

(No Model.)

T. W. REES.  
RANGE BOILER.

No. 399,558.

Patented Mar. 12, 1889.

FIG. 1.

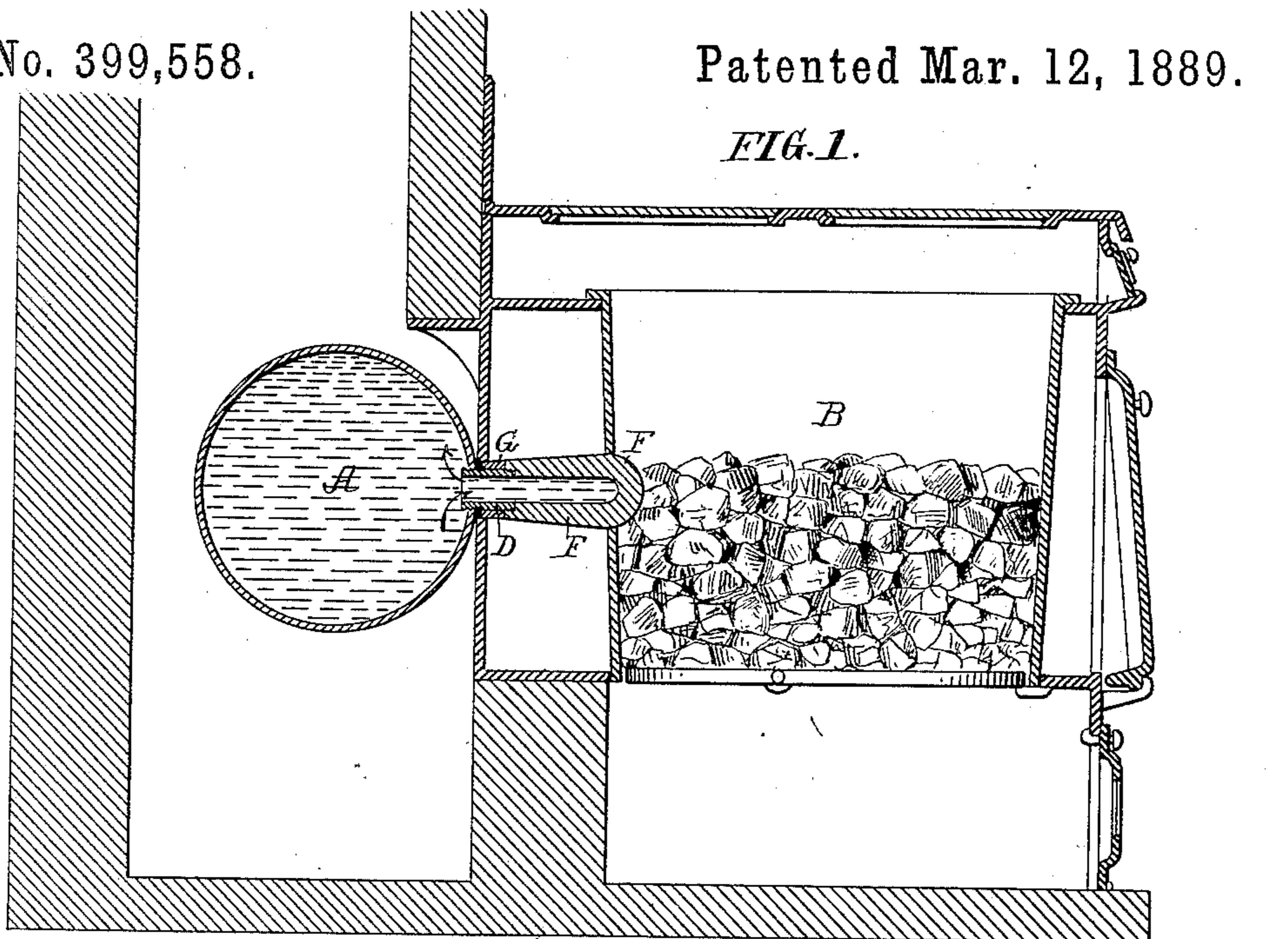


FIG. 2.

