March 31, 1936. C. A. HALL 2,035,746

MACHINE FOR TREATING NEWLY PASTED STORAGE BATTERY PLATES

Filed Nov. 3, 1932 2 Sheets-Sheet 1

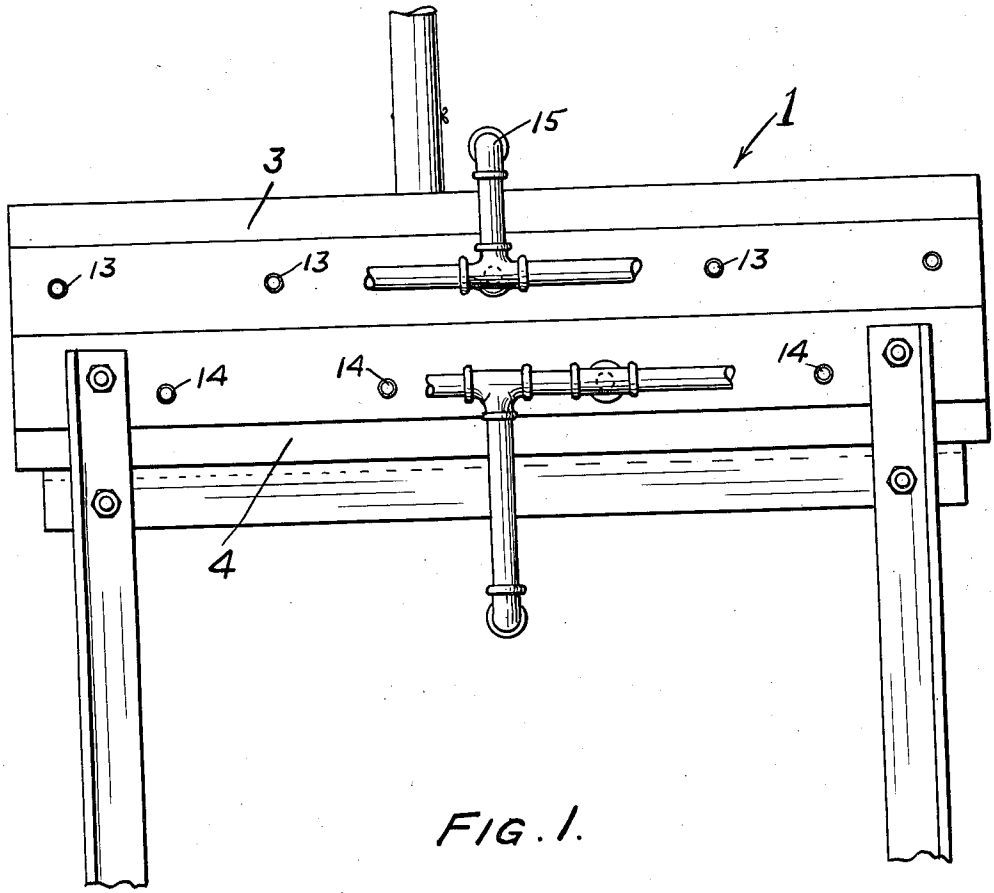


FIG. 1.

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WITNESS:

