

[54] **METHOD AND DEVICE FOR SEALING
ADJACENT CHAMBERS FROM EACH
OTHER**

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[56]

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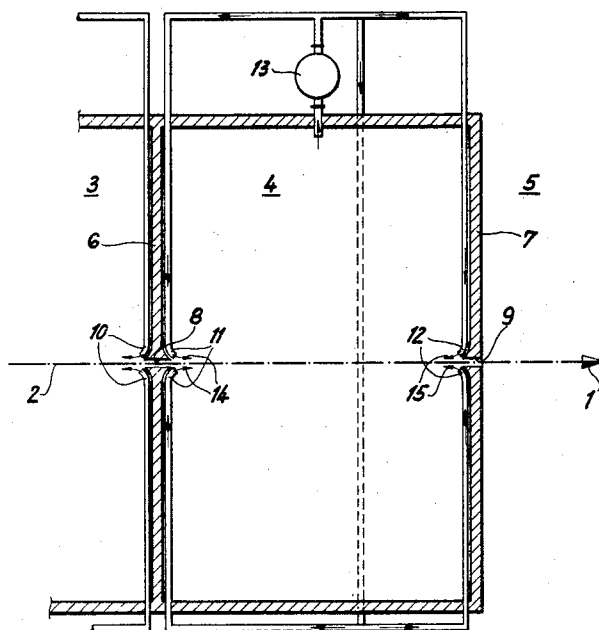
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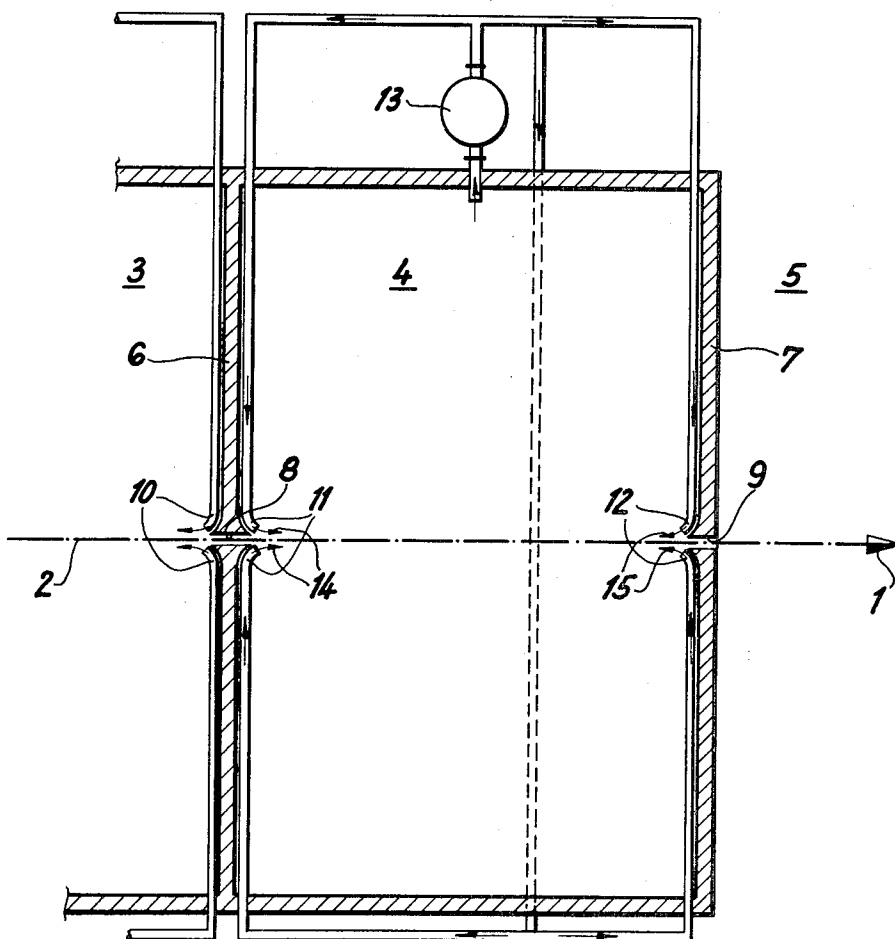
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ABSTRACT

A method and device for sealing from each other adjacent fluid containing chambers connected by a slot to accommodate passage of web material; in which fluid from within chamber is blown inwardly into the chamber in the region of the slot in an angular relation to the web material.

