J. A. SHAYER & G. A. METCALF.

HARNESS ACTUATING MECHANISM FOR LOOMS.

APPLICATION FILED DEC. 16, 1912.

1,088,666.

Patented Feb. 24, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

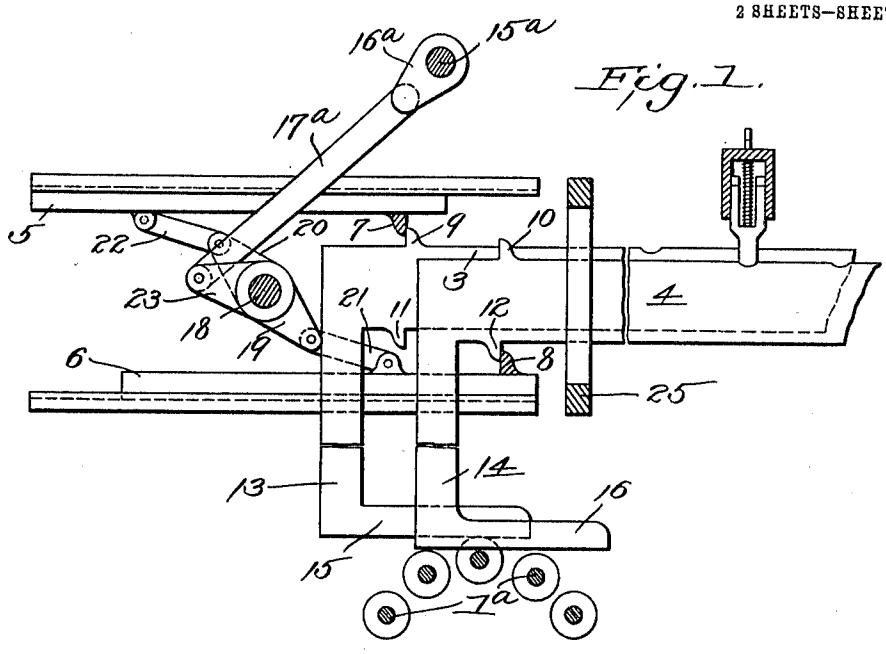


Fig 2.

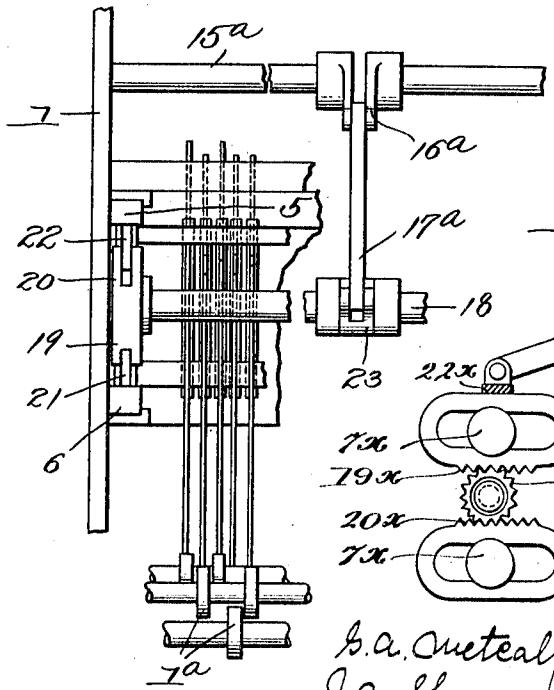


Fig. 5.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

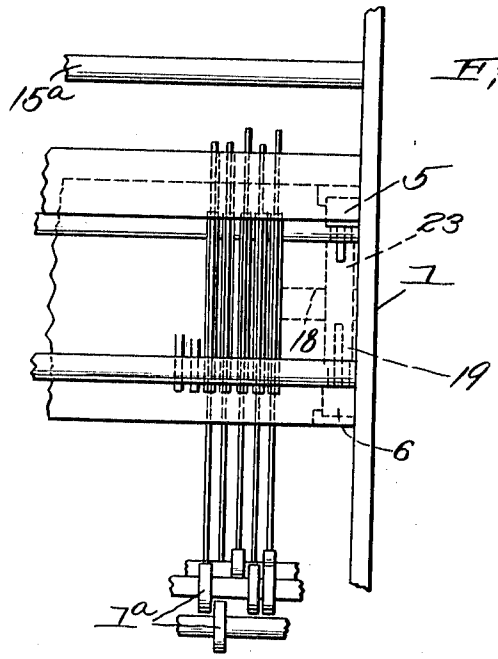
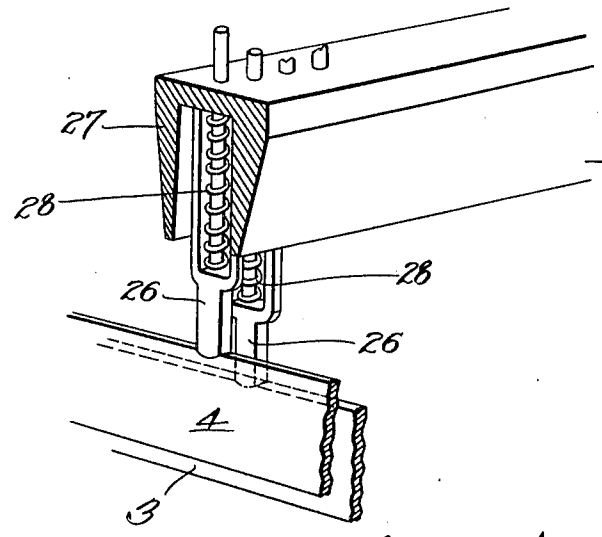


Fig. 4.



