

J. PONTON.

Automatic Vapor-Test for Hydrocarbons.

No. 165,612.

Patented July 13, 1875.

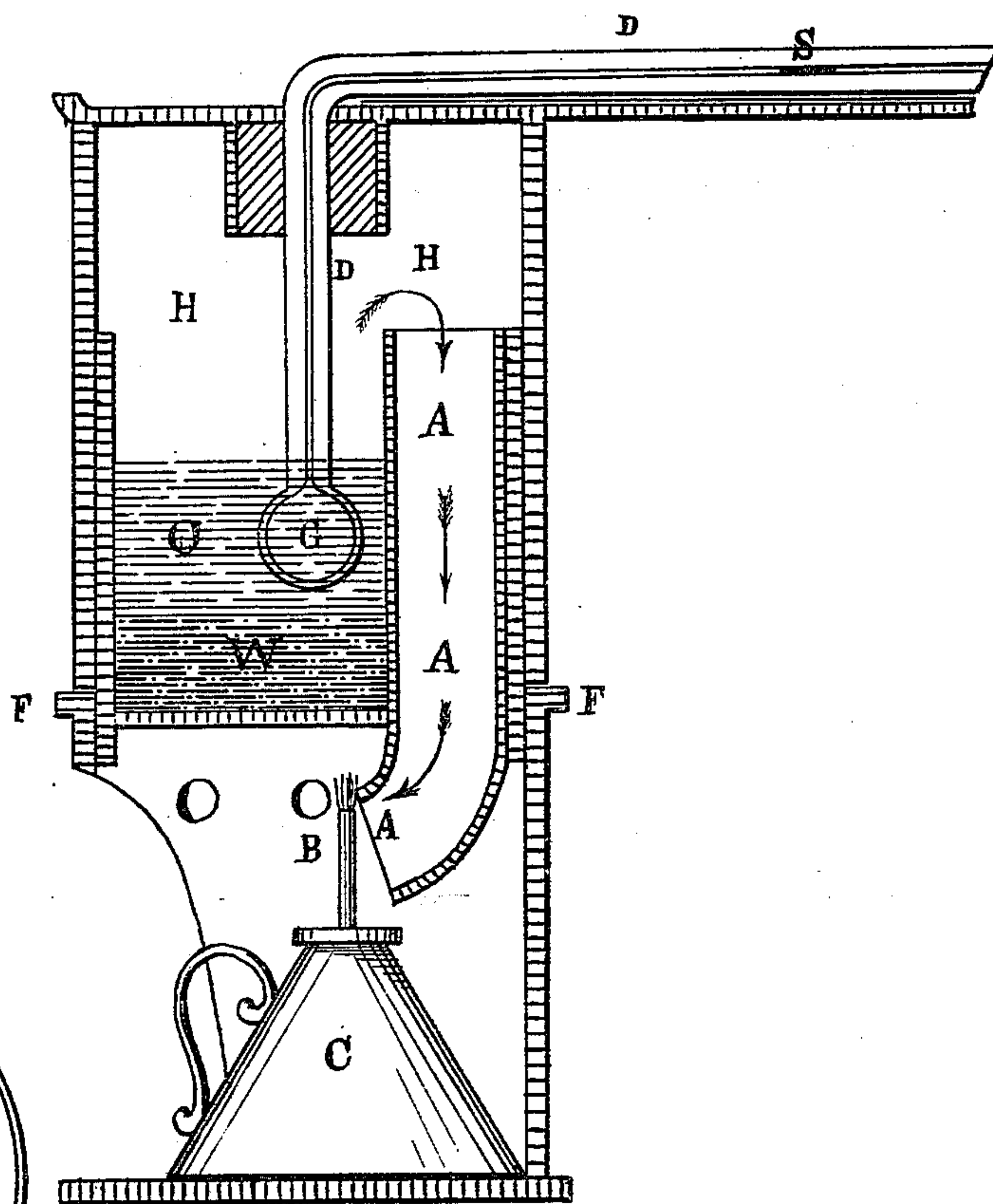
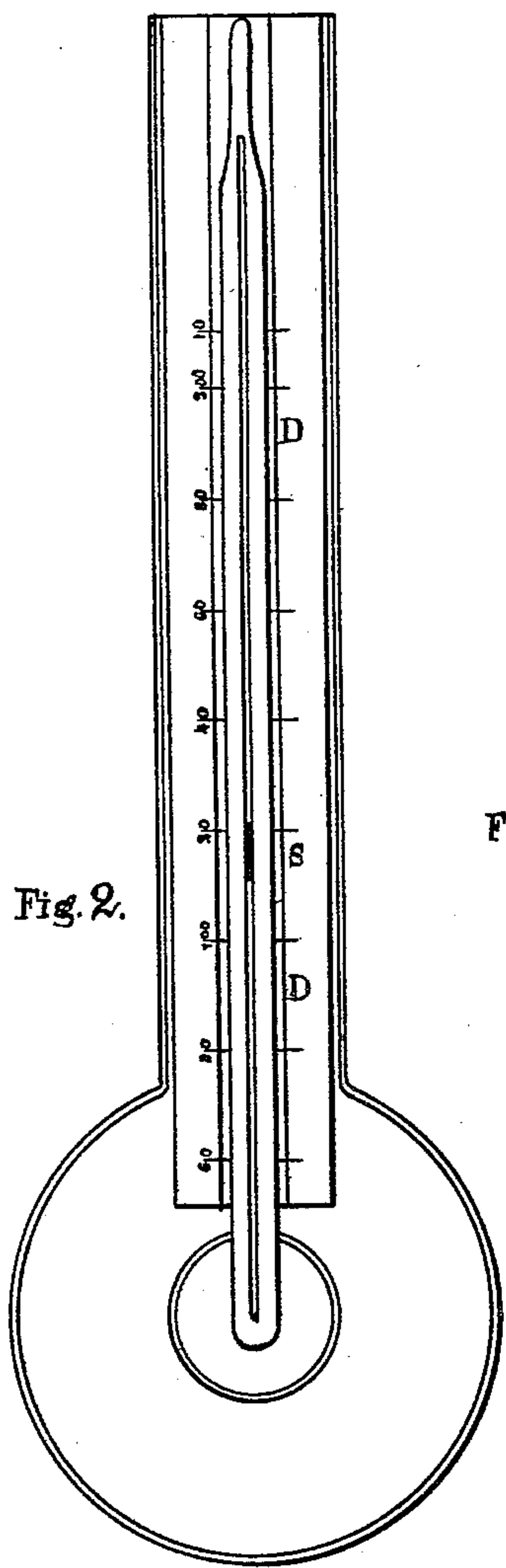


