No. 720,869. PATENTED FEB. 17, 1903.

H. WYMAN.

DOBBY MECHANISM FOR LOOMS.

APPLICATION FILED APR. 26, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

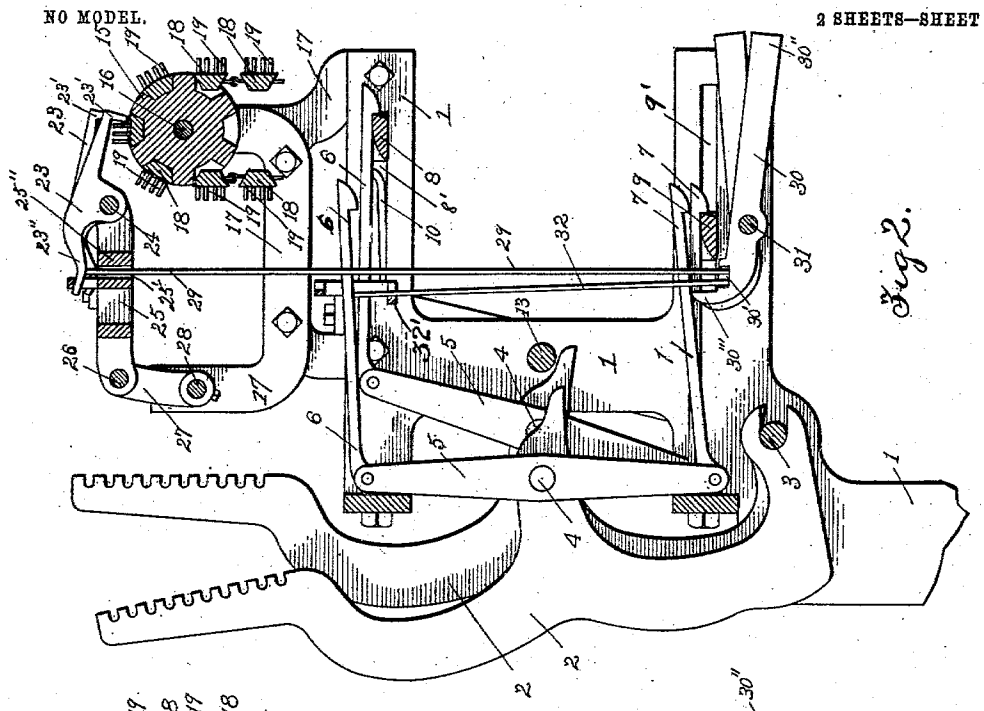


Fig. 2.

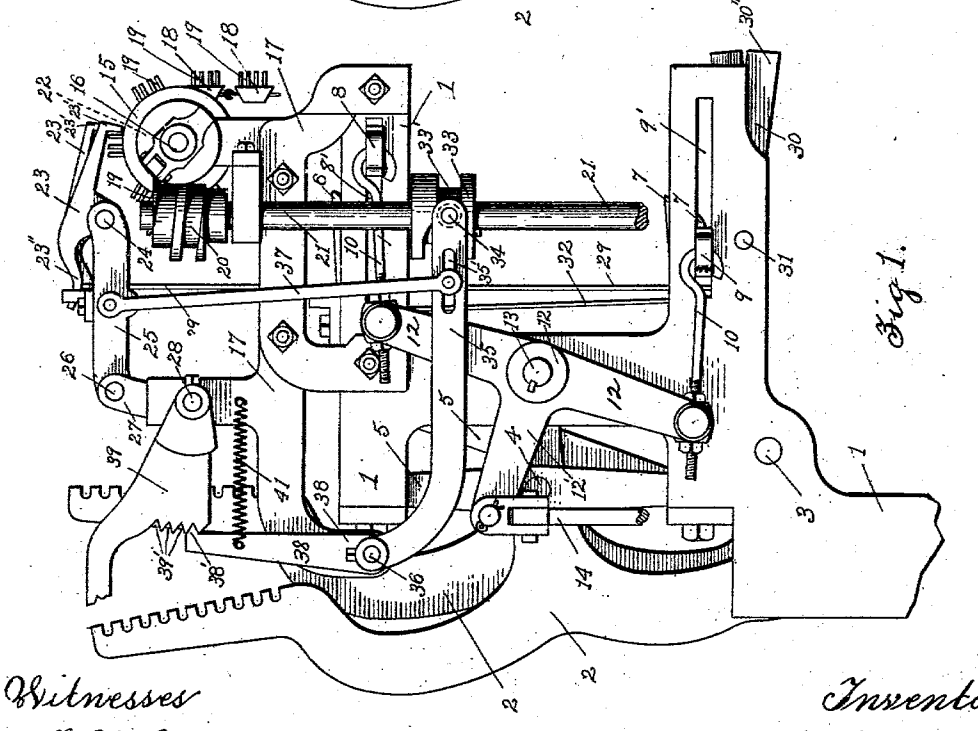


Fig. 1.

