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(54) **Direct driver system of a flatwork ironer**

Direktes Antriebssystem für eine Vorrichtung zum Mangeln von Flachwäschebahnen

Système d'entraînement directe pour une machine pour calandrer des pièces plates de linge

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Description

Background of the invention

[0001] The invention concerns the direct driver system of a flatwork ironer.

State of the Art

[0002] The functional part of the flatwork ironer is performed as an arrangement of an ironing roll, an upper snub roll, a feeding desk with a driving roll of the feeding desk, a driving roll of ironing strips, a roll for straining the ironing strips, set of undriven guiding rolls of the ironing strips, and set of the ironing strips. Each of those active rolls rotate with a different angular velocity and a malfunction of just one of that rolls means breaking down of the whole machinery.

[0003] Driving of the number of the rolls is realized by a single motor, whereas the separate rolls are rotated together due to a set of wheels and belts/chains. The belts/chains are named simply as connecting driving components. Number of the connecting driving components depends on complexity of the specific machine. In CN 2672137 an example of such type of a machine is described, but the wheels are not shown.

[0004] In US 1819534 an old type of the flatwork ironer is presented, with a motor, which drives a set of the interconnected driving wheels of rolls via two belts. This method is extremely demanding for maintainance and for lubrication of the whole gear assembly.

[0005] In JP 2009142337 the flatwork ironer with a motor is presented, where the motor drives subsequently six belts and plenty of driven wheels. Said device is extremely complicated and difficult for maintainance, with regard to plenty of applied parts. Consequently to that the device is not suitable for reliable running of the whole machinery.

[0006] In US 3,634,956 a drum-type ironer unit. The drum-type ironer unit normally operative to iron laundry at a given speed of movement of the laundry therethrough is combined most advantageously with a chest-type ironer unit normally operative to iron laundry at a much higher speed. The two ironer units are mounted in tandem so the laundry discharged by the drum-type ironer unit is automatically fed to the inlet of the chest-type ironer unit. Both ironer units are operated at the much higher linear speed for which the chest-type ironer unit is designed to operate. The laundry normally fed to the drum-type ironer unit in a dried condition is fed thereto in an undried condition. The invention in the presented embodiment comprises a lot of strips, driving components and wheels, which made the ironing system complicated and difficult for maintainance.

[0007] In US 3,510,975 an apparatus for pressing textiles and similar articles according to the preamble of claim 1 is presented. The apparatus stretches the articles as the are pressed against a rotating head cylinder. The

articles may be led through a series of successive mangles. However, each of those mangles are difficult for maintainance because of the plurality of wheel and belts.

[0008] In Fig. 1 a most often used driving system is described, which presents the state of the art.

[0009] The driving system is provided by eight wheels interconnected by two connecting driving components 80 and 90. A wheel 20 with an integrated free clutch is driven by motor 10 which is provided by a gearbox. The wheel 20 drives a driving wheel 30 of a first roll suitable for driving ironing strips 8 via the primary connecting driving component 80 of a high strength range, whereas the primary connecting driving component 80 simultaneously drives a wheel 50 of a second roll suitable for driving feeding strips 9 of a feeding desk. The surface speed of the roll suitable for driving the ironing strips 8, respectively a surface speed of the ironing strips 8, which are driven by driving roll, not presented in the drawings, is gently higher than the surface speed of a snub roll 41. The primary connecting driving component 80 is strained in small range by wheel 70 during an operation. Straining of the connecting driving component 80 is primary made by feeding wheel 60. Transfer of a movement of the primary connecting driving component 80 to the secondary connecting driving component 90 is performed by double wheel 100. The secondary connecting driving component 90 of a low strength range is intended for driving, respectively for braking of the wheel 40 of the snub roll 41. Straining of the secondary connecting driving component 90 is performed by elastic straining slider 13, which automatically eliminates small inalignment of the system and a waving motion of the snub roll 41 during operation. In case of a malfunction caused by e.g. blackout, when flatwork ironer 2 is stopped, it is possible to mount a handle 14 to the straining wheel 70 with a free clutch. By turning of the handle 14 it is possible to keep the whole machinery in emergency motion to save laundry from its burning.

