

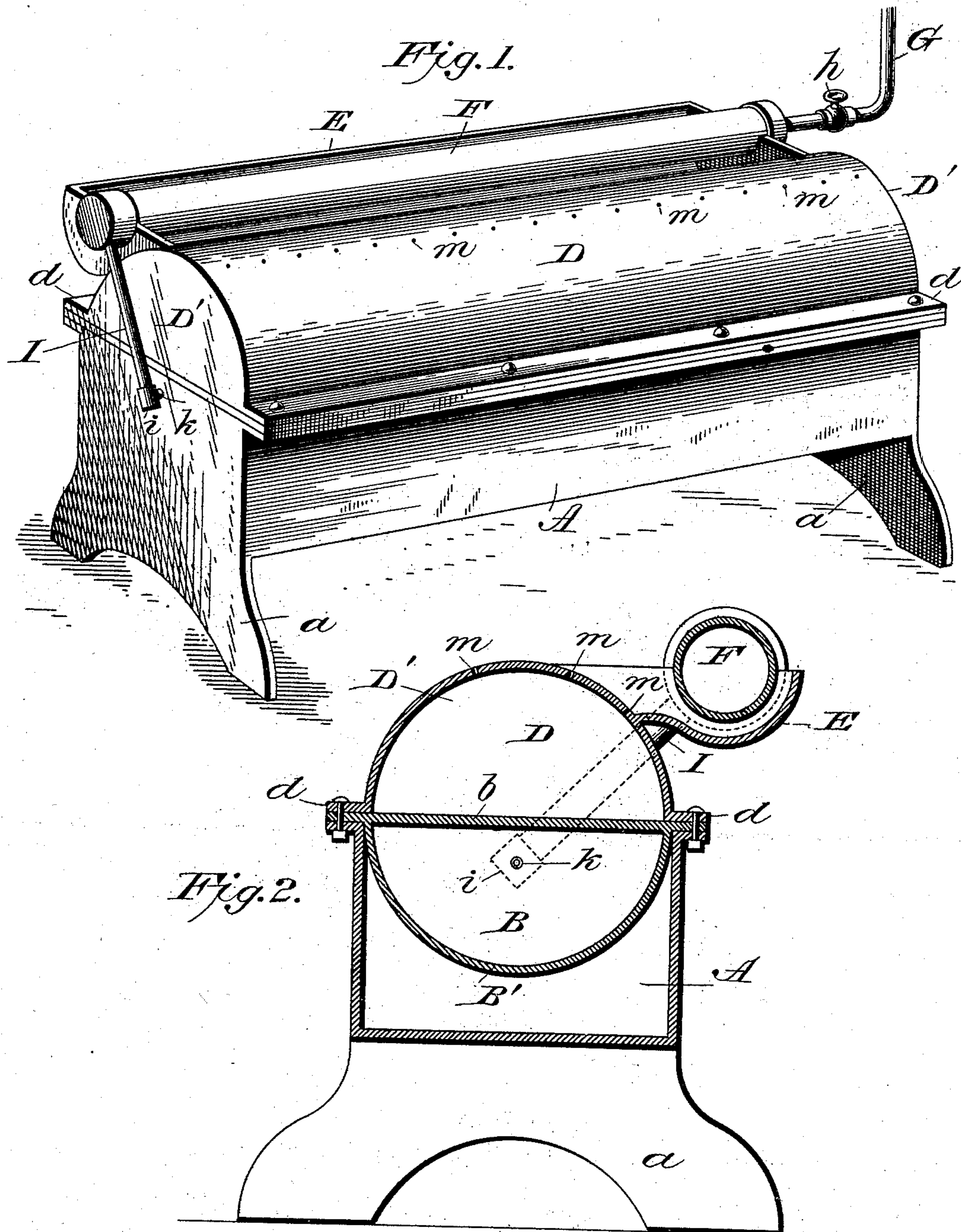
(No Model.)

2 Sheets—Sheet 1.

A. SCHAFER.  
HYDROCARBON BURNER.

No. 505,374.

Patented Sept. 19, 1893.



