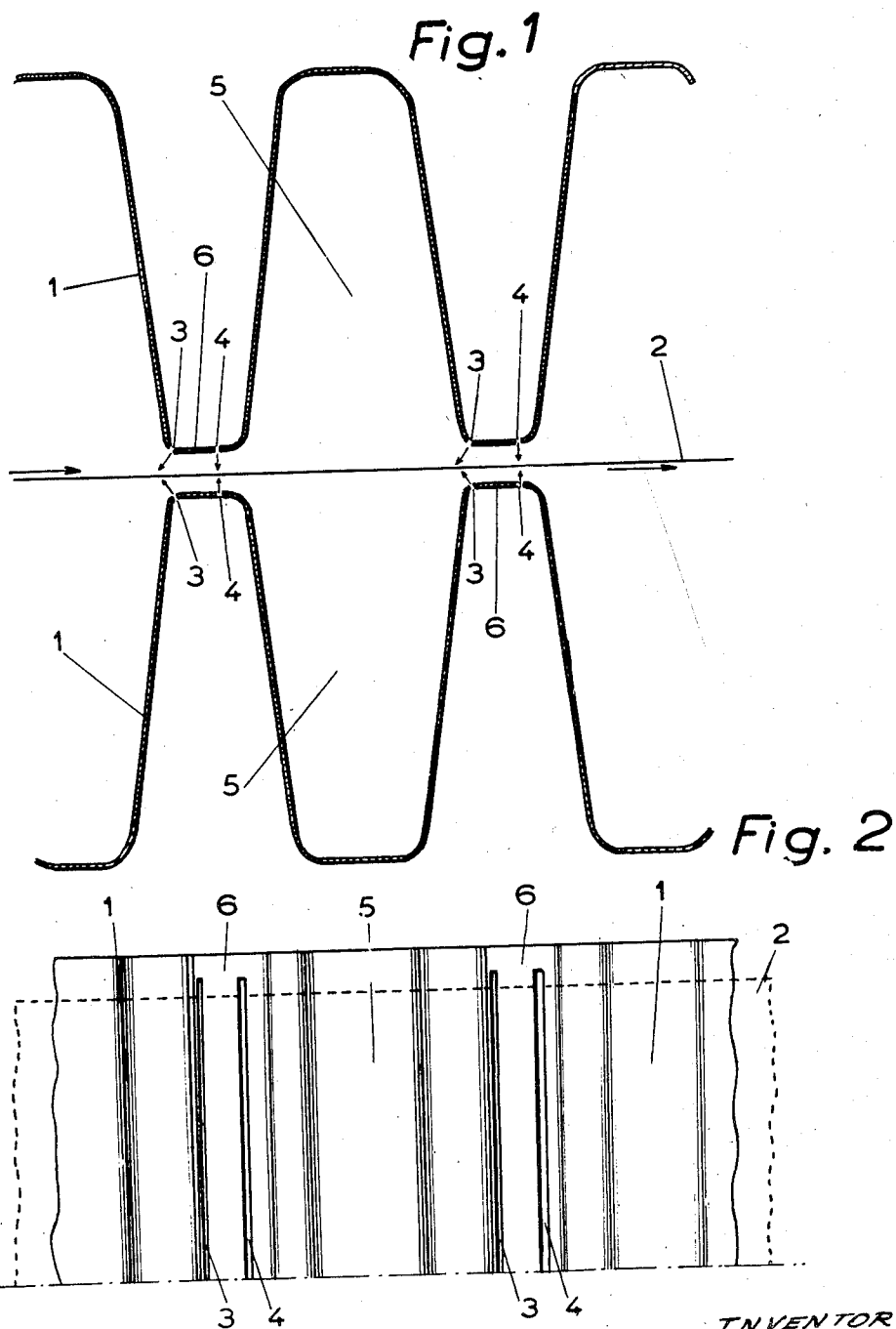


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J. DUNGLER
NOZZLE MEMBER USED FOR THE DRYING OF
TEXTILE AND OTHER MATERIALS
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INVENTOR
JULIEN DUNGLER
BY *Edmund M. Straub*
PAT.

UNITED STATES PATENT OFFICE

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NOZZLE MEMBER USED FOR THE DRYING
OF TEXTILE AND OTHER MATERIALS

Julien Dungler, Basel, Switzerland

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1 Claim. (Cl. 34—156)

1

The invention relates to the drying of cloths, paper, textile materials in wads, and other materials.

It is known that, in order to produce an intense evaporation of the water contained in the product to be dried, it is advantageous to supply the drying fluid (hot air in general), through pipes to the immediate vicinity of the product and to cause said fluid to issue through the orifices of nozzle-members which are generally arranged in sets at right angles to the direction of movement of the product either above, or below, or again on either side of said product which may be in the form of a web or strip, as is the case for textile fabrics or for paper, or be conveyed by a conveyor device which is arranged to allow the drying fluid to pass (netting conveyor for example) as is the case for a sheet of material in wads.

