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Description

This invention relates to an ironing machine according to the preamble of Claim 1.

Such an ironing machine is known from French patent Nr. 1,113,988. The ironing bed of this known ironing machine is formed by two successive segments which can hinge around one and the same axis. These two segments can be pushed against the roller and can then be removed from the roller by rotation around this axis. In this way, it is possible to enlarge the surface of the roller enclosed by the bed to more than half the surface of the roller. By this the ironing capacity of the ironing machine is raised without having to enlarge the diameter of the roller.

It has to be remarked that the hinge axis of the two segments from the above mentioned French patent is a fixed axis which is in other words not movable with respect to the roller. Both segments are connected rotatably around this axis by means of adjustable fingers. It will be clear that in order to obtain a homogeneous pressure distribution, the distance between each segment and the fixed hinge axis has to be adjusted accurately. Due to wear, this distance will always have to be readjusted. Further it will also be clear that this known ironing machine is only suitable for certain thicknesses of the materials to be ironed since different thicknesses impede to obtain a homogeneous pressure distribution even when readjusting the adjustable fingers.

Therefore, it is an object of the invention to provide an ironing machine of the hereabove mentioned type having thus an enlarged capacity and which offers a solution to the hereabove indicated problems with respect to obtaining a homogeneous pressure distribution.

To this end an ironing machine according to the invention is characterized in that the ironing bed is divided up in three segments which are movable to and from the roller together with the hinges, the hinge axes being located between the ironing shoes.

Due to the movable placing of the hinges and due to the fact that each segment covers about 90° of the periphery of the roller, a homogeneous pressure distribution can be realized by means of only three segments independent of the thickness of the material to be ironed and independent of any wear.

Other particularities and advantages of the invention will become apparent from the following description of an ironing machine according to the invention ; this description is only given by way of example and does not limit the invention ; the reference numerals relate to the sole figure.

This figure shows schematically a side view on an ironing machine according to the invention.

The ironing machine according to the invention and shown in the figure consists mainly of a schematically represented frame 1, a cylindrical roller 3 mounted thereon rotatably around a horizontal axis 2, a heated ironing bed 4 and a supply device for the linen 5.

The roller 3 is driven by an electric engine 7 through a reduction gear 6 and rotates hereby clockwise as indicated on the figure by arrow 8. The surface 9 of the cylindrical roller 3 is provided with a covering.

The bed 4 encloses the roller 3 over about three quarter of the periphery of the roller 3 starting from the top of the latter. The bed's end situated on the top of the roller 3 is directed obliquely upwards and forms in combination with the roller 3 a supply chink 10 in which the supply device 5 ends.

The supply device 5 consists of an obliquely rising conveyor belt 11 above the bed 4, which conveyor belt is further sloping downwards, on the top, starting from a bent plate 12, to the bottom where the conveyor belt 11 is supported by a shaped plate 13 having a rounded end 14.

This rounded end 14 is located near the supply chink 10 formed by the end of the bed 4 and the roller 3. The conveyor belt 11 turned back around this rounded end 14, is further supported at the underside by a guiding wheel 15 mounted beneath the bent plate 12 and by a tension wheel 16 and is guided back upwards at the bottom end around a wheel 17. The rotation direction of this conveyor belt 11 is indicated in the figure by arrow 18.

In order that the linen supplied by the conveyor belt 11 would end in the supply chink 10, a further feeding belt 19 is provided which belt is pushed against the upper side of the shaped plate 13 and further around the rounded end 14 of this plate 13. To this end, this feeding belt 19 is guided not only around two wheels but also around a wedge-shaped element 22 which extends substantially up to the inside of the supply chink 10.

The feeding belt 19 rotates at the same speed but in the opposite direction as the conveyor belt 11, i.e. in the direction indicated in the figure by arrows 23. Both belts 11, 19 rotate however somewhat slower than the roller 3 so that the linen supplied between these two belts 11, 19 is stretched and is pulled without wrinkles between the roller 3 and the bed 4.

In case the periphery of the roller 3 is divided into degrees and this starting from the top and then further according to the rotation direction 8 of the roller 3, the bed 4 extends from about 0° to about 270°. In the ironing position the bed 4 is pushed over the total distance against the roller as shown

in the figure.

In the rest position, i.e. when no linen is being ironed, the bed 4 has to be removed from the roller 3 in order to avoid the covering on the roller's surface 9 to be burned. In order to realize this, the bed 4 is composed of three successive segments each covering substantially 90° of the roller's periphery. The first segment 24 is approximately situated between 0 and 90°, the second segment 25 between 90 and 180° and the third segment between 180 and 270°.

