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Description

The present invention has for object a fabric ironing machine.

The invention regards fabric ironing machines comprising a fabric cylinder transfer means and a reciprocable movable ironing cap pressing device against the cylinder transfer means for ironing fabrics.

In prior art different ironing machines and particularly for industrial use to reduce the ironing work are known.

Such apparatuses are essentially composed by one or more cylinders for the translation of the fabric for ironing with associated a reciprocable movable ironing cap pressing device against the cylinder transfer means for ironing the fabric, in which said cap has a countershape endowed of heat resistance means longitudinally disposed. The ironing cap operates in press sliding ironing, namely the ironing is made obliging the fabric Eg. sheet fabric, to slide under a cap (the cap having a smooth chromed inner surface) moved by a driving cylinder that have a scratchy fabric surface (Eg. cotton fabric). The reciprocable movement in pressing the fabric against the cylinder and its moving away from the cylinder surface is realized by means of a very complex set of leverages and lifter means.

Said movement, conveniently temporized, is necessary to allow the operator for the interposition of the fabric to iron and the successive extraction of the fabric so treated, between the ironing cap and the translation cylinder.

The cap lever and lifting means are operated with their own drive motor means.

Other more recent solutions provide a cap lifting device essentially composed by a endless crew means.

IT-82522A/87 in the name of same applicant discloses an ironing cap lifting device essentially composed by an eccentric or connected crank-web to a rotational transmission means, on which is secured one stem of a respective amortizer cylinder which at its turn is secured on the support structure of the ironing cap to realize the iron-press movement on the respective cylinder.

In the first solutions disclosed above different drawbacks are noticeable, between these, it is firstly observable that for obtaining the placement and the lifting of the ironing cap a series of lever means of notable complexity which require a plurality of steps and furthermore involve a cumbersome structure are used.

Because the complexity of the machine, besides to a greater maintenance a long time for installation is required.

And this is not convenient.

In the previous IT-82522A/87 a separate ratio motor group is necessary for the displacement of the crank-web in addition to the already existing one for the rotation of the translation cylinder.

The obvious drawbacks are evident: high cost for the presence of the second ratio motor and of the relative independent transmission motion lever means; a complexity of realization even in relation to the disposition of the electric connections and of the relative commands and so analogously to the previous a consequent greater maintenance.

GB-A-1048290 discloses same improvements in or relating to Ironing Machines comprising a rotatably mounted ironing roller, an ironing shoe (cap press) movable towards and away from operative engagement with said roller and a motor drivingly connected to the roller and the shoe, ratiomotor means between the motor and the roller and the motor and the shoe being so arranged that the roller is rotated when the motor rotates in one direction and the shoe is moved relative to the roller when the motor rotates in a direction opposite to said one direction, characterised in that each ratiomotor includes a corresponding counter running free wheel device means.

US-A-2683319 discloses an Ironing Machine intended mainly for domestic use and particularly to machine of the type having a rotatable roll supported at one end only and a heat pressing shoe which can be moved into and out of engagement with the roll.

This machine further discloses driving means, a drive output member operatively connected with the driving means, a first clutch which transfers motion from the drive output member to roll driving means only on rotation of the drive output member in one direction, a second clutch which transfers motion from the drive output member to shoe actuating means only when the drive output member is rotating in the opposite direction and control means operable to change the direction of rotation of the drive output member.

Both these two last solutions have complex roller and shoe drive mechanisms even if the first solution is more complicated because the use of two free wheel devices one for driving said roller and one for driving said shoe, that avoids the inconveniences of a couple of clutches provided in said second solution.

Scope of the present invention is to obviate the mentioned drawbacks.

This and other scopes are reached with the present invention according to the characteristics of the annexed claims solving the exposed problems by means of a fabric Ironing Machine comprising a rotatably mounted ironing roller, an ironing shoe cap press movable towards and away from operative engagement with said roller and a motor

drivingly connected to said roller and said shoe, ratiomotor means between said motor and said roller and said motor and said shoe being so arranged that said roller is rotated when said motor rotates in one direction and said shoe is moved relative to said roller when said motor rotates in a direction opposite to said one direction, said ratiomotor means including a corresponding counter running free wheel means, characterized in that:

- it is used only one counter running free wheel means coaxially placed to said roller;
- the respective driven free wheel portion of said free wheel means is connected to drive in step by step free wheel rotation said roller;
- the respective driving free wheel portion is eccentrically connected to said shoe.

