

