By the term segment it has to be understood a rectangular, plate-shaped element bent according to the surface of a cylinder, in this case according to the surface 9 of the roller 3.

Each segment 24, 25, 26 consists of a smooth metal ironing shoe 27, a heating element 28 and an outer insulation layer 29.

The segments 24, 25, 26 are connected to each other by means of hinges, particularly by means of a hinge 30 provided between the first 24 and the second segment 25 and by means of a hinge 31 applied between the second 25 and the third segment 26.

According to the hereabove defined division of the periphery of the roller 3, the two hinges 30, 31 are thus situated respectively at about 90 and 180°.

The second 25 and the third segment 26, covering together the lower part of the roller 3, are grasped and pushed towards each other by means of a metal band 32. This metal band 32 is, on the one hand, fixed to the third segment 26 and is, on the other hand, movable in a guide over the second segment 25.

Near the bottom hinge 31 are provided blocking means 33 preventing the bed 4 to rotate around the roller 3 but allowing the bed 4 to move perpendicularly to the surface of the roller 3. In the figure, these blocking means 33 are formed by a substantially horizontal pulling rod 34 which is at one end connected to the steel band 32 by means of a hinge 35 whilst its other end is connected to the frame 1 by means of a hinge 36. In this way, the steel band 32 can move up and down between the ironing position, shown in the figure, and a rest position in which the steel band 32 rests upon a support 37 of the frame 1 situated thereunder.

In order to enable the shifting of the bed 4 between the ironing position and the rest position, the segments 24, 25, 26 are each provided with a shifting mechanism 38, 39 and 40 respectively, which exerts in the ironing position a force onto the respective segment 24, 25, 26, which force can be splitted into a tangential pull component and a radial push component.

By this push component, the segment 24, 25, 26 is pushed against the roller 3 at the application place of the shifting mechanism 38, 39, 40 on the respective segment 24, 25, 26 whilst the pull component pulls the segment 24, 25, 26 away from the blocking means 33 in such a manner that in this way the part of the bed 4, located between the application place of the shifting mechanism 38, 39, 40 and the application place of the blocking means 33, is pulled against the roller 3.

As shown in the figure, the shifting mechanisms 38, 39, 40 are formed by double action cylinder-piston mechanisms 38, 39 and 40 respectively which are hingedly connected with one end to the frame 1 and with the other end hingedly to the respective segment 24, 25, 26.

By means of these three cylinder-piston mechanisms 38, 39, 40, the ironing shoes 27 of the segments 24, 25, 26 are pushed in the ironing position over their total surface substantially with the same pressure against the covering of the surface 9, even if the ironing shoes 27 might be weared out after frequent use.

The hereabove described ironing machine works very simply as follows.

In order to iron linen, the ironing machine is put into the ironing position, shown in the figure, namely by making the three cylinder-piston mechanisms 38, 39 and 40 to extend. The linen to be ironed is then spreaded out on the conveyor belt 11 and is supplied by this conveyor belt 11, when cooperating with the feeding belt 19, into the supply chink 10.

Next, the roller 3, rotating at a higher speed as the two belts 11, 19, pulls the linen along and during the rotation, the heated bed 4 irons the linen smoothly over about three quarter of the periphery of the roller 3. A scraper 42 may be provided at the end of the bed 4 for removing the linen from the roller 3.

After ironing, it is important to remove the bed 4 from the roller 3, more particularly by contracting the three cylinder-piston mechanisms 38, 39, 40 back. Hereby the segments 24, 25, 26 of the bed 4 move away from the roller 3 according to arrows 43 until the bed 4 rests at the underside upon the support 37 and at the right side against the support 41.

An important advantage of the hereabove described ironing machine according to the invention consists in that the total surface of the ironing shoes 27 is considerably enlarged when maintaining the same roller diameter since this surface comprises about three quarter of the surface 9 of the roller 3.

By this it is for example possible to replace two rollers 3 having a diameter of 1200 mm and which cooperate only over half of their periphery with a bed 4, when maintaining the same ironing capacity, by one single roller 3 according to the invention.

Only a little bigger diameter is required for this roller 3, namely a diameter of 1600 mm, since it is surrounded over three quarter of its periphery by an ironing bed 4.

In the ironing machine according to the invention a simple, practical, safe and reliable solution is offered for the problems involved with such an enlarged ironing surface, such as amongst others for the problem of obtaining a homogeneous pressure distribution and for the problem that the heated ironing shoes 27 have to be placed in the rest position at a distance of the roller 3.