In such a way it is possible to obtain a greater simplification of the apparatus both by the mechanical view point and electric view point, avoiding particularly the installation of a second ratio motor group for the independent displacement of the ironing cap.

Advantageously a clutch is placed between driver means and the cylinder in order to allow the machine also to iron only by pressing without rotation of the cylinder.

These and other advantages will appear from the successive realization with the help of the accompanying drawings which particulars of execution are not to be considered limitative but exemplificative solely.

Figure 1 represents a lateral schematic view of the apparatus for the ironing with evidenced in first plane the displacement device of the ironing cap away the surface of the cylinder, in particular regarding the end and the starting phase (y).

Figure 2 represents a schematical view of Fig.1 in ironing phase (x) in which the ironing cap is pressed against the cylinder surface.

Figure 3 represents a schematic view in longitudinal section, of the ensemble: cylinder and transmission means to the ironing cap.

Figure 4 represents a partial explosion view of the ironing machine.

Said Figures disclose an apparatus (A) and fabric ironing machine comprising:

- a fabric cylinder transfer means (1) and
- a reciprocable movable ironing cap press sliding device (2) against the cylinder transfer means (1) for ironing fabrics,
- said cylinder transfer means being rotated by a ratio motor means (5) said ironing cap (2) being endowed with heating electric resistances means and eventually humidifier means;

The reciprocable movable ironing cap (2) to be pressed against said cylinder (1) and to be moved away from it, being realized by eccentric/crank-web

means (3, 7) actuating a connecting rod (8) to said ironing cap (2).

The novel feature of the apparatus and the machine comprises the following characteristics:

- said cylinder (1) is engaged in rotation in both directions by motor means (5, 6);
- said ironing cap (2) is elastically urged by elastic urging means (9, 10) against the surface of said cylinder (1);
- said eccentric/crank-web means (3) is coaxially placed in said cylinder (1) with a free wheel means (4) driven (1'') with said cylinder (1) in order that:
 - in one sense of fabric iron sliding rotation of the cylinder (1) said freewheel means (4) slides and said elastic urging means urge the ironing sliding cap against the rotating cylinder and
 - in an angular counter rotation of the cylinder (1) said freewheel means (4) does not slide forced by the respective eccentric/crank-web means (3) to move away from the cylinder surface (1) the ironing sliding cap (2).

More in particular the cylinder (1) conveniently supported laterally by a side loom L, and comprising in it a displacement device (B) of the ironing cap (2) essentially composed by a toothed free wheel (4) keyed on the longitudinal axis (1') of rotation of the cylinder (1) by an intermediating cylinder toothed wheel (1'') driven in rotation by a belt (6) driven by a reversible electric motor (5) with the intermediating reducer means (5') and pinion means (5'').

Said free wheel (4) mounted on said cylinder toothed wheel (1'') has an eccentric pinion (3) to realize said crank-web to allow by intermediating cap connecting rod (7) to move away the respective cap from the cylinder, in counter-rotation sense of the cylinder (1) after rotation in advancement of the textile namely the ironing accomplished.

During ironing the gas-spring means amortizer cylinder means (10-9) urge the ironing cap on the cylinder (1) to allow sliding of the textile driven by the cylinder.

For this scope the cylinder surface is covered with compressible material (101) and this layer is covered with cotton textile (102).

Both the end of the cap connecting rod (8) and the amortizer gas cylinder (10-9) are keyed to a shaft (24) that by intermediating guide means (23, 22) allows displacement of the respective cap (2) by the connecting sliding guide nib (21).

To disengage the transmission on the cylinder (1) a clutch (11) is provided to allow transformation of the machine from sliding-ironing operation (ironing with sliding of the textile during rotation of the cylinder) to press-ironing operation (ironing with no

rotation of the cylinder and no advancement in pressing of the textile or cloth or fabric or product to be ironed).

