(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 721 836 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
20.03.2002 Bulletin 2002/12

(51) Int Cl.[7]: **B30B 9/22**

(21) Application number: **95830475.0**

(22) Date of filing: **09.11.1995**

(54) **Drainage channels for a pneumatic press, in particular for pressing fruit, grapes and their derivates**

Drainageelemente für eine pneumatische Presse, insbesondere zum Auspressen von Obst, Trauben und ihren Produkten

Eléments de drainage pour une presse pneumatique, en particulier pour le pressage de fruits, du raisin et leurs produits

(84) Designated Contracting States:
AT DE ES FR IT

(30) Priority: **17.11.1994 IT TV940133**

(43) Date of publication of application:
17.07.1996 Bulletin 1996/29

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(56) References cited:
AT-A- 350 913
DE-U- 9 300 755

EP 0 721 836 B1

Printed by Jouve, 75001 PARIS (FR)

Description

[0001] The subject of this application is drainage channels, which extend along a path within a pneumatic membrane press, used for external drainage of the fluids obtained from pressing fruit, grapes and their by-products.

[0002] Today, the pneumatic presses most widely used for pressing fruit, grapes and their by-products are normally made up of a semi-tubular, inflatable membrane of non-toxic material, fastened to the internal half-circumference of the drum, which pushes the product against the drainage channels arranged along a half-spiral path, see AT-A-350 913, or in a longitudinal, semicircular path, see DE-U-9 300 755, to the press drum.

[0003] However, these known solutions are not without their inconveniences. Because of the limited semicircular or half-spiral path within the cylindrical line, the drainage channels do not allow the fluid obtained from pressing fruit, grapes and their by-products, to exercise any effective cleaning action on the latter, since it is not possible to generate a sufficient velocity in the fluid to remove the waste produced by pressing during its path to the drainage outlet; this forces the user to frequently interrupt pressing operations to remove said waste and restore the drainage capacity of the drainage channels, thus considerably increasing pressing times and costs.

[0004] Thus, in order to maintain their drainage capacity, the channels must be periodically removed from their installation and thoroughly cleaned.

[0005] The primary task of the subject of this application is therefore to eliminate the above inconveniences, by developing drainage channels whose construction and arrangement within the pneumatic press drum allow for a complete and effective self-cleaning action.

[0006] Self-cleaning is possible due to the fact that the drainage channels may extend, within the cylindrical casing, along a fully circular or fully spiral path, with one or more spires; in order to reach the drainage outlet, the fluid is therefore forced to travel a distance allowing it to acquire a velocity permitting thorough, continuous washing on the drainage channels, thus making it impossible for the processing waste to obstruct or jam the surface of the channels themselves during use.

[0007] This precaution keeps the drainage channels in a state of perfect efficiency, since their evacuation capacity remains unchanged over time, and requires no maintenance or recirculation.

[0008] Another purpose, no less important, is to achieve an invention that combines the previous characteristics with equipment that is reliable and safe to use, as the manufacturing costs for this system are modest.

[0009] The aforementioned task and objectives, as well as others explained more clearly below, are achieved by a pneumatic membrane press according to claim 1.

[0010] Other features and advantages of the invention are further highlighted by the special construction shape, indicatively shown in the enclosed drawings, where:

figure 3 illustrates the drainage channels inside the pneumatic press, from a viewpoint along a median longitudinal cross-section plane;
figure 4 illustrates them from a viewpoint along a transversal cross-section plane in the drum of the press described in figure 3;
figures 5. 7, 9 show views similar to figure 3 with additional solutions for arranging the drainage channels inside the press;
figures 6, 8, 10 show views similar to figure 4 of the parts described in figures 5, 7, 9.

[0011] With reference to the aforementioned figures, the number 3 is used to indicate the pneumatic press structure most widely used for pressing fruit, grapes and their by-products, which includes a frame 4 supporting a drum 5, to which an inflatable tubular membrane 1 of non-toxic material is attached. The drum 5 is made up of a cylindrical casing 2, closed at both ends by a convex base 6, inside which the end of the inflatable tubular membrane 1 is attached; on the cylindrical casing 2, near the drainage channels 3,1 with polygonal cross-section, extending along a fully circular path along the inner surface of the cylindrical casing 2, are holes 7 connected to a drainage hose 8.