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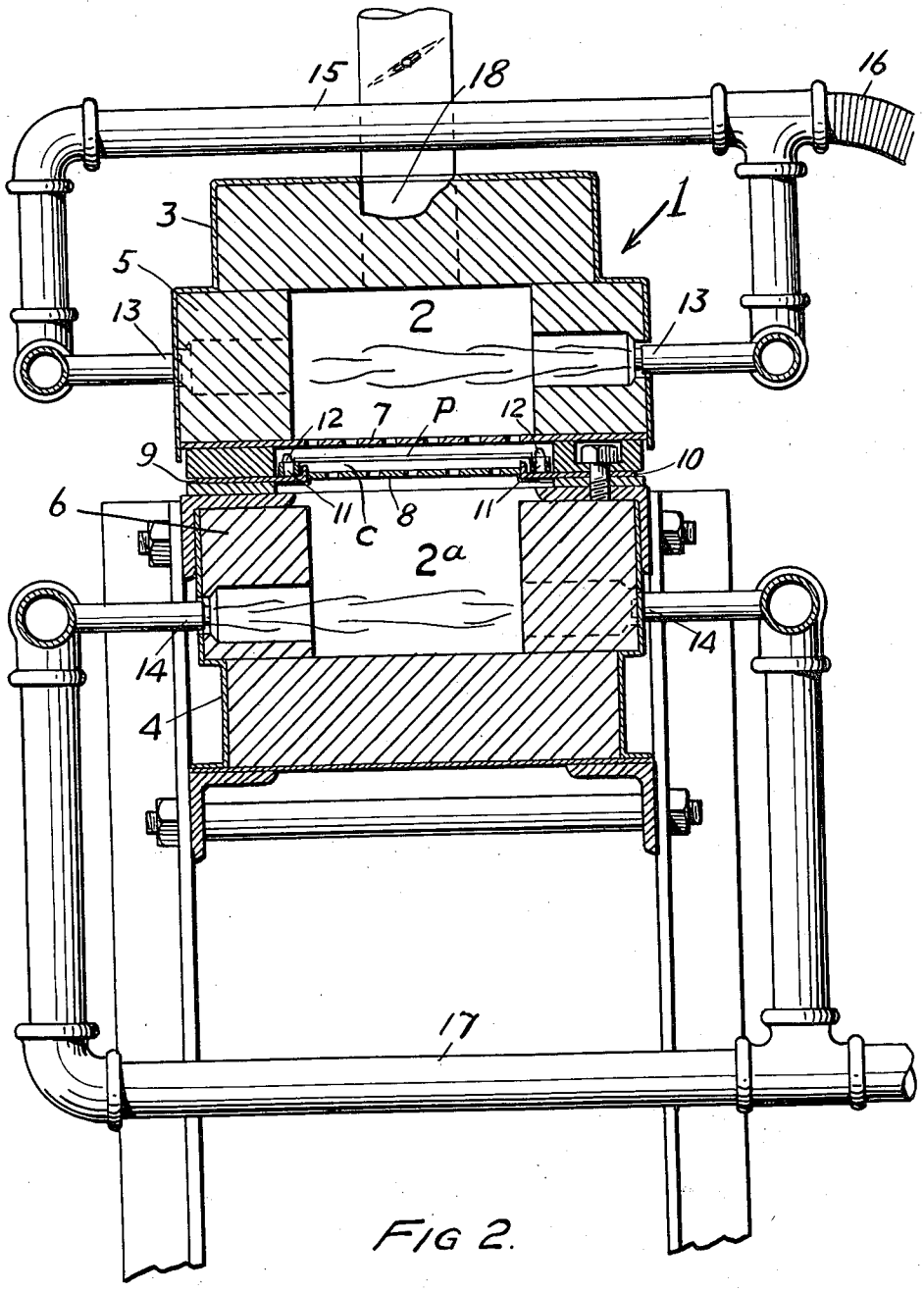


FIG 2.

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Patented Mar. 31, 1936

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MACHINE FOR TREATING NEWLY PASTED STORAGE BATTERY PLATES

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Application November 3, 1932, Serial No. 641,038

3 Claims. (Cl. 34—12)

The principal object of the present invention is to provide for expeditiously and continuously treating newly or freshly pasted electric storage battery plates in such a way that they can be piled or stacked in face to face relation with each other, without the paste of one sticking to the paste of its neighbors. Other objects of the invention will appear from the following description at the end of which the invention will be claimed.

In the present invention the plates are passed through a ventilated oven and in passage the heat causes partial evaporation of their moisture. The moisture driven off the plates raises the humidity of the atmosphere within the oven and thus retards further and complete evaporation and by suitable venting it is possible to control the degree of drying. In this manner semi-drying is effected and controlled and the plates emerge from the oven without cracking. Broadly, moist heat is applied to rapidly moving plates to sufficiently dry them so that they can be piled and stacked in face to face relation without the paste of one sticking to the paste of its neighbor.

In addition to the above, the invention, generally stated, comprises in one of its forms, a machine for drying storage battery plates comprising an oblong two-part, heat-insulated oven open at its end and defining a combustion chamber, spaced perforated platens, the lower one held in place by spacer pieces attached to conveyor guide supports, the upper platen resting on filler pieces and held in place by the upper oven part, the two platens defining a treating chamber which is separated from the combustion chamber, a conveyor adapted to engage the plates and carried by the conveyor guides and extending through the treating chamber burners arranged in the combustion chamber above and below the heating chamber, a flexible connection for supplying the upper burners to permit of the removal of the upper part of the oven, and of access to the combustion chamber.

