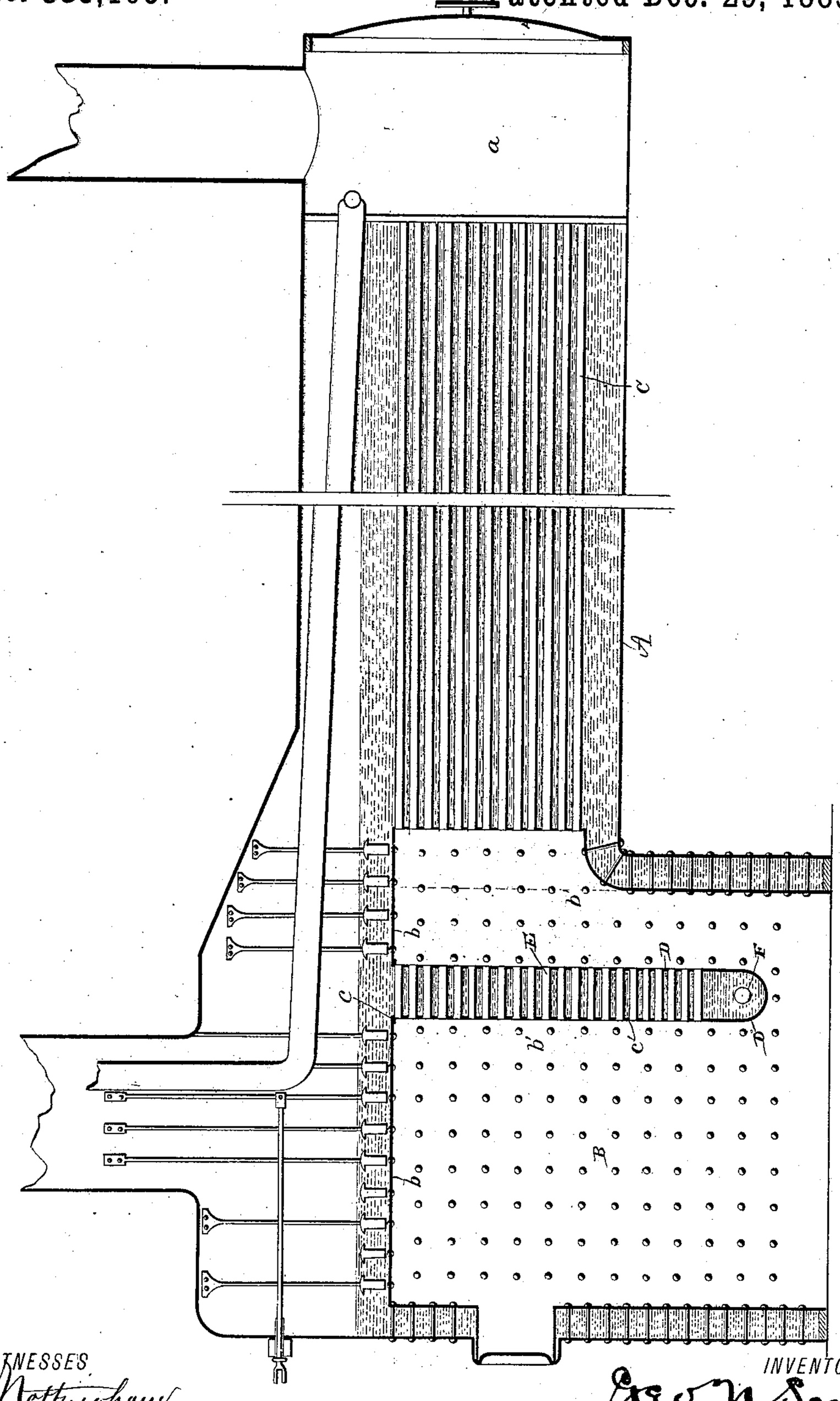
(No Model.)

G. N. SCEETS.

STEAM BOILER.

No. 333,165. Patented Dec. 29, 1885.