In sliding-ironing operation in rest phase the ironing cap is lifted as disclosed in figures 1, 4 because the crank-web (3) of the freewheel (4) supports contrast the urging force of the amortizer 10;

- after placing the textile or fabric on the cylinder (1) under the cap (2), with the foot command (30) the motor (5) is advanced obliging the cylinder (1) to rotate, in starting rotation the freewheel (4) in its rotation in a first angular rotation portion liberates the resistance to close the cap (2) against the cylinder (1) and the amortizer gas-cylinder 10 press the cap (2) on the cylinder surface and starts advancement of the fabric in ironing. Be noted that after the first angular rotation, the crank-web does not rotate anymore in the sense of the cylinder because the presence of the freewheel (4), so the ironing cap (2) remains pressed against the cylinder surface (102) by the respective gas-amortizer (10).
- after termination of ironing advancement the ratiomotor means (5) is obliged to counter-rotate for a certain angular amount obliging the respective crank-web to counter-rotate with the cylinder because of the freewheel (4), urging against the gas cylinder (10) and moving far away the respective cap (2);
- in this condition the ironed fabric is extracted from the machine and restarting ironing for a further fabric can be made. If the clutch (11) disengages the drive cylinder we can obtain the ironing pressing operation namely ironing step by step without rotation of the cylinder (1).

Claims

1. A fabric ironing machine comprising a rotatably mounted cylindrical fabric transfer means (1), an ironing cap press sliding device (2) reciprocally movable towards and away from said cylindrical fabric transfer means (1), said cylindrical fabric transfer means (1) being engaged in rotation in both directions by a ratio motor means (5), said ironing cap press sliding device (2) being elastically urged by an elastic urging means (9,10) against the surface of said cylindrical fabric transfer means (1), said ironing cap press sliding device (2) being endowed with heating electric resistance means and further comprising a free wheel means (4) placed coaxial with the cylindrical fabric transfer means (1) **characterised in that** to move the ironing cap press sliding device (2) towards and away from said cylindrical fabric

transfer means (1): said ironing cap press sliding device (2) is movably linked by a connecting rod (8) to said free wheel means (4) by means of a pinion (3) mounted eccentric on the driving portion (1') of said free wheel means (4), thus forming an eccentric crank web means (3,7,8), in order that:

- in one sense of rotation of said cylindrical fabric transfer means (1), said free wheel means (4) slides and said elastic urging means (9,10) urges the ironing cap press sliding device (2) against the cylindrical fabric transfer means (1) and
- in the counter rotation of said cylindrical fabric transfer means (1), said free wheel means (4) does not slide, obliging, by means of the eccentric crank web means (3,7,8), said ironing cap press sliding device (2) to move away from the surface of said cylindrical fabric transfer means (1).

2. A fabric ironing machine as claimed in claim 1 characterized in that said eccentric/crank-web means (3) with respective ironing cap connecting rod (8) is installed on both sides of the respective cylinder (1) being rigidly connected by a coaxial shaft (1').
3. A fabric ironing machine as claimed in claim 1 characterized in that said cylinder can be disengaged in rotation by clutch means (11) to allow transformation of a sliding operation into a pressing operation.

Patentansprüche

1. Eine Stoffbügelmaschine mit rotierbar angebrachtem, zylindrischem Stoff-Transportmittel (1) sowie einer Preß-Gleit-Bügelhaube (2), die sich abwechselnd zu dem zylindrischem Stoff-Transportmittel (1) hin und von ihm weg bewegt, wobei das genannte zylindrische Stoff-Transportmittel (1) durch einen Ratiomotor (5) in Rotation in beide Richtungen versetzt wird, die Preß-Gleit-Bügelhaube (2) elastisch durch ein elastisches Druckmittel (9, 10) gegen die Oberfläche des genannten zylindrischen Stoff-Transportmittels (1) gedrückt wird und die Preß-Gleit-Bügelhaube (2) mit einem elektrischen Heiz-Widerstandsmittel ausgestattet ist und des weiteren ein freies Rad (4) umfaßt, das koaxial zu dem zylindrischem Stoff-Transportmittel (1) angebracht ist, gekennzeichnet dadurch, daß zur Bewegung **der** Preß-Gleit-Bügelhaube (2) zu dem zylindrischen Stoff-Transportmittel (1) hin und von ihm weg: die Preß-Gleit-Bügelhaube (2) durch eine Verbin-