However, it will be clear that equivalelnt results can be obtained with a number of variant ironing machines.

In a first variant, the blocking means 33 are connected to the bed 4 near the hinge 30 between the first 24 and the second segment 25, thus on about 90° in such a manner that near this hinge 30 the bed 4 can move only horizontally. In order that the second segment 25 would be pressed homogeneously against the roller 3, the corresponding cylinder-piston mechanism 39 is disposed substantially horizontally.

In order that the movement from the ironing position to the rest position would ge smoothlier, springs can be provided in this variant which pull the bed 4 away from the roller 3 near the blocking means 33.

In a second possible variant of the ironing machine according to the invention, the blocking means 33 are connected to the bed 4 at the middle of the second segment 25.

The cylinder-piston mechanism 39 of the second segment is omitted in this variant or is possibly replaced by springs pulling this segment 25 away from the roller 3. The outermost cylinder-piston mechanisms 38, 40 maintain their position as described herebefore and take care that also the middlemost segment 25 is pushed in the ironing position homogeneously against the roller 3.

Claims

1. An ironing machine comprising a frame (1), an ironing roller (3) mounted rotatably around its longitudinal axis (2) on this frame (1) and an ironing bed (4) cooperating therewith which surrounds the roller (3) over about three quarter thereof and which is movable between an ironing position in which it is pressed against the roller (3) and a rest position in which it is situated at a distance from the roller (3), which bed (4) is divided up into segments, each comprising a plate-shaped ironing shoe (27), and being connected to an adjoining segment by means or hinges (30, 31), characterized in that said bed (4) is divided up in three segments (24, 25, 26) which are movable to and from the roller (3) together with said hinges (30, 31), the hinge axes of said hinges (30, 31) being located between said ironing shoes (27).

2. An ironing machine according to claim 1, characterized in that the frame (1) is provided with blocking means (33) which act upon the bed (4) and which allow at the point of action a movement of the bed (4) substantially perpendicular to the surface (9) of the roller (3) but which prevent a rotation of the bed (4) around the roller (3).

3. An ironing machine according to claim 2, characterized in that the axis (2) of the roller (3) is disposed substantially horizontally, in that the bed (4) encloses in the ironing position at least the bottom side of the roller (3) and in that the blocking means (33) act at the bottom side of the roller (3) upon the bed (4).

4. An ironing machine according to claim 2 or 3, characterized in that the blocking means comprise a rod (34) arranged substantially tangentially to the roller (3) which rod (33) is with one end hingedly connected to the bed (4) and with another end to the frame (1).

5. An ironing machine according to one of claims 2 to 4, characterized in that at least the two terminal segments (24, 26) are provided with a shifting mechanism (38, 40) which exerts in the ironing position a force upon the respective segment (24, 26), the shifting mechanism (38, 40) being mounted in such a manner that this force comprises a tangential pull component and a radial push component.

6. An ironing machine according to claim 5, characterized in that the shifting mechanism (38, 40) comprises a cylinder-piston mechanism (38, 40) which is, on the one hand, hingedly connected to the frame (1) and, on the other hand, to the respective segment (38, 40).

7. An ironing machine according to claim 5 or 6, characterized in that each segment (24, 25, 26) is provided with a shifting mechanism (38, 39, 40).

Patentansprüche

1. Bügelmaschine, die ein Gestell (1), eine Bügelwalze (3), die um ihre Längsachse (2) drehbar an diesem Gestell (1) angebracht ist, sowie eine damit zusammenwirkende Bügelmulde (4) umfaßt, die die Walze (3) über ungefähr drei

Viertel derselben umgibt, und die zwischen einer Bügelstellung, in der sie an die Walze (3) gedrückt wird, und einer Ruhestellung, in der sie sich in einem Abstand von der Walze (3) befindet, bewegt werden kann, wobei diese Mulde (4) in Segmente unterteilt ist, die jeweils eine plattenförmige Bügelsohle (27) umfassen und über Gelenke (30, 31) mit einem benachbarten Segment verbunden sind, **dadurch gekennzeichnet**, daß die Mulde (4) in drei Segmente (24, 25, 26) unterteilt ist, die zusammen mit den Gelenken (30, 31) auf die Walze (3) und von ihr weg bewegt werden können, wobei sich die Gelenkachsen der Gelenke (30, 31) zwischen den Bügelsohlen (27) befinden.