Witnesses

L. S. Elliott  
E. M. Johnson

Adam Schafer

Inventor

by [Signature]

Attorney

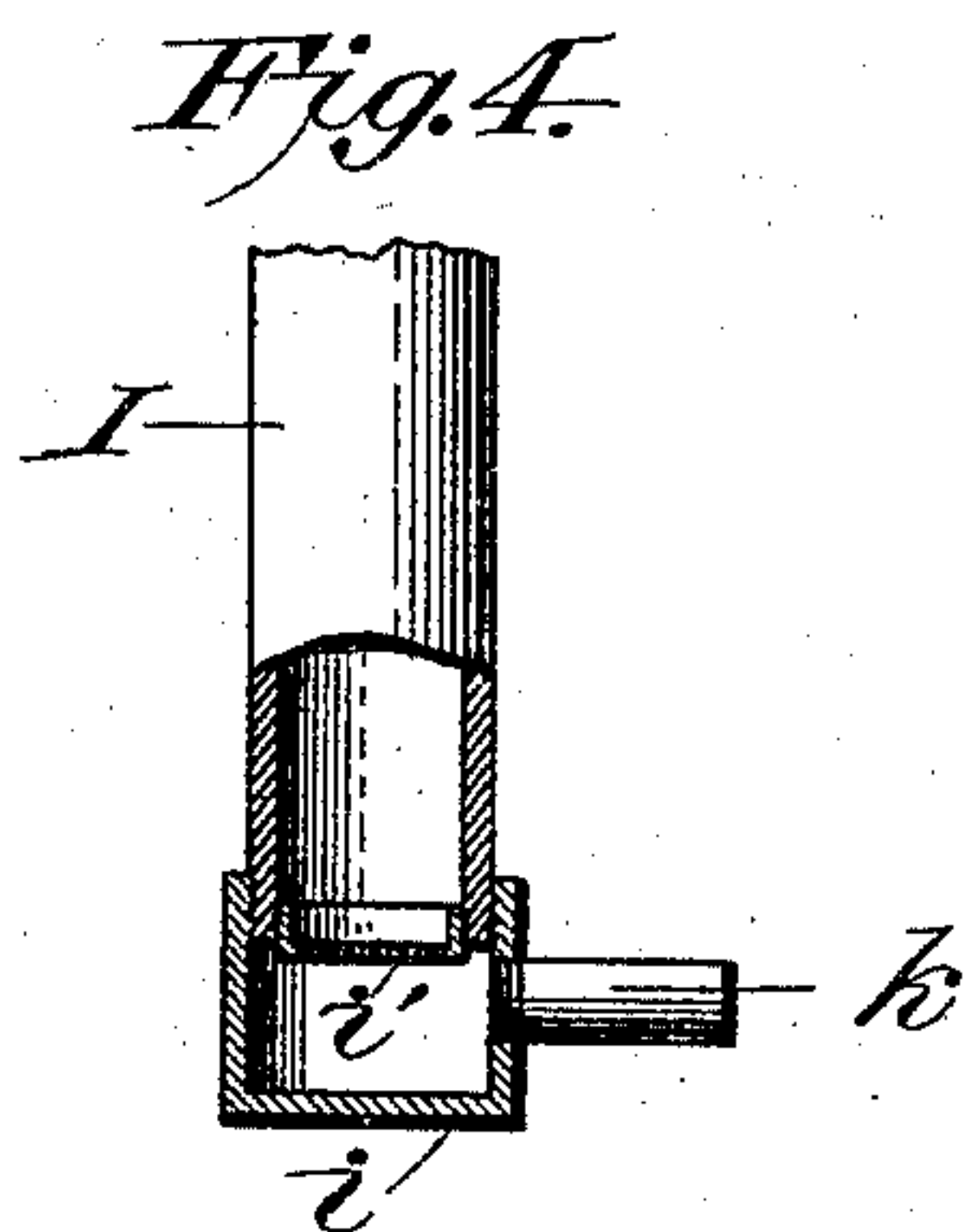
