

(No Model.)

C. HOLLAND.
HYDROCARBON FURNACE.

No. 275,488. *Fig 1.*

Patented Apr. 10, 1883.

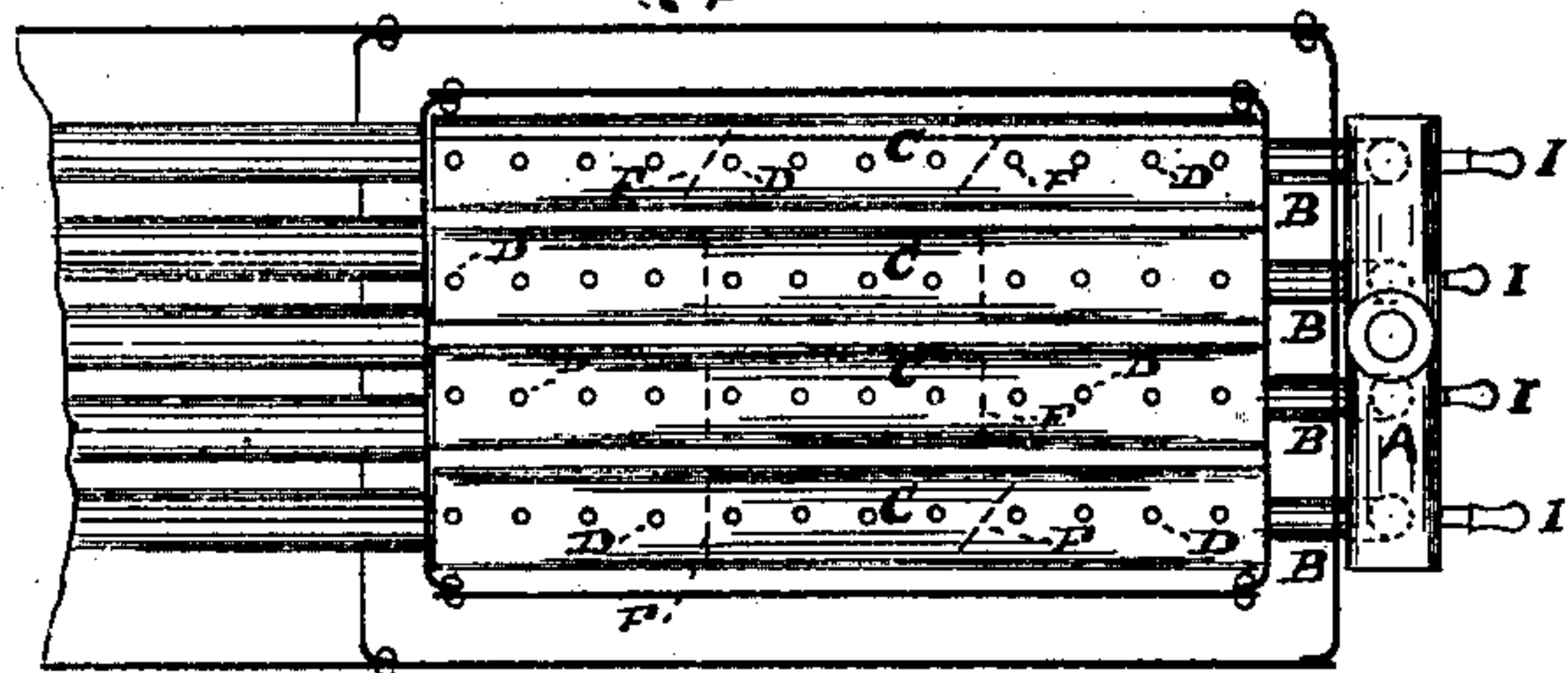


Fig 3

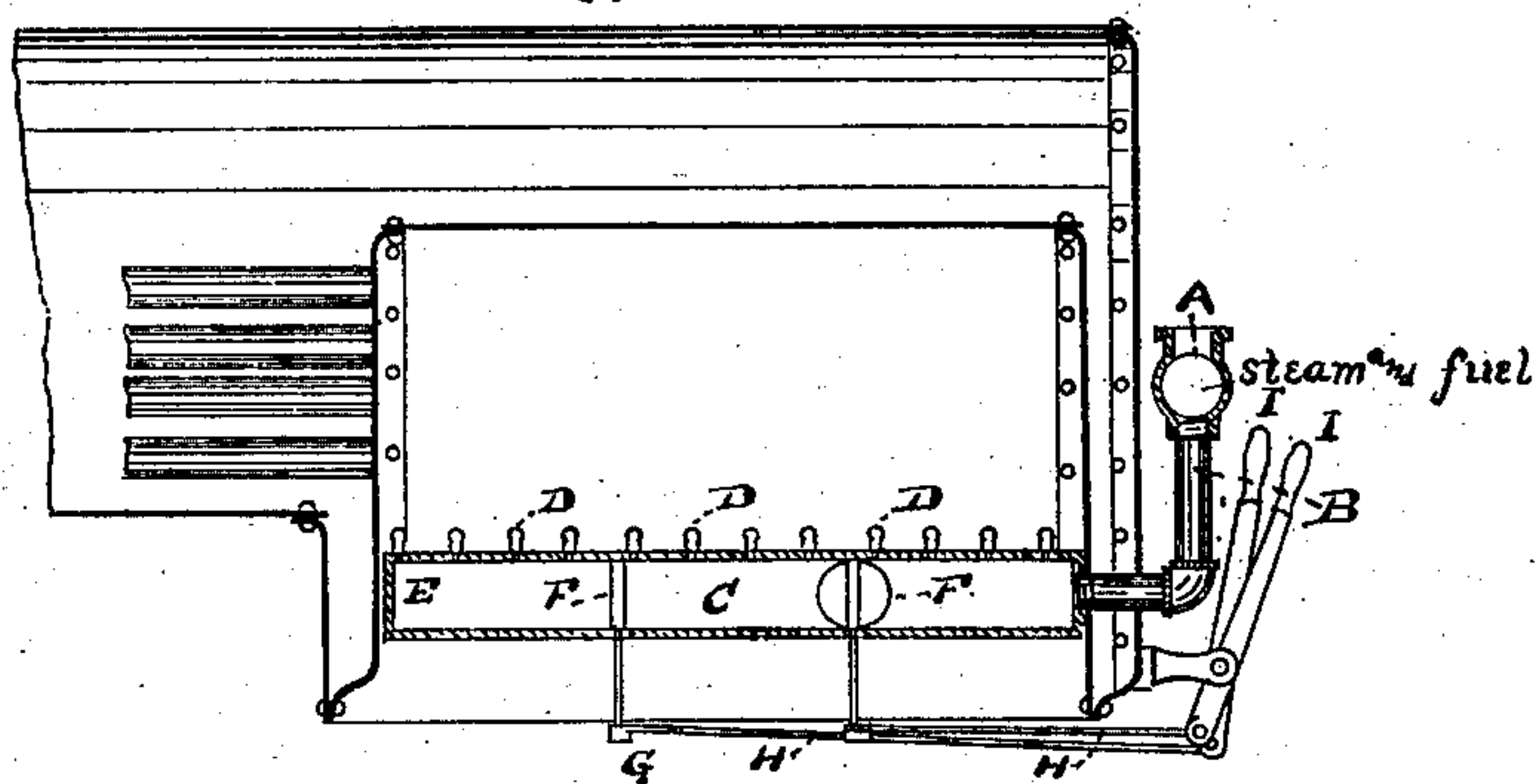


Fig 2