2. Bügelmaschine nach Anspruch 1, **dadurch gekennzeichnet**, daß das Gestell (1) mit einer Arretiereinrichtung (33) versehen ist, die auf die Mulde (4) wirkt, und die an der Wirkungsstelle eine Bewegung der Mulde (4) im wesentlichen senkrecht zur Oberfläche (9) der Walze (3) zuläßt, die jedoch eine Drehung der Mulde (4) um die Walze (3) verhindert.

3. Bügelmaschine nach Anspruch 2, **dadurch gekennzeichnet**, daß die Achse (2) der Walze (3) im wesentlichen horizontal angeordnet ist, daß die Mulde (4) in der Bügelstellung wenigstens die Unterseite der Walze (3) umschließt, und daß die Arretiereinrichtung (33) an der Unterseite der Walze (3) auf die Mulde (4) wirkt.

4. Bügelmaschine nach Anspruch 2 oder 3, **dadurch gekennzeichnet**, daß die Arretiereinrichtung eine Stange (34) umfaßt, die im wesentlichen tangential zu der Walze (3) angeordnet ist, wobei die Stange (34) mit einem Ende gelenkig mit der Mulde (4) verbunden ist und mit einem anderen Ende mit dem Gestell (1).

5. Bügelmaschine nach einem der Ansprüche 2 bis 4, **dadurch gekennzeichnet**, daß wenigstens die zwei abschließenden Segmente (24, 26) mit einem Verstellmechanismus (38, 40) versehen sind, der in der Bügelstellung eine Kraft auf das entsprechende Segment (24, 26) ausübt, wobei der Verstellmechanismus (38, 40) so angebracht ist, daß diese Kraft eine tangentiale Zugkomponente und eine radiale Druckkomponente umfaßt.

6. Bügelmaschine nach Anspruch 5, **dadurch gekennzeichnet**, daß der Verstellmechanismus (38, 40) einen Zylinder-Kolben-Mechanismus (38, 40) umfaßt, der auf der einen Seite gelenkig mit dem Gestell (1) verbunden ist und auf der anderen Seite mit dem entsprechenden Segment (24, 26).

7. Bügelmaschine nach Anspruch 5 oder 6, **dadurch gekennzeichnet**, daß jedes Segment (24, 25, 26) mit einem Verstellmechanismus (38, 39, 40) versehen ist.

Revendications

1. Machine à repasser comprenant un cadre (1), un rouleau de repassage (3) monté à rotation autour de son axe longitudinal (2) sur ce cadre (1) et un lit de repassage (4) coopérant avec ce dernier qui entoure le rouleau (3) sur environ trois-quart de celui-ci et qui est mobile entre une position de repassage dans laquelle il est pressé contre le rouleau (3) et une position de repos dans laquelle il est situé à une certaine distance du rouleau (3), lequel lit (4) est divisé en segments, chacun d'entre eux comprenant un sabot de repassage en forme de plaque (27) et étant relié à un segment contigu au moyen d'articulations (30, 31), caractérisée en ce que le lit (4) est divisé en trois segments (24, 25, 26) qui peuvent se déplacer vers et à partir du rouleau (3) en même temps que lesdites articulations (30, 31), les axes d'articulation des articulations (30, 31) susdites étant positionnés entre les sabots de repassage (27).

2. Machine à repasser suivant la revendication 1, caractérisée en ce que le cadre (1) est pourvu d'un moyen de blocage (33) qui agit sur le lit (4) et qui permet au point d'action un déplacement du lit (4) sensiblement perpendiculaire à la surface (9) du rouleau (3) mais qui empêche une rotation du lit (4) autour du rouleau (3).