Fig. 1.

Witnesses
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IMPROVEMENT IN AUTOMATIC VAPOR-TESTS FOR HYDROCARBONS.

Specification forming part of Letters Patent No. 165,612, dated July 13, 1875; application filed January 20, 1875.

To all whom it may concern:

Be it known that I, JOHN PONTON, of the city of Titusville, county of Crawford and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Vapor-Tests for Hydrocarbons, of which the following is a specification:

The object of my invention is to ascertain the pressure of light or dangerous vapors in the hydrocarbons used for illuminating or heating purposes, or the existence of the lighter members, which are considered undesirable in hydrocarbons.

To this end my invention consists in determining the relative temperatures at which hydrocarbons will vaporize or volatilize, by conducting the vaporized hydrocarbon to the flame of a lamp, by which they are heated, whereby, when the vapor has reached a certain density, an explosion is caused which will extinguish the lamp, as will be hereinafter described.

In the drawings, Figure 1 is a longitudinal section of my apparatus, and Fig. 2 is a top view of the same.

The letters O W represent the chamber for oil and water; H H, the vapor-chamber; A A, a tube leading to the wick B; D a self-registering thermometer, having the bulb G below the surface of the oil, and provided with the registering-needle S. C is the lamp, and B the wick of the lamp. The vapor-chimney H H is constructed so as to be removed to fill the oil and water chamber, and of sufficient weight to resist any probable explosion of vapor, and rests, when in place, upon the shoulders F F, as shown.

The apparatus being set in a convenient place, the oil and water chamber O W is first filled with a specified amount of water, sufficient to properly diffuse the heat of the lamp, but not to reach the bulb G.

The oil to be tested is then poured in, high enough to cover the bulb G, and also of a specified quantity—marks for the amount of both oil and water to be indicated on the instrument, so that the tests may be uniform.

The lamp being lighted and placed in the position shown, at the mouth of the tube A A, the water is first heated and then the oil. As the oil becomes heated, the lighter members of the hydrocarbon are thrown off in the form of vapor, filling the chamber H H, and

at last escaping downward, by pressure, through the tube A A.

When the vapors attain a certain density, and reach and mingle with the outside air at the flame B, an explosion is the result and the lamp is thereby extinguished.

An examination of the needle S of the thermometer D will show the temperature of the oil at the time of the explosion.

Oil readily vaporized will, of course, indicate after this test a lower temperature on the thermometer than oil which is less so.

By this means we have a method of ascertaining the relative vaporizing properties of different samples of oil.

By the combination of the relative position of this lamp to the vapor from the oil and the atmospheric air, the action of the apparatus, when properly adjusted, secures an automatic test without further skill.

What I claim is—

1. The method or process of determining the relative temperatures at which hydrocarbons will vaporize, by conducting the vaporized hydrocarbon to the flame of a lamp, by which they are exploded, and indicating the temperature at the time of the explosion by a registering device, substantially in the manner described.

2. The automatic vapor-test, consisting of the combination of an oil and water chamber, O W, for vaporizing the oil-chamber H, and descending flue A for conducting the vapor below, and lamp for heating the oil and exploding the vapor, substantially as described.

3. The combination of the oil and water chamber O W and registering-thermometer D, provided with a registering-needle, S, for the purpose of indicating the temperature at which the vapor generated from the oil explodes, substantially as herein described.

4. The combination of the lamp G, oil and water chamber O W, chamber H, flue A, and registering-thermometer D, for the purpose of vaporizing the oil, exploding the vapor, and indicating the temperature at which the explosion takes place, substantially as herein described.

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Witnesses:

HENRY E. WRIGLEY,
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