1 Claim, 1 Drawing Figure





METHOD AND DEVICE FOR SEALING ADJACENT CHAMBERS FROM EACH OTHER

BACKGROUND OF THE INVENTION

This invention relates to a method and to a device for sealing from each other two adjacent chambers which are connected together by a slot intended for the passage of a web of material.

During the continuous treatment of webs of material such as textiles, plastics, paper or the like, the web must frequently be passed through different adjacent chambers wherein it is subjected to different treatments. Thus for instance a heat-treatment in one chamber can be followed by cooling in the adjacent chamber.

In many such cases there is a need for the adjacent chambers, connected together by the slot intended for the passage of the web of material, to be sealed from each other in as gas-tight a manner as possible, in order to prevent undesired passage of a gaseous medium from one chamber into the adjacent chamber. When a drying chamber and a cooling chamber are adjacent for instance, it is undesirable for hot drying air to flow into the cooling chamber and vice versa. In operating with circulated solvents, recovered by condensation, the escape of solvent vapors into adjacent chambers also causes considerable difficulties, since these escaped vapors can only be condensed and recovered with considerable trouble.

It is known to seal adjacent chambers, connected together by a slot for passage of a web, from each other with the aid of mechanical elements, for instance rollers or sealing lips. These mechanical elements are in contact with the web of material, and in the case of delicate materials thus easily lead to a deterioration in surface quality.

SUMMARY OF THE INVENTION

The feature of the invention is thus to develop a method which permits non-contacting and effective sealing of adjacent chambers.

According to the invention this feature is achieved in that the gaseous medium contained in at least one of the two chambers is sucked out of the chamber and is then blown back into said chamber in the region of the slot and at a small angle to the web of material.

This additional stream of gas running tangentially to the web of material exerts considerable opposition to the escape of the gaseous medium contained in the chamber concerned, through the slot for the passage of the web of material. Since this method operates

without any contact, even with delicate material there is no fear of the surface quality being affected.

It will be understood that the nozzles disposed in the region of the web passage slot for blowing the extracted gaseous medium back into the chamber must be so formed and positioned that the medium emerging from the nozzles exerts no appreciable suction force on the gaseous medium located in the adjacent chamber.

DESCRIPTION OF DRAWINGS

The DRAWING is a schematic representation of a preferred embodiment of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The web of material 2 moving in the direction of the arrow 1 passes in sequence through the two adjacent closed chambers 3 and 4 and then passes into the external chamber 5. Both the partition 6 between the chambers 3 and 4 and the outer wall 7 are provided with a slot 8, 9 for passage of the web of material 2.

In order to seal the chambers 3 and 4 from each other, and the chamber 4 from the external chamber 5, elongate nozzles 10, 11 and 12 are provided in pairs. The nozzles 11 and 12 are connected through the pipes shown to a common fan 13 which draws gaseous medium out of the chamber 4. The extracted gas is blown back into the chamber 4 through the elongated nozzles 11 and 12, and at a small angle, approximately tangential, to the web of material 2 (arrows 14, 15).

In this way emergence of the gaseous medium contained in chamber 4 into the chamber 3 or the external chamber 5 is opposed.

The elongate nozzles 10 in chamber 3 are supplied from a fan (not shown) allotted to the chamber 3.

We claim:

1. A method for sealing from each other two adjacent chambers which are connected together by a slot intended for the passage of a web of material, comprising the steps of withdrawing from each chamber a gaseous medium contained therein, blowing said gaseous medium back into the respective chamber in a region of the slot and at an angle approximately tangential to the web by means of two elongate pairs of nozzles, positioning each pair of nozzles so that one nozzle is above the web, and the other nozzle is below the web, thereby preventing the web from contacting a wall of said slot, and positioning said two pairs of nozzles in the region of said slot in opposite direction so that one pair of nozzles is blowing from the region of said slot into one chamber and the other pair of nozzles from the region of said slot in opposite direction into the other chamber.

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