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Arendt

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[54] **ROLL PRESS FOR REMOVING THE WATER FROM LAUNDERED WASHING OR OTHER TEXTILES**

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[51] **Int. Cl.** **B30b 3/04**

[58] **Field of Search** ..... 29/113 R, 113 AD, 29/125, 116 AD, 116 R; 100/162 B, 170, 155; 68/244, 22; 38/44–62

[56] **References Cited**

UNITED STATES PATENTS

3,543,366	12/1970	Collet	29/113 R
3,132,736	5/1964	May et al.	29/113 R
2,658,262	11/1953	Clements	29/125 X
769,680	9/1904	Bredannaz	29/125 X
2,374,194	4/1945	Grupe	29/125 X

FOREIGN PATENTS OR APPLICATIONS

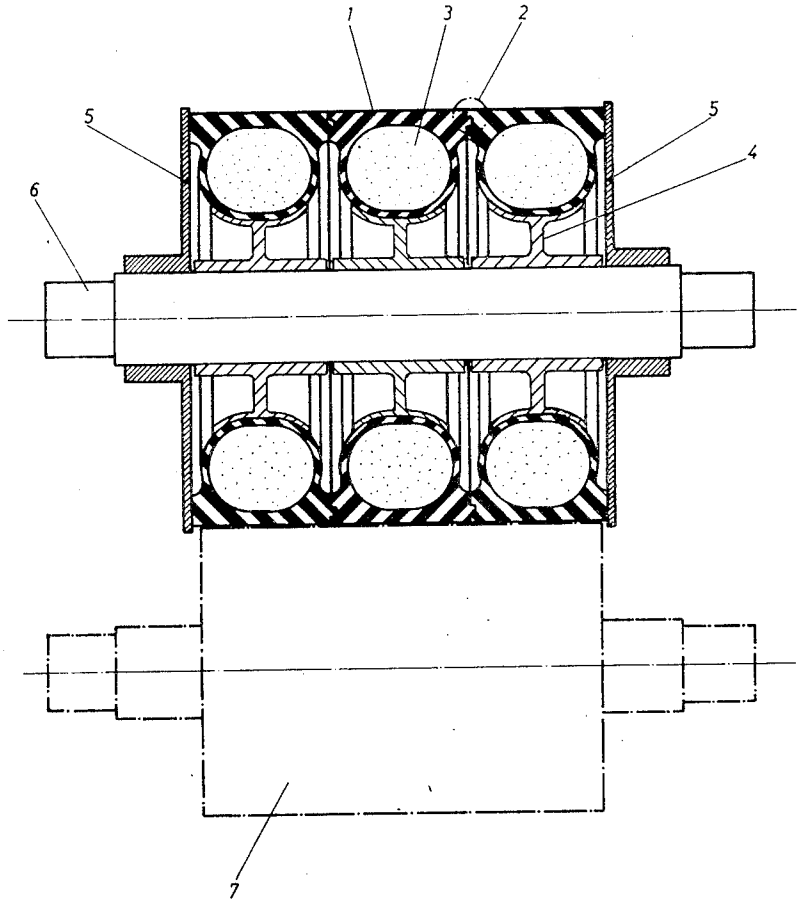
948,396	8/1956	Germany	68/244

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[57] **ABSTRACT**

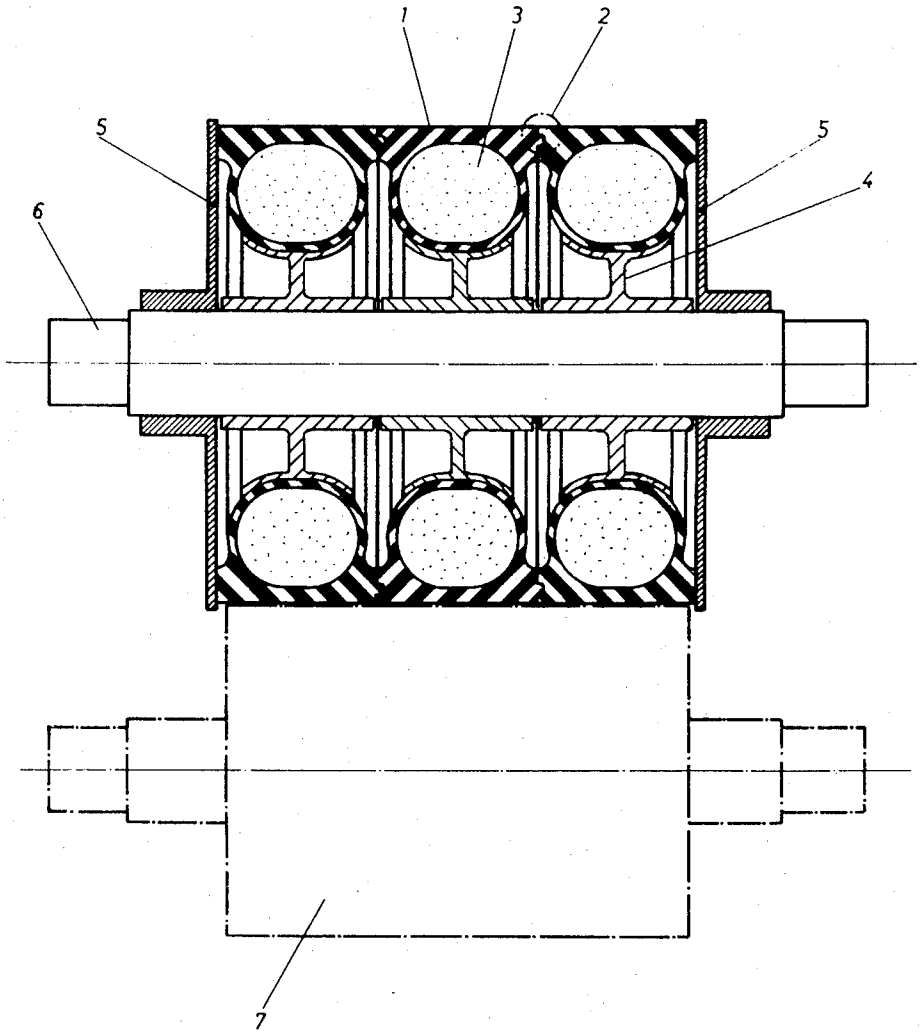
A roller press for removing water from clean wet washing comprising at least one roller which is rigid and at least one roller which is elastic. The elastic roller consists of a plurality of resilient pressurized wheel-like elements having substantially flat peripheral side surfaces juxtapositioned to one another about a common shaft. The flat side surfaces of the wheel-like elements are provided with interlocking means so as to form a continuous and coextensive outer peripheral roll surface which acts as a single, unitary elastic roller.

1 Claim, 1 Drawing Figure



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ROLL PRESS FOR REMOVING THE WATER FROM LAUNDERED WASHING OR OTHER TEXTILES

BACKGROUND OF THE INVENTION

Roll-type dehydrating presses are well known to be equipped with rigid and flexible rolls. In conventional types of machines the flexible rolls aimed at compensating for different height levels of the goods or material to be pressed either consist of several compressed-air containers lying next to each other or of a tube-shaped hollow body extending coaxially in the axial direction of the roll.

In particular from the German printed application (DAS) No. 1,460,826 there is known a flexible press roll composed of individual self-contained pressure containers, the outer layer of which being so designed along the circumference as to result in a smooth cylindrical surface (see my U.S. Pat. No. 3,465,555 dated Sept. 9, 1969).

The advantage making it possible for the individual compressed-air containers to be capable of being pressed-in independently of one another, however, causes relative movements on the front surfaces in conventional types of embodiment.

Owing to these relative motions and under extreme loading conditions, besides causing wear or abrasion on the friction surfaces, steps or offset portions are likely to result temporarily on the cylindrical jacket of the roll. This has proved to have a mechanical stressing effect upon the goods or the material to be pressed, and foreign matter can easily enter between the friction surfaces.

The invention relates to a flexible roll composed of a number of juxtaposed pressure bodies which, on one hand, are capable of being pressed-in individually without, on the other hand, involving cooperation with the pressure medium of the neighboring pressure bodies.

