

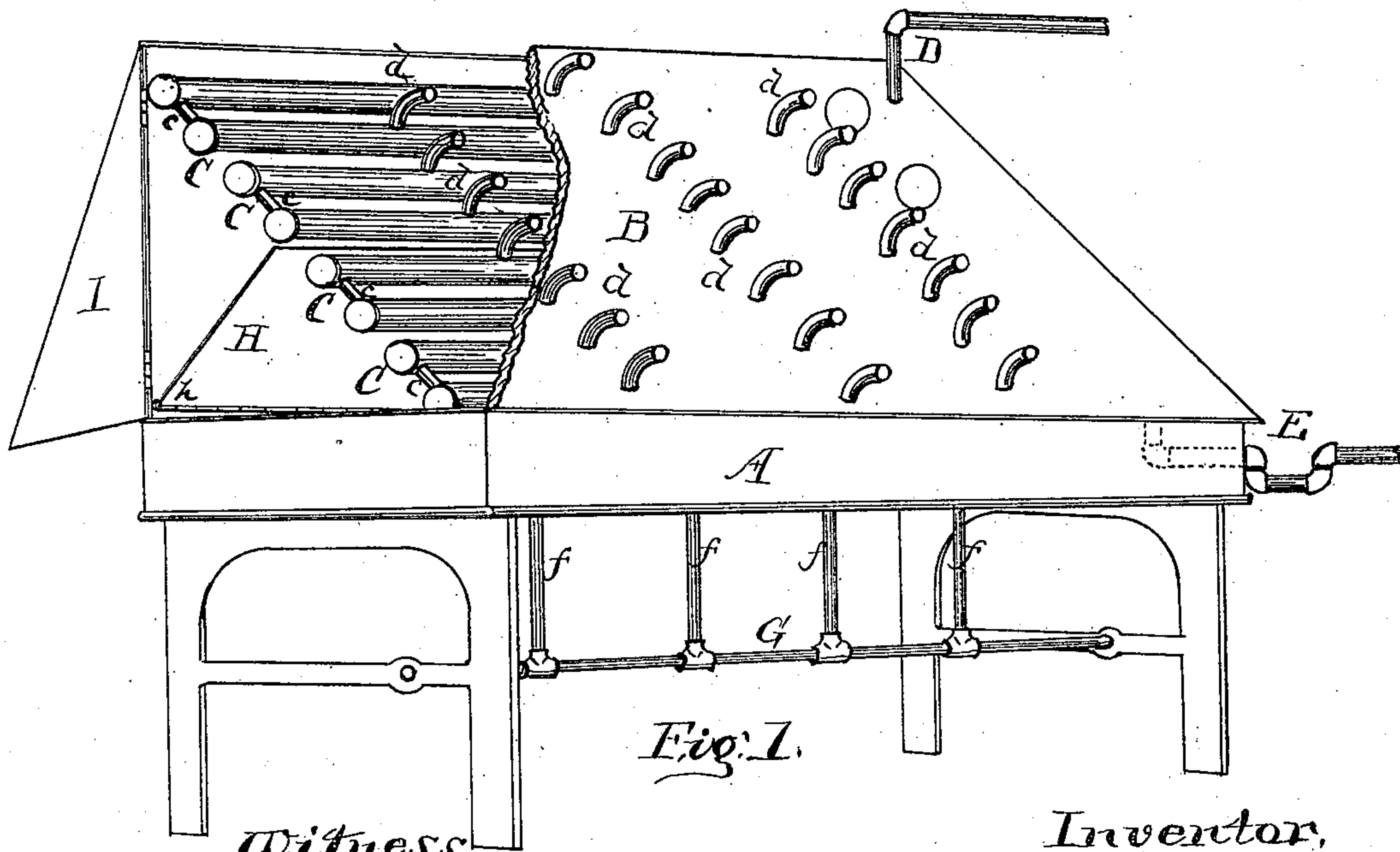
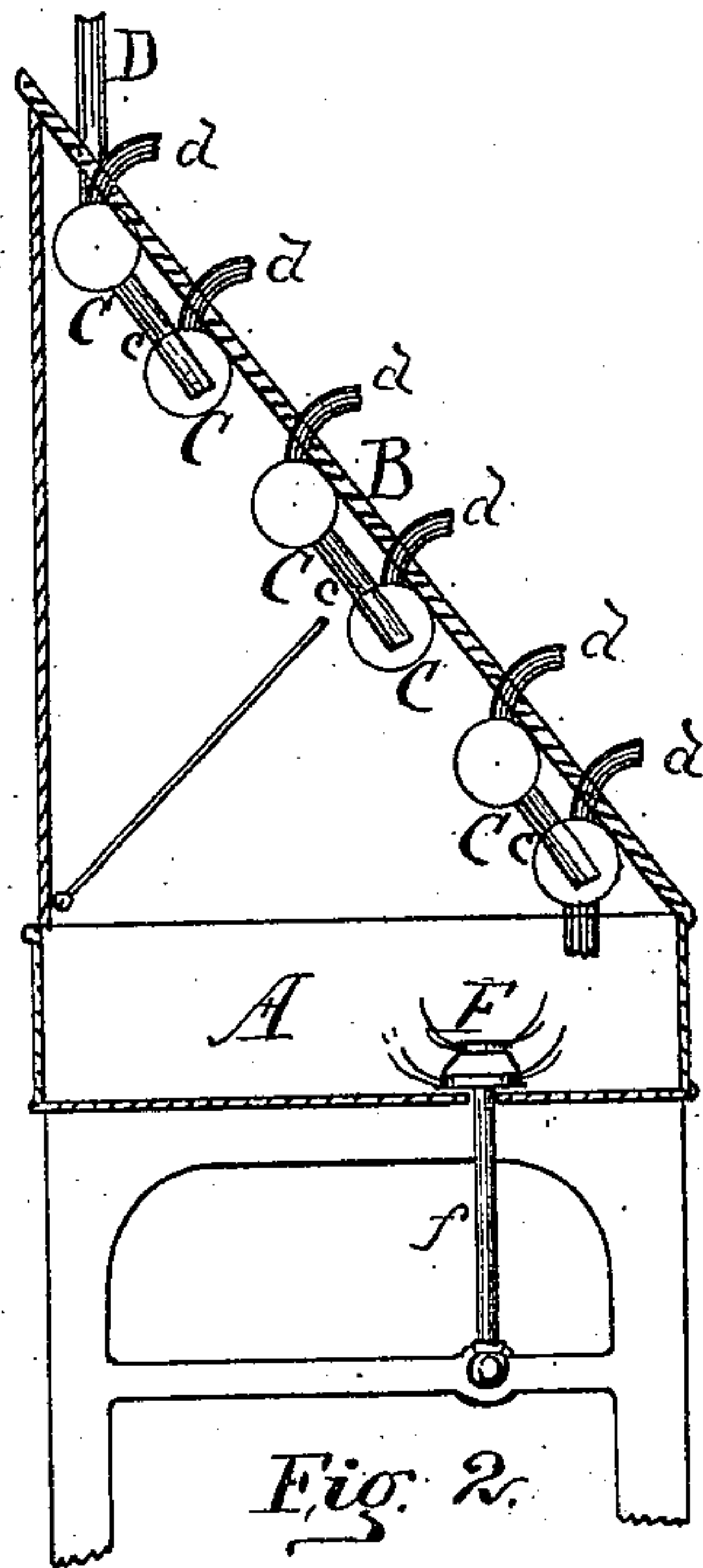
(No Model.)

