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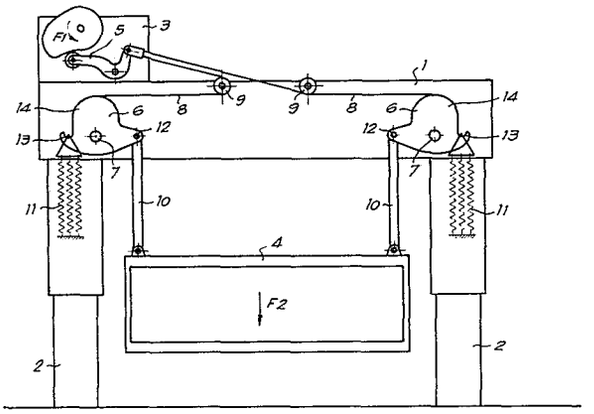
(54) Frame-driving unit for weaving looms.

(57) Frame-driving unit for weaving looms equipped with a programming unit, said triving unit being of the type wherein a kinematic chain is provided, between said programming unit (3) and a frame (4), which kinematic chain at least consists of a rocking arm (5) subject to said programming unit; a flexible connection (8) between this arm and a second lever (6) which is mounted to a fixed part (1) of the loom; a rod (10) between said second lever (6) and a frame (4); and of a spring means (11) making contact with said second lever, characterized thereby that the geometry of the various points of rotation and connection (7, 9, 12, 13, 14) of said chain has been chosen in such a way that every rotation of said rocking arm (5) occasioned by the programming unit results in a positive downward movement of the frame (4).



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"Frame-driving unit for weaving looms"

This invention relates to a frame-driving unit for weaving looms, especially for looms equipped with a programming unit such as a dobby or the like.

In most looms of this type the frames are controlled positively from the afore-mentioned programming unit from their lower position to their higher position, wherein they can further be brought back in the low position by means of springs provided therefor.

A characteristic known kinematic chain consists e.g. at least of a rocking arm subject to the above-mentioned programming unit; a flexible joint between this arm or lever and a second arm or lever which is supported to a fixed part of the loom; a tie rod between this second lever and a frame; and a spring means that makes contact with the afore-mentioned second lever.

Driving systems of that kind offer numerous disadvantages. It has been seen that the formation of the bottom shed of the gap in many looms required more force than the formation of the top shed. From a mechanical point of view it is thus somewhat illogical to positively control the upward movements of the frames.

This positive upward movement of the frames also results in the fact that the afore-mentioned second levers should be supported above the frames. This requires a relatively massive con-

struction of the conventional girders and the conventional architrave.

It has to be remarked that other types of frame-driving mechanisms have also been proposed with which a positive downward movement of the frames or even a desmodromic motion could be obtained. Driving mechanisms of that kind, however, are expensive and cannot be made free from play.

The present invention relates to a driving mechanism of the type as described above and in the preamble of the main claim.

It is characterized thereby that the geometry of the various points of rotation and coupling of the above-mentioned chain is chosen in such a way that every positive rotation of said rocking arm occasioned by the programming unit results in a positive downard movement of the frame.

The invention will now be illustrated more detailedly by means of the accompanying drawing, which represents a schematical front view of a device according to the present invention.

In the drawing an architrave 1 of a weaving loom is represented, which is supported by two girders 2.

On girder 1 a programming unit 3, e.g. a dobby, is mounted.

Between this programming unit 3 and every frame 4 a kinematic chain is provided mainly consisting of :

- a rocking arm 5, which can be rotated positively by the programming unit in the sense of arrow F1;
- on the girder 1 and on both of its extremities a second lever 6, which is supported in 7;
- between the lever 5 and every lever 6 a flexible connection 8, which each time runs over a guiding roller 9;
- between every lever 6 and the frame 4 a push rod 10; and

- for every lever 8 each time a spring means 11 which is connected with the corresponding girder 2.

Each push rod 10 is hinged in 12 on the corresponding lever 6. The point of contact of spring means 11 on it is indicated by 13.

The geometry of the thus described chain has been chosen in such a way that a positive downward movement (arrow F2) of the frame 4 corresponds with every positive movement (F1) of a lever 5. For that purpose the points 7, 12 and 13 for every lever 6 are nearly collinear with the points 12 and 13 at either side of point 7 as well as in an inward and outward direction respectively with respect to the centre of girder 1.

Every lever 6 shows a circular leg 14 to which an extremity of the corresponding flexible connection 8 is fixed, viz. in an outward direction with respect to the centre of girder 1 and the point of rotation 7.

