

Oct. 16, 1934.

S. STANWORTH

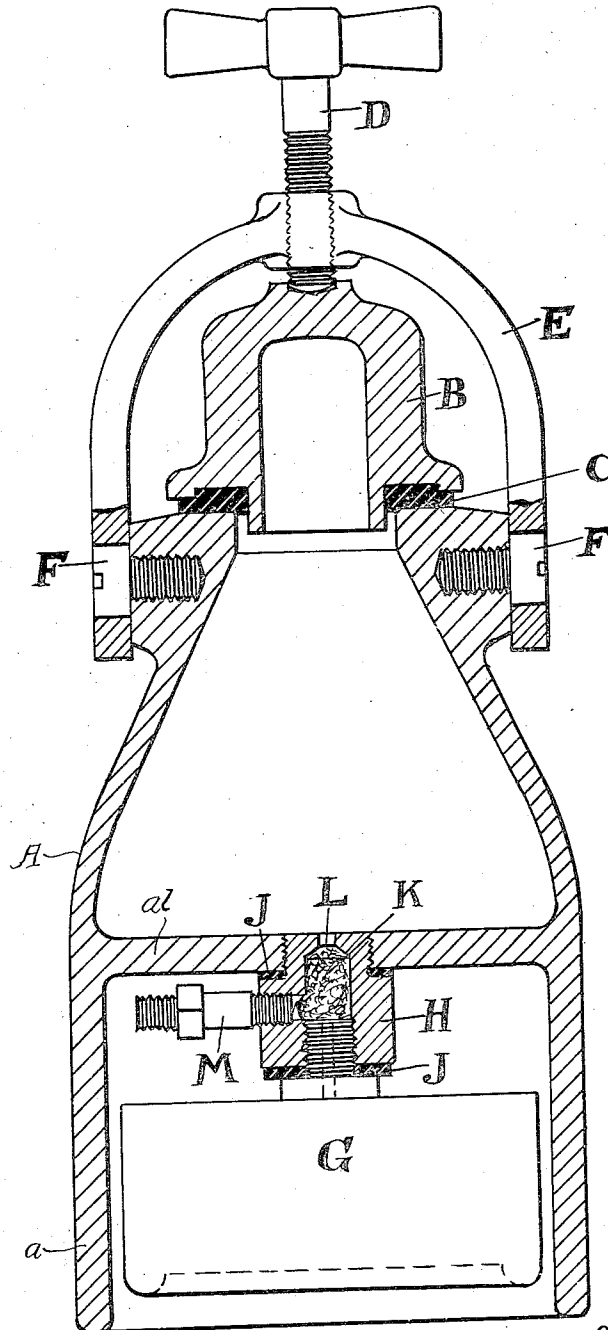
1,976,752

MOISTURE DETERMINING APPARATUS

Filed Nov. 30, 1932

2 Sheets-Sheet 1

FIG. 1.



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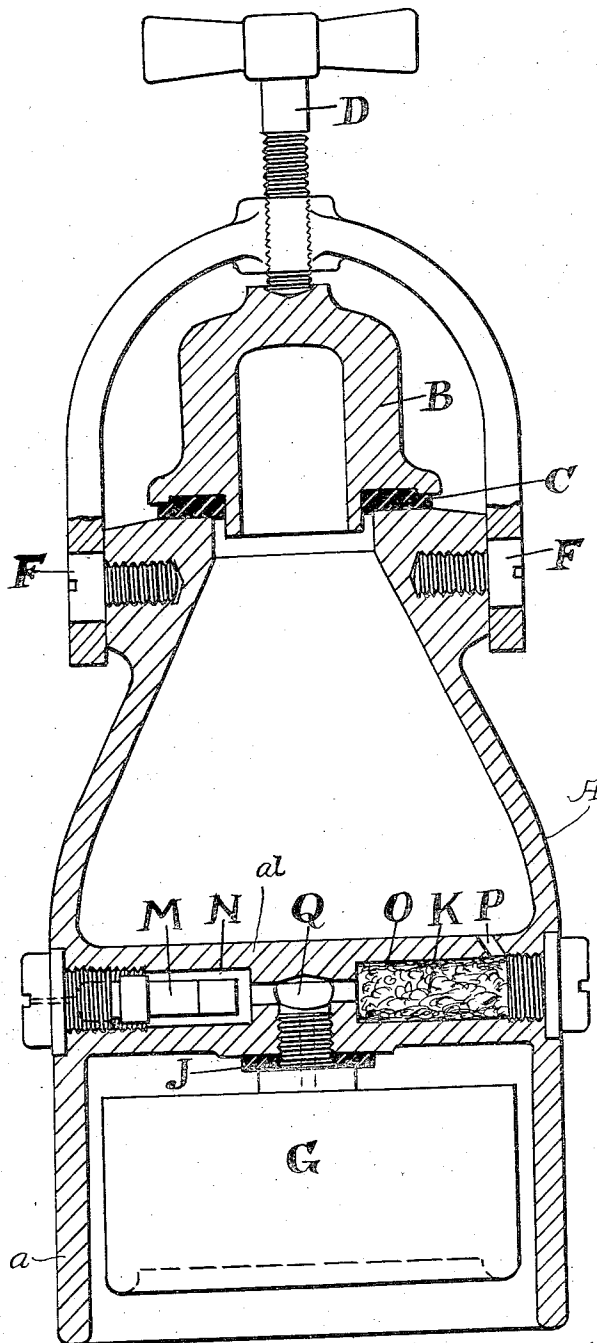
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FIG. 2.



