No. 74,196. PATENTED FEB. 11, 1868.

C. CARPENTER, Jr.

HYDROCARBON BURNER.

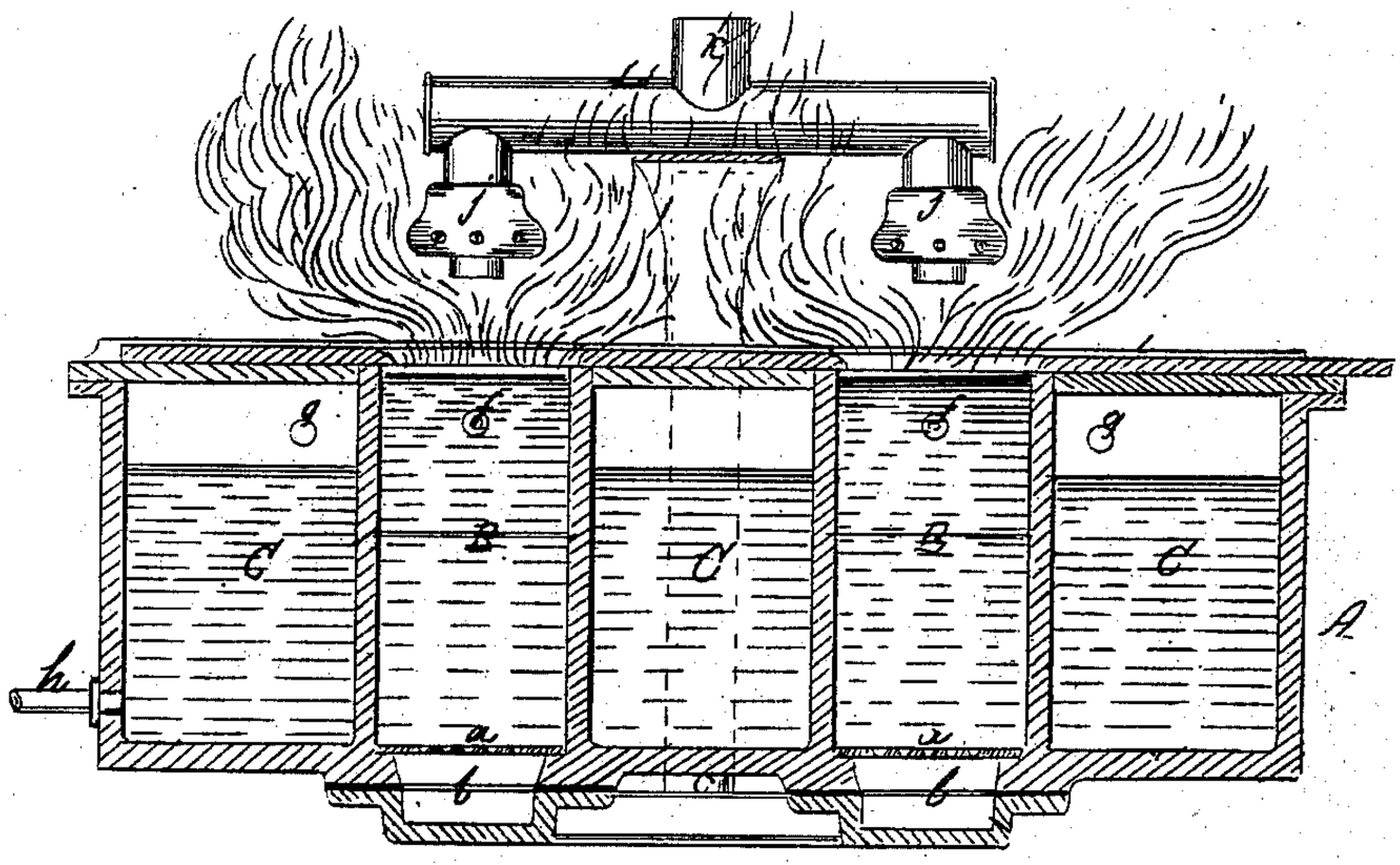
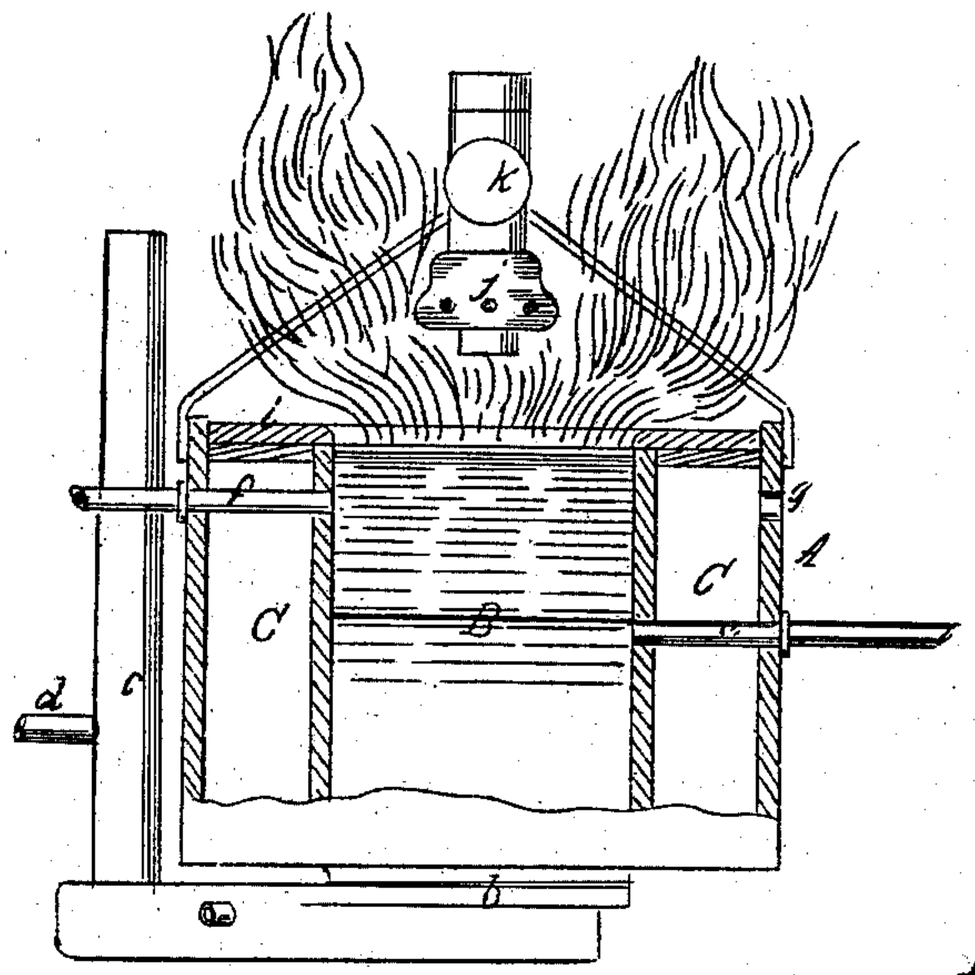