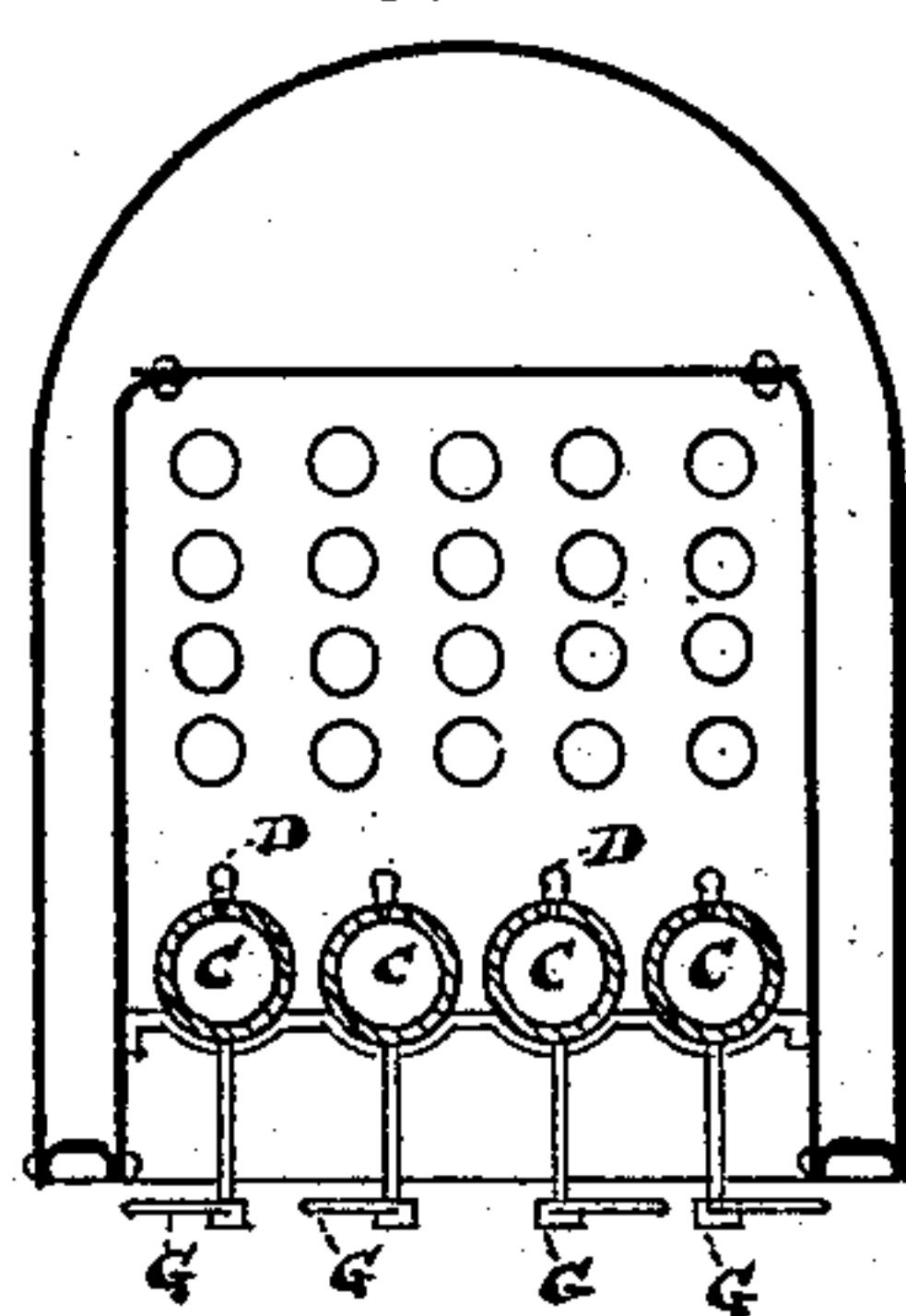


Fig 4

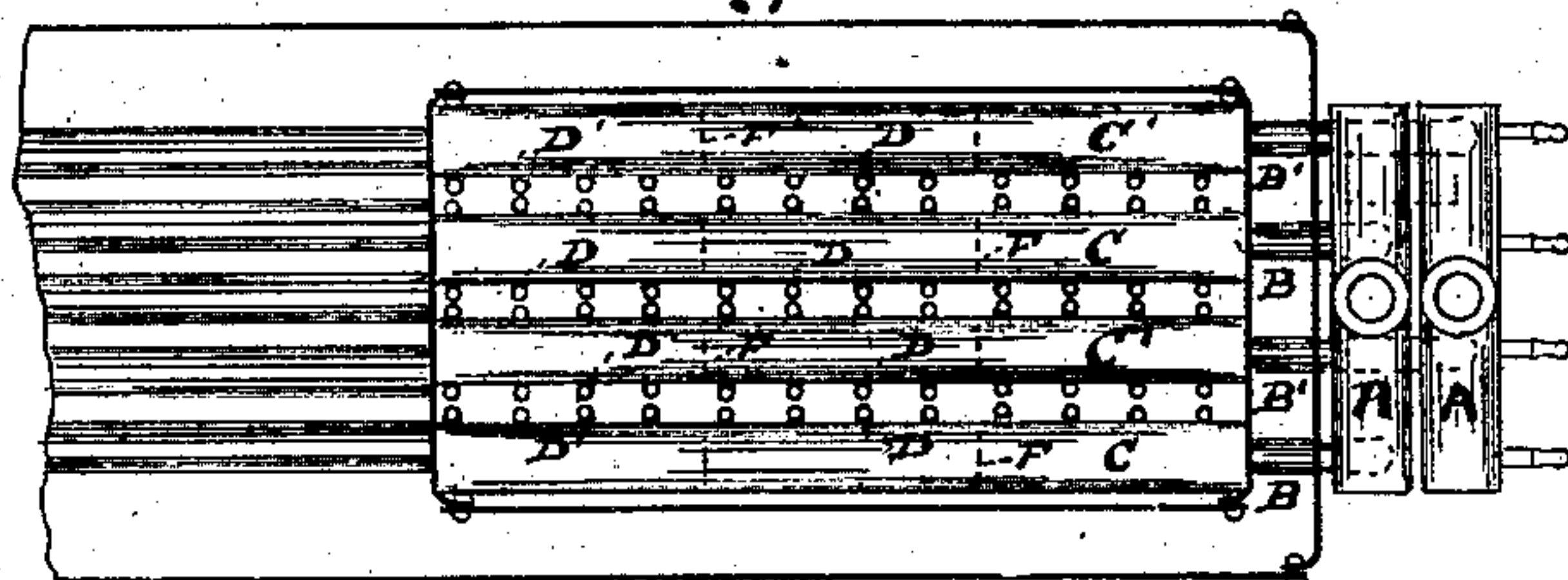