[0010] It is clear that such driving system is costly in production and in maintainance, because each additional component increases possibility of malfunction. Such malfunction can be spilling out of the bearings of the wheels or rupture of the belt.

[0011] The aim of the invention is to disclose a new type of the direct driving of the flatwork ironer, which simplifies the driving system of the flatwork ironer and reduces production costs, maintainance costs and minimizes the occurring of malfunctions.

Feature of the Invention

[0012] The above mentioned disadvantages are considerably eliminated by use of direct driver system of the flatwork ironer according to the subject-matter of claim 1.

[0013] In an advantageous embodiment the connecting driving component is a chain, a V-belt, a belt or a strip.

[0014] In another advantageous embodiment in the area between the straining wheel and the wheel, which

drives the snub roll a straining slider is arranged.

[0015] In another advantageous embodiment in the area between the straining wheel and the wheel, which drives the snub roll a straining wheel is arranged.

Description of the Drawings

[0016] The invention will be further explained by use of drawings, in which Fig. 1 presents a scheme of the direct driver system of the flatwork ironer according to the state of the art, Fig. 2 presents a scheme of the direct driver system of the flatwork ironer according to the invention, Fig. 3 presents an axonometric realistic view of the direct driver system of the flatwork ironer according to the invention shown in Fig. 2 and Fig. 4 presents a side view of the flatwork ironer, which is provided by the direct driver system of the flatwork ironer according to the invention.

Preferred Embodiment of the Invention

[0017] In Fig. 2 the direct driver system 1 of the flatwork ironer 2 is presented, which is provided by four wheels 3, 4, 5, 6 interconnected by connecting driving component 7, which can be performed as a chain, a V-belt, a belt or a strip. The driving wheel 3 of the connecting driving component 7 is a part of a first roll driving ironing strips 8. The driving wheel 4 is a part of a swinging arranged snub roll 41, where the snub roll 41 is intended for pressing the ironing clothes to the ironing wheel 18. The wheel 5 is a part of a second roll, which drives feeding strips 9 of a feeding desk, and where the straining wheel 6 engages to strain the connecting driving component 7. The ironing strips 8 are passing around the first roll, the ironing roll 15, a first tensing wheel 16, a second tensing wheel 17 and a third tensing wheel 18.

[0018] Driving of the whole direct driver system 1 of the flatwork ironer 2 is performed by motor 10 provided by a gearbox.

[0019] The wheels 3, 4, 5, 6 and the connecting driving component 7 are arranged at one side of the flatwork ironer 2, whereas the motor 10 is arranged on the other side of the flatwork ironer 2. The motor 10 is connected by a free clutch and elastic reaction arm with the first roll of the ironing strips 8 provided by connected driving wheel 3 of the connecting driving component 7, so the first roll of the ironing strips 8 and the driving wheel 3 of the connecting driving component 7 is simultaneously driven by motor 10. The connecting driving component 7 is strained over the wheels 3, 4, 5, 6 in such a way, that the connecting driving component 7 creates the laid letter "V" by side view onto the flatwork ironer 2, where on its tops the wheels 3, 4 are arranged and on its interference point of an outside section 11 of the connecting driving component 7 the straining wheel 6 is arranged and on its interference point of an inside section 12 of the connecting driving component 7 the wheel 5 is arranged.

[0020] The inside section 12 of the connecting driving

component 7 between the wheels 4 and 5 is a braking branch of the wheel 4 and therefore it is kept in stretch. To avoid an interface between the inside section 12 of the connecting driving component 7 between the wheels 4, 5, and the outside section 11 of the connecting driving component 7 between the wheels 4, 6, an area between those sections is provided by an elastic straining slider 13, which pushes section 11 of the connecting driving component 7 away from the inside section 12 of the connecting driving component 7. It is possible to imagine the elastic straining slider 13 performed as a wheel.

[0021] In case of blackout there is a possibility to mount a handle 14 to the wheel 5, eventually to the driving wheel 3 of the connecting driving component 7, for emergency manual driving of the whole wheelwork of the direct driver system 1 of the flatwork ironer 2. This is required as a prevention of burning of the ironed laundry in case of the stop of the direct driver system 1 of the flatwork ironer 2 during ironing, when laundry is in contact with an ironing roll 15 of high temperature for a long time.

