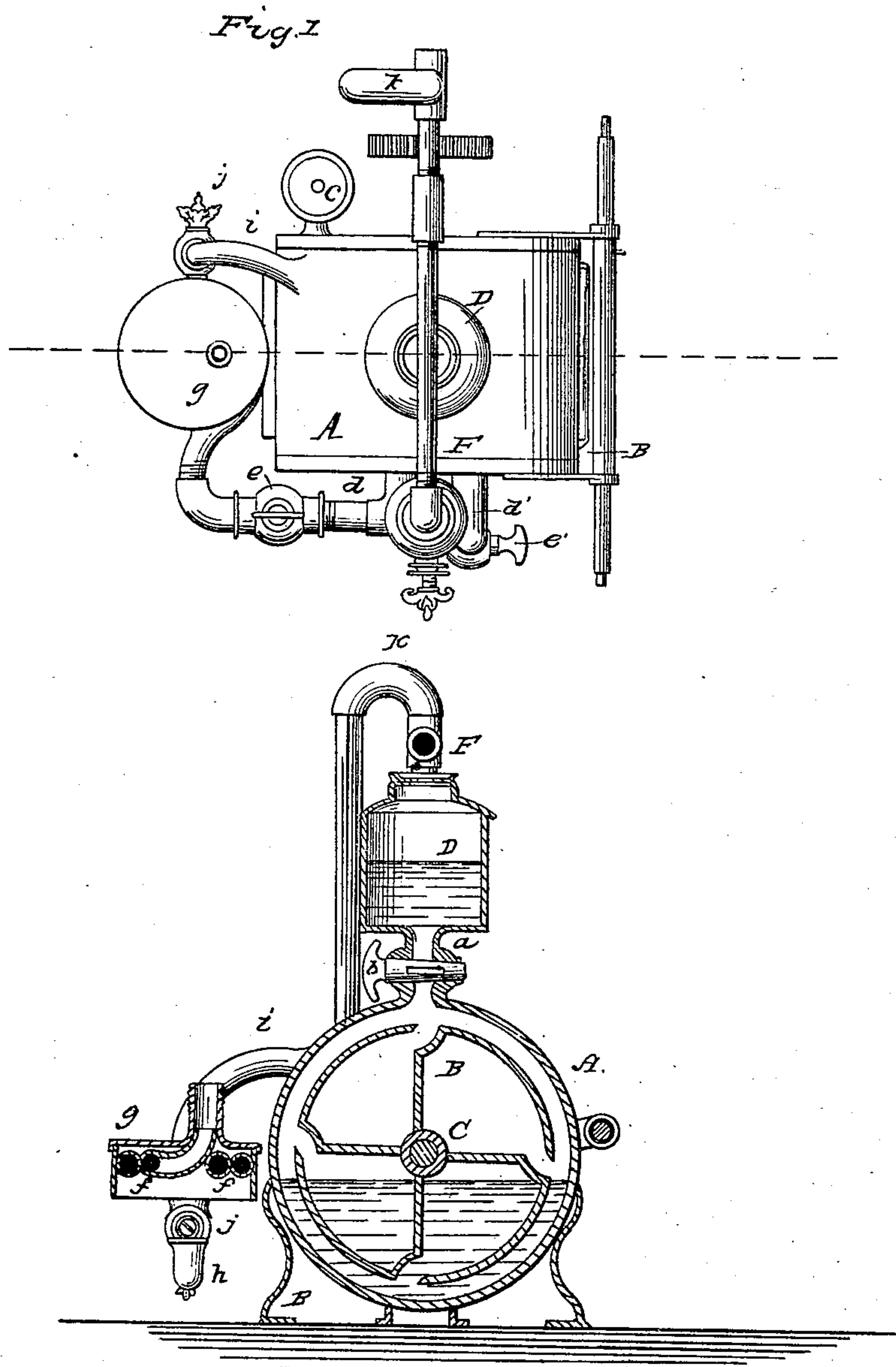


J. F. SPENCE.

Apparatus for Carbureting Air.

No. 52,087.

Patented Jan'y 16, 1866.