Fig 6

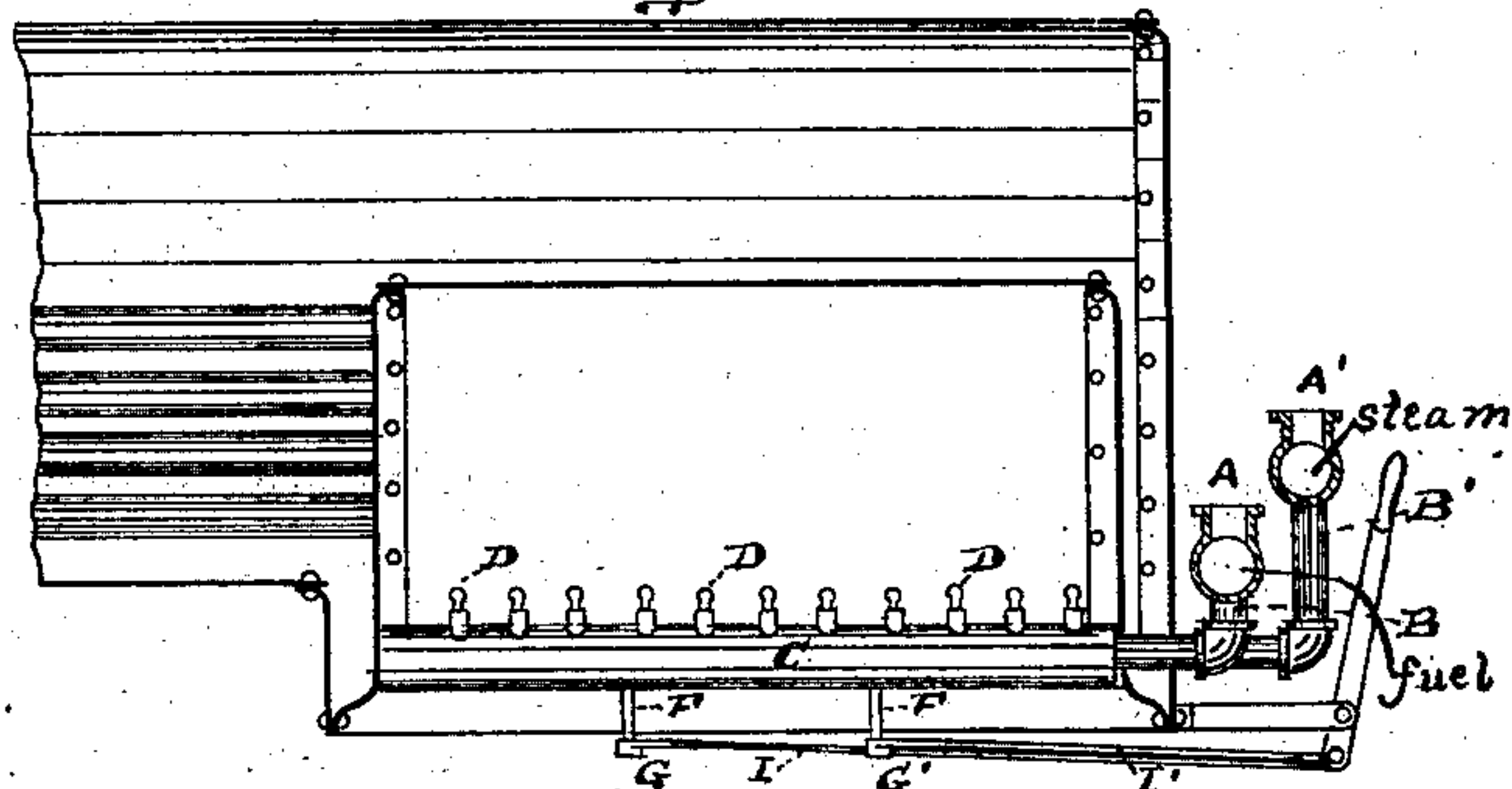
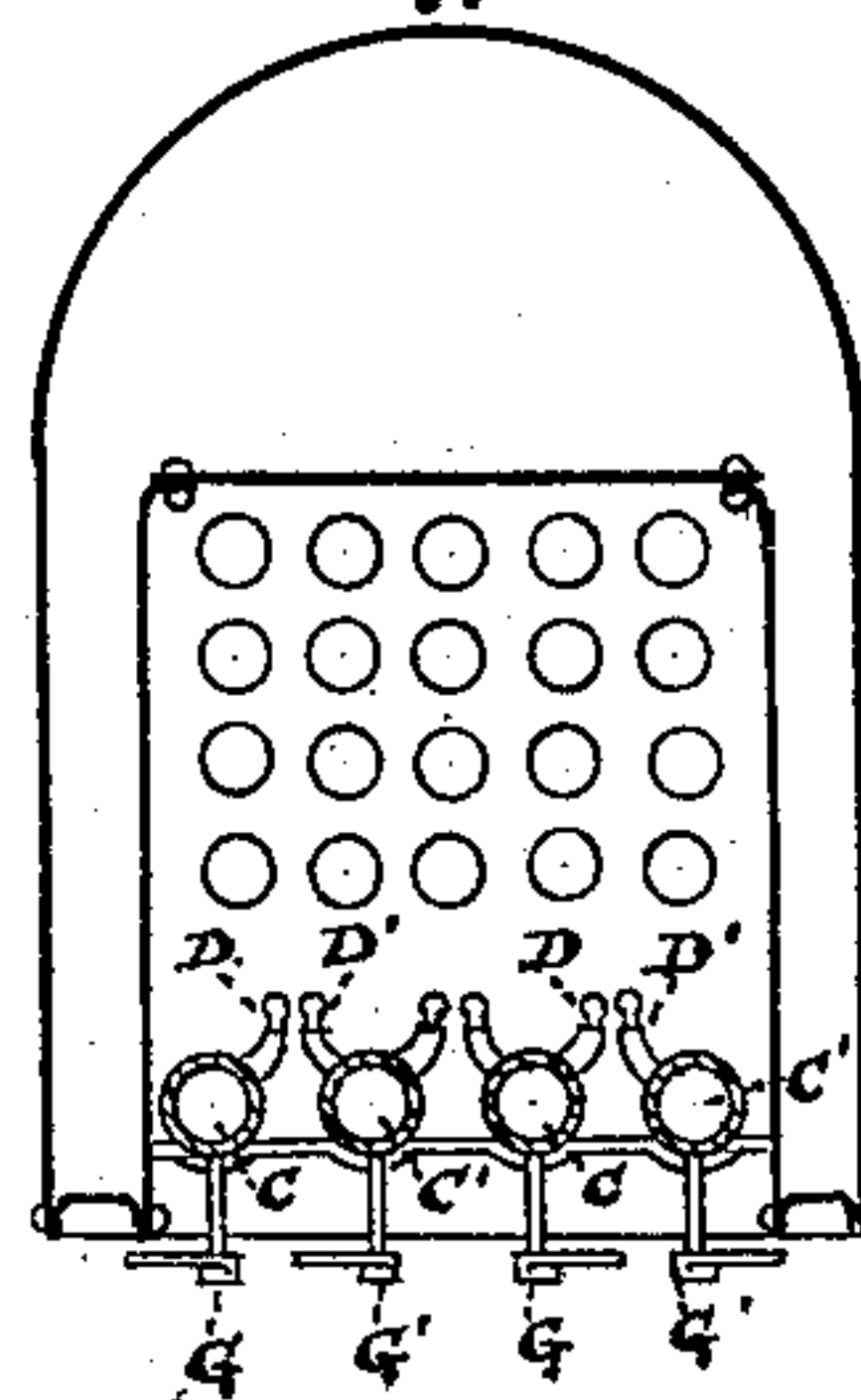


Fig 5



Witnesses

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UNITED STATES PATENT OFFICE.