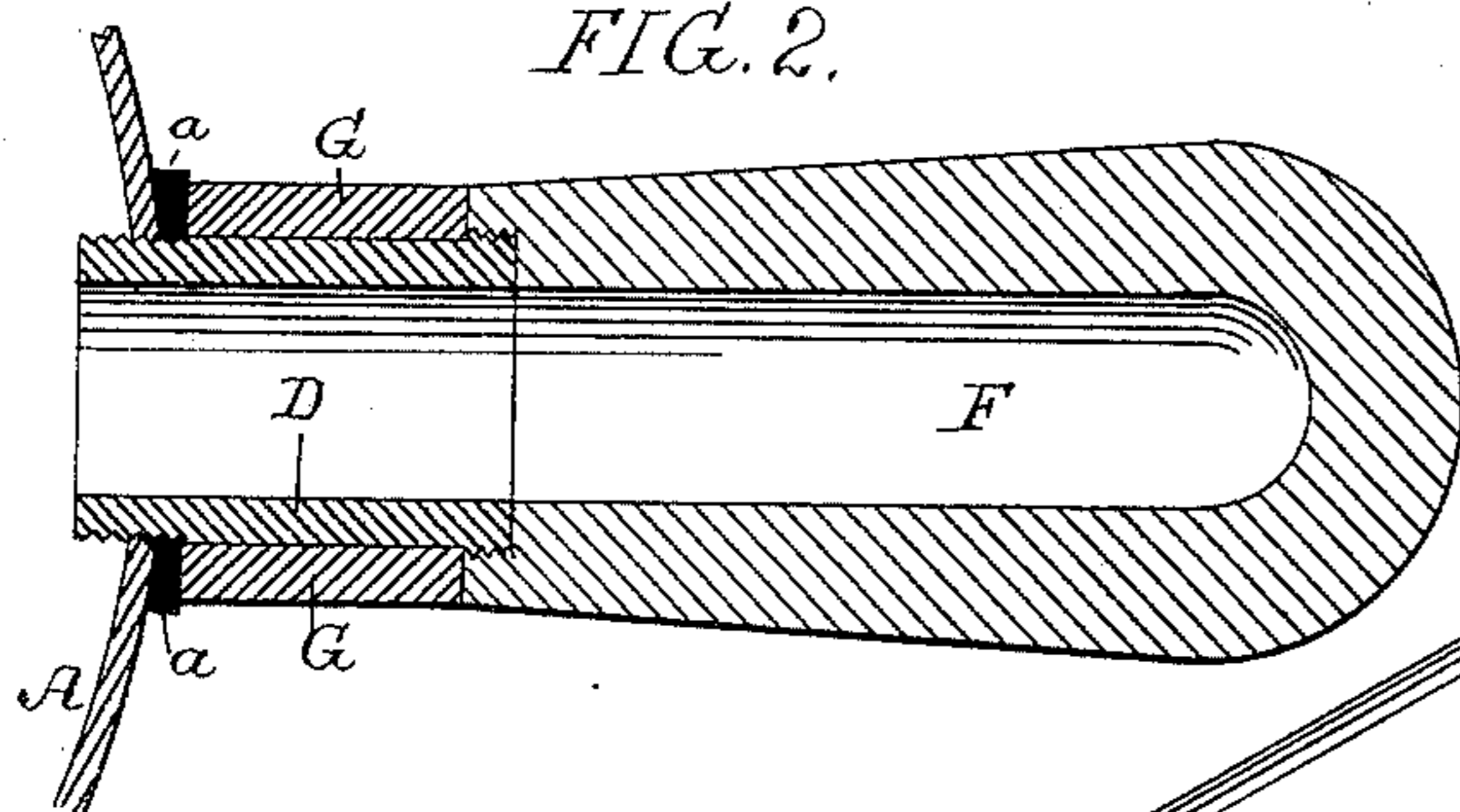


FIG. 3.

