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## Description

The invention relates to a plate-shaped element provided with holes for the passage of air having a curved course in cross-section, thus forming two edges, and a corrugated course in longitudinal section, the element being intended to rest with its edges on the floor of a building so as to form an air duct.

Such elements, usually placed on the floor in a storage room, in such a manner that several such ducts, which can be built up from sections, are thereby arranged at some distance of and parallel to each other. Products to be dried, cooled and/or ventilated can then be brought into the storage room such, that said products are deposited in a heap above and between the air ducts. For drying, cooling and/or ventilating the products air can be supplied to the air ducts continuously or intermittently, which air, whether or not heated, can escape from the air duct via the passages in the plate-shaped element and stream along the products to be treated.

For the use of such elements for drying grains the elements are usually provided with small perforations over their entire surface, (see e.g. US—A—3.054.342). For bigger tuberous or bulbous crops, such as e.g. potatoes, onions and the like such air ducts proved to be unsatisfactory. In connection with this it has been proposed to provide those portions of the plate-shaped elements, which join the boundary edges of the plate-shaped elements, which rest on the floor, with regularly spaced holes with a circular section. Also with such an arrangement, however, no satisfactory results were achieved.

Now according to the invention the plate-shaped element is characterized in, that the holes are slotted holes, which are provided only in the tops of the corrugations in those portions of the plate-shaped element which join the edges of said plate-shaped element.

Surprisingly it has appeared that the use of such a construction effects a considerably improved operation with regard to drying, cooling and/or ventilating in comparison with the constructions described hereinabove, whilst in addition, because of the provision of holes only in the tops of the corrugations, a robust construction of the plate-shaped element is maintained, so that said plate-shaped element can take comparatively great loads, caused by products lying on the plate-shaped element.

The invention will be further explained hereinafter with reference to embodiments of the construction according to the invention diagrammatically illustrated in the accompanying figures.

Fig. 1 is a diagrammatic perspective view of a few adjacently arranged air ducts.

Fig. 2 is a diagrammatic view of the end of an air duct.

Fig. 3 is a top view of a plate-shaped element intended for forming an air duct according to the invention.

Fig. 4 is a side view of fig. 3.

Fig. 5 is a top view of a second embodiment of a plate-shaped element suited for forming an air duct according to the invention.

Fig. 1 illustrates a few air ducts 2 located adjacent to each other on a bottom 1, which ducts have been arranged parallel to each other. As will be apparent from figs. 1 and 2 the air ducts have, in cross section, curved, usually semicircular shape, whilst seen in longitudinal section an air duct has a corrugated course. Usually the ducts are thereby made of metal sheet, but of course it will be conceivable to use other materials for this purpose, such as e.g. plastic material. An air duct can be made of a single plate-shaped part, but in particular with longer air ducts a duct will usually be built up from sections which overlap each other at their ends. Such an air duct or a section of an air duct can be formed by bending a corrugated sheet 3 as illustrated in figs. 3 and 4 around its longitudinal axis extending parallel to its boundary edges 4 and 5. As further appears from fig. 3 slotted holes 7 have been provided in the tops 6 of the corrugations in the portions of the corrugated sheet joining the boundary edges 4 and 5 in such a manner that the longitudinal axes of said slotted holes coincide with the longitudinal axes of the corrugations and are therefore perpendicular to the boundary edges 4 and 5. In the bottoms 8 of the corrugations no holes have been provided, as will be apparent from figs. 3 and 4.

As will further appear from fig. 3 the slotted holes 7 located nearest to the boundary edges 4 and 5 liè in a line in the corrugation tops 6 located adjacent to each other, whilst the slotted holes located further away from the boundary edges 4 and 5 in a pair of adjacent corrugation tops 6, seen in the longitudinal direction of the boundary edges 4 and 5, are staggered relatively to each other. As a result of this a better spreading of the air coming out of the air duct via the slotted holes is achieved as well as a better resistance of the air duct to collapsing.