dungsstange (8) beweglich mit dem freien Rad (4) über ein Ritzel (3) verbunden ist, das exzentrisch auf den Antriebsteil (1') des freien Rades (4) montiert ist und so eine exzentrische Kurbel (3, 7, 8) bildet, damit:

- in der einen Rotationsrichtung des zylindrischen Stoff-Transportmittels (1) das freie Rad (4) gleitet und das elastische Druckmittel (9, 10) die Preß-Gleit-Bügelhaube (2) gegen das zylindrische Stoff-Transportmittel (1) drückt und
- in der Gegenrotationsrichtung des zylindrischen Stoff-Transportmittels (1) das freie Rad (4) nicht gleitet und so, durch die exzentrische Kurbel (3, 7, 8), die Preß-Gleit-Bügelhaube (2) dazu veranlaßt, sich von der Oberfläche des zylindrischen Stoff-Transportmittels (1) wegzubewegen.

2. Eine Stoffbügelmaschine wie nach Anspruch 1, gekennzeichnet dadurch, daß die exzentrische Kurbel (3) mit Bügelhauben-Verbindungsstange (8) auf beiden Seiten des Zylinders (1) angebracht und durch eine koaxiale Welle (1') starr verbunden ist.

3. Eine Stoffbügelmaschine wie nach Anspruch 1, gekennzeichnet dadurch, daß der genannte Zylinder in Rotation durch eine Kupplung (11) entkuppelt werden kann, um einen Gleitvorgang in einen Drückvorgang umzuwandeln.

Revendications

1. Une machine pour repasser le linge comprenant un moyen cylindrique de transfert du linge monté de façon tournante (1), un dispositif glissant de presse à chapeau pour repasser (2) qui peut se rapprocher et s'éloigner dudit moyen cylindrique de transfert du linge (1), le dit moyen cylindrique de transfert du linge (1) étant mis en rotation dans les deux directions par un motoréducteur (5), le dit dispositif glissant de presse à chapeau pour repasser (2) étant poussé élastiquement par un moyen élastique poussant (9, 10) contre la surface dudit moyen cylindrique de transfert du linge (1), le dit dispositif glissant de presse à chapeau pour repasser (2) étant pourvu de moyens de résistance électrique chauffante et comprenant en outre un moyen de roue libre (4) placé de façon coaxiale par rapport au moyen cylindrique de transfert du linge (1) caractérisé par le fait d'approcher et d'éloigner le dispositif glissant de presse à chapeau pour repasser (2) dudit moyen cylindrique de transfert du linge (1):

le dit dispositif glissant de presse à chapeau pour repasser (2) est relié de façon mobile, par une bielle (8), au dit moyen de roue libre (4) grâce à un pignon (3) monté excentriquement sur la portion menante (1') dudit moyen de roue libre (4), formant ainsi un moyen de manivelle excentrique (3, 7, 8), de façon que:

- dans un sens de rotation dudit moyen cylindrique de transfert du linge (1), ledit moyen de roue libre (4) glisse et ledit moyen élastique poussant (9, 10) pousse le dispositif glissant de presse à chapeau pour repasser (2) contre le moyen cylindrique de transfert du linge (1) et
- dans la contre-rotation dudit moyen cylindrique de transfert du linge (1), ledit moyen de roue libre (4) ne glisse pas, obligeant, grâce au moyen de manivelle excentrique (3, 7, 8), ledit dispositif glissant de presse à chapeau pour repasser (2) à s'éloigner de la surface du dit moyen cylindrique de transfert du linge (1).

2. Une machine pour repasser le linge selon la revendication 1 caractérisée par le fait que ledit moyen de manivelle/excentrique (3), avec la correspondante bielle du chapeau à repasser (8), est installé d'une part et de l'autre du cylindre respectif (1) étant rigidement relié par un arbre coaxial (1').