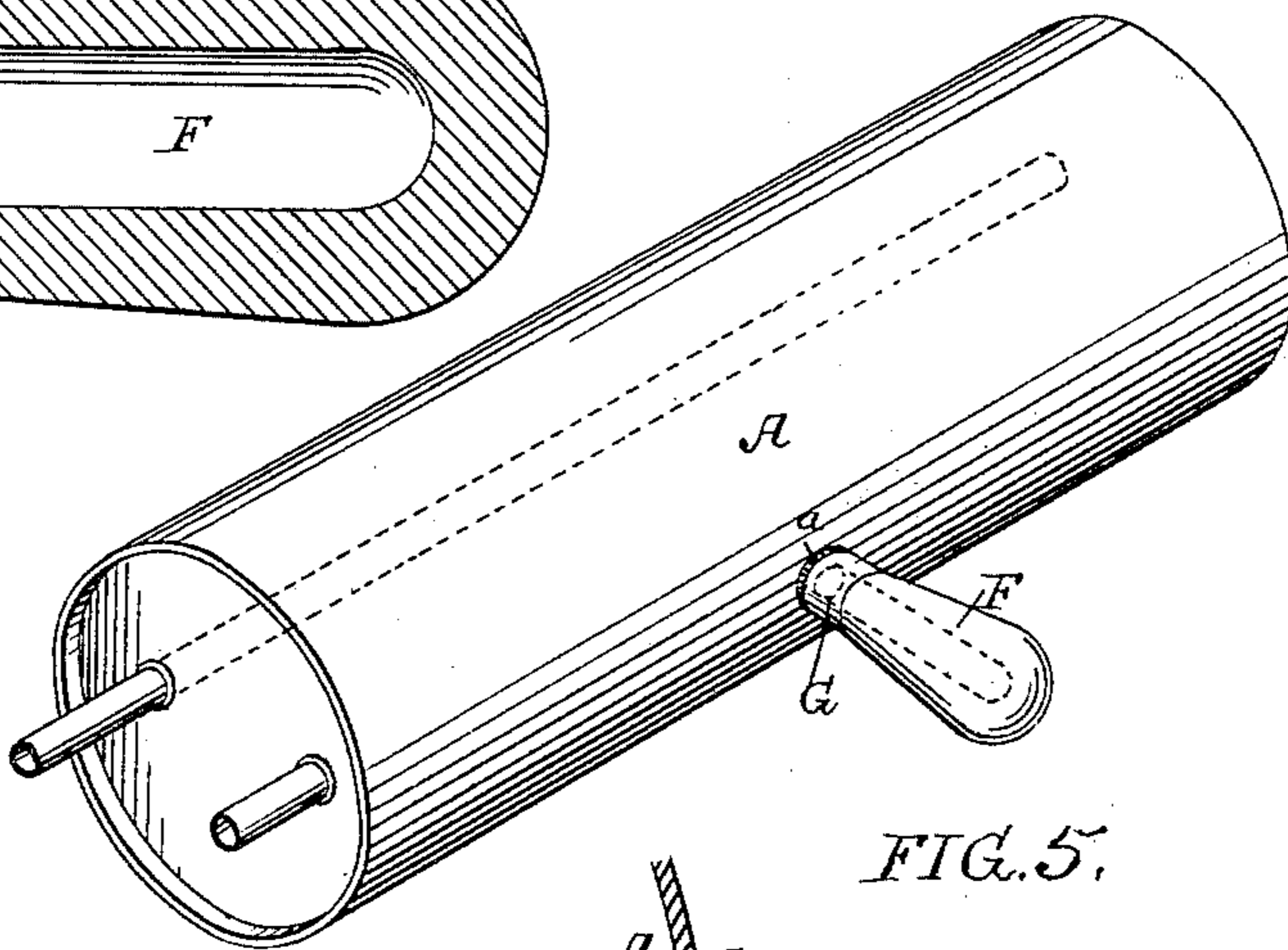


FIG. 4.