In practice it has appeared that thereby efficient ventilation, drying, cooling or the like can be achieved when five slotted holes are provided in every corrugation top, whereby the length of such a slotted hole is preferably 55 mm and the width 20 mm. With an air speed of 6—7 m per second the occurrence of turbulence when the air streams out of the slotted holes appears to be prevented, as a result of which an equal stream of the air through the material to be treated will be achieved.

With a diameter between ±1200 mm and 1600 mm of the corrugated sheet bent into a semicircle around its longitudinal axis the centre distance between a pair of rectangular slotted holes located in a corrugation top 6 will preferably be ±130 mm, except for those slotted holes which have been arranged comparatively, closely together near the secondary edges 4 and 5 as is illustrated in the figures and whereby the centre distance between said slotted holes is 65 mm.

Fig. 5 shows a development of a plate-shaped

portion, which can be used for making air ducts with smaller diameters e.g. between ±630 mm and 1025 mm. As is illustrated in this figure the centre distance between the slotted holes, which for the rest have the same length as in the first mentioned embodiment, has thereby been chosen smaller and is preferbaly 90 mm here. The centre distance between the slotted holes arranged closely together near the boundary lines 4 and 5 has thereby been kept equal to that of the embodiment discussed first.

The width of the strip of the sheet joining a boundary edge 4 or 5 measured in the direction of the corrugations is preferably less than 1/20 of the width of the developed sheet illustrated in figs. 3 and 5 measured between the boundary edges 4 and 5.

**Claims**

1. A plate-shaped element provided with holes for the passage of air having a curved course in cross-section, thus forming two edges, and a corrugated course in longitudinal section, the element being intended to rest with its edges on the floor of a building so as to form an air duct, characterised in that the holes are slotted holes which are provided only in the tops of the corrugations in those portions of the plate-shaped element which join the edges of said plate-shaped element.

2. The element as claimed in claim 1, characterised in that, seen in the longitudinal direction of the air duct, the slotted holes in successive corrugation tops are staggered relatively to each other.

3. The element as claimed in claim 1 or 2, characterised in that, seen in the longitudinal direction of the air duct, the slotted holes provided in the corrugation tops and located nearest the edges, lie in a line.

4. The element as claimed in any of the preceding claims, characterised in that the slotted holes have been provided in such a manner that the longitudinal axes of the slotted holes coincide with the longitudinal axes of the corrugation tops.

5. The element as claimed in any of the preceding claims, characterised in that the length of a slotted hole is ±50 mm and the width is ±20 mm.

6. The element as claimed in any of the preceding claims, characterised in that the width of the strip, joining the edge of an air duct, in which the slotted holes have been provided, measured in the longitudinal direction of a corrugation top, is not more than 1/20 of the entire length of said corrugation top.

**Patentansprüche**

1. Plattenförmiges Element, versehen mit Löchern für einen Luftdurchlaß, das im Querschnitt bogenförmig verläuft und somit zwei Kanten bzw. Ränder bildet und im Längsschnitt gewellt ist, wobei das Element mit seinen Kanten bzw. Rändern auf dem Boden eines Gebäudes derart angeordnet ist, daß es einen Luftkanal bildet, dadurch gekennzeichnet, daß die Löcher Langlöcher bzw. geschlitzte Löcher sind, die nur an den Scheiteln der Wellen in den Teilen des plattenförmigen Elements vorgesehen sind, die die Kanten bzw. Ränder des plattenförmigen Elements verbinden.

2. Element nach Anspruch 1, dadurch gekennzeichnet, daß die Langlöcher, in Längsrichtung des Luftkanals gesehen, in aufeinanderfolgenden Wellenscheiteln relativ zueinander versetzt angeordnet sind.

3. Element nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die an den Wellenscheiteln vorgesehenen und den Kanten bzw. Rändern am nächsten angeordneten Langlöcher, in Längsrichtung des Luftkanals gesehen, in einer Linie liegen.

4. Element nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Langlöcher derart angeordnet sind, daß die Längsachsen der Langlöcher mit den Längsachsen der Wellenscheitel koinzidieren bzw. zusammentreffen.