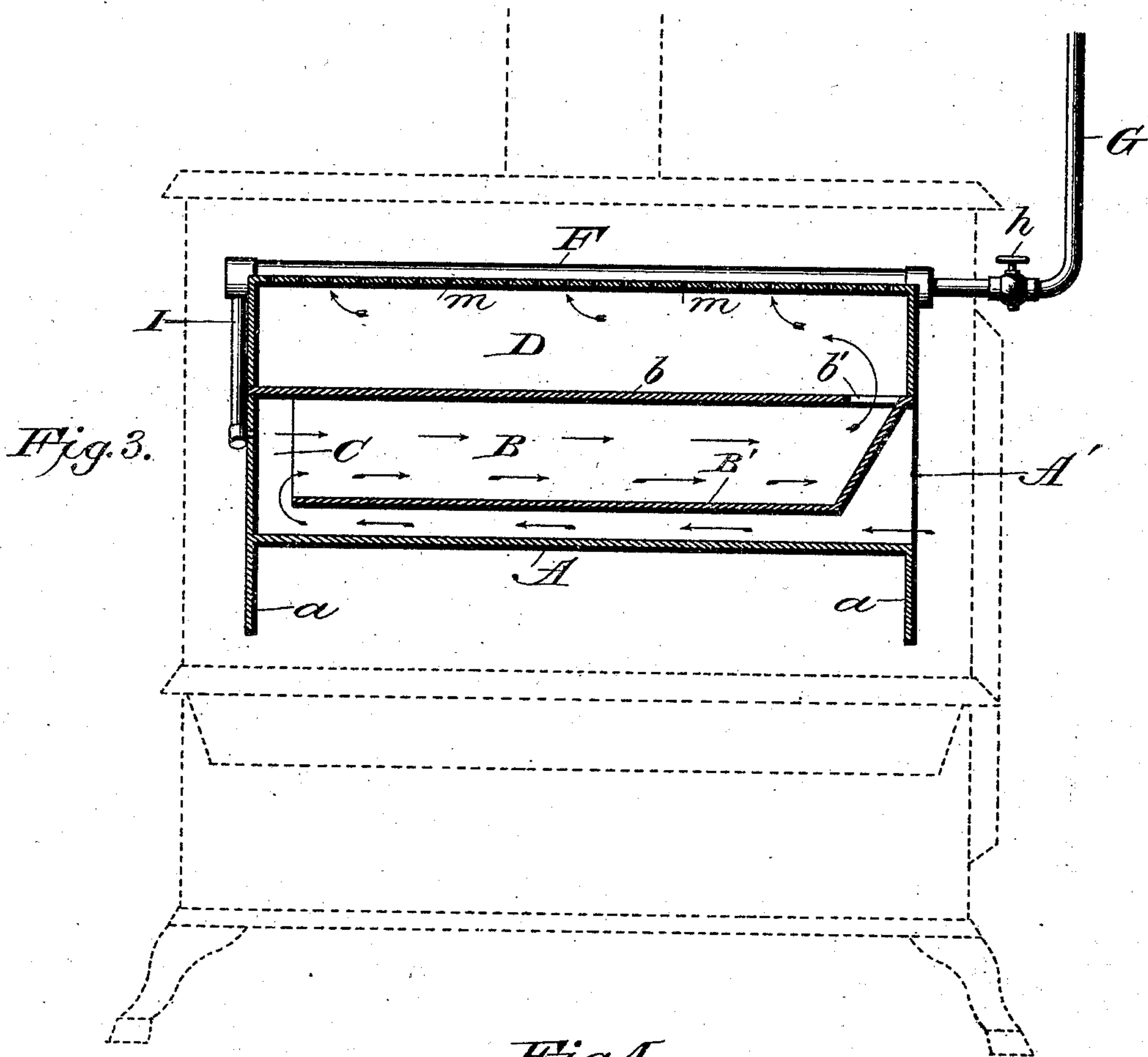
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# UNITED STATES PATENT OFFICE.

