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(54) **DEVICE FOR CONTROL OF WARP THREADS IN A WEAVING MACHINE FOR PRODUCTION OF LENO FABRICS**

VORRICHTUNG ZUR KONTROLLE DER KETTFÄDEN IN EINER WEBMASCHINE BEI DER
HERSTELLUNG VON DREHERGEWEBEN

DISPOSITIF PERMETTANT DE COMMANDER LES FILS DE CHAÎNE D'UNE MACHINE À TISSER
AFIN DE PRODUIRE DES TISSUS GAZE

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EP 1 675 983 B1

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Description

Technical field

[0001] The invention relates to a device for control of warp threads in a weaving machine for production of leno fabrics comprising on a batten positioned reed with gliders among which are fed pairs of warp threads, where one of which is a part of a stationary warp threads system and the second is a part of a rotating warp threads system, while in the movement direction of the warp threads during weaving is in front of the reed positioned a guiding device of rotating warp threads coupled with an independent drive and a guiding device of stationary warp threads coupled with an independent drive, the warp threads of the rotating warp threads system are before entering the guiding means of the rotating warp threads deflected in the direction out of the stationary warp threads system using a guide member positioned in the frame of the machine.

Background art

[0002] Leno fabrics exhibit specific properties given by the construction of the binding point, where the particular cross lapping and consequently interlacing of the warp threads necessary for fixation of weft in the fabric is created by mutual whipping of a pair of warp threads around the introduced weft. The position of the weft is in every weft cycle always over the same one and below the same second warp threads system, where the warp threads do not interlace it by mutual rotation of upper and lower position but so is done by mutual whipping of rotating warp threads around stationary warp threads. This is why among wefts in leno fabric can be found gaps and these fabrics are suitable as industrial fabrics, backing cloths for carpets and the like.

[0003] Each warp threads system is led into own guiding means, whose arrangement and method of drive is different from known weaving machines.

[0004] According to WO 98/07913 is the stationary warp threads system fed through a guide member into the eyes of needles positioned on vertically reversibly convertible heald shaft, on which is positioned also the guide member. Nevertheless, guide member blade is situated over the weaving level. Rotating warp threads system is led in skewed slots of another vertically reversibly convertible heald shaft, which is in the movement direction of the warp threads positioned in front of the shaft frame with the needles. In front of the heald shaft with skewed slots is the rotating warp threads system led into a direct slot of another heald shaft going along the entire width of the warp, while before this heald shaft the warp threads system passes through compensating rollers mounted on next heald shaft. Each of the heald shafts, through which passes the rotating warp threads system are vertically reversibly convertible and are positioned below the weaving level.

[0005] On the weaving machine for production of leno fabric consisting of weft threads and rotating and stationary warp threads according to EP 1120485 A1 are the stationary warp threads led through the guide member into the needles' eyes positioned on the vertically reversibly convertible frame on which is also positioned the guide member, thus the distance between the guide member and eyes of the needles is during the weaving cycle constant. The rotating warp threads are led into the openings in a vertically reversibly convertible bar. The disadvantage of this solution is a horizontal oscillating motion of the entire rotating warp threads system, due to which can especially during drop of voltage happen a mutual contact of rotating warp threads and they can be damaged.

[0006] The common disadvantage of both described solutions is positioning of the stationary warp threads system on the guide member, which increases the weight of the heald shaft or the frame moving vertically in a long distance necessary for shed formation.

[0007] According to DE 612 805 is known device for control of warp threads in a weaving machine for production of leno fabrics comprising on a batten positioned reed with gliders among which are fed pairs of warp threads, where one of which is a part of a stationary warp threads system and the second is a part of a rotating warp threads system, while in the movement direction of the warp threads during weaving is in front of the reed positioned a guiding device of rotating warp threads coupled with a drive and a guiding device of stationary warp threads coupled with a drive. The warp threads of the rotating warp threads system are before entering the guiding means of the rotating warp threads deflected in the direction out of the stationary warp threads system using a guide member positioned in the frame of the machine. After this deflection the rotating warp threads come through the jacquard heddle system (f), heald shaft (g), needle system (h) and the reed system (i).