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HARNESS-ACTUATING MECHANISM FOR LOOMS.

1,088,666. Specification of Letters Patent. Patented Feb. 24, 1914.

Application filed December 16, 1912. Serial No. 737,079.

To all whom it may concern:

Be it known that we, JOSEPH A. SHAYER and GEORGE A. METCALF, citizens of the United States, residing at Harrisville and Woonsocket, respectively, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Harness-Actuating Mechanism for Looms, of which the following is a specification.

Our present invention has to do with means for actuating the harnesses of looms, more particularly looms of the "jacquard" type; and it seeks to provide an organized mechanism for the purpose, that is a material simplification as compared with the means extant, and is therefore calculated to simplify the construction of looms and render the same inexpensive, and easy to operate and maintain.

The invention in all of its details will be fully understood from the following description and claim when the same are read in connection with the drawings, accompanying and forming part of this specification, in which:

Figure 1 is a view, partly in side elevation and partly in section, of so much of a loom as is necessary to impart an understanding of our invention; it being understood that the said parts are positioned at one side of a loom and that the opposite side is to be similarly equipped. Fig. 2 is a detail end elevation illustrative of our improvement. Fig. 3 is an elevation of the end opposite to that shown in Fig. 2. Fig. 4 is a sectional perspective of a part of the mechanism hereinafter specifically referred to. Fig. 5 is a broken detail view of a modified embodiment hereinafter specifically referred to.

Similar numerals of reference designate corresponding parts in all of the views of the drawings.

Our improved mechanism is positioned in what may be properly termed the head of a loom, and is supported by the sides 1 of the same, and this above and near the pattern chain 1^a which may be and preferably is of conventional construction.

3 and 4 are transmission devices or connectors which have for their function to support the "jacquard" levers that, in turn, actuate the harnesses. Disposed adjacent the devices 3 and 4 are slidable members 5 and 6, provided as shown, with transverse portions 7 and 8, positioned to move the devices 3 and 4 inwardly or outwardly, respectively, as required. Disposed at convenient points on the transmission devices 3 and 4 are projections 9, 10, 11 and 12 which are engaged by the said transverse portions 7 and 8 when they are in the path of said portions. Arms 13 and 14 are provided on the transmission devices 3 and 4, which arms merge into angularly-disposed portions 15 and 16 which are presented to the pattern chain.

It will be manifest from the foregoing that the rollers of the pattern chain are relatively arranged to regulate the design woven into the cloth; also, that the said rollers elevate the transmission device 3 by acting against its horizontal portion 15, whereupon the projection 9 will assume a position in the line of travel of the transverse portion 7, and this while the projection 10 is out of said line because of no roller in vertical alinement with the transmission device 4 being in position to raise said device at that time. The reverse order is true as regards the projections 11 and 12 and the transverse portion 8.

The transmission devices 3 and 4 are moved rectilinearly by the means that will now be described. At 15^a is an operating shaft, equipped with a crank 16^a, and connected to said crank is a link 17^a. A rock-shaft 18 is positioned between the members 5 and 6, and is equipped with levers 19 and 20; one of the said levers being connected through a link 21 with the slidable member 6, and the other lever being connected through a link 22 with the slidable member 5. It will also be noted that the shaft 18 has an arm 23 to which the link 17^a is connected. By virtue of this construction it will be apparent that incidental to rotation of the shaft 15^a the shaft 18 will be rocked about its axis, and the members 5 and 6 will be moved rectilinearly to and fro.

A suitable guide 25 is preferably, though not necessarily employed, in order to hold the transmission devices 3 and 4 against casual lateral movement. For the purpose of holding the transmission devices against casual movement from the positions in which they are placed, we prefer to employ retainers of suitable description, for instance, retainers 26, arranged in a housing 27 and backed by

springs 28, Fig. 4, and adapted to enter depressions 29 in the transmission devices 3 and 4.

The means shown and described for transmitting motion to the slidable members 5 and 6, is but one of many that can be used for the purpose, and any other suitable means may be employed for the purpose without involving departure from the scope of our invention as claimed.

In Fig. 5 we have illustrated a modification that comprises slidable members $5^{\times}$ and $6^{\times}$ guided on studs $7^{\times}$, and connected through a driving connection which comprises racks $19^{\times}$ and $20^{\times}$ on the members $5^{\times}$ and $6^{\times}$, respectively, and a pinion $21^{\times}$ interposed between the two slidable members and designed to transmit motion from the member $5^{\times}$ to the member $6^{\times}$, and so that when the member $5^{\times}$ is moved forwardly the member $6^{\times}$ is moved rearwardly and vice versa. The member $5^{\times}$ is duplicated at the opposite side of the machine and connecting the said members is a cross bar $22^{\times}$ to which is connected an actuating link $17^{\times}$, similar to and for the same purpose as the link 17^{a} of Figs. 1 and 2. It is also to be understood that the member $6^{\times}$ and the pinion $21^{\times}$ and the racks complementary to the pinion are duplicated at the opposite side of the machine. The members $5^{\times}$ and $6^{\times}$ are operated in the same manner and for the same purpose as the slidable members 5 and 6 shown in Figs. 1 to 3.

Having described our invention, what we claim and desire to secure by Letters-Patent, is:

In harness actuating mechanism for looms, the combination of a pattern chain, vertically and endwise movable transmission devices having notches in their upper edges and projections on their upper and lower edges and also having portions adapted to be engaged by elements of said chain, yielding retainers for coöperating with said notches to hold the transmission devices, slidable members having transvere positions positioned to engage the upper and lower projections, respectively, of the transmission devices, and means connected with said slidable members constructed and arranged to synchronously move the same endwise in opposite directions.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

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Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."