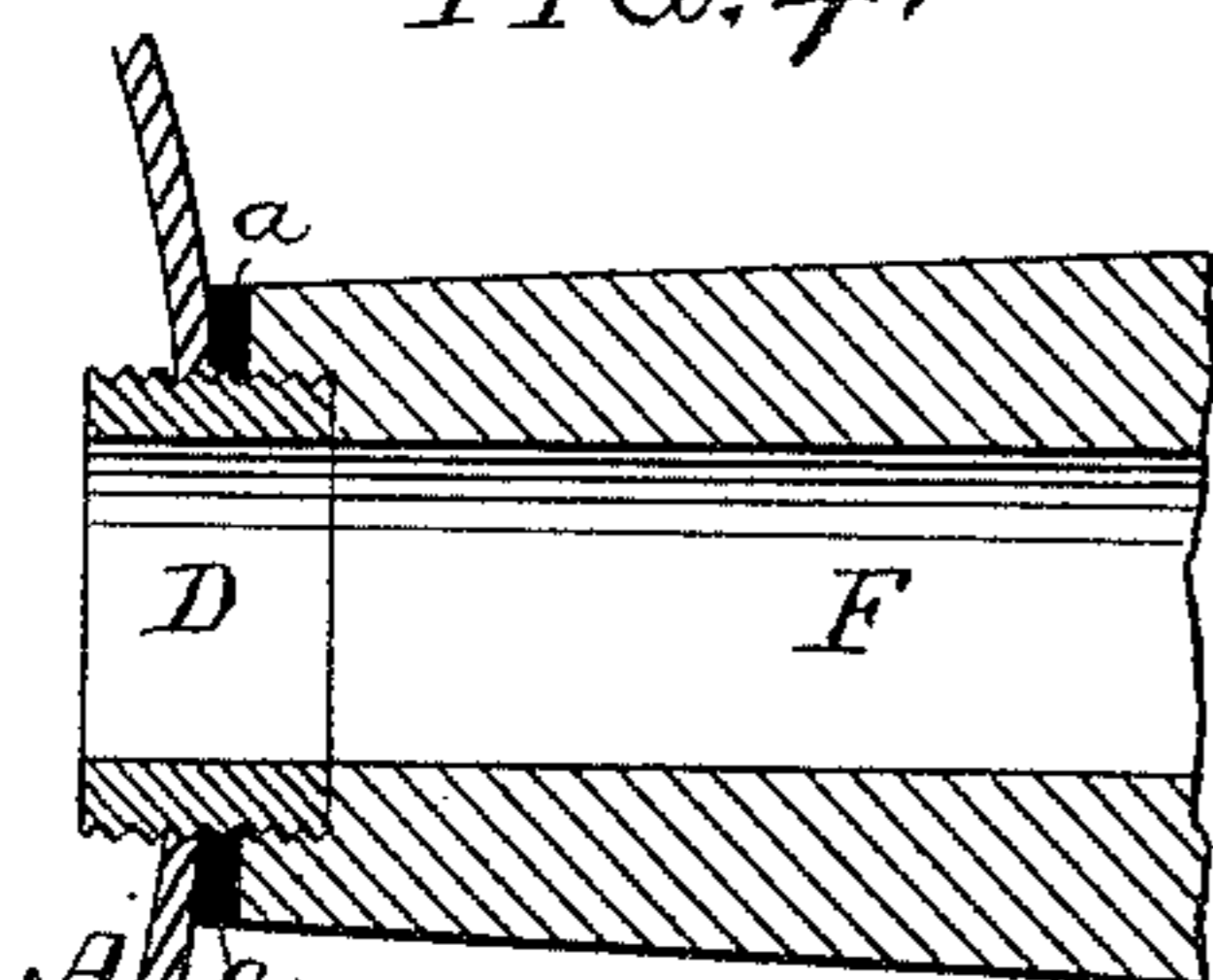
