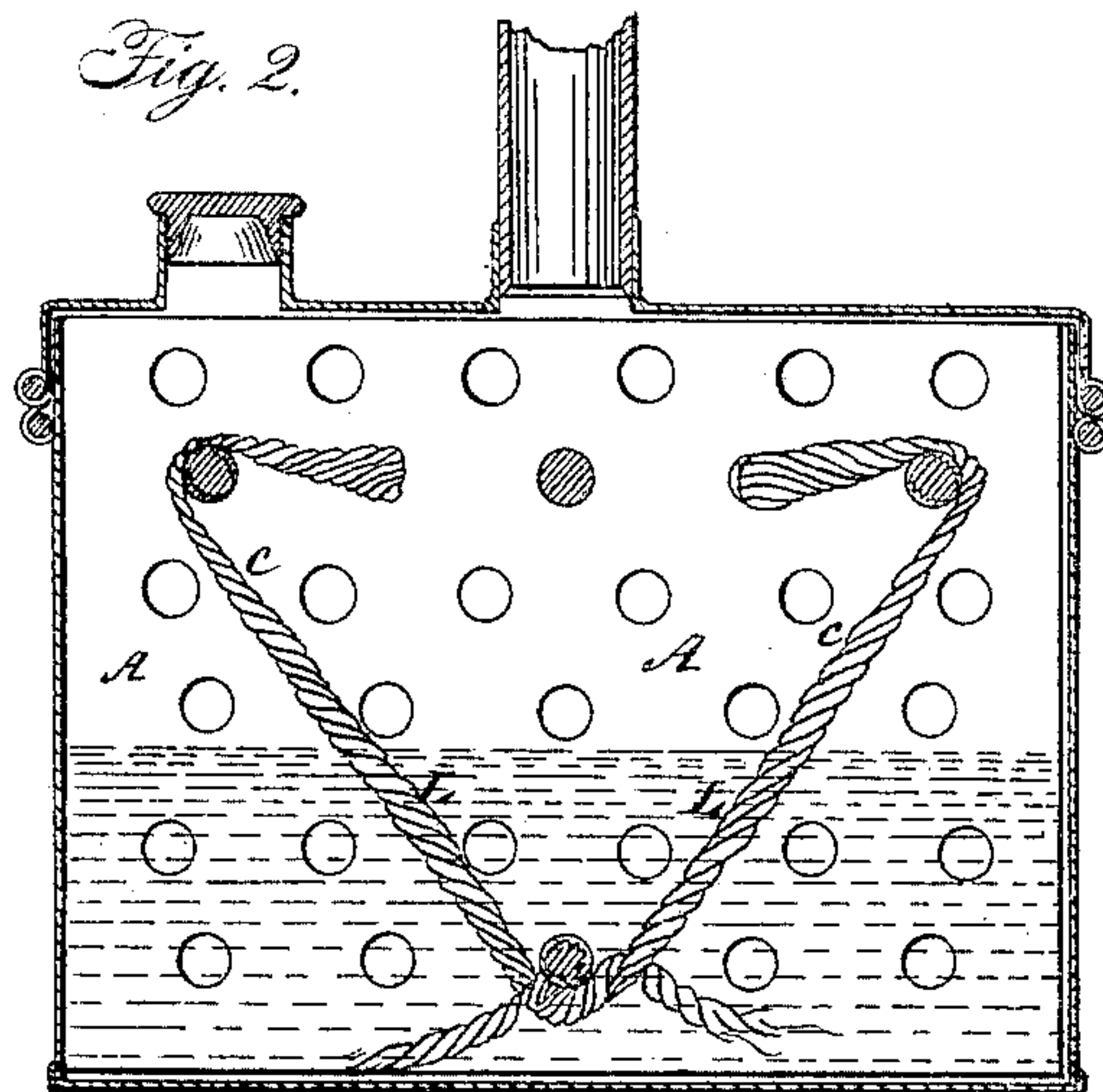
