Oct. 31, 1933. S. I. CHARLESWORTH ET AL 1,933,414

DISTILLATION APPARATUS

Filed Aug. 28, 1931

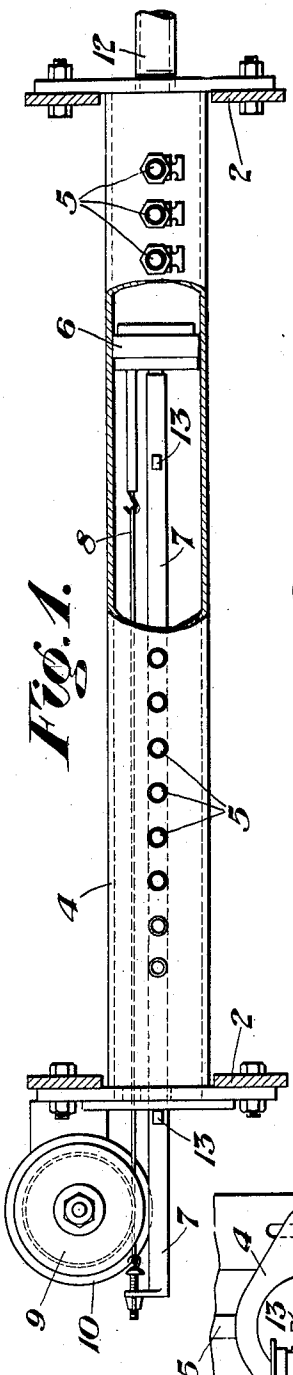


Fig. 1.

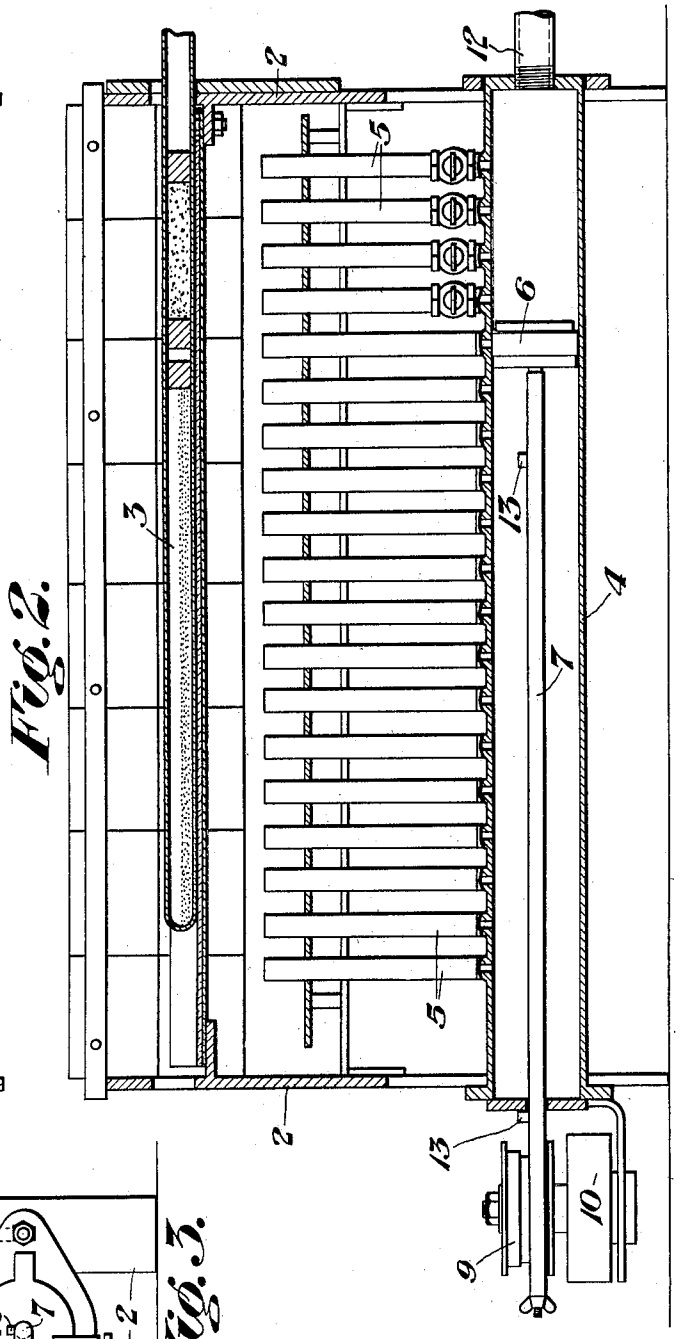


Fig. 2.