The invention relates, in particular, to drying machines of all types, drying tenters with clips, pins, etc., with single or multiple stages, and other machines, for fabrics, the nozzle-members for projecting the hot air on to the cloth being either of fixed length, or of variable length.

The invention has for its object to provide means for increasing the speed of the drying process and securing a maximum output over a minimum area, thereby giving, in particular, the possibility of considerably reducing the length of the tenters or other drying machines.

These results are obtained by means of the improvement according to the invention, which comprises, in principle, providing each blowing nozzle-members with at least two sets or rows of orifices, in the shape of slits or of holes, which are arranged in at least two lines at right angles to the direction of movement of the product to be dried, one or some of which sets or rows are provided in the front part of the nozzle so that the outlet is effected in the opposite direction to the movement of the product, whereas the other or the others are provided in the rear part of the nozzle so that the outlet is effected in the direction of travel of the product.

The nozzle-members may consist, as known, either in pressed sheet metal elements, or simply in tubes.

Embodiments of this improvement are described hereinafter and diagrammatically illustrated, by way of non-limitative examples, in the accompanying drawings in which:

Fig. 1 is a view in transverse vertical section of a part of a drying element with pressed sheet metal nozzle-members, for example for tenters,

2

Fig. 2 being a plan view of the bottoms of the nozzle-members.

In these figures, 1 are the nozzle-members forming, on either side of the cloth 2 which moves between them with a continuous movement in the direction shown by the arrow, owing to the fact that its selvages are driven by the clips or pins chains, an assembly or group of transverse elements successively projecting jets of hot air on to the cloth.

According to the improvement provided by the invention and as regards the embodiment of Figs. 1 and 2, each of the nozzle-members 1 is provided with two sets of slits extending parallel to the width of the cloth. One of the sets of slits 3, is located at the front, i. e. in the part opposite which the cloth passes in the first place, and said slit is formed in the circular fillet connecting the bottom to the side wall, so that it provides an oblique lamellar jet directed in the opposite direction to the movement of the fabric. The second set of slits 4, is located behind the vertical plane of symmetry and produces a lamellar jet at right angles to the surface of the fabric, the outlet being effected in the direction of travel of the fabric. The hot compressed air thus projected through the slits 3 and 4 of the nozzles 1 on to the cloth 2 becomes saturated with moisture and escapes from the blowing device to recessed chambers or channels 5 positioned between adjacent side walls of two successive nozzle-members 1, which chambers are made of sufficient size to prevent any stagnation of the air.

It can thus be seen that there has been provided according to the invention a drying or like conditioning plant for sheet material by means of a gaseous fluid blown against said material, said plant comprising a plurality of oppositely disposed nozzle members each projecting at right angles to the direction of travel of the material to be treated and extending thereacross, each nozzle member terminating in an end wall provided with only two orifices each extending transversely to said material, and an intermediate suction channel positioned between two adjacent nozzle members, each nozzle member being provided with two side walls converging toward the end wall of the nozzle member, adjacent side walls of two successive nozzle members defining a respective suction channel, said adjacent side walls being spaced from each other at one end positioned adjacent the path of travel of said material and being joined together at an opposite end positioned in staggered relation to the end

3

walls of said two successive nozzle members, said adjacent side walls diverging toward said one end and being in communication with said orifices, whereby said fluid guided through said orifices of said nozzle members against said material is collected and exhausted by said channels, respectively, one of said orifices being located in the end wall of each nozzle member, so as to blast said fluid perpendicular to the path of travel of said material, said other orifice being disposed adjacent said one orifice but inclined in a direction opposite to the direction of travel of said material, both said orifices of each nozzle member being arranged asymmetrically with respect to the perpendicular center line of the respective end wall of the nozzle member.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

In a plant for treating lengths of cloth, paper and like sheet material by means of a gaseous fluid blown against the material; a plurality of oppositely disposed nozzle members each projecting at right angles to the direction of travel of the material to be treated and extending thereacross, each nozzle member terminating in an end wall provided with only two orifices each extending transversely to said material, and an intermediate suction channel positioned between two adjacent nozzle members, each nozzle member being provided with two side walls converging toward the end wall of the nozzle member, adjacent side walls of two successive nozzle members defining a respective suction channel, said adjacent side walls being spaced from each other at one end positioned adjacent the path of travel of said material and being joined together at an

4

opposite end positioned in staggered relation to the end walls of said two successive nozzle members, said adjacent side walls diverging toward said one end and being in communication with said orifices, whereby said fluid guided through said orifices of said nozzle members against said material is collected and exhausted by said channels, respectively, one of said orifices being located in the end wall of each nozzle member, so as to blast said fluid perpendicular to the path of travel of said material, said other orifice being disposed adjacent said one orifice but inclined in a direction opposite to the direction of travel of said material, both said orifices of each nozzle member being arranged asymmetrically with respect to the perpendicular center line of the respective end wall of the nozzle member.

JULIEN DUNGLER.

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