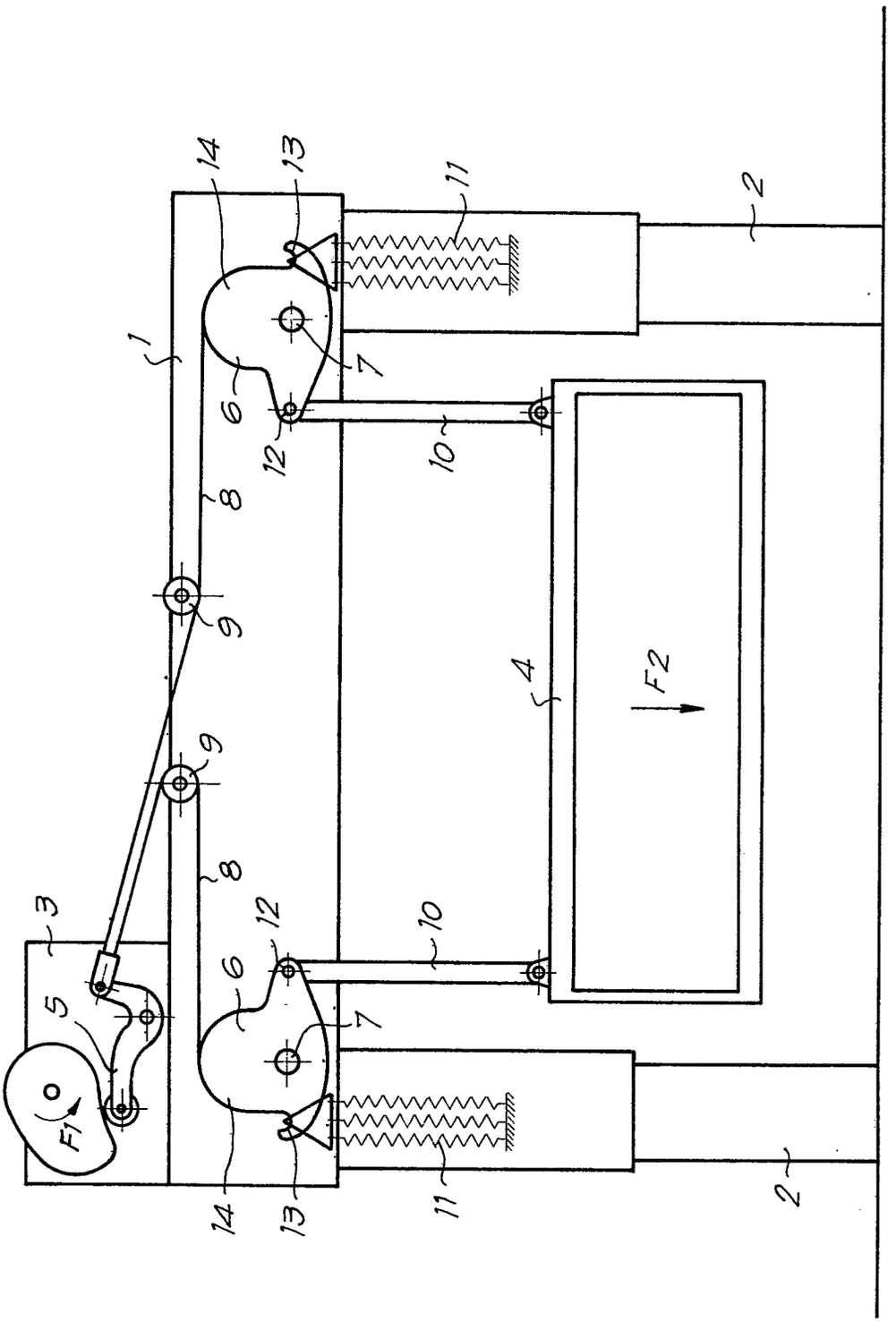
It has to be noticed that the points of rotation 7 are applied at either side above girders 2, which benefits the sturdiness of the construction.

It is evident that various modifications can be made to the above-described embodiment without departing from the scope of the invention.

Claims.

1.- Frame-driving unit for weaving looms equipped with a programming unit, said driving unit being of the type wherein a kinematic chain is provided, between said programming unit (3) and a frame (4), which kinematic chain at least consists of a rocking arm (5) subject to said programming unit; a flexible connection (8) between this arm and a second lever (6) which is mounted to a fixed part (1) of the loom; a rod (10) between said second lever (6) and a frame (4); and of a spring means (11) making contact with said second lever, characterized thereby that the geometry of the various points of rotation and connection (7, 9, 12, 13, 14) of said chain has been chosen in such a way that every rotation of said rocking arm (5) occasioned by the programming unit results in a positive downward movement of the frame (4).

2.- Frame-driving unit according to claim 1 for weaving looms equipped with a architrave (1) supported at both extremeties by girders (2) on which said programming unit (3), rocking arm (5) and a second lever (6) are mounted, characterized thereby that the second lever (6) is supported on the architrave (1) and above a girder (2), said rod (10) being connected with this second lever in a point (12) between the centre of the architrave (1) and the point of rotation (7) of said lever (6), said spring means (11) making contact with said lever (6) in a point (13), which is located substantially symmetrically with said point of connection (12) of the rod with respect to the point of rotation (7) of the second lever (6).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EUROPEAN SEARCH REPORT

Application number
EP 81 20 0591

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
X	FR - A - 2 477 186 (STAUBLI) * Whole document * --	1,2
X	GB - A - 1 125 968 (SERRA BORRAS) * Whole document * --	1
X	GB - A - 1 125 969 (SERRA BORRAS) * Whole document * ----	1

CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)

D 03 C 1/14
13/00

TECHNICAL FIELDS SEARCHED (Int.Cl. 3)

D 03 C

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
Y: particularly relevant if combined with another document of the same category
A: technological background
O: non-written disclosure
P: intermediate document
T: theory or principle underlying the invention
E: earlier patent document, but published on, or after the filing date
D: document cited in the application
L: document cited for other reasons

&: member of the same patent family, corresponding document

X The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	25-01-1982	BOUTELEGIER

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