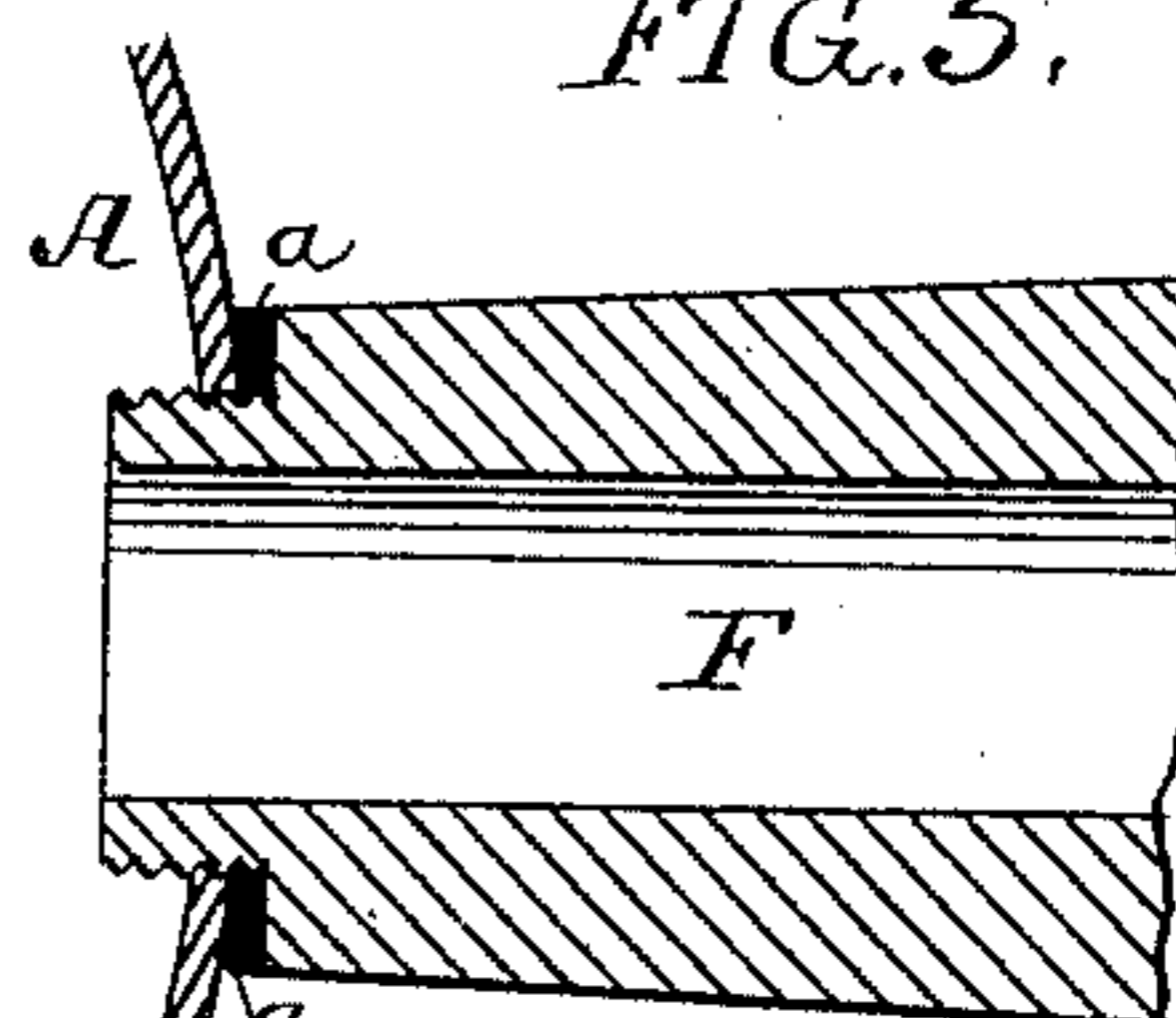