[0022] The handle 14 is arranged in the direct driver system 1 of the flatwork ironer 2 in such a way, that in the off position it is not in functional interconnection with the direct driver system 1 of the flatwork ironer 2. The functional interconnection of the handle 14 with the direct driver system 1 of the flatwork ironer 2 is arisen after its pressing. The handle 14 is provided by unidirectional gear coupling, which will start override in case of pressing onto the handle 14 during running of the machinery. The construction of the handle 14 ensures that, the handle 14 is ejected itself to the position, where it is not in engagement with the direct driver system 1 of the flatwork ironer 2, if the handle 14 is mechanically connected with the direct driver system 1 of the flatwork ironer 2 but there is no press on the handle 14 from the operator.

[0023] To enable moving with the rolls, respectively with the wheelwork of the direct driver system 1 of the flatwork ironer 2 by the handle 14 the gearbox of the motor 10 is provided by a free clutch, which ensures disconnection of the direct driver system 1 of the flatwork ironer 2 from the motor 10 in the case of manual driving by handle 14.

[0024] Now after the above explanation, the whole direct driver system 1 of the flatwork ironer 2 can be compared with the state of the art, which is described hereinbefore. The driving wheel 3 of the connecting driving component 7 corresponds with the wheel 20, 30 and 70, the wheel 4 corresponds with the wheel 40, the wheel 5 corresponds with the wheel 50 and the straining wheel 6 corresponds with the straining wheel 60. Consequently to the confrontation of Fig. 1 and Fig. 2 it is clear, that the emplacement of said wheels 3, 4 and 5 within the wheel 6 is the same for both cases of the same flatwork ironer 2. The proposed direct driver system 1 of the flatwork ironer 2 allows to leave out the straining wheel 70, the wheel 20, the secondary connecting driving component 90 and the double wheel 100. Such direct driver system 1 of the flatwork ironer 2 is cheaper, simpler and

it increases durability and accuracy of the movement.

Claims

1. Direct driver system of a flatwork ironer, where the flatwork ironer comprises ironing strips (8), an ironing roll (15), a first roll adapted to drive the ironing strips (8), a first tensing wheel (16), a second tensing wheel (17) and a third tensing wheel (18), and further the direct driver system comprises a connecting driving component (7), a driving wheel (3) of the connecting driving component (7), a wheel (4) adapted to drive a snub roll (41), a wheel (5) adapted to drive a second roll, adapted to drive feeding strips (9), a straining wheel (6) and a motor (10) **characterized in, that** the driving wheel (3) of the connecting driving component (7) is coupled with the first roll adapted to drive the ironing strips (8), whereas the first roll is interconnected with the driving shaft of the motor (10), and the ironing roll (15) is driven by the ironing strips (8).
2. Direct driver system of the flatwork ironer according to the claim 1 **characterized in, that** the connecting driving component (7) is a chain, a V-belt or a strip.

Patentansprüche

1. Das System des direkten Antriebs für eine Vorrichtung zum Mangeln von Flachwäschebahnen, in der die Walzenmangel Bügelbänder (8), eine Bügelwalze (15), die erste für den Antrieb von Bügelbändern (8) bestimmte Walze, die erste Spannscheibe (16), die zweite Spannscheibe (17) und die dritte Spannscheibe (18) enthält, weiter enthält das System des direkten Antriebs für eine Vorrichtung zum Mangeln von Flachwäschebahnen ein Verbindungsantriebsselement (7), eine Antriebsscheibe (3) des Verbindungsantriebsselements (7), eine für den Antrieb der Druckwalze (41) bestimmte Scheibe (4), eine für den Antrieb der zweiten Walze bestimmte Scheibe (5), die zur Bewegung von Aufgabelbändern (9) dient, eine durchverbindende Scheibe (6) und einen Motor (10), **dadurch gekennzeichnet, dass** die Antriebsscheibe (3) des Verbindungsantriebsselements (7) mit der ersten für den Antrieb von Bügelbändern (8) bestimmten Walze verbunden ist, wobei die erste Walze mit Antriebswelle des Motors (10) verbunden ist und die Bügelwalze (15) mit Hilfe dieser Bügelbänder (8) getrieben wird.
2. Das System des direkten Antriebs für eine Vorrichtung zum Mangeln von Flachwäschebahnen nach Anspruch 1 **dadurch gekennzeichnet, dass** das Verbindungsantriebsselement (7) als eine Kette, ein Keilriemen oder eine Gurt durchgeführt wird.