5. Element nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Länge eines Langlochs ±50 mm und die Breite eines Langlochs ±20 mm beträgt.

6. Element nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Breite des Streifens, verbunden mit der Kante eines Luftkanals, in dem Langlöcher vorgesehen sind, gemessen in der Längsrichtung eines Wellenscheitels, nicht mehr als 1/20 der gesamten Länge des Wellenscheitels ist.

**Revendications**

1. Élément en forme de plaque pourvu de trous pour le passage de l'air ayant un profil courbe en coupe transversale formant ainsi deux bords et un profil ondulé en coupe longitudinale, l'élément étant destiné à reposer avec ses bords sur le sol d'un bâtiment de sorte à former un conduit d'air, caractérisé en ce que les trous sont des trous en fente qui sont prévus seulement au sommet des ondulations dans les parties de l'élément en forme de plaque qui joignent les bords dudit élément en forme de plaque.

2. Elément selon la revendication 1, caractérisé en ce que, vus dans la direction longitudinale du conduit d'air, les trous en fente sur les sommets des ondulations successives sont en quinconce les uns par rapport aux autres.

3. Elément selon les revendications 1 ou 2, caractérisé en ce que vu dans la direction longitudinale du conduit d'air, les trous en fente prévus aux sommet des ondulations et situées proches des bords, sont en alignement.

4. Elément selon l'une quelconque des revendications précédentes, caractérisé en ce que les axes longitudinaux des trous en fente coïncident avec les axes longitudinaux des somemts des ondulations.

5. Elément selon l'une quelconque des revendications précédentes, caractérisé en ce que la

longueur d'un trou en fente est ±50 mm et la largeur est ±20 mm.

6. Elément selon l'une quelconque des revendications précédentes, caractérisé en ce que la largeur de la bande, joignant le bord d'un conduit d'air, dans lequel les trous en fente ont été prévus, mesurée dans la direction longitudinale d'un sommet d'une ondulation, n'est pas plus grande que 1/20 de la longueur totale dudit sommet d'une ondulation.

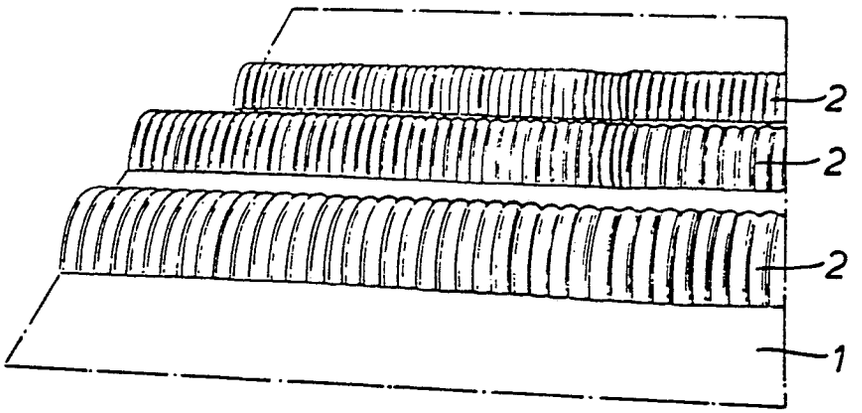



FIG.1.

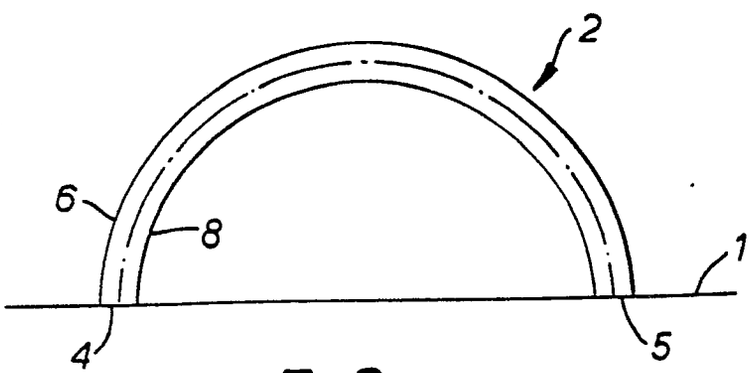



FIG.2.