FIG. 5.



Witnesses:  
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Geo. E. Parks

Inventor:  
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# UNITED STATES PATENT OFFICE.

THOMAS W. REES, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO THOMAS W. SNOWDEN AND RICHARD T. STOCKMAN, BOTH OF SAME PLACE.

## RANGE-BOILER.

SPECIFICATION forming part of Letters Patent No. 399,558, dated March 12, 1889.

Application filed December 12, 1887. Serial No. 257,649. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS W. REES, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Range-Boilers, of which the following is a specification.

The object of my invention is to provide a simple, cheap, and efficient means of effecting a circulation of water in that class of range-boilers or water-heaters which are within the structure of the range and are fixedly set in respect to the fire-pot of the same; and this object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal section of sufficient of a range with "back-log" boiler to illustrate my invention. Fig. 2 is an enlarged sectional view illustrating that portion of the structure to which my invention particularly relates. Fig. 3 is a perspective view of the boiler detached from the brick-work structure, and Figs. 4 and 5 are views illustrating modified forms of joint between the boiler and the attachment.

In Fig. 1, A represents a range-boiler of the character known as the "back-log" boiler, which is set in the brick-work at the rear of the fire-pot and oven of the range, and is heated by the circulation of the products of combustion around the same as said products pass to the chimney. Such a boiler has no means of causing a circulation of the water therein; hence it is regarded as inferior to that class of range-boilers in which the boiler is outside of the brick-work structure and is connected by pipes with a water-back forming one of the walls of the fire-pot, so as to cause a circulation of water from one to the other; but, on the other hand, the back-log boiler is cheaper than the circulating-boiler, and is therefore employed almost universally in houses of the cheaper class.

The device forming the subject of my invention has been devised especially for use in connection with back-log boilers or water-reservoirs within the range structure and fixedly set in respect to the fire-pot of the range for the purpose of causing a circulation of water therein and the heating of the water

more rapidly and to a higher temperature than usual.

On reference to Figs. 1, 2, and 3, it will be seen that in the front of the boiler A, at a point in the rear of the fire-pot of the range, is formed an opening, into which is screwed the rear end of a nipple, D, to the front end of which is screwed the rear end of a hollow plug, F, which passes through the opening in the rear wall of the fire-pot and the heating-chamber casing back of the same, the front end of the plug projecting, preferably, a short distance into the fire-pot, as shown in Fig. 1, although it may, if desired, be flush with the wall of the fire-pot.

Surrounding the nipple D is a collar, G, and between the inner end of the latter and the shell of the boiler is a packing-ring, a, the front end of the collar bearing against the inner end of the plug F, so that as the latter is screwed up the collar is forced firmly against the packing-ring and the shell of the boiler is drawn against the same, compression of the packing-ring being thus effected and a tight joint insured. If desired, a packing-ring may also be interposed between the plug F and the collar G.

The device described forms a cheap and simple attachment, which can be readily applied to the boiler before the latter is set in place, but is of especial advantage for application to a boiler already in use, as it is simply necessary to form openings in the back of the fire-pot and front of the boiler-shell and introduce the nipple and plug into place from the inside of the fire-pot, no removal or disturbance of the range structure, brick-work, or boiler being required, and but a single water-tight joint having to be formed. These advantages are attained by the application of the plug to any boiler or water-heater located within the structure of the range and fixedly set in respect to the fire-pot of the same.

I have found in practice that, although the plug has but a single passage, there is an effective circulation of water, as the plug is so highly heated that the water is vaporized therein, and the vapor globules find their way into the boiler and are replaced by fresh sup-

plies of water, a much higher temperature being imparted to the water in the boiler than is possible in the absence of the attachment.

Although I prefer the use of the nipple and collar in carrying out my invention, the employment of these parts is not absolutely necessary in every case. For instance, the plug may be screwed onto a short nipple and may bear directly on the packing-ring, as shown, for instance, in Fig. 4; or the plug may even be screwed directly into the shell of the boiler, as shown in Fig. 5.

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

1. The combination of a range and a boiler or water-heater located within the structure of the range and fixedly set in respect to the fire-pot of the same, with a plug having a screw-connection with the shell of the boiler, and having a closed outer end which projects to or into the fire-pot of the range, all substantially as specified.

2. The combination of a range and a boiler or water-heater located within the structure of the range and fixedly set in respect to the

fire-pot of the same, with a nipple screwed directly into the shell of the boiler and projecting therefrom, a hollow plug screwed onto said nipple and projecting into the fire-pot of the range, and a packing-ring for preventing leakage at the shell of the boiler, all substantially as specified.

3. The combination of a range and a boiler or water-heater located within the structure of the range and fixedly set in respect to the fire-pot of the same, with a nipple screwed into and projecting from the shell of the boiler, a hollow plug screwed onto the outer end of the nipple and projecting into the fire-pot of the range, and a collar and packing interposed between the said plug and the shell of the boiler, all substantially as specified.

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

THOMAS W. REES.

Witnesses:

WILLIAM D. CONNER,  
HARRY SMITH.