The invention also comprises the improvements to be presently described and finally claimed.

In the following description reference will be made to the accompanying drawings forming part hereof and in which

Figure 1 is a side elevational view of an oven embodying features of the invention, and

Fig. 2 is a transverse sectional view of the same.

Referring to the drawings, 1, generally, indicates an oblong two-part, heat-insulated oven, open at its ends, and defining combustion chambers 2 and 2a. The oven includes a two-part, separable shell 3 and 4, and there are top, bottom and side refractory linings 5 and 6 arranged in the shell parts. 7 and 8 are closely spaced foraminous platens forming the treating compartment C through which the plates P pass. Between the platens are laterally spaced, chain-guide supports 9 and 10, and they are attached to the lower oven part and extend through the casing. 11 represents conveyor chains arranged on the supports 9 and 10. The chains are provided with side guides 12. 13 and 14 are burners arranged in the combustion chambers above and below the platens 7 and 8, and of which the upper ones are carried by the upper detachable part of the oven. These burners 13 are supplied by connections 15 which include a flexible connection 16 to permit of the removal of the upper part of the oven. The lower burners are supplied by connections 17. 18 are vents for the combustion chamber. In use freshly pasted plates P are delivered to the conveyor, made up of the chains 11, in the compartment C one after another in continuous progression in such a way that their side edges are held in line by the guide pieces 12 of the conveyor chain.

The conveyor 11 carries the plates into one end of the heating compartment C of the oven 1, and out of the other end of the oven, and in passing between the foraminous platens, and through the treating chamber C from which the outlet to the air is limited or restricted, enough moisture is evaporated from the plates to provide a humid or saturated atmosphere in their immediate vicinity and although the plates are highly heated, this humid atmosphere retards and prevents the plates from becoming substantially dry and also prevents the initiation of cracks in the paste. The humid or saturated atmosphere in which the plates are heated is composed largely of the products of combustion, as well as moisture evaporated from the plates. After the plates leave the heating chamber of the oven they are exposed to a relatively dry atmosphere, as the atmosphere of the room, in which they give up more of their moisture until at last they may be stacked in contact with each other without the paste of one plate sticking to the paste of its neighbors.

Should the plates by accident or otherwise be jammed or disarranged in the oven, the upper part of the latter can be removed and access had to the plates for removing or rearranging them.

Either one or both of the platens 7 and 8 may

be dispensed with, and in that case, the combustion and heating chambers merge into one chamber. In either case the plates P are subjected to an atmosphere of products of combustion, air and moisture and such an atmosphere along with heat exerts a beneficial effect in drying plates.

The conveyor guides 9 and 10 include spacer pieces, as shown and they support the lower platen 8, when present. The upper platen 7 rests upon filler pieces and is held to place by the upper oven parts.

It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details of construction and procedure and matters of mere form without departing from the spirit of the invention which is not limited to such matters or otherwise than the prior art and the appended claims may require.

I claim:

1. A machine for drying storage battery plates comprising an oblong two-part heat insulated oven, open at its ends and defining combustion chambers, spaced perforated platens arranged in the upper and lower combustion chambers and defining a treating chamber, a conveyor adapted to engage plate edges and carried by the lower part of the oven and extending through the treating chamber, burners arranged in the combustion chambers above and below the platens, flexible connections for supplying upper burners to permit of the removal of the upper part of the oven, and vents for controlling the atmosphere of the treating chamber.

2. An oven for drying storage battery plates comprising a two part, separable shell open at each end, top and bottom and side refractory linings providing a section of a combustion chamber and arranged in each shell part, spaced foraminous platens, spaced supports between the shell parts and attached to the lower shell part and extending through the casing, conveyor chains arranged on the supports and having side guides, and heating means and ventilation provisions for the combustion chamber.

3. An oven for drying storage battery plates, comprising in combination: a two-part, separable shell open at each end and defining combustion chambers; spaced, perforated platens arranged in the upper and lower combustion chambers and defining a treating chamber; a conveyor adapted to engage plate edges and extending through the treating chamber; burners arranged in the combustion chambers above and below the platens; and vents for controlling the atmosphere of the treating chamber.

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