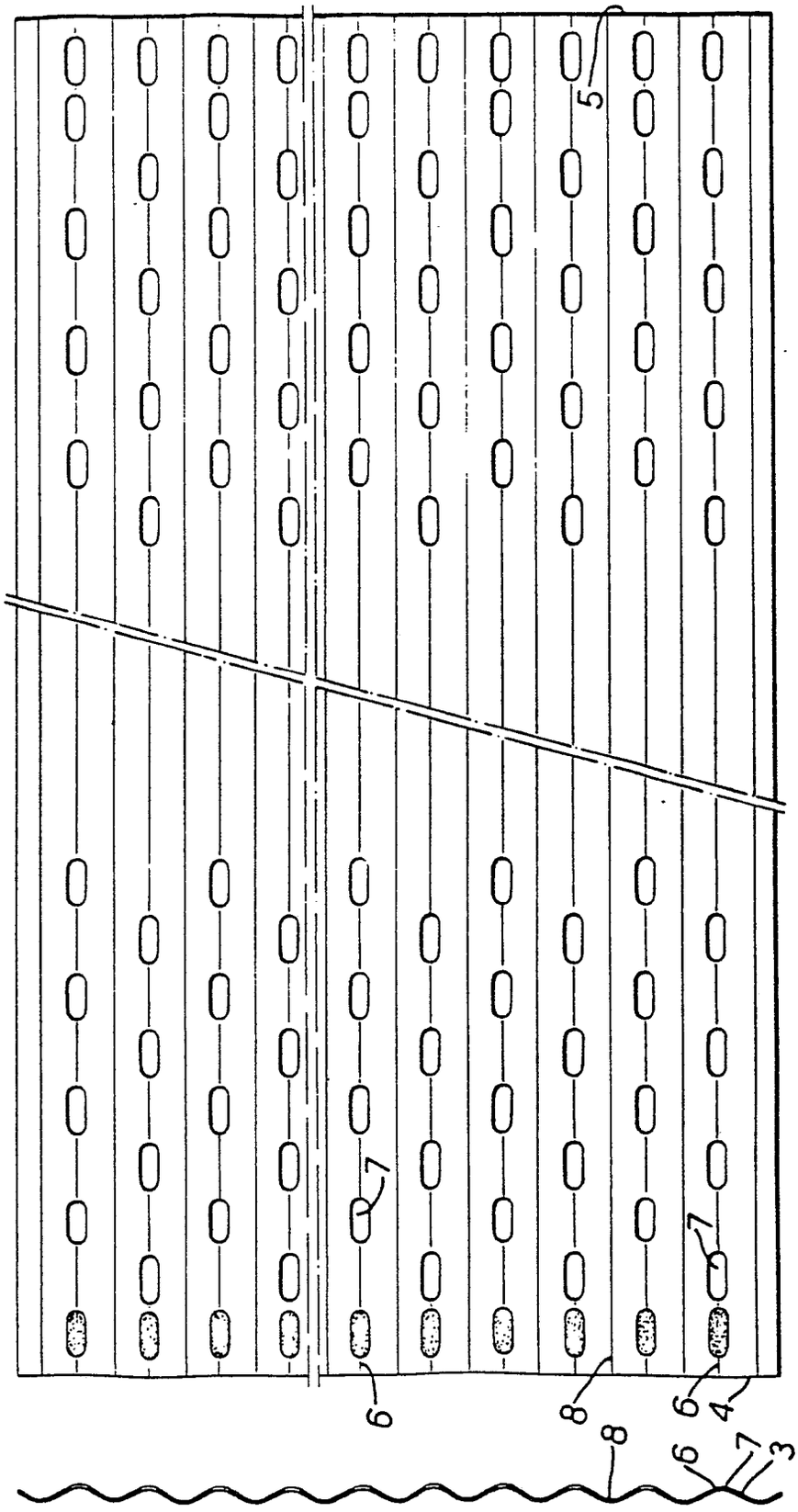



FIG.3.

