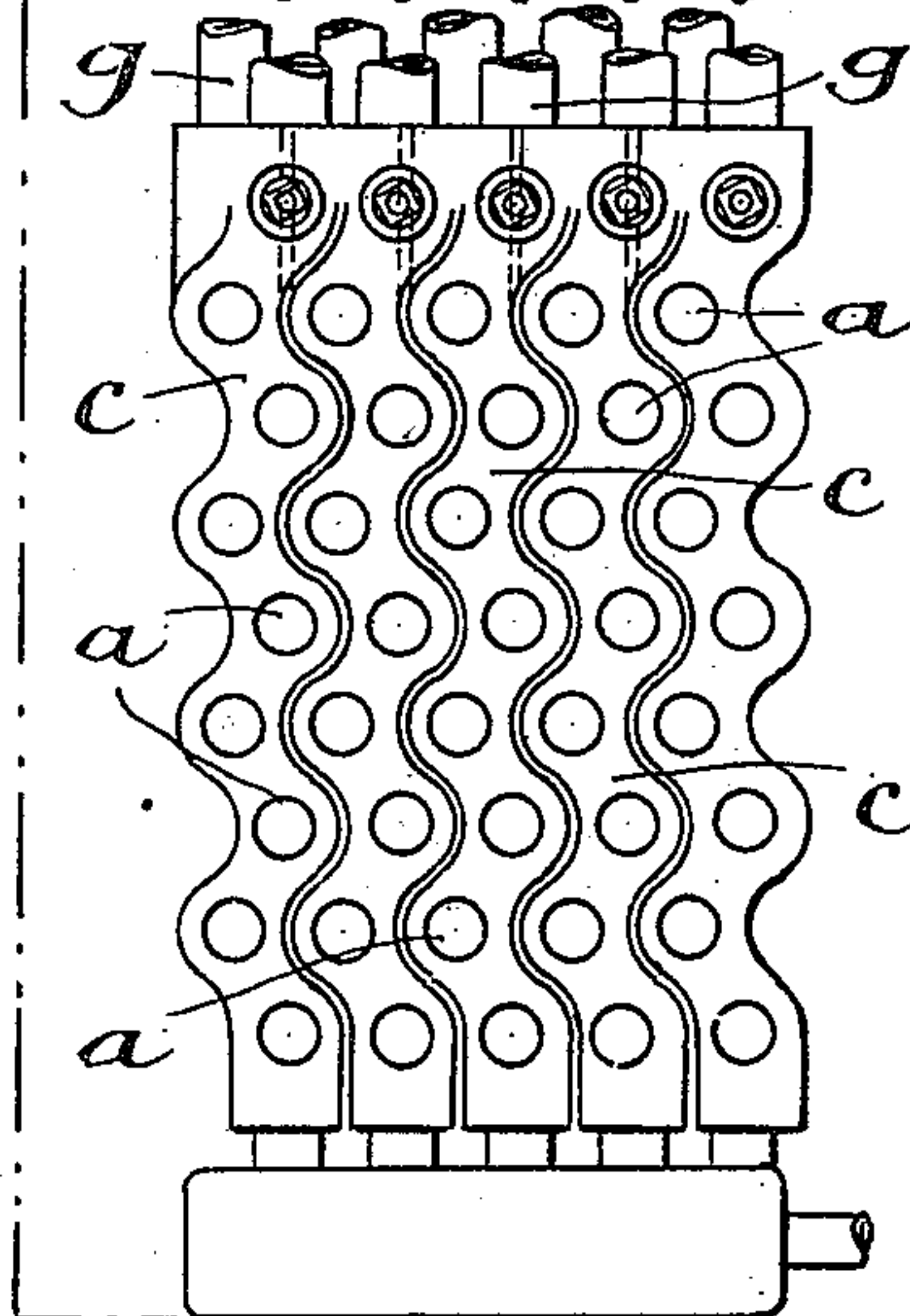


Fig. 4.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CARL DANIEL MOBERG, OF NORRKÖPING, SWEDEN.

## STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 667,718, dated February 12, 1901.

Application filed December 20, 1899. Serial No. 741,046. (No model.)

*To all whom it may concern:*

Be it known that I, CARL DANIEL MOBERG, mechanical engineer and general manager, a subject of the King of Sweden and Norway, and a resident of Norrköping, in the Kingdom of Sweden, have invented certain new and useful Improvements in Water-Tube Steam-Boilers, (for which I have filed application for patent in Sweden the 23d day of June, 1899, under No. 1,100, and in Germany the 31st day of July, 1899, M. 17,098, Vol. 13,) of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to an improved construction of boilers which include a water-and-steam drum connected to the headers of the water-tubes arranged below the same. With the construction of such boilers hitherto usual each header has been connected with the drum by means of a single pipe, which thus acts as the means of communication with as well as from said drum for all the tubes terminating in the headers. Said pipe does not form a sufficiently wide connection between the drum and headers, and for this reason the circulation intended to be effected by the arrangement referred to will be materially interfered with. The present invention has for its purpose to overcome this disadvantage by placing several connecting-pipes between the headers and the steam-and-water drum. By this means the additional advantage is gained that the furnace-gases, which in discharging flow past the rear ones of the upwardly-directed pipes mentioned, will be brought in contact with a greater number of pipes than heretofore, whereby a better utilization of the heat of the gases will result.

The drawings annexed show a boiler of the system referred to, viewed in Figure 1 from one side and in Fig. 2 in a transverse section. Fig. 3 represents a transverse section of the uptake-pipes. Fig. 4 is an elevation of the lower part.

The water-tubes *a* have a slightly-inclined position, as usual, and are arranged zigzag in groups. The tubes belonging to the same group enter at the front end in one common header *b* and at the back in a similar one *c*.

The headers mentioned are made widening toward the top in the direction parallel to the tubes *a* and are placed in communication with the drum *d* by means of several pipes *f* and *g*, which are likewise arranged zigzag, as seen from Fig. 3. The number of pipes *f* and *g* is for each chamber or box suited to the number of tubes *a* entering the chamber or box, so that the circulation can take place unimpeded in the usual direction—*i. e.*, upward in the pipes *f* and downward in pipes *g*. By the construction described a quiet circulation and more dry steam are produced, in view of the fact that no rush of steam mingled with foam need occur in the pipes *f* and *g*, as compared with using one such pipe (*f* or *g*) only. Besides, an advantageous preliminary heating of the water is attained when the latter descends through the pipes *g*, which are surrounded by the furnace-gases. The headers *b c* comprise a series of narrow chambers or boxes, as shown in Figs. 2 and 3.

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

1. In a steam-boiler with water-tubes and the drum *d*, the combination of headers into which the water-tubes enter, comprised of a series of narrow chambers or of pipes *f* for each of the last-mentioned chambers which connect it with the drum *d* for the purpose of placing groups of tubes at their ends into communication with the drum *d* through one of said narrow chambers or boxes and a number of said pipes *f*, the latter being arranged between said chamber and the drum.

2. In a steam-boiler with water-tubes and a drum *d*, the combination of headers widening upward, each of said headers comprising a series of narrow chambers or boxes, each of them admitting the ends of a group of tubes and of a number of pipes *f* for each of said chambers which connect it with the drum *d*, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CARL DANIEL MOBERG.

Witnesses:

ERNST SVANQVIST,  
A. F. LUNDBORG.