Revendications

1. Le système d'entraînement directe pour une machine pour calandrer des pièces plates de linge, où une machine pour calandrer des pièces plates de linge contient des ceintures à repasser (8), le cylindre à repasser (15), le premier cylindre désigné pour l'entraînement des ceintures à repasser (8), la première roue de tension (16), la deuxième roue de tension (17) et la troisième roue de tension (18), ensuite le système d'entraînement directe contient l'élément motrice connectant (7), la roue motrice (3) de l'élément motrice connectant (7), une roue (4) désignée pour l'entraînement du rouleau-compacteur (41), la roue (5) désignée pour l'entraînement de deuxième rouleau-compacteur désigné pour le mouvement des ceintures d'alimentation (9), la roue dressant (6) et le moteur (10) **caractérisé en ce que** la roue motrice (3) de l'élément motrice connectant (7) est connectée avec le premier cylindre, désigné pour l'entraînement des ceintures à repasser (8), où le premier cylindre est interconnecté avec l'arbre motrice du moteur (10) et le cylindre à repasser (15) est stimulé par ces ceintures à repasser (8).
2. Le système d'entraînement directe pour une machine pour calandrer des pièces plates de linge selon la revendication 1 est **caractérisé en ce que** l'élément motrice connectant (7) est la chaîne, la chaîne de coin ou la ceinture.