FIG.4.

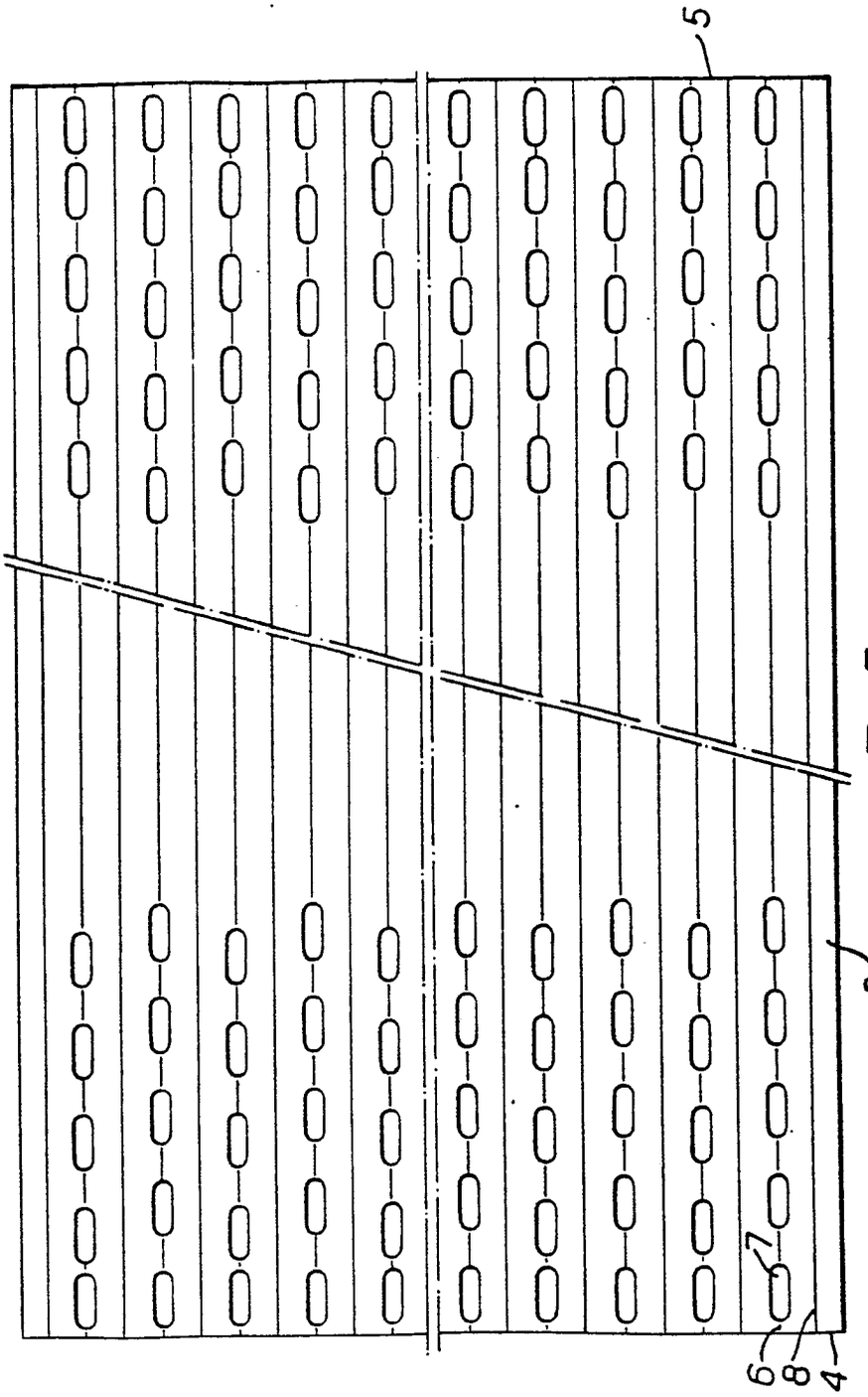



FIG.5.