H. C. SMITH.

APPARATUS FOR THE CONTINUOUS DISTILLATION OF OIL.

No. 300,811.

Patented June 24, 1884.



Witness

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# UNITED STATES PATENT OFFICE.

HENRY C. SMITH, OF CLEVELAND, OHIO, ASSIGNOR TO ANTHONY S.  
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## APPARATUS FOR THE CONTINUOUS DISTILLATION OF OIL.

SPECIFICATION forming part of Letters Patent No. 300,811, dated June 24, 1884.

Application filed September 10, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY CLAY SMITH, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and Improved Apparatus for the Continuous Distillation of Oil, of which the following is a specification.

This invention relates to an improved means for a rapid and continuous distillation of oil, separating the lighter from the heavier products, and grading the varied gravities as distilled. It is also a superior means for obtaining fine grades of lubricating-oil of required gravity without scorching or burning the same, and producing a high fire-test.

In the drawings, Figure 1 is a perspective view with top partly broken away to show arrangement of pipes. Fig. 2 is a cross-section for showing same.

A represents a rectangular box having a closed bottom, and supported on suitable legs. The side wall at one side is extended upward perpendicularly, while the other side is connected to the top of said perpendicular wall by a diagonal wall or roof, B, thus forming a triangular-shaped chamber. Underneath and lying close to said wall or roof B are arranged a series of horizontal pipes, C C. These pipes are connected at alternate ends by short connections *c c*, which lead from the bottom of one pipe into and through the top of the next pipe, to near the bottom therein, the object being to form a trap to prevent the vapors formed in the pipes from passing upward into the pipes next above. The pipes are also laid at a little inclination, in order to cause a flow from one into the other. The pipes C C are also provided with escape-pipes *d d* along their upper sides, which project through the roof, and are designed for outlets for the vapors at various points along the route of the oil through the several pipes. To the upper pipe C is attached an inlet-pipe, D, for the crude oil, and at the lower end of the series is an outlet-pipe, E, for the residue, which is provided with a bend or trap, *e*, to prevent the backward flow of vapor or the ingress of air or fire. The means employed for heating these pipes is by a set of vapor-burners, F F,

attached to pipes *f*, connected with a supply-pipe, G, supported by the legs or supporting frame-work. In the chamber beneath said pipes C is placed a leaf, H, hinged at *h*, which may be adjusted to divide the chamber horizontally for the purpose of confining the heat more or less to the lower range of pipes, where the greater degree of heat is required, while the upper range of pipes may be kept at a lower degree of temperature, and from which the lighter gravities are eliminated. The ends of the triangular chamber are closed with hinged doors I, for the convenience of opening said chamber when desired for examination of the interior, and the ends of the pipes C C are closed with caps and plugs, also for the purpose of getting at their interior for cleaning or other purposes.

I am aware that pipes for distillation of oils have been arranged in chambers heated by hot air or vapors. I do not therefore claim, broadly, the heating of pipes in such manner.

Having described my invention, I claim—

1. In an apparatus for continuous distillation of oil, the pipes C C, arranged in a plane inclined to the horizon at about an angle of forty-five degrees—one above the other—and provided with vapor-outlets *d d*, and connected at alternate ends with the connections *c c*, and inclosed in a chamber, whereby said pipes operate for the distillation of the several gravities of oil products, as described.

2. The combination, in a chamber triangular in cross-section, of a series of pipes, C C, arranged in a diagonal line one above the other, and provided with the vapor-outlets *d d* and connections *c c*, and the vapor-burners F F, substantially as described.

3. The combination, in a triangular chamber having a series of pipes, C C, connected and provided with vapor-outlets, as described, and heated with vapor-burners, of the adjustable leaf H, for controlling or confining the heat about the said pipes, substantially as and for the purpose specified.

HENRY C. SMITH.

Witnesses:

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