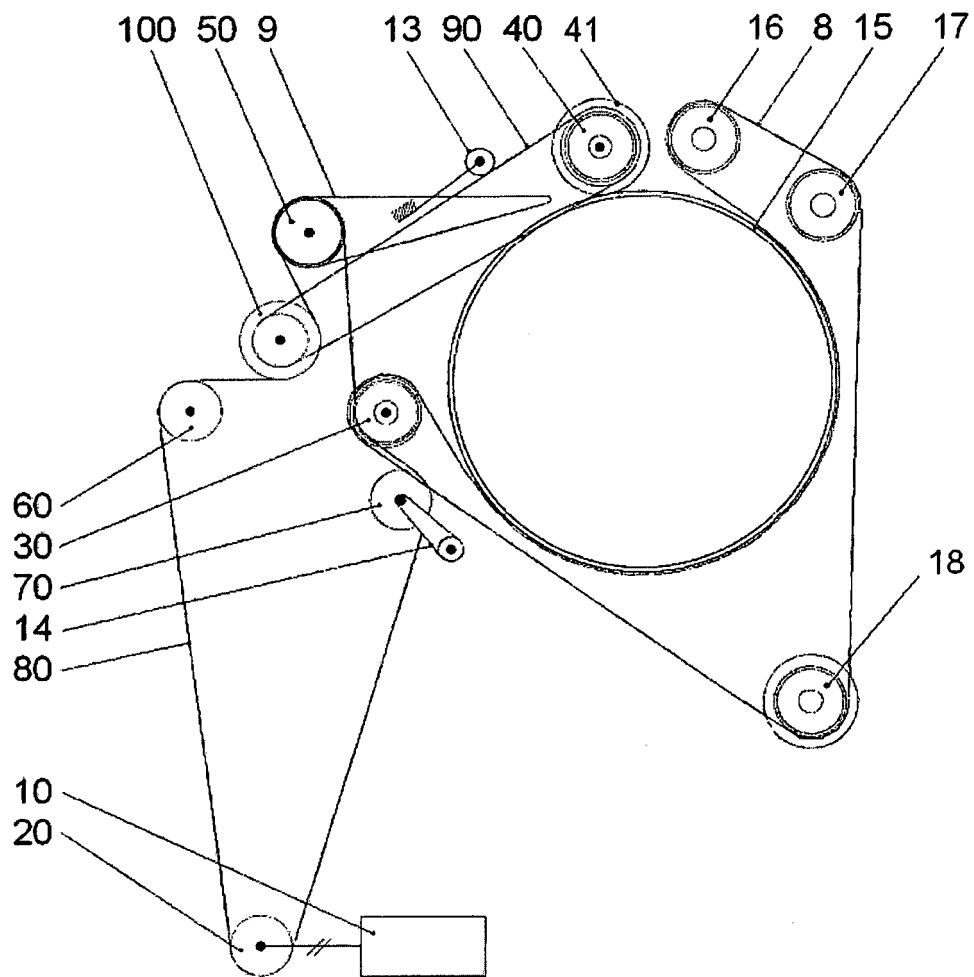


Fig. 1

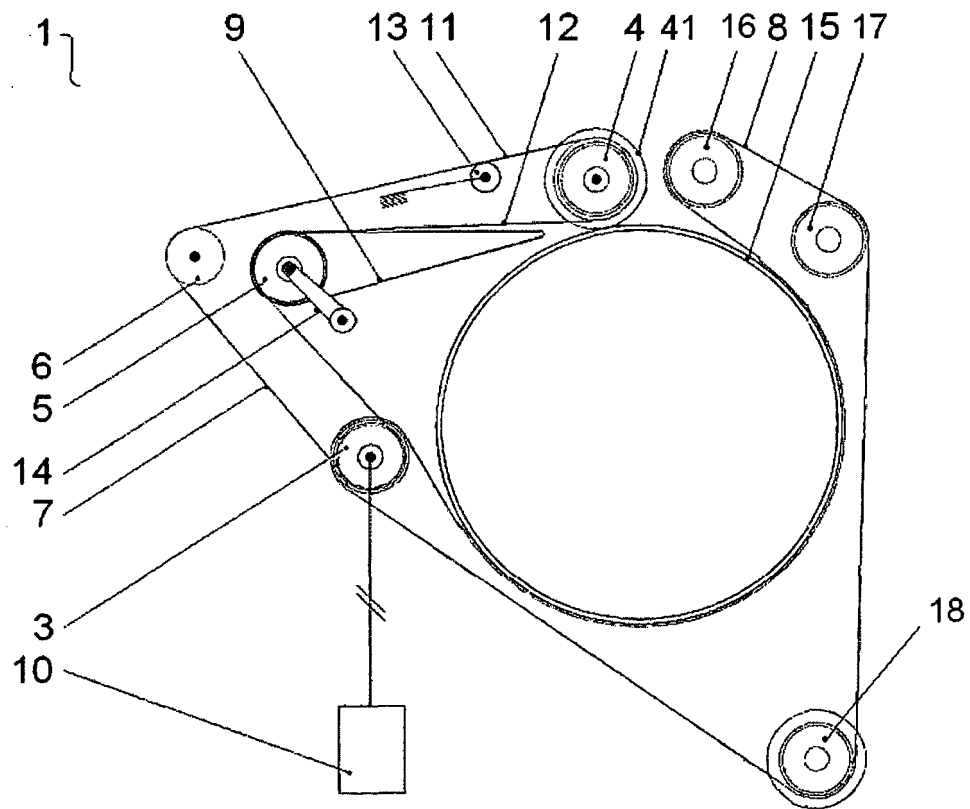


Fig. 2

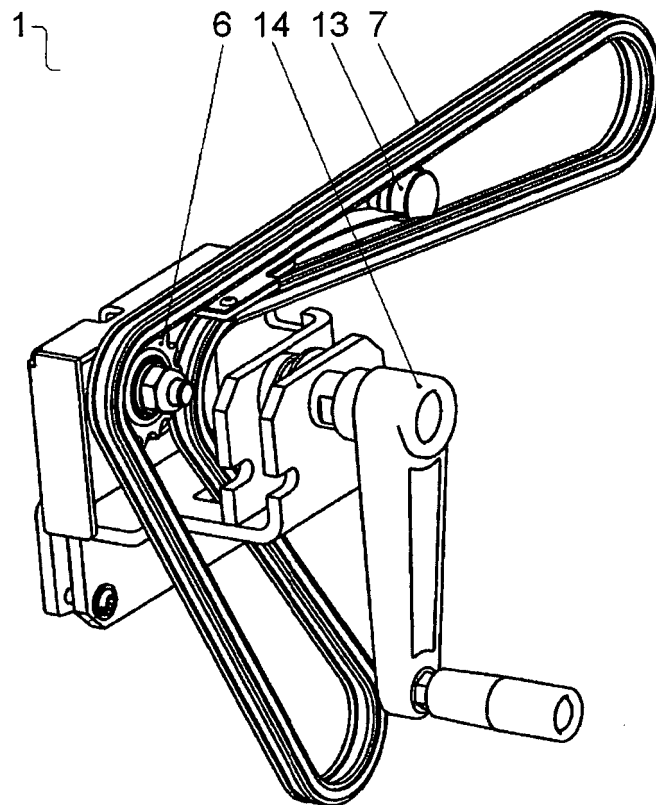


Fig. 3