Witnesses  
Thos. Fusch  
J. F. McNamee

Inventor.  
James F. Spence

# UNITED STATES PATENT OFFICE.

JAMES F. SPENCE, OF BROOKLYN, NEW YORK.

## IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. 52,087, dated January 16, 1866; antedated January 3, 1866.

*To all whom it may concern:*

Be it known that I, JAMES F. SPENCE, of Brooklyn, E. D., in county of Kings and State of New York, have invented a new and Improved Gas Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a plan or top view of this invention. Fig. 2 is a transverse vertical section of the same.

Similar letters of reference indicate like parts.

The object of this invention is an apparatus whereby a quantity of atmospheric air is passed through the body of a quantity of benzine or other hydrocarbon liquid, and by taking up the vapors emanating from the hydrocarbon liquid said air is converted into an illuminating-gas.

The invention consists in a wheel working in the interior of a drum, which is partially filled with hydrocarbon liquid to be evaporated, in combination with an oil-supply tank and with a hot and cold air supply-pipe, in such a manner that by the action of the wheel the air and the hydrocarbon liquid are intimately mixed, and no air is allowed to escape from the drum before it is thoroughly saturated with the hydrocarbon vapors and rendered fit for illuminating purposes.

The invention consists, further, in the arrangement of goose-necks in the pipe conducting the gas from the drum to the burners, in combination with a branch pipe running from said gas-pipe back into the drum, in such a manner that the vapors condensing in the gas-pipe are carried back to the drum and prevented from clogging up the pipe.

A represents a drum, made of tinned sheet-iron or any other suitable material, and of any suitable size and capacity. Said drum is cylindrical, and it is supported by legs B of convenient size and shape. The heads of the drum form the bearings for the shaft C of the wheel B, which occupies the interior of the drum A. This wheel may be made similar to

the wheel of an ordinary gas-meter, or it may be constructed in any other convenient form or shape, and it is rotated by suitable gear-wheels from the driving-shaft, or in any other convenient manner.

The drum A is supplied with oil or hydrocarbon liquid from the supply-tank D, which is situated on top of the drum, and communicates with the same through a pipe, *a*, which can be opened or closed by a stop-cock, *b*, to regulate the supply of hydrocarbon liquid to the drum.

If desired, the hydrocarbon liquid may be introduced into the drum direct through the receiving-spout C.

By the motion of the wheel B in the drum the hydrocarbon liquid is kept constantly in motion and brought in intimate contact with a current of air, which is introduced either through the pipe *d* or through the pipe *d'*. The pipe *d'* communicates with a suitable reservoir containing cold air, and the current of cold air passing through this pipe is regulated by the stop-cock *e'*. The pipe *d* is intended to conduct hot air into the drum, and in order to heat the air it is passed through a coil, *f*, which is covered up by the case *g*, and exposed from below to the action of the flame of a gas-burner, *h*, which is supplied with gas from the drum through the pipe *i*. The supply of gas passing through this pipe is regulated by the stop-cock *j*, and the supply of hot air passing from the case *g* through the pipe *d* to the drum is regulated by the stop-cock *e*. The air, on passing into the drum, is compelled to pass through the body of the hydrocarbon liquid, and after it has been saturated with the vapors it is conducted to the burners through the gas-pipe F. This pipe must be so situated that it slopes down toward the drum, and that the condensed vapors find their way back without clogging up the pipes. If the gas is to be used in a chandelier, however, where a branch pipe must necessarily descend from the gas-pipe, I provide a goose-neck, *k*, as clearly shown in the drawing, and by the action of this goose-neck the condensed vapors are retained and carried back to the drum through a suitable branch pipe.

By means of this apparatus a cheap and



good illuminating-gas can be produced from ordinary atmospheric air and volatile hydrocarbon liquids.

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

1. The wheel B, when constructed as specified, and employed in combination with the drum A and pipes *d d'* to catch and confine the air and force it under the surface of the liquid, in the manner explained.

2. The goose-neck, arranged in combination with the gas-pipe F, drum A, and air-supply pipe *d* or *d'*, in the manner and for the purpose substantially as herein specified.

JAMES F. SPENCE.

Witnesses:

M. M. LIVINGSTON,  
THEO. TUSCH.