[0012] As an alternative to figure 3, figure 5 illustrates another applicable solution in which the drainage channels 3,2, with polygonal cross-section, extend along a fully spiral path, with one or more spires, along the internal surface of a cylindrical casing 2.

[0013] As an alternative to figure 3, figure 7 illustrates another applicable solution in which the drainage channels 3,3, with polygonal cross-section, each extend within a fully circular extruded compartment 9, also with polygonal cross-section, build on the internal surface of a cylindrical casing 2.

[0014] As an alternative to figure 3, figure 9 illustrates another applicable solution in which the drainage channels 3,4, with polygonal cross-section, each extend within a fully spiral extruded compartment 10 with one or more spires, also with polygonal cross-section, build on the internal surface of a cylindrical casing 2.

[0015] Each of the aforementioned figures clearly shows, in the drainage channels. the oblong holes 11 of appropriate size, arranged at regular intervals to allow only the fluid to flow out, while blocking all processing waste.

[0016] The solutions of the invention illustrated here satisfy the set objectives, making it possible to maintain the evacuation capacity of the drainage channels without the need for any maintenance or recirculation.

[0017] The invention is structurally simple--the materials, as well as the dimensions of the individual components, may obviously be pertinent according to specific

needs.

Claims

1. Pneumatic membrane press comprising polygonal section drainage channels, equipped with oblong openings of regular dimensions and at regular intervals, extending around an entirely circular path on the internal surface of a cylindrical casing of the press.

2. Press as per claim 1, **characterized by** the fact that the channels extend along an entirely spiral path, having one or more origins, around the internal surface of the cylindrical casing.

3. Press as per claim 1, **characterized by** the fact that the channels each extend within an entirely circular extruded compartment which, like the channels, has a polygonal section, fashioned on the internal surface of the cylindrical casing.

4. Press as per claim 1, **characterized by** the fact that the channels each extend within an entirely spiral extruded compartment, having one or more origins, which, like the channels, has a polygonal section, fashioned on the internal surface of the cylindrical casing.

Patentansprüche

1. Pneumatische Membranpresse mit Ablaufkanälen, die einen polygonalen Querschnitt aufweisen und in regelmäßigen Abständen mit gleich großen, länglichen Öffnungen über eine vollkommen runde Fläche an der Innenfläche des zylinderförmigen Gehäuses der Presse aufgebracht sind.

2. Presse wie bei Anforderung 1 **dadurch gekennzeichnet, dass** sich die Kanäle spiralförmig mit einem oder mehreren Anfangspunkten über die gesamte Innenfläche des zylinderförmigen Gehäuses ausdehnen.

3. Presse wie bei Anforderung 1 **dadurch gekennzeichnet, dass** sich jeder einzelne Kanal jeweils in einem kreisförmigen, fliessgepressten Element befindet, das wie die Kanäle selbst einen polygonalen Querschnitt aufweist und sich auf der Innenfläche des zylinderförmigen Gehäuses befindet.

4. Presse wie bei Anforderung 1 **dadurch gekennzeichnet, dass** sich jeder einzelne Kanal jeweils in einem spiralförmigen, fliessgepressten Element mit einem oder mehreren Anfangspunkten befindet, das wie die Kanäle selbst einen polygonalen Querschnitt aufweist und sich über die Innenfläche des zylinderförmigen Gehäuses ausdehnt.

Revendications

1. Presse pneumatique à membrane comprenant des canaux de drainage de section polygonale, dotés d'ouvertures oblongues de dimensions régulières et à des intervalles réguliers, s'étendant sur un parcours entièrement circulaire sur la surface interne d'une enveloppe cylindrique de la presse.

2. Presse visée à la revendication 1, **caractérisée par le fait que** les canaux se développent sous la forme d'une spirale complète, ayant une ou plusieurs origines, autour de la surface interne de l'enveloppe cylindrique.

3. Presse visée à la revendication 1, **caractérisée par le fait que** chaque canal se développe à l'intérieur d'un compartiment extrudé entièrement circulaire qui, tout comme les canaux, a une section polygonale, et est usiné sur la surface interne de l'enveloppe cylindrique.

4. Presse visée à la revendication 1, **caractérisée par le fait que** chaque canal se développe à l'intérieur d'un compartiment extrudé de forme entièrement spiralée, ayant une ou plusieurs origines, qui, tout comme les canaux, a une section polygonale, et est usiné sur la surface interne de l'enveloppe cylindrique.

FIGURA 4

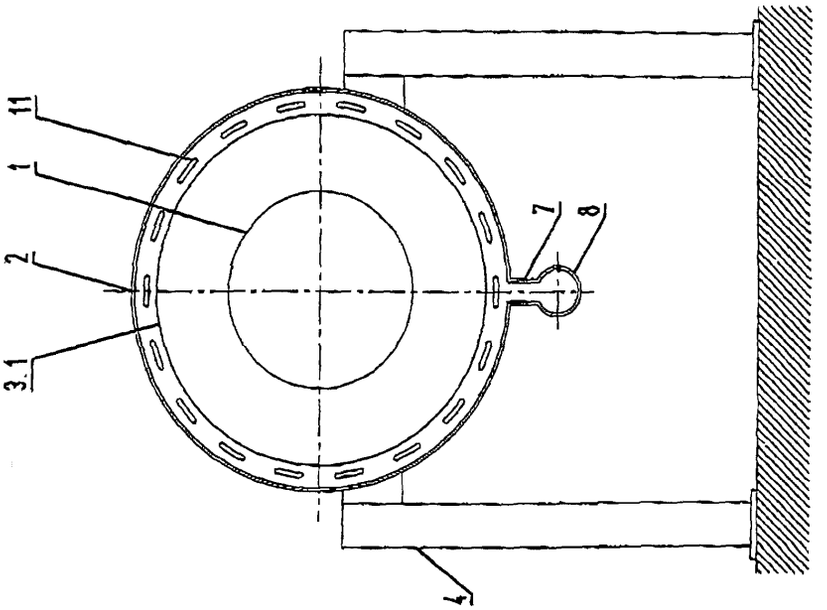

FIGURA 3

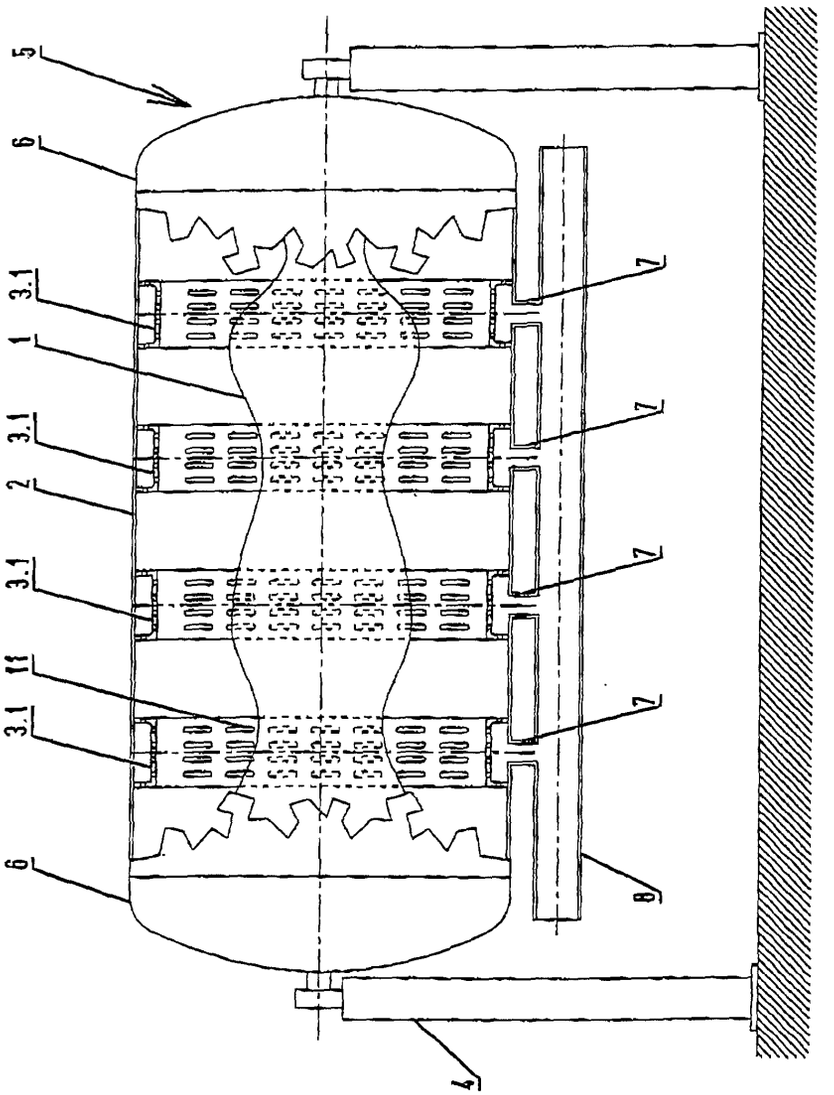

FIGURA 6

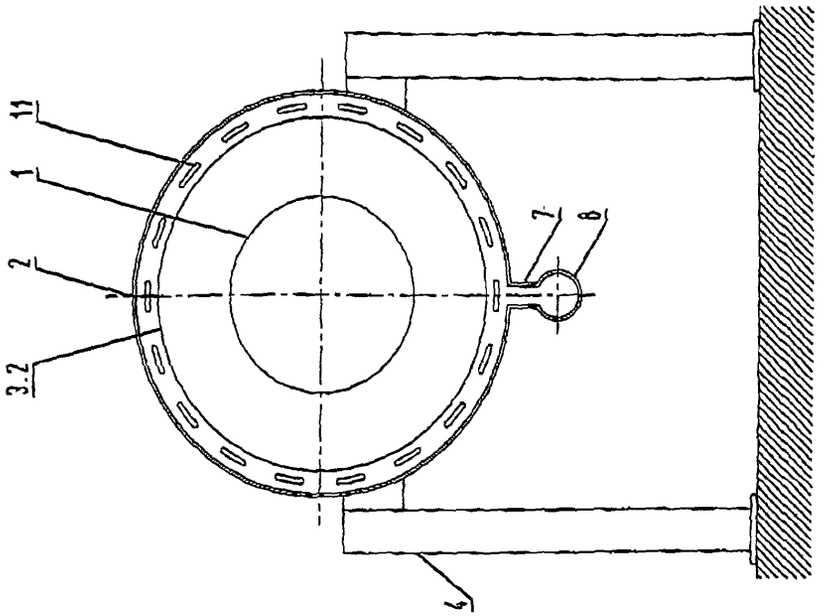

FIGURA 5

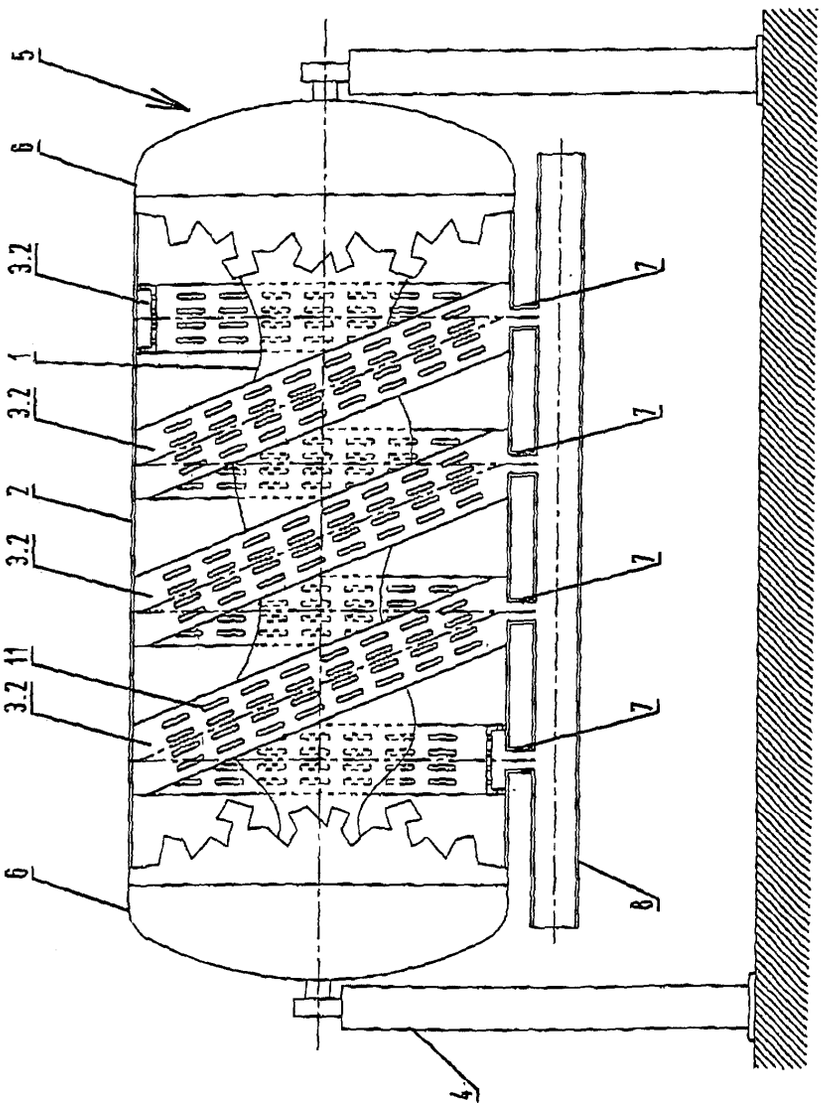

FIGURA 8

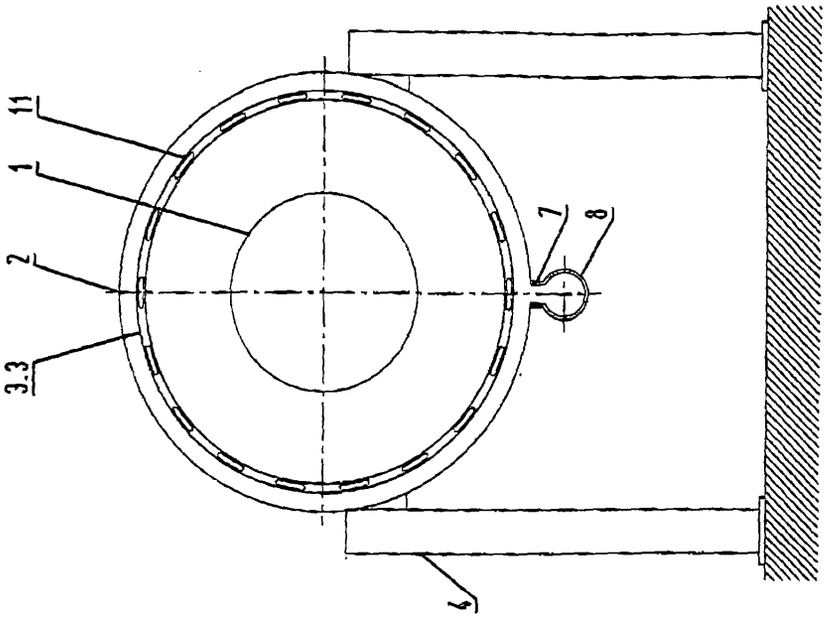

FIGURA 7

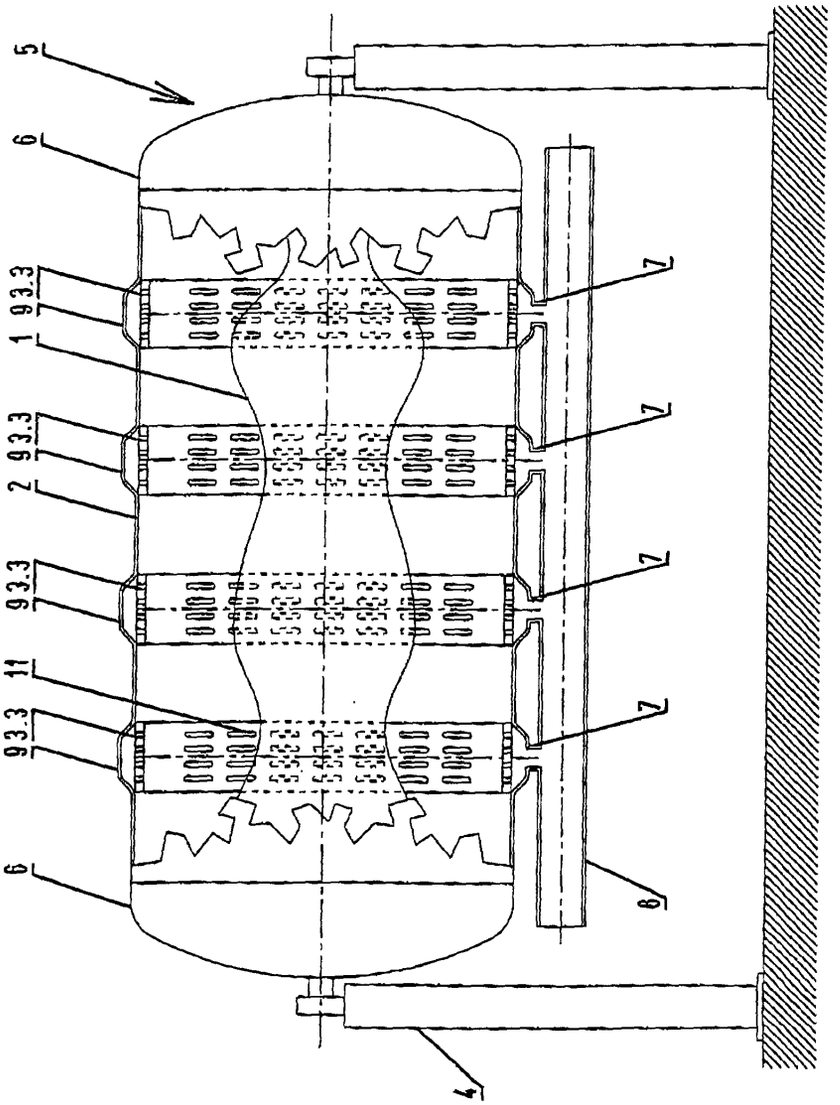

FIGURA 10

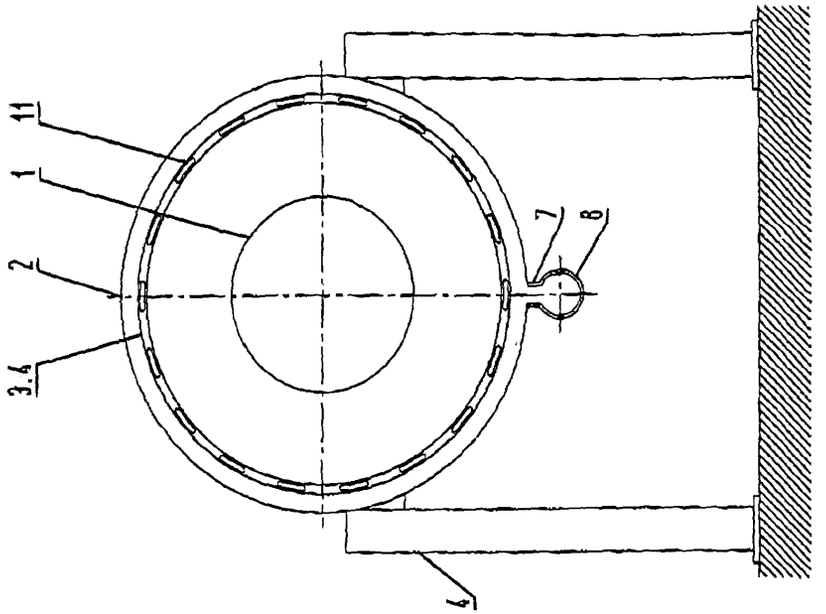

FIGURA 9