[0008] Disadvantage of this solution is bigger loading of the warp threads, which represents bigger wear or damage of the threads with the weaving errors. Further disadvantage of the objected solution is necessity of using more means with more drives or more energy for drives.

[0009] The invention intends to eliminate the disadvantages of the background art

Principle of the invention

[0010] The goal of the invention has been reached by a device for control of warp threads in a weaving machine for production of leno fabrics according to the invention, whose principle consists in that the guiding means of rotating warp threads consists of a system of needles fitted with eyes positioned on a needle bar mounted horizontally reversibly convertibly on the machine frame on means situated over the weaving level and the guiding means of stationary warp threads consists of a bar fitted

with openings and which is vertically reversibly convertibly mounted on means situated below the weaving level..

Description of the drawing

[0011] Example of embodiment of a means according to the invention is shown in the enclosed drawings, where Fig. 1 is the axonometric projection of basic elements of the apparatus, Fig. 2 is a detail of a reed and guiding means of warp threads from Fig. 1, Fig. 3 is a cross section of the machine with both warp threads systems and with guiding means of warp threads and a batten with the reed in a picking position and Fig. 4 is a cross section of the same part of the weaving machine as in Fig. 3 in a beat up position.

Specific description

[0012] From a warp beam 1 are warp threads 2 drawn-off in a well-known manner and they are divided in a rotating warp threads system 21 and a stationary warp threads system 22. The stationary warp threads system 22 is led through a back rest 3 to a guiding means 4 of stationary warp threads 22 consisting a bar 41 fitted with openings 411 through which are led stationary warp threads 22, which further go through the gaps among gliders of the reed 51, which is positioned on a batten 5 into a binding point 23, where they become a part of a fabric 200. The bar 41 with the openings 411 is positioned vertically convertibly, which is in Fig. 1 shown as a double arrow II and coupled with a drive using means situated below the weaving level, which is composed of the horizontal plane fitted through the binding point 23. The bar 41 with the openings 411 can be replaced for instance by a heald shaft with healds.

[0013] Rotating warp threads system 21 is from the point of splitting from the stationary warp threads system 22 led through a guide member 6 into a rotating warp threads 21 guide means 7, which consists of a needle bar 71, in which are mounted needles 72 with eyes 721, in which are led rotating warp threads 21. The needle bar 71 is on the frame of the weaving machine mounted using leaf springs 711 convertibly in a horizontal position in the direction of the double arrow III and is coupled with electronic cam formed by a synchronous electromotor 73 with a governor. The drive of the needle bar 71 is composed of a separate motor, which is with the drive of the stationary warp threads 22 guiding device 4 coupled only with an electronic connection. From the needles 72 eyes 721 are the rotating warp threads 21 led through the gaps among gliders of the reed 51 into the binding point 23, where they become a part of the fabric 200. The needle bar 71 together with the means using which it is on the machine frame mounted are situated over the weaving level as well as the guide member 6, which is in the shown embodiment pivoted in the machine frame. Rotatable stationary mounting of the guide member 6 is advantageous in particular for gentle leading of rotating warp threads

21, which is for instance necessary for production of glass fiber fabrics. Mounting of the guide member 6 can be for stationary warp threads replaced for stationary mounting. Nevertheless it is always a question of separate positioning of the guide member 6 in the machine frame independently on the warp threads 7 guiding means.

[0014] During weaving is by a reversible vertical motion of the stationary warp threads guiding means 4 formed a shed, into which is in the shed position of all parts inserted a weft thread 8. Deflection of rotating warp threads 21 is provided by a horizontal reversible motion of the needle bar 71 with the needles 711, which is developed by the electronic cam represented by the synchronous electromotor 73 with a governor.