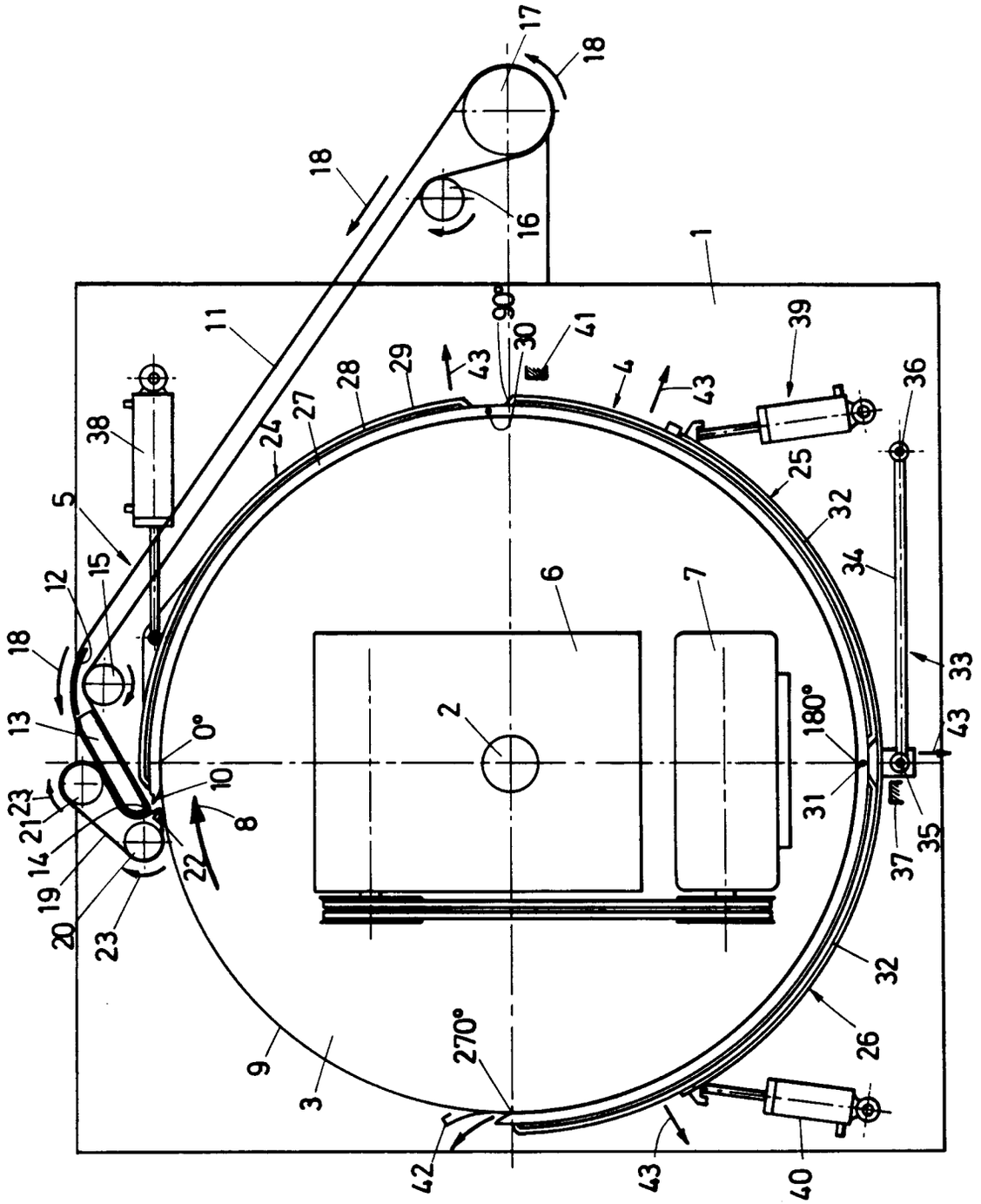
3. Machine à repasser suivant la revendication 2, caractérisée en ce que l'axe (2) du rouleau (3) est disposé sensiblement horizontalement, en ce que le lit (4) entoure dans la position de repassage au moins le côté inférieur du rouleau (3) et en ce que le moyen de blocage (33) agit à l'endroit du côté inférieur du rouleau (3) sur le lit (4).

4. Machine à repasser suivant l'une ou l'autre des revendications 2 et 3, caractérisée en ce que le moyen de blocage comprend une tige (34) agencée sensiblement tangentiellement au rouleau (3), laquelle tige (33) est avec une extrémité reliée par articulation au lit (4) et avec une autre extrémité au cadre (1).

5. Machine à repasser suivant l'une quelconque des revendications 2 à 4, caractérisée en ce qu'au moins les deux segments terminaux (24, 26) sont pourvus d'un mécanisme de déplacement (38, 40) qui exerce dans la position de repassage une force sur le segment respectif (24, 26), le mécanisme de déplacement (38, 40) étant monté d'une manière telle que cette force comprenne une composante de traction tangentielle et une composante de poussée radiale.

6. Machine à repasser suivant la revendication 5, caractérisée en ce que le mécanisme de déplacement (38, 40) comprend un mécanisme à cylindre-piston (38, 40) qui est, d'une part, relié par articulation au cadre (1) et, d'autre part, au segment respectif (38, 40).

7. Machine à repasser suivant l'une ou l'autre des revendications 5 et 6, caractérisée en ce que chaque segment (24, 25, 26) est pourvu d'un mécanisme de déplacement (38, 39, 40).


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