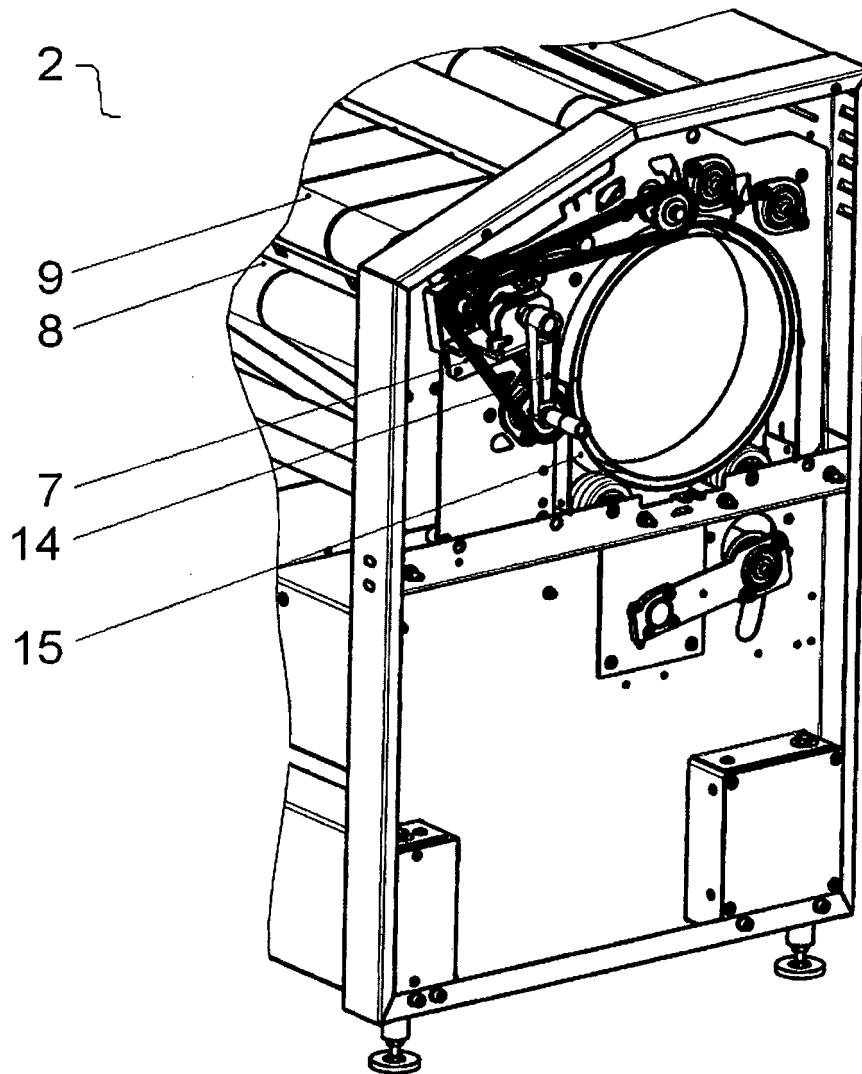


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

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