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UNITED STATES PATENT OFFICE

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MOISTURE DETERMINING APPARATUS

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Application November 30, 1932, Serial No. 645,080
In Great Britain December 8, 1931

3 Claims. (Cl. 23—253)

This invention relates to apparatus for carrying out a known process for ascertaining the amount of moisture that any particular substance or material contains by subjecting the material to be tested to another material, substance or composition that will generate gas under the influence of moisture, the amount of gas generated being dependent upon the amount of moisture content in the material to be tested and being indicated by means of a pressure gauge which may be graduated in terms of per cent moisture content by weight or volume.

According to this invention the apparatus comprises a metal vessel fitted with a detachable cap to receive a measured quantity of material, such for example, as calcium carbide that will generate gas under the influence of moisture. This cap may be retained on a seating on the mouth of the vessel by means of a pivoted screw clamp, a tight joint being maintained between the cap and the mouth of the vessel by a rubber or other packing ring. The vessel is arranged in open communication with a pressure gauge through the intervention of a suitable filtering medium and also with a safety valve that is set to open at a predetermined pressure. To utilize the apparatus a measured quantity of the material to be tested is placed in the vessel. In the cap is placed a predetermined amount of carbide of calcium, or other suitable material in a powdered state. The cap is then applied to the mouth of the vessel whilst the latter is held in a substantially horizontal position so that the carbide of calcium and material to be tested do not intermingle before the vessel is closed which is effected by clamping the cap in position on the mouth of the vessel. The latter is then shaken to bring the carbide of calcium into intimate contact with the material under test. Gas is then generated in proportion to the amount of moisture contained in the material and the percentage of moisture content is indicated on the pressure gauge.

In the accompanying drawings:—

Fig. 1 is a section of one form of apparatus, and Fig. 2 is a similar view showing a slightly modified construction.

A indicates a conical shape vessel that is formed with a downwardly extending flange *a* below the base *al* and is fitted with a detachable cap B in which is put a predetermined quantity of calcium carbide or other suitable material. This cap is fitted with a rubber or other packing ring C which is compressed to make a tight joint between the cap and the mouth of the vessel by a screw D in a stirrup E that is pivoted to the vessel by screws F. G indicates a pressure gauge graduated to show the percentage of moisture by weight or volume in the material to be tested. The pressure gauge is screwed into a fitting H,

Fig. 1 that is in turn screwed into a tapped hole in the bottom of the vessel, a tight joint being made by packing rings J. The fitting H is formed with a cavity to receive a filtering medium K and with a small hole L which forms a communication between the interior of the vessel and the pressure gauge. M indicates a safety valve that is screwed into the fitting H. The apparatus is used in the manner previously described. The modification shown in Fig. 2 is the same as that described with reference to Fig. 1 with the exception that the bottom of the vessel is formed with two pockets N, O to receive the safety valve M and filtering medium K respectively. The pressure gauge G is screwed directly into the bottom of the vessel and a small hole P is formed in the latter to allow gas generated in the vessel to have access to the pressure gauge and safety valve by way of the communicating passage Q.

What I claim as my invention and desire to secure by Letters Patent in the United States is:—

1. Apparatus for ascertaining the amount of moisture content of a material or substance, comprising a vessel of conical formation from the base to the mouth for the reception of material that will generate gas under the influence of moisture, a closure for the vessel, a pressure gauge and a safety valve arranged in open communication with the vessel and a suitable filtering medium packed in the communication between the vessel and the pressure gauge and safety valve to filter the gas before it reaches the pressure gauge and safety valve.

2. Apparatus according to the preceding claim for ascertaining the amount of moisture content of a material or substance wherein the closure is made in the form of a cup to receive a predetermined quantity of carbide of calcium.

3. Apparatus for ascertaining the amount of moisture content of a material or substance comprising a vessel for the reception of a material that will generate gas under the influence of moisture, the said vessel being formed with a downwardly extending flange below the base, a pressure gauge mounted within the downwardly extending flange and arranged in open communication with the vessel, a safety valve mounted within the downwardly extending flange and a filtering medium situated between the pressure gauge and safety valve and the vessel to filter the gas before it reaches the pressure gauge and the safety valve, the upper portion of which vessel is of conical formation from the base to the mouth, a detachable cap and a stirrup pivoted to the vessel and provided with a screw for clamping the cap on the mouth of the vessel.

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