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NO MODEL. 2 SHEETS—SHEET 2.

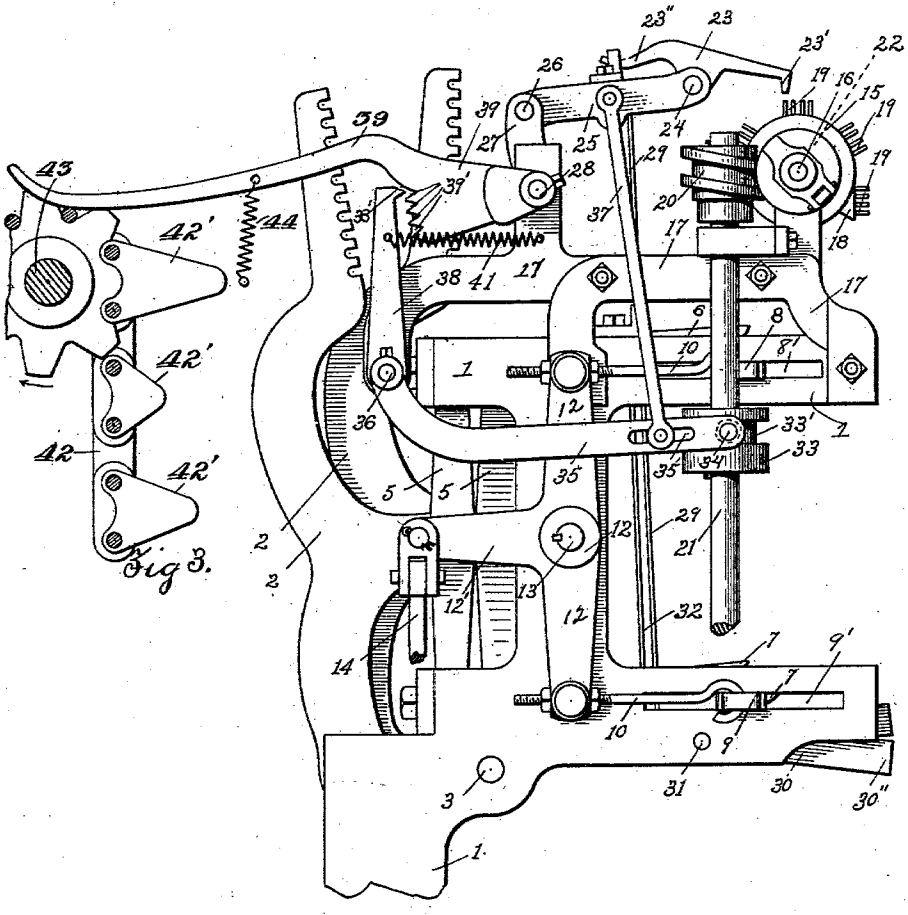
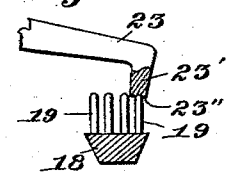


Fig 3.

Fig. 4.



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DOBBY MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 720,869, dated February 17, 1903.

Application filed April 26, 1902. Serial No. 104,746. (No model.)

To all whom it may concern:

Be it known that I, HORACE WYMAN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Dobby Mechanism for Looms, of which the following is a specification.

My invention relates to the dobby mechanism of a loom; and the object of my invention is to make an improved dobby mechanism, and more particularly to combine with an ordinary dobby mechanism supplemental mechanism to produce four different weaves in the fabric.

My invention consists in certain novel features of construction of my improvements, which I term a "four-weave" motion, as will be hereinafter fully described.

I have shown in the drawings only a sufficient portion of a dobby mechanism with my improvements applied thereto to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings, Figure 1 is a side elevation of a portion of a dobby mechanism with my improvements applied thereto, sufficient to illustrate the construction and operation thereof. Fig. 2 is a central vertical section through the dobby mechanism shown in Fig. 1. Fig. 3 corresponds to Fig. 1, but shows a different position of some of the parts and also shows a detached section of a pattern-chain cylinder and pattern-chain for operating the lever 39, as will be hereinafter described; and Fig. 4 is an enlarged detail of one end of an indicating-lever, partly in section, and the pattern-bar with pins thereon.

In the accompanying drawings, 1 is a portion of the dobby-frame attached to the loom-frame (not shown) and on which the several parts of the dobby mechanism are supported.