3. Une machine pour repasser le linge selon la revendication 1 caractérisée par le fait que ledit cylindre peut être désengagé en rotation par des moyens d'embrayage (11) de façon à permettre la transformation d'une opération de glissement dans une opération pressante.

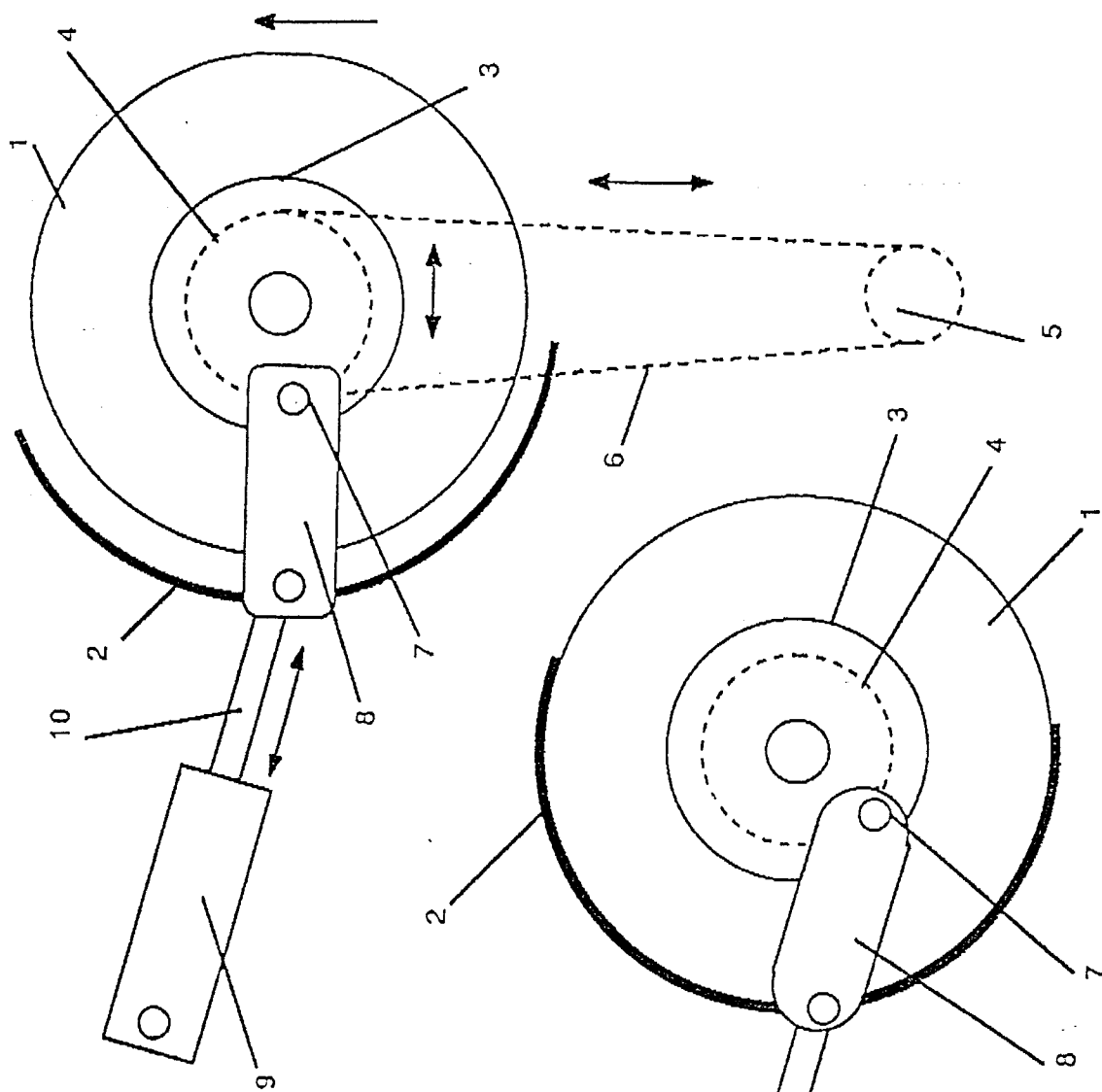
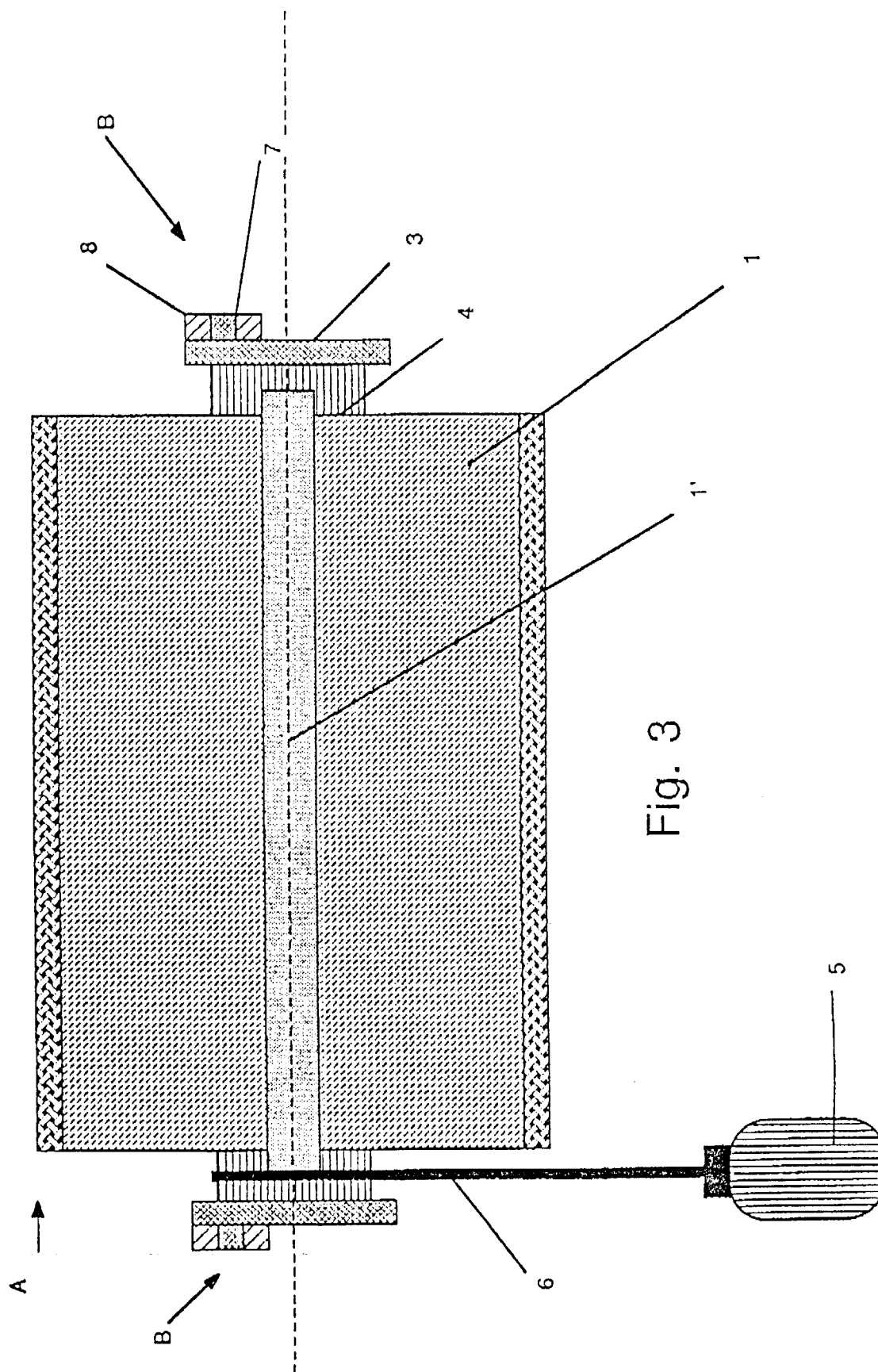