Fig: 2.



Witnesses:

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per

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Letters Patent No. 74,196, *dated February* 11, 1868.

IMPROVEMENT IN HYDROCARBON-BURNERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CALVIN CARPENTER, Jr., of Astoria, in the county of Queens, and in the State of New York, have invented a new and useful Improvement in Burning Petroleum as Fuel; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a longitudinal vertical section of this invention.

Figure 2 is a transverse section thereof.

Similar letters indicate corresponding parts.

This invention relates to an apparatus or burner which is intended to be used under a steam-boiler or other furnace for the purpose of using petroleum as fuel.

It consists of one or more oil-cisterns, which are surrounded by a water-jacket, so that the temperature of the oil is kept down as low as possible, and the material from which the burner is made is preserved against being burned out. The oil-cistern is partially filled with water, so that the oil floats on the water; and through the body of the water and the oil is passed a current of air, which serves to feed the flame with the requisite quantity of oxygen, and which also assists in driving the light parts of the oil upwards, leaving the heavy parts floating on the water, whence they are withdrawn, and used for lubricating purposes. Additional jets of air are thrown into the flame from above, so as to consume all the gases.

A represents the body of my burner, which is made of cast iron or any other suitable material, and which contains one or more cisterns, B. Each cistern is surrounded by a water-jacket, C, and provided with a perforated bottom, *a*, which separates the same from an air-bonnet, *b*. This air-bonnet communicates with an air-supply, *c*, so that a current of air can be forced into each cistern from below.

The cisterns are supplied with a quantity of water, which may be introduced through a pipe, *d*, from below, and which is permitted to rise to a level with another pipe, *e*. The oil floats on the water, and it is introduced through a pipe, *f*, the heavy parts being drawn off through the pipe *e*.

By the water-jacket, the temperature of the oil in the cistern is kept down to such a point that explosions are prevented, and, by the current of air introduced from below through the body of oil, all the light constituents of the oil are carried up into the flame, and the heavy parts are left floating on the water. The air, in passing through the body of the water in the lower part of the cistern, is also saturated with moisture, which materially assists in producing a flame of an intense heat.

The water-jacket is provided with a series of apertures, *g*, at or near its top, so that, if the water in said jacket should begin to evaporate, the steam is free to escape, and all danger of an explosion from this source is avoided.

A pipe, *h*, near the bottom of the jacket, serves to introduce the water into the same, and also to draw the water out whenever it may be desirable.

A slide, *i*, which is fitted on the top of the burner, serves to close the mouth of the cistern, and to extinguish the flame whenever it may be required.

Over the mouth of each cistern is secured a rose, *j*, which communicates with an air-supply pipe, *k*, so that jets of air can be thrown into the flame, whereby the combustion of the oil is rendered perfect, and the escape of unconsumed gases is prevented.

By means of this burner, I am enabled to use crude petroleum as fuel in furnaces with great economy. The heavy parts of the oil, which are continually withdrawn from the cistern through the pipe *e*, can be used for lubricating purposes, and the lubricating-oil thus obtained alone pays for the whole cost of the fuel.

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

1. The within-described process of burning crude petroleum and separating from it the heavy parts fit for lubricating-oil by passing currents of air up through the body of the petroleum to be burned, said petroleum being made to float on water, substantially as and for the purposes set forth.

2. The arrangement of one or more cisterns, B, surrounded by a water-jacket, C, and provided with air-bonnets, *b*, below, and with pipes, *e*, to draw off the heavy oil, substantially as herein described.

3. The arrangement and combination of the slide *i* with the cistern or cisterns B, in the burner A, substantially as and for the purpose set forth.

4. The arrangement of a rose, *j*, over each of the cisterns B, in combination with the air-bonnets *b* below, substantially as and for the purpose described.

5. The escape-apertures *g* in the water-jacket C, surrounding the cistern or cisterns B, substantially as and for the purpose set forth.

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Witnesses:

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