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GEORGE N. SCEETS, OF EVANSVILLE, ASSIGNOR OF ONE-HALF TO MICHAEL CRISLE, OF OAKLAND CITY, INDIANA.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 333,165, dated December 29, 1885.

Application filed November 18, 1884. Serial No. 148,237. (No model.)

To all whom it may concern:

Be it known that I, GEORGE N. SCEETS, of Evansville, in the county of Vanderburg and State of Indiana, have invented certain new and useful Improvements in Steam-Boilers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in steam-boilers, particularly to locomotive-boilers or flue and tubular boilers of the locomotive type, the object of the same being to provide means for more rapid circulation of the water in the boiler, and for generating steam faster than the ordinary construction of boiler and fire-box will admit of, thereby allowing the use of larger exhaust-nozzles, and a consequent economy in fuel, a further object being to provide a device for enhancing the circulation and generation of steam which is durable, inexpensive, and capable of ready application to boilers of ordinary construction at present in use; and with these ends in view my invention consists in certain features of construction and combination of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, the figure is a longitudinal vertical section of a locomotive-boiler and fire-box embodying my invention.

A represents the boiler-shell; *a*, the take-up; B, the fire-box, and C the tubular flues leading from the fire-box to the take-up. The crown-sheet *b* of the fire-box is provided with a transverse opening, *c*, and the side sheets, *b'*, with corresponding U-shaped openings, *c'*. A U-shaped plate, D, or several plates combined, and provided with flanged edges *d*, are secured along the edges of the openings *c c'*, thereby partially separating the interior of the fire-box into two sections, a front and rear, but leaving a free connection between the two, beneath the plate D. The space partially inclosed by the plate D thus becomes a portion of the boiler, being open thereto on the top and both sides. The front and rear sections of the space within the fire-box are further connected by numerous tubes or flues, E, which pass through the front and rear walls of the plate D in a manner similar to the flues C. The number of tubes may be great or small as found most expedient in practice; the greater the number the more rapidly, other parts remaining the same, will the steam be generated. The outside sheets of the fire-box are provided with wash-out plugs F, opposite the lower portions of the ends of the depending well formed by the sheet D, by means of which all mud or sediment may be removed at any time when the boiler is washed out.

From the above construction it will be observed that the water in the portion of the boiler depending in the fire-box will become heated sooner and be converted into steam more quickly than in other portions of the boiler, causing a rapid circulation and a consequently rapid generation of steam, since the smoke and gases, as they rise in front of D, will be drawn through the flues E and either consumed during their passage by the flame drawn through therewith, or will be ignited by the flame in the rear of D as soon as they escape from the flues E, thereby producing great heat in the fire-box, and particularly in the flues passing through the well formed by the plate D.

It is well understood that any device by which steam can be generated rapidly with a reduced draft is an advantage of the highest importance, provided the device itself in its application is not attended with any serious objections, since, as the draft is reduced, the fire is not so quickly cut down, and the cinders will remain longer in the fire-box and become more completely consumed, and the damage caused by the action of the cinders against the pipes will be reduced.

I am aware that it is not broadly new to provide a boiler with a depending well located within the fire-box and provided with a single opening and a damper for closing said opening; also, that it is old to provide a boiler with a well having fire-tubes therein, the said well extending from the top to the bottom of the fire-box, and dividing the latter into two sections; hence I make no claim to such construction.

In the device above referred to, wherein a single large opening is employed, the heated

air passes through said opening in a large volume, and only a small proportion of the air passing through the opening comes in direct contact with the well. In my device, wherein numerous small openings or tubes are placed throughout the entire surface of the well or depending section, the heated air, instead of passing through in a single volume, is subdivided and passes through the numerous tubes, and consequently heats the water in the well in a much shorter space of time than it is possible to do with a depending section having a single opening.

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

The combination, with a boiler and a fire-box, of the bottom depending section, open at the sides and top, and communicating with the boiler through openings formed in the crown-sheets and sides of the fire-box, the said depending section terminating a distance above the bottom of the fire-box, and provided with numerous fire-tubes extending transversely through the same, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GEORGE N. SCEETS.

Witnesses:
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