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HYDROCARBON-FURNACE.

SPECIFICATION forming part of Letters Patent No. 275,488, dated April 10, 1883.

Application filed April 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HOLLAND, of the city, county, and State of New York, have invented a new and useful Improvement in Hydrocarbon-Furnaces; and I do hereby declare the following to be a sufficiently full, clear, and exact description thereof to enable others skilled in the art to make and use the said invention.

This improvement relates to that class of furnaces in which the products of the distillation of hydrocarbons with steam or water are burned with air in a furnace, and has for its object the more effective distribution of gaseous fuel to all parts of the furnace, together with a better regulation and control of such fuel-supply in different portions of the furnace-chamber.

The nature of this invention consists in an inclosed furnace-chamber having parallel steam and gaseous-fuel supply pipes combined with manifold branched supply-pipes and jet-tubes, adapted to deliver and distribute intersecting jets of steam and gaseous fuel into the air in the furnace-chamber, in the manner hereinafter more fully described.

I will now proceed to describe my invention more particularly and exactly, referring in so doing to the drawings annexed and the letters of reference marked thereon.

Figure 1 shows a plan; Fig. 2, a transverse section; Fig. 3, a vertical longitudinal section. Figs. 4, 5, 6 are respectively a ground plan, transverse section, and a longitudinal section of a modified form of the invention.

The same letters of reference apply to the same parts in the several figures, as shown in the three first figures.

A is a manifold or any branched pipe, having branches B, to which are attached tubes C, closed at their outer ends, E, and bearing burner or jet tubes D. In each of the pipes C are valves F, controlled by levers G, moved by rods H and handles I, accessible to the engineer. In the form shown in the three remaining figures there are two manifold pipes, A and A', having the branches B and B', and the connected pipes C and C', also closed at the outer ends, and provided with burners D and D' and valves F and F', worked by levers G and G' and rods I and I'. The alternate pipes C and C' are connected, respectively, with each manifold A and A'.

In the series of tubes as described and

shown in Figs. 1, 2, and 3 the gaseous or vaporous fuel, mingled with steam, enters the manifold tube A, passes through the branches B, the tube C, and the burners D into the furnace-chamber, where it is burned with air entering in the spaces between the tubes C.

In the double series of pipes shown in Figs. 4, 5, and 6 the gaseous or vaporous products of hydrocarbon distillation enter the pipe or manifold A, pass into the pipes C, and issue from the burners D. At the same time superheated steam passes into the other manifold pipe, A', and is distributed through the pipes C' and jet tubes or burners D', so that the steam from the jets D' commingles with the gas or vapors from the tube D and the air rising in the interstices between the pipes C and C', and produces an intensely-hot volume of flame in the furnace. At intervals in the pipes C and C' valves F are placed, controlled by levers G and rods I, accessible to the engineer, by which the distance which the gas may traverse in the tubes can be varied and controlled and the extent of the fire regulated.

I am aware that hydrocarbon-furnaces have been constructed wherein the gaseous or vaporous fuel and steam have been injected by jet-tubes placed in pairs one within the other; also, that colliding jets of steam and fuel have been employed in hydrocarbon-furnaces. None of these do I claim, broadly, as part of this invention; but,

Having described my invention and the mode of making and using the same, what I claim therein as new is—

The combination, in a hydrocarbon-furnace, of the series of burners or jet-tubes D and D', adapted to deliver intersecting jets in the air inclosed in the furnace-chamber, and receiving, respectively, steam and hydrocarbon-gas supply from parallel pipes C and C', both inclosed in and exposed to the heat of the furnace-chamber, and having valves provided with handles accessible to the engineer, adapted to close or open the supply of steam or gas to different points in the lengths of the pipes C and C', with the manifold branch supply-pipes A and A', all constructed and arranged substantially as shown and described.

CHARLES HOLLAND.

Witnesses:

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ARTHUR FITCH.