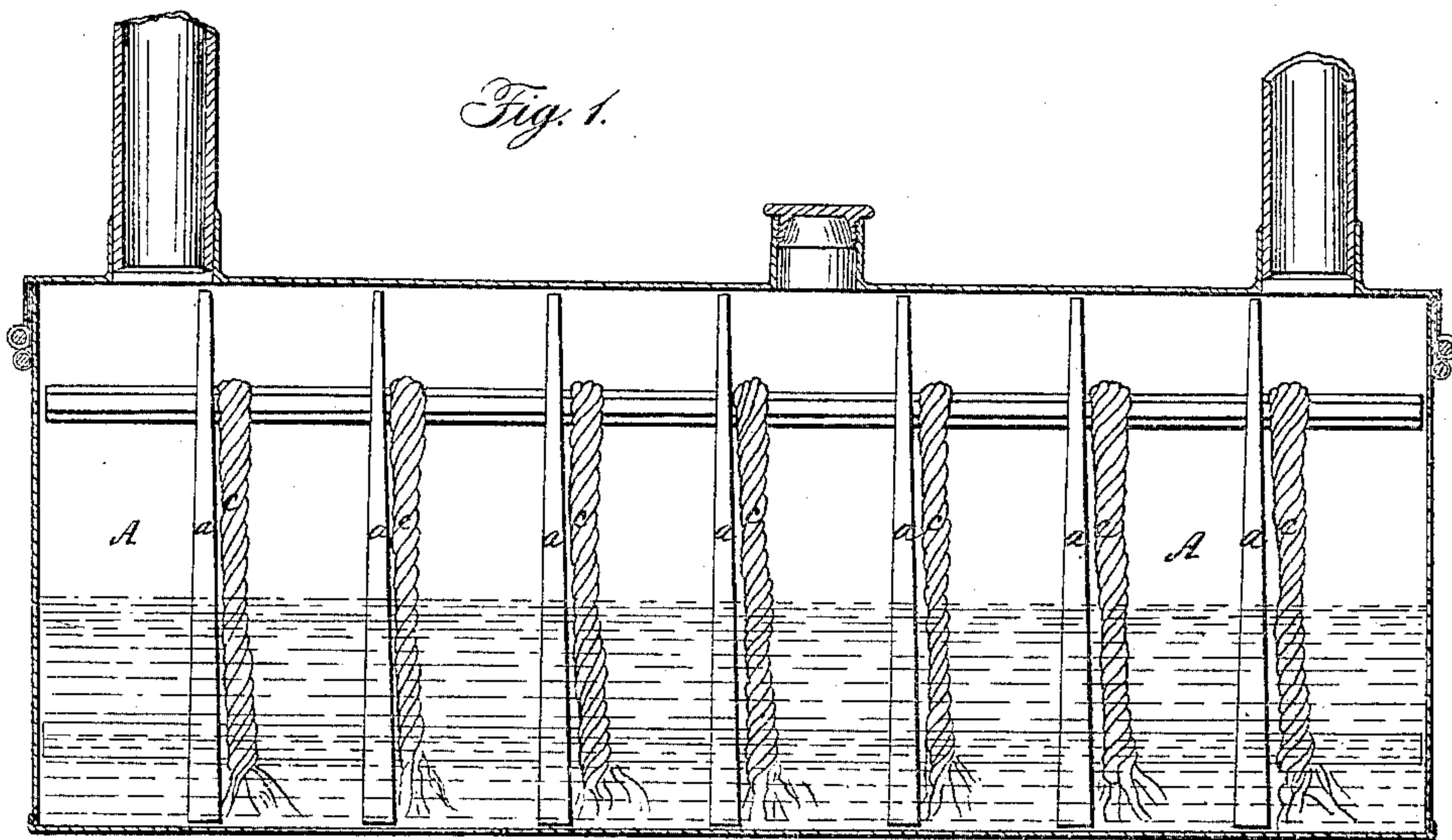