List of reference marks

[0015]

20	1	warp beam
	2	warp threads
	21	rotating warp threads
	22	stationary warp threads
	23	binding point
25	200	fabric
	3	back rest
	4	stationary warp threads guiding means
	41	bar
	411	openings
30	5	batten
	51	reed
	6	guide member
	7	rotating warp threads guiding means
	71	needle bar
35	711	leaf springs
	72	needles
	721	eyes of needles
	73	synchronous electromotor with a governor
	8	weft thread
40	II, III	double arrow

Claims

1. Device for control of warp threads (2) in a weaving machine for production of leno fabrics comprising an on a batten (5) positioned reed (51) with gliders among which there are fed pairs of warp threads, where one of which is a part of a stationary warp threads system (22) and the second is a part of a rotating warp threads system (21), while in front of the reed in the movement direction of the warp threads during weaving, there is positioned a guiding means (7) of rotating warp threads coupled with an independent drive and a guiding means (4) of stationary warp threads, whose drive is separated from the drive of the guiding means of stationary warp threads, whereby the warp threads of the rotating

warp threads system (21) are before entering the guiding means (7) of the rotating warp threads deflected in the direction out of the stationary warp threads system (22) using a guide member (6) positioned in the frame of the machine

characterized in that the guiding means (7) of rotating warp threads (21) consists of a system of needles (72) fitted with eyes (721) positioned on a needle bar (71) mounted horizontally reversibly convertibly on the machine frame on means situated over the weaving level and the guiding means (4) of stationary warp threads (22) consists of a bar (41) fitted with openings (411) and which is vertically reversibly convertibly mounted on means situated below the weaving level.

Patentansprüche

1. Vorrichtung zur Bedienung der Kettfäden (2) auf einer Webmaschine zur Erzeugung der Drehergewebe, die ein auf der Lade (5) gelagertes Webblatt (51) mit den Lamellen aufweisen, zwischen denen die Paaren der Kettfäden geführt werden, von denen einer der Bestandteil des Systems (22) der stationären Kettfäden und anderes ein Bestandteil des Systems (21) der rotierenden Kettfäden sind, wobei vor dem Webblatt in der Richtung der Bewegung der Kettfäden beim Weben ein mit dem selbstständigen Antrieb gekoppeltes Führungsmittel (7) der rotierenden Kettfäden und ein Führungsmittel (4) der stationären Kettfäden angeordnet sind, dessen Antrieb von dem Antrieb des Führungsmittels der stationären Kettfäden getrennt ist, wodurch die Kettfäden des Systems (21) der rotierenden Kettfäden (21) vor dem Eintritt ins Führungsmittel (7) der rotierenden Kettfäden in der Richtung vom System (22) der stationären Kettfäden mit Hilfe des im Gestell der Webmaschine gelagerten Ablenksteges (6) abgelenkt werden.

dadurch gekennzeichnet, dass das Führungsmittel (7) der rotierenden Kettfäden (21) ein System der mit den Nadelaugen (721) versehenen Nadeln (72) aufweist, die auf einem Nadelbrett (71) gelagert sind, das auf dem Maschinengestell auf den über der Webebene situierten Mitteln horizontal umkehrbar, verstellbar gelagert ist, und das Führungsmittel (4) der stationären Kettfäden (22) eine mit den Öffnungen (411) versehene Leiste (41) aufweist, die auf den unter der Webebene situierten Mitteln umkehrbar, verstellbar gelagert ist.

Revendications

1. Le dispositif de commande des fils de chaîne (2) sur le métier à tisser pour la production des tissus de gaze comprenant le peigne de tissage (51) avec les

lamelles placé sur le battant (5), entre lesquelles sont administrés les couples de fils de chaîne, dont un fait partie du système (22) des fils de chaîne stationnaires et l'autre fait partie du système (21) des fils de chaîne rotatifs, en temps que devant le peigne dans la direction du mouvement des fils de chaîne pendant le tissage est rangé le moyen de guidage (7) des fils de chaîne rotatifs accouplé avec une commande indépendante, et le moyen de guidage (4) des fils de chaîne stationnaires, la commande duquel est séparée de la commande du moyen de guidage des fils de chaîne stationnaires, par quoi les fils de chaîne du système (21) des fils de chaîne rotatifs avant l'entrée dans le moyen de guidage (7) des fils de chaîne rotatifs sont défléchis de la direction du système (22) des fils de chaîne stationnaires à l'aide d'une petite barre de déflexion (6), placée dans le chassis du métier à tisser

caractérisé en ce que le moyen de guidage (7) des fils de chaîne rotatifs comprend le système d'aiguilles (72) muni d'oeillets (721), placées sur l'aiguillier (71), placé horizontalement réversiblement à réglage sur le chassis du métier sur les moyens situés au-dessus de la surface de tissage et, le moyen de guidage (4) des fils de chaîne stationnaires (22) comprend la glissière (41) munie de l'ouverture (411) et placée verticalement réversiblement à réglage sur les moyens situés au-dessous de la surface de tissage.