Fig. 1
(Y)

Fig. 2
(X)



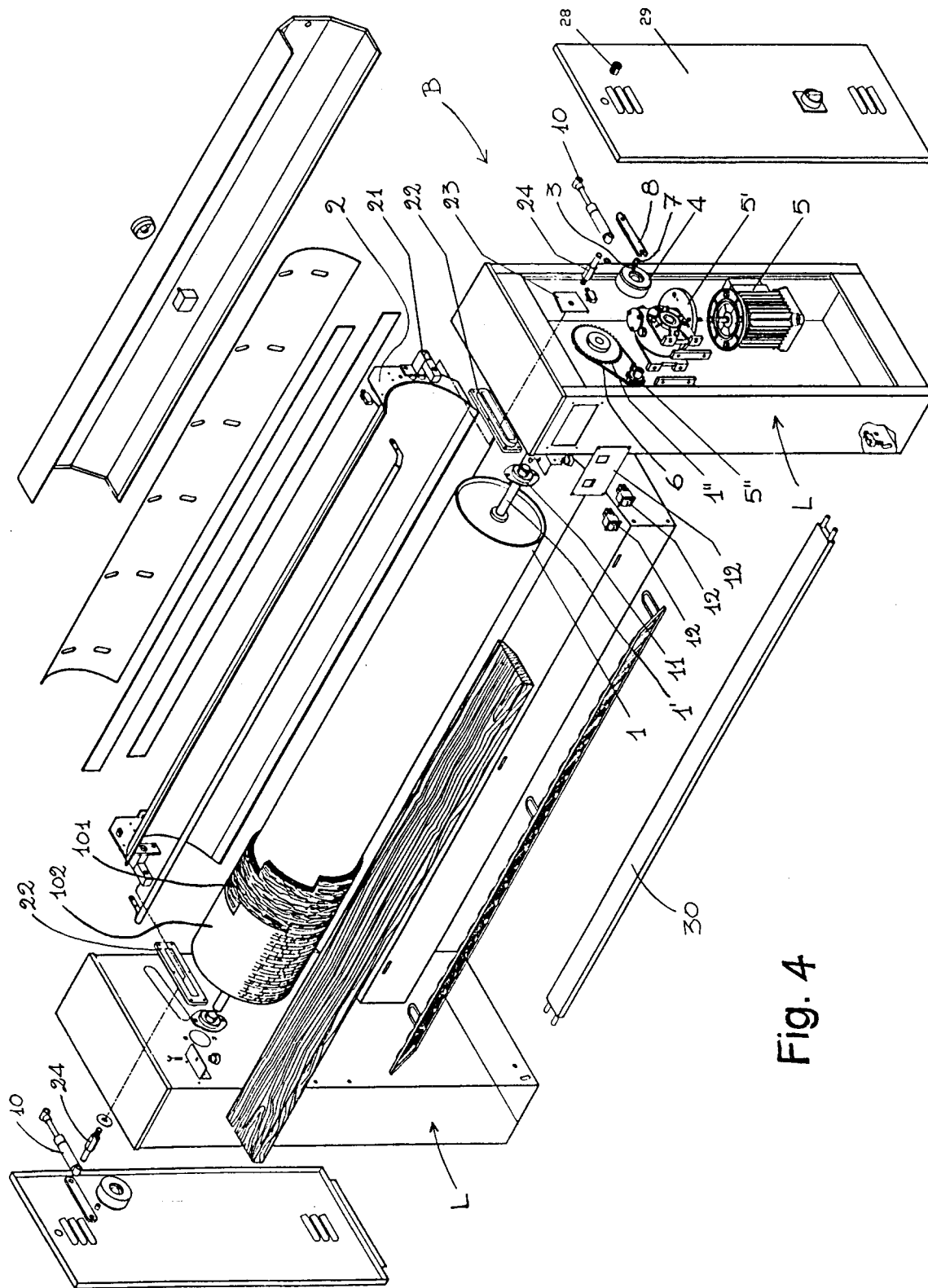


Fig. 4