J. F. BOYNTON.

Carbureter.

No. 49,705.

Patented Sept. 5, 1865.



Witnesses:

*Almon B. Messinger*  
*Lyman Stevens*

Inventor:

*John F. Boynton*



# UNITED STATES PATENT OFFICE.

JOHN F. BOYNTON, OF SYRACUSE, NEW YORK.

## IMPROVED GAS-LIGHT MULTIPLIER.

Specification forming part of Letters Patent No. 49,705, dated September 5, 1865.

*To all whom it may concern:*

Be it known that I, JOHN F. BOYNTON, of Syracuse, in the county of Onondaga, State of New York, have invented a new and useful improvement in that class of apparatus which relates to the increase of the illuminating powers of gas, such as is used for lighting cities and dwellings.

It is well known that illuminating-gas is liable to become partially decomposed in passing for any considerable distance through cold tubes, and also that ordinary city gas does not hold as much illuminating property as it is susceptible of containing, and can by certain modes be easily imparted to it. The carbon which communicates its lighting property becomes deposited, and the gas will thereby become greatly deteriorated. Many contrivances have been devised for remedying this defect. The most successful of these consists in an apparatus for thoroughly commingling the defective gas with vapor containing a superabundance of the desired ingredient.

I do not profess to have discovered any new principle, but merely to have provided an improved apparatus for accomplishing this object. The following is a sufficiently accurate description of the means employed by me for this purpose, which will be better understood by reference to the drawings, in which—

Figure 1 represents a longitudinal section of the multiplier; Fig. 2, a cross-section thereof.

A A is a box or receiver, of any convenient size and form, for holding the liquid hydrocarbons, and also the apparatus used for mixing them with the gas. I prefer to make this box of cast-iron, with its length at least double its breadth or height.

I make several partitions, *a a*, in this box, which are formed of wood, and are made tapering in shape, having their thick ends downward. These partitions should extend from near the bottom of the box, at least from some point below the surface of the liquid which is to be contained therein, to or near the top of the box. They are to be perforated with a large number of holes, which ought to be distributed over their whole surface. For these partitions I prefer wood with a straight grain which stands vertically, and, as far as practicable, should run straight, or lengthwise of the partition.

Through some of the apertures in these partitions I insert bars to hold the partitions in place, and also to retain in position the wicking or fibrous material which is intertwined among the other apertures, and which should be brought down beneath the surface of the liquid in the box. All the other apertures may be used in like manner to sustain the wicking in the way shown in the drawings.

It will be observed that as the pores of the wood stand upright in the position of their natural growth the fluid will pass up the capillary vessels to the top of the partitions through the central capillary tubes; but as the partitions are much thicker at the base than at the top, the capillary vessels will be constantly presenting their openings along the sides of these partitions. As the surface of the liquid descends the number of these capillary tubes will increase, as will also the number of the cotton wicks which are employed. The capillary action of these wicks is so great that the fluid will be drawn up faster than it will pass off by evaporation, and the external surfaces of these partitions will therefore be kept constantly moistened, thus aiding greatly the evaporation which is desired. When the vessel is first sufficiently filled with the hydrocarbon liquid the lighter portions will first evaporate. These will pass off more freely than the heavier portions, which will remain in the vessel after they have passed off; but to preserve a uniformity in the enriching property communicated to the gas the evaporating-surface and the number of capillary pores are all the while rapidly increasing as the liquid becomes less volatile, thus effecting, to a great extent, a compensation for the change which is taking place in the liquid hydrocarbons within the box or receiver.

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

1. In an apparatus for carbureting gas for illuminating purposes, the use of partitions of wood placed so that the grain shall stand vertically when those partitions are constructed with a wedge-like shape, having their lower ends thicker than the upper, substantially as described.

2. In an apparatus of the kind above con-

templated, the use of a cotton wicking or other equivalent material so arranged and contained that the number of capillary pores shall be all the while rapidly increasing as the fluid hydrocarbon becomes less volatile, substantially as and for the purpose described.

3. A combination of partitions, bars, and wicks, forming a movable cage setting into a

box, producing a compound capillary action of porous and fibrous material, substantially as described.

JOHN F. BOYNTON.

Witnesses:

JOHN WHITE,

STANLEY BAGG.