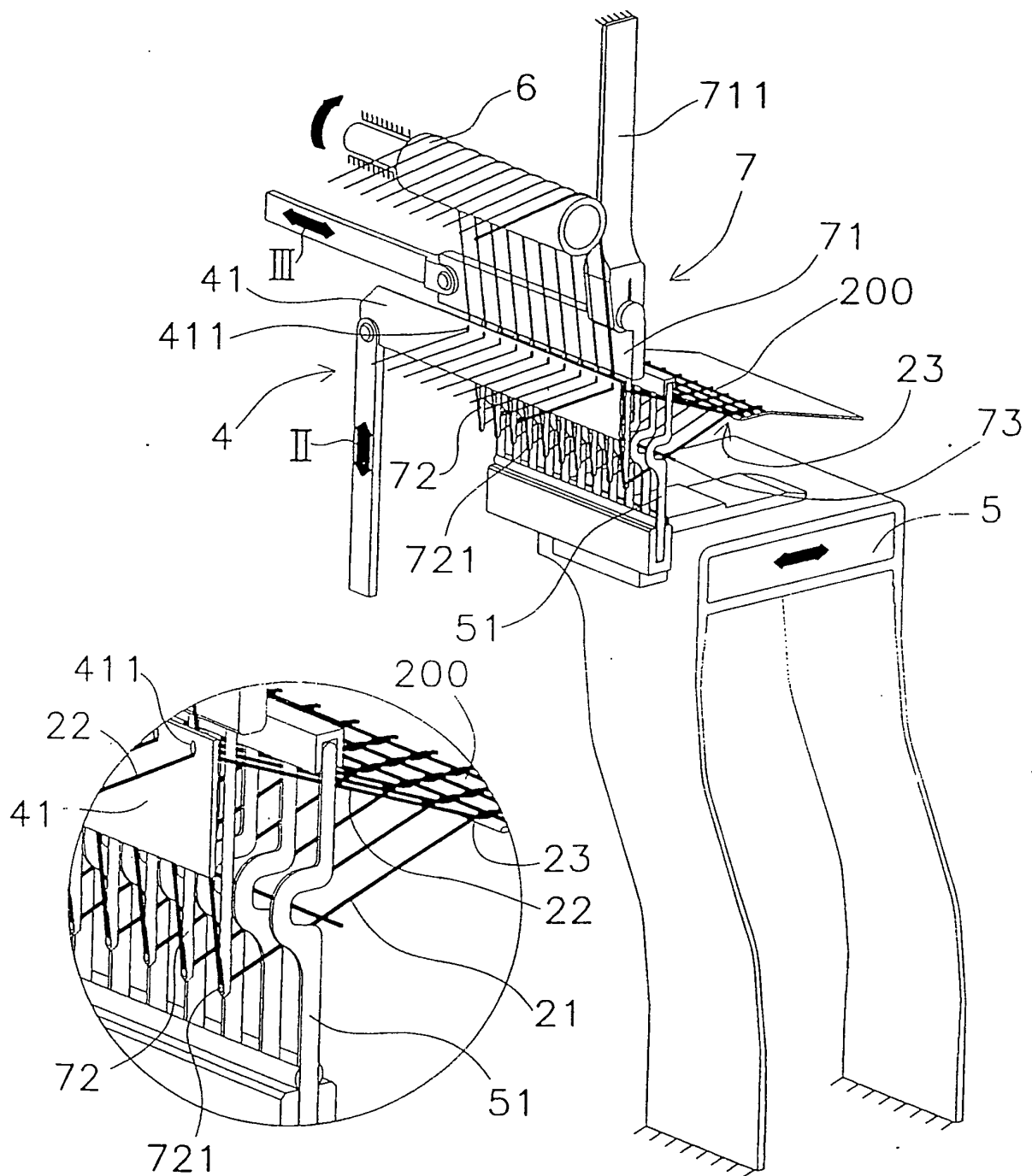


Fig. 2

Fig. 1

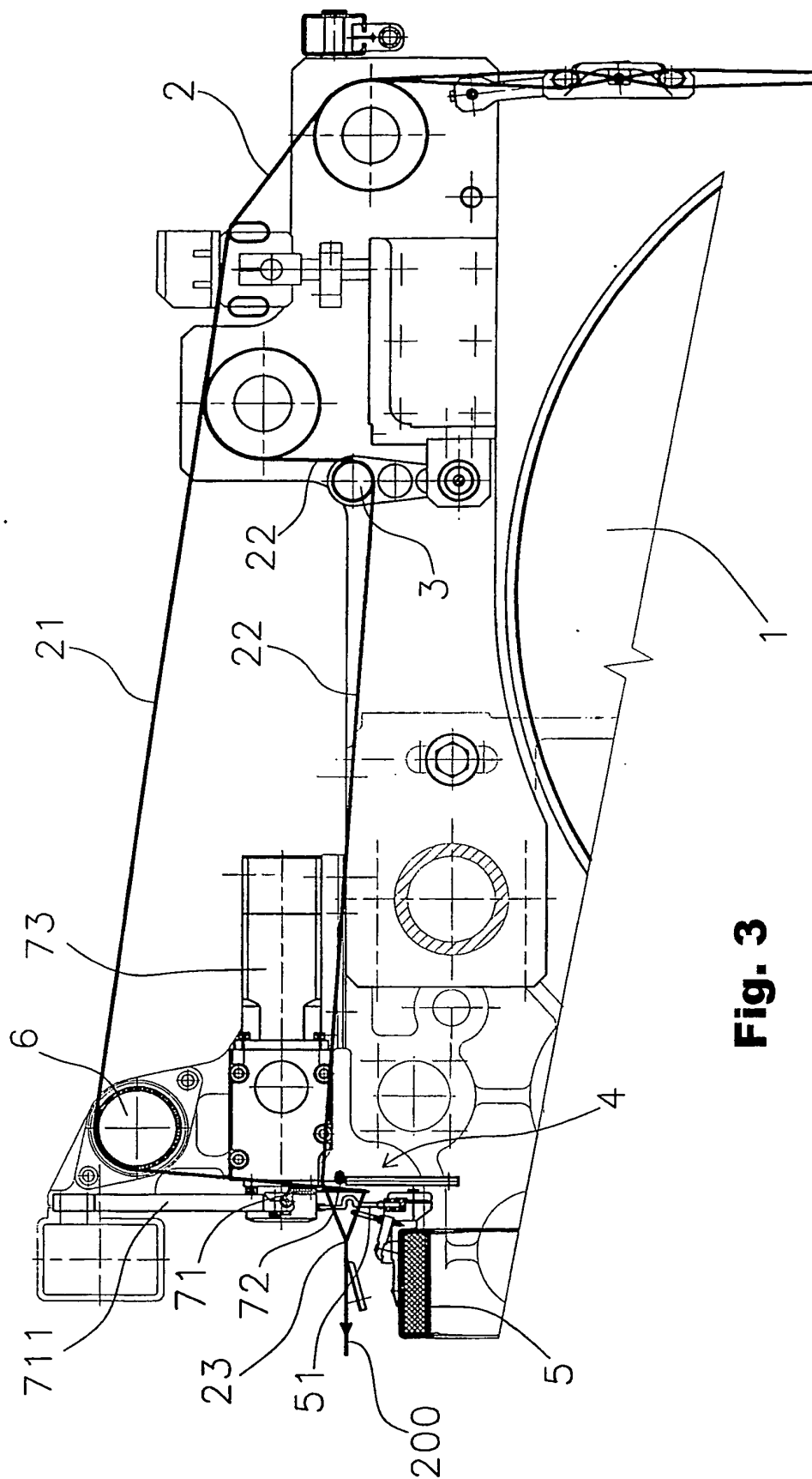