2 represents the harness-jacks pivotally mounted at their lower ends on the transverse rods 3, extending between the sides of the dobby-frame in the usual way.

On the jacks 2 are centrally pivoted at 4 the hook-jack levers 5, having pivotally attached to their ends the hook-jacks 6 and 7, one at each end, which are allowed to engage with or moved out of engagement with (according to the indications on the pattern-surface) the upper lifter-bar 8 and the lower lifter-bar 9. The lifter-bars 8 and 9 are connected by links 10 in the ordinary way with the lever 12, centrally mounted and fast on the rock-shaft 13, mounted in the frame 1. The lever 12 has the projecting arm 12′, to the outer end of which is pivotally attached the upper end of a rod or connector 14, connected at its lower end with mechanism (not shown) for communicating a reciprocating vertical motion to said rod 14 and a rocking motion to the lever 12 to move the upper lifter-bar 8 in one direction and the lower lifter-bar 9 in the opposite direction in their guide-slots 8′ and 9′ in the frame 1, all in the usual and well-known way.

In this instance arranged above the upper hook-jacks 6 is the pattern-barrel 15, fast on a shaft 16, mounted in suitable bearings on the frame 17, attached to the frame 1. On the pattern-barrel 15 is supported the pattern-chain, in this instance a peg-chain, consisting of the bars 18, linked together, and four sets of pattern-pins 19, extending in the direction of the length of said bars. Said pins 19 represent in this instance four different weaves to be produced in the fabric. Rotary motion is communicated to the pattern-barrel 15 in this instance by means of a worm 20, fast on the upper end of an upright driven shaft 21, meshing with a worm-gear 22, fast on the end of the shaft 16 of the pattern-barrel 15.

Extending over the pattern-barrel 15 are a series of pattern-indicator levers 23, (one indicator for each harness.) The indicator-levers 23 are centrally pivoted on a transverse rod 24, supported on the outer end of the hinged frame 25, which is pivotally mounted on a transverse rod 26, in the upper ends of the arms 27, which are secured at their lower ends on a rock-shaft 28, (see Fig. 2,) suitably mounted in bearings on the frame 17. Each pattern-indicator lever 23 has a downwardly-extending projection 23′ on its end, which is adapted to engage a pattern-pin 19, and there is a slight recess or depression 23″ (see Fig. 4) in the end of said projection 23′, into which

extends the projecting end of a pattern-pin 19 when the pattern-pin 19 is engaged by the said projection during the revolution of the pattern-chain. A vertical wire 29 extends at its upper end through an opening 25′ in a transverse bar 25″ on the horizontal frame 25, (see Fig. 2,) and under and engages the end 23″ of the indicator-lever 23, and at its lower end extends into a recess 30′ in the lever 30, pivoted at 31 on the frame 1. The opposite end 30″ of said lever is weighted and causes the hook projection 30‴ on said lever 30 to engage the lower edge of the lower hook-jack 7 to raise said jack, as shown in Fig. 2. A vertical wire 32 is supported at its lower end in the recess 30′ in the lever 30 and engages at its upper end the upper hook-jack 6, being guided in openings in a transverse bar 32′, as shown in Fig. 2.

Fast on the upright driven shaft 21 is a cam 33, which has a cam-groove 33′ therein, into which extends and travels a roll on a pin 34 on a lever 35, fast on a rock-shaft 36, mounted in suitable bearings on the frame 17. A link 37 is secured at its lower end in a slot 35′ in the lever 35 and is pivotally attached at its upper end to the hinged frame 25, carrying the pattern-indicator levers 23. (See Fig. 1.)

Fast on the rock-shaft 36 is the lower end of an arm 38, which has a projection 38′ at its upper end, adapted to engage recesses 39′ in the lever 39, fast on the rock-shaft 28. A spring 41, attached to the lever 38 and to the frame, holds said lever 38 in engagement with the recesses in the lever 39. As the lever 38 is raised and lowered by the cam 33 the arm 38 moves with it and away from and into engagement with the recesses 39′ in the lever 39 to leave said lever free to be moved by any suitable pattern mechanism—for example, a pattern-chain 42, supported on a pattern-barrel 43, and having pattern-surfaces 42′ thereon of different elevations, to move the lever 39 into four different positions, the projecting end of said lever being held in engagement with the pattern-surfaces by a spring 44, as shown in Fig. 3.

The operation of my improvements will be readily understood by those skilled in the art.

It will be understood that the lifter-bars 8 and 9 have a regular reciprocating motion in opposite directions and according to the engagement of the hook-jacks 6 and 7 therewith move the harness-jacks 2 to form the sheds in the usual way. In my improvements the movements of the hook-jacks 6 and 7 are governed by the movement of the indicators 23, and the movement of said indicators 23 is governed by the pattern-pins 19 on the pattern-chain.