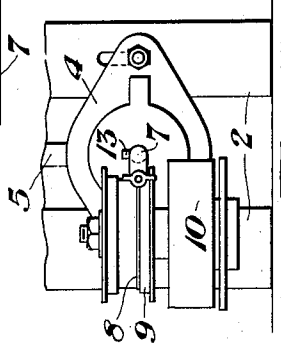


Fig. 3.

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DISTILLATION APPARATUS

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2 Claims. (Cl. 23—253)

This invention relates to distillation apparatus for laboratory use in the progressive dry distillation of coal and the like, one of the objects being to provide an apparatus which closely simulates the actual conditions under which coal is distilled in the modern by-product coke ovens. Other objects may later become apparent.

In the drawing:

Figure 1 is a cross-sectional plan view of one form of the invention.

Figure 2 is a cross-sectional side view of Figure 1.

Figure 3 is an end view thereof.

Having reference to the drawing, there is shown a furnace structure 2 carrying a horizontal elongated distillation tube 3. An elongated horizontal cylinder 4 is positioned in this structure 2 beneath the tube 3 and has a plurality of burners 5 leading up therefrom. A piston 6 is carried by the cylinder 4, which really functions as a gas manifold, and has a piston rod 7 leading therefrom through the left-hand side of this manifold. A drum 9, operated by a clock mechanism 10, is positioned near the path of the rod 7, a cable 8 being fixed to the free end of this rod and to the piston 6 so that by being given a turn about the drum 9 the piston 6 may be moved by the clock mechanism 10.

The manifold 4 is supplied with a gas inlet 12.

In use, the material to be tested is loaded into the tube 3 in the usual manner of making such tests and the first four of the burners 5 lighted, the piston 6 being arranged so as to never advance to the right far enough to cut the gas from these burners. The clock mechanism 10 is set to a desired speed so that the piston 6 will be slowly moved along in the manifold 4. As this piston 6 moves gas is admitted to the burners 5 progressively, one after another. Preferably the piston rod 7 is provided with stops 13 which butt the end of the manifold 4 to prevent too great a movement of the rod.

This invention insures greater accuracy in the results obtained than is possible with the old method of manually operating a series of valves to obtain a progressive heating effect. The construction is simple and inexpensive, and is such as will not easily get out of order. The distillation tube 3 is not shown connected to any testing apparatus because the actual manner of testing does not concern this particular invention.

Although a specific form of this invention has been shown in accordance with the patent statutes it is not intended to limit the scope of this invention exactly thereto, except as is defined in the appended claims.

We claim:

1. A heating apparatus for distillation tubes comprising an elongated gas manifold alined with said tube, a plurality of spaced burners disposed upwardly from said manifold, a piston in said manifold, a piston rod fixed to said piston and reciprocable through one end of said manifold, a clock operated drum positioned adjacent the path of travel of said rod, a cable wrapped about said drum and having one of its ends fixed to the free end of said rod and the other of its ends fixed to said piston, and a gas inlet connected with the other end of said manifold.

2. A heating apparatus for distillation tubes comprising an elongated gas manifold alined with said tube, a plurality of spaced burners disposed upwardly from said manifold, a piston in said manifold, a piston rod fixed to said piston and reciprocable through one end of said manifold, spacing means for limiting the reciprocation of said piston, a clock operated drum positioned adjacent the path of travel of said rod, a cable wrapped about said drum and having one of its ends fixed to the free end of said rod and the other end fixed to said piston, and a gas inlet connected with the other end of said manifold.

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