Fig. 3

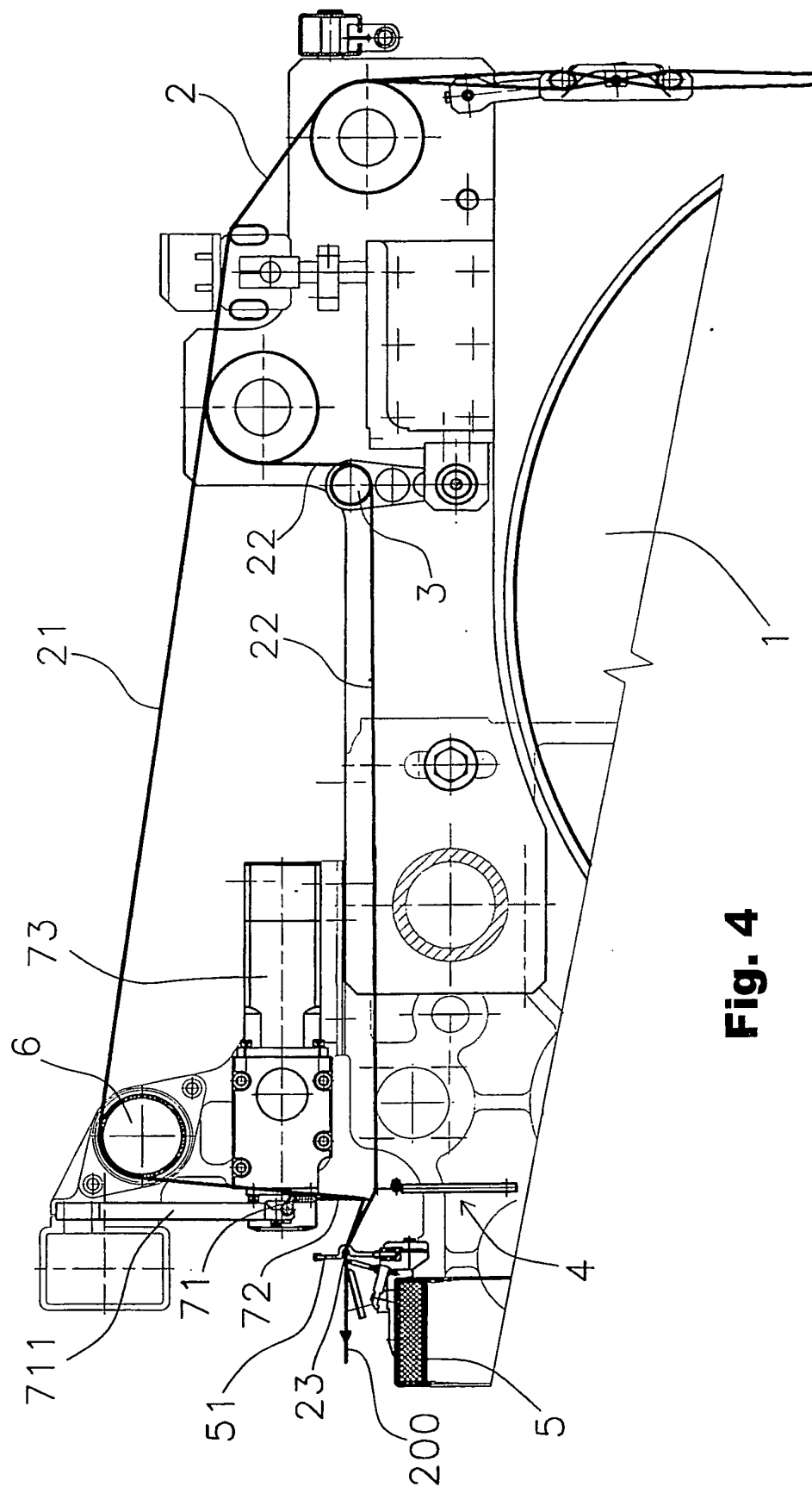


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

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