ADAM SCHAFER, OF WESTON, OHIO.

## HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 505,374, dated September 19, 1893.

Application filed June 8, 1893. Serial No. 476,937. (No model.)

*To all whom it may concern:*

Be it known that I, ADAM SCHAFER, a citizen of the United States of America, residing at Weston, in the county of Wood and State of Ohio, have invented certain new and useful Improvements in Hydrocarbon-Burners; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide a hydrocarbon-burner which is simple in construction and effective in operation; and it consists in the construction and combination of the parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of a burner constructed in accordance with my invention. Fig. 2 is a transverse sectional view. Fig. 3 is a longitudinal section showing the improvement applied to a stove. Fig. 4 is a detail sectional view of the discharge end of the injector-pipe.

The burner in use is adapted to be placed in the fire-box of a stove or furnace, and it is intended to use a cheap grade of coal-oil as fuel.

A designates the base portion of the burner which is provided with supporting legs *a a* and is in the form of a rectangular box having one end open, as at *A'*. The upper edge of each side wall of the base or section A of the burner is provided with an outwardly-projecting flange having bolt-holes so that the other parts of the burner can be bolted thereto.

B designates the inner section of the burner which comprises a horizontal plate *b*, having an aperture *b'*, and a lower portion *B'* which is preferably semi-circular in cross-section and extends from the outer end of the aperture *b'* to near the other end of the plate *b*, leaving a space C between said semi-circular plate and the end wall of the section A. The side edges of the horizontal plate of this section extend beyond the semi-circular portion

of the same and are provided with bolt-holes so that said section can rest upon the flanges of the base or section A and be bolted thereto. 55

D designates the upper section which is made up of a semi-circular plate having end walls *D'* and side flanges *d*, the side flanges being provided with bolt-holes which register with the holes in the flanges of the sections A and B so that the parts can be rigidly bolted together. To one side of this top section is formed a trough E the end walls of which are provided with recesses to receive the vaporizer F. The vaporizer consists of a section of pipe having a cap at each end, one of the caps being apertured to receive the supply pipe G which leads to the oil receptacle, said supply pipe having an ordinary cut-off valve *h*; while the other cap is provided with an aperture into which is fitted one end of a pipe I the other end of which is provided with a box *i* and a perforated diaphragm *i'*. The box *i* has a short section of pipe, *k*, which enters an aperture in the end wall of the section A. 75

The upper portion of the top section D is provided with perforations *m m* through which the gaseous vapor formed in the burner passes and is ignited. One of the row of perforations *m* being located so that a part of the flame will be directed against the vaporizer F. 80

In practice a small quantity of oil is placed in the trough E and ignited. The cock or valve *h* is then turned to admit oil into the vaporizer and the heat from the burning oil will convert the oil in the vaporizer into a gaseous vapor which will be forced through the pipe I and ejected through the pipe *k* into the section B of the burner with considerable force, and this current of gaseous vapor will cause an influx of air through the open end of the section A and around the end of the semi-circular plate *B'* of the section B where it will mix with the gaseous vapor and be fed through the opening *b'* and forced out of the perforations *m* and consumed. 95

I am aware that prior to my invention it has been proposed to provide hydrocarbon-burners with vaporizers and air mixers, and I do not claim such construction broadly; but 100

What I claim as new, and desire to secure by Letters Patent, is—



1. In a hydrocarbon burner, the combination, of a base having an open end, a section B having a depending portion of less length than the section A and an upper wall or plate 5 b with an aperture b', a section D having a series of perforations and an outwardly projecting trough the end walls of which are recessed to receive and support the vaporizer F, said vaporizer discharging into the section 10 B, substantially as shown, and for the purpose set forth.

2. In a hydrocarbon burner, the combination, of the sections A, B and D constructed and connected to each other substantially as 15 shown so as to provide a serpentine air passage which commences at one end of the section A, the discharge from the vaporizer being on a line with the intermediate portion of said serpentine passageway, substantially 20 as shown, whereby the air is drawn into the casing and mixed with the gaseous vapor from the vaporizer on its way to the outlet openings of the burner.

3. In a hydrocarbon-burner, the combination, with a base A provided with supports 25 and an open end, the side walls having outwardly-projecting flanges, of a section B comprising a horizontal plate having near one end an opening b' and a semi-circular plate 30 extending from the opening b' to near the end wall of the section A, a section D made up of a perforated curved plate and end walls, said section D supporting a trough E, the end walls of the trough having recesses, 35 and a vaporizer made up of a section of pipe with a cap at each end to which the inlet pipe and discharge pipe are connected, the discharge pipe passing through the end wall of the section A of the burner, substantially as shown, and for the purpose set forth. 40

In testimony whereof I affix my signature in presence of two witnesses.

ADAM SCHAFER.

Witnesses:

W. C. SINGER,

W. S. HENDERSON.