It will be seen that the revolution of the upright shaft 31 will, through the cam-groove 33′ in the cam 33 and the roll on the pin 34 on the lever 35, move said lever 35 and through link 37 raise and lower the hinged frame 25, carrying the pattern-indicator levers 23 at regular intervals and at the same time move the arm 38 out of and into engagement with the lever 39. In case there is no pattern-pin 19 extending under the end 23′ of one of the pattern-indicator levers 23, as shown in the drawings, Figs. 1 and 2, the downward movement of the hinged frame 25, carrying the pattern-indicator levers 23 through the link 37 and lever 35, operated by the cam 33, will move down the pattern-indicator levers 23 and carry the end 23′ down into the position shown and allow the weighted lever 30 to rock on its pivot-support 31 and raise through the hooked end 30‴ the lower jack 7 and through the wire 32 the jack 6 out of the path of the lifter-bars 8 and 9, as shown in Fig. 2. If in the revolution of the pattern-chain barrel 15 a pattern-pin 19 comes under the end 23′ of the pattern-indicator lever 23, it will hold up said end, and the downward movement of the hinged frame 25, carrying the pattern-indicator lever 23, will through wire 29 rock the lever 30 and move down the hooked end 30‴ and allow the jacks 6 and 7 to move down into position to be engaged by the lifter-bars 8 and 9.

The several parts of the mechanism are so timed as to operate at the proper time.

It will be understood that each horizontal row of pattern-pins 19 on the pattern-chain represent one weave, and in case the weave is to be changed the pattern-surfaces 42′ on the pattern-chain 42 will operate the lever 39, move said lever and cause it to rotate the rock-shaft 28, and move it in one direction or the other to change the upright position of the arms 27, carrying the rod 26, on which the frame 25 is hinged, so as to move the frame 25 forward or back to cause the indicator-levers at their engaging ends to be in a position to engage any one of the four rows of pattern-pins 19, as desired. After the lever 39 is moved the arm 38 acts to hold it in its adjusted position.

The advantages of my improvements will be readily understood by those skilled in the art.

My mechanism is of very simple construction and the pattern-indicator levers 23 are made light and the positive motion of the hinged frame carrying the pattern-indicator levers 23 at every partial rotation of the pattern-barrel 15, carrying the pattern-surfaces, raises the pattern-indicator levers above the pattern-pins to allow of the free passage of the pattern-pins thereunder and also brings down the pattern-indicator levers 23 to engage the pattern-pins at the proper time.

I have shown in the drawings and described a pattern-surface for the indicator-levers comprising pattern bars and pins; but I do not limit myself to this particular form of pattern-surface, as any well-known form of pattern-surface may be used—for example, cards with holes punched therein, in which case the downwardly-extending projections 23′ will be adapted to enter into the holes in the cards.

It will be understood that the details of construction of my improvements may be varied, if desired.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a dobby mechanism, the upper and lower lifter-bar, the upper and lower hooked jacks, levers engaging the lower hooked jacks, wires intermediate said levers and the upper hooked jacks, and wires intermediate said levers and pattern-indicator levers, and said pattern-indicator levers pivotally mounted on a hinged frame and extending over and adapted to engage pattern pins or surfaces on the pattern-chain, and said pattern-chain, and means for rotating it, and means for raising and lowering, at regular intervals, the hinged frame carrying the pattern-indicator levers, substantially as shown and described.

2. In a dobby mechanism, the upper and lower lifter-bar, the upper and lower hooked jacks, levers engaging the lower hooked jacks, wires intermediate said levers and the upper hooked jacks, and wires intermediate said levers and pattern-indicator levers, and said pattern-indicator levers pivotally mounted on a hinged frame, and extending over and adapted to engage pattern pins or surfaces on the pattern-chain, and said pattern-chain, and means for rotating it, and means for raising and lowering, at regular intervals, the hinged frame carrying the pattern-indicator levers, and means for moving said hinged frame, to change the position of the pattern-indicator levers relatively to the rows of pattern pins or surfaces, to change the weave, substantially as shown and described.

3. In a dobby mechanism, the upper and lower lifter-bar, the upper and lower hooked jacks, levers engaging the lower hooked jacks, wires intermediate said levers and the upper hooked jacks, and connections intermediate said levers and the pattern-indicator levers, and said pattern-indicator levers mounted on a movable frame, and adapted to engage pattern-surfaces, and said pattern-surfaces, and means for moving the movable frame carrying the pattern-indicator levers, to change the position of the pattern-indicator levers relative to the pattern-surfaces, to change the weave, substantially as shown and described.

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