The invention resides in the fact that the pressure bodies engage one another on their surfaces of mutual contact, preferably according to the slot-and-feather (groove-and-tongue) principle.

In the course of this it will be seen that neighboring pressure bodies partly follow the movements, and that the cylindrical outer jacket of the roll is subjected to continuous deformation during this process.

It is therefore a primary object of the invention to provide an elastic roll for removing water from clean wet washing which does not exhibit relative motion between the pressure bodies or wheel-like elements forming the elastic roll.

It is a further object of the invention to provide an elastic roll which employs wheel-like elements having cooperating interlocking means in the form of tongue and groove joints.

It is another object of the invention to provide an elastic roller which includes means for maintaining an initial predetermined axial force on the wheel-like elements so as to overcome relative motion between the wheel-like elements in a direction transverse to the axial direction during loaded conditions.

SUMMARY

The objectives of the invention are achieved preferably by a roller press having at least one roller which is rigid and at least one roller which is elastic. In the preferred embodiment of the invention, the elastic roller comprises a plurality of resilient, pressurized wheel-like elements having substantially flat peripheral side surfaces juxtapositioned to one another about a common shaft, with the flat side surfaces of each wheel-like elements interlocking with the adjacent flat side surfaces of abutting wheel-like elements, so as to form a continuous and coextensive outer peripheral roll surface which causes the plurality of pressurized wheel-like elements to act as a single, unitary elastic roller. The roller press also includes means for maintaining an initial, predetermined axial force on the wheel-like elements, thereby substantially precluding relative motion between the wheel-like elements in a direction transverse to the axial direction when such roller press is under loaded conditions.

The objectives of the invention are achieved prefrrably by a roller press having at least one roller which is rigid and at least one roller which is elastic. In the preferred embodiment of the invention, the elastic roller comprises a plurality of resilient, pressurized wheel-like elements having substantially flat peripheral side surfaces juxtapositioned to one another about a common shaft, with the flat side surfaces of each wheel-like elements interlocking with the adjacent flat side surfaces of abutting wheel-like elements, so as to form a continuous and coextensive outer peripheral roll surface which causes the plurality of pressurized wheel-like elements to act as a single, unitary elastic roller. The roller press also includes means for maintaining an initial, predetermined axial force on the wheel-like elements, thereby substantially precluding relative motion between the wheel-like elements in a direction transverse to the axial direction when such roller press is under loaded conditions.

One example of embodiment of the subject matter of the invention is shown in the accompanying drawing.

One example of embodiment of the subject matter of the invention is shown in the accompanying drawing.

As shown therein, a variable number of pressure bodies **1** together with the pressure medium **3** are supported on one common shaft. The aforementioned engagement (intermeshing) of the lips at point **2** is effected by the action of one or more closed rings or annular members based on the slot-and-feather principle.

For reliably preventing the pressure bodies from jumping out of said rings or annular members even under operational loading conditions, they are axially biased by the disks **5.** This initial stress, however, can also be achieved in that the pressure bodies themselves are prestressed towards the center portion of the roll.

Note that the pressure bodies **1** are supported about suitable rims or hubs **4** mounted about a common shaft **6.** Roller **7** is a rigid roll and it is arranged in operation to form a nip between its outer peripheral surface and the outer peripheral surface of the elastic roll.

What I claim is:

1. In a roller press for removing water from clean wet washing having roller means against which the washing may be pressed, said roller means including at least one rigid roller and at least one elastic roller comprising a plurality of resilient, pressurized wheel-like elements having cylindrical solid outer portions juxtaposed to one another about a common shaft; the improvement comprising annular, interlocking tongue and groove element means on adjacent, flat peripheral side surfaces of abutting wheel-like elements near the outer peripheral surface thereof and in line with the solid outer cy-

lindrical portions thereof; and end pressure plates maintaining an initial, predetermined axial force on said wheel-like elements so that relative movement of the outer peripheral surfaces between any of the wheel-like elements in a direction transverse to the axial direction of said elastic roll is substantially minimized under normal and extreme loading conditions, thereby aiding in reducing wear and abrasion of the roller surfaces, and in achieving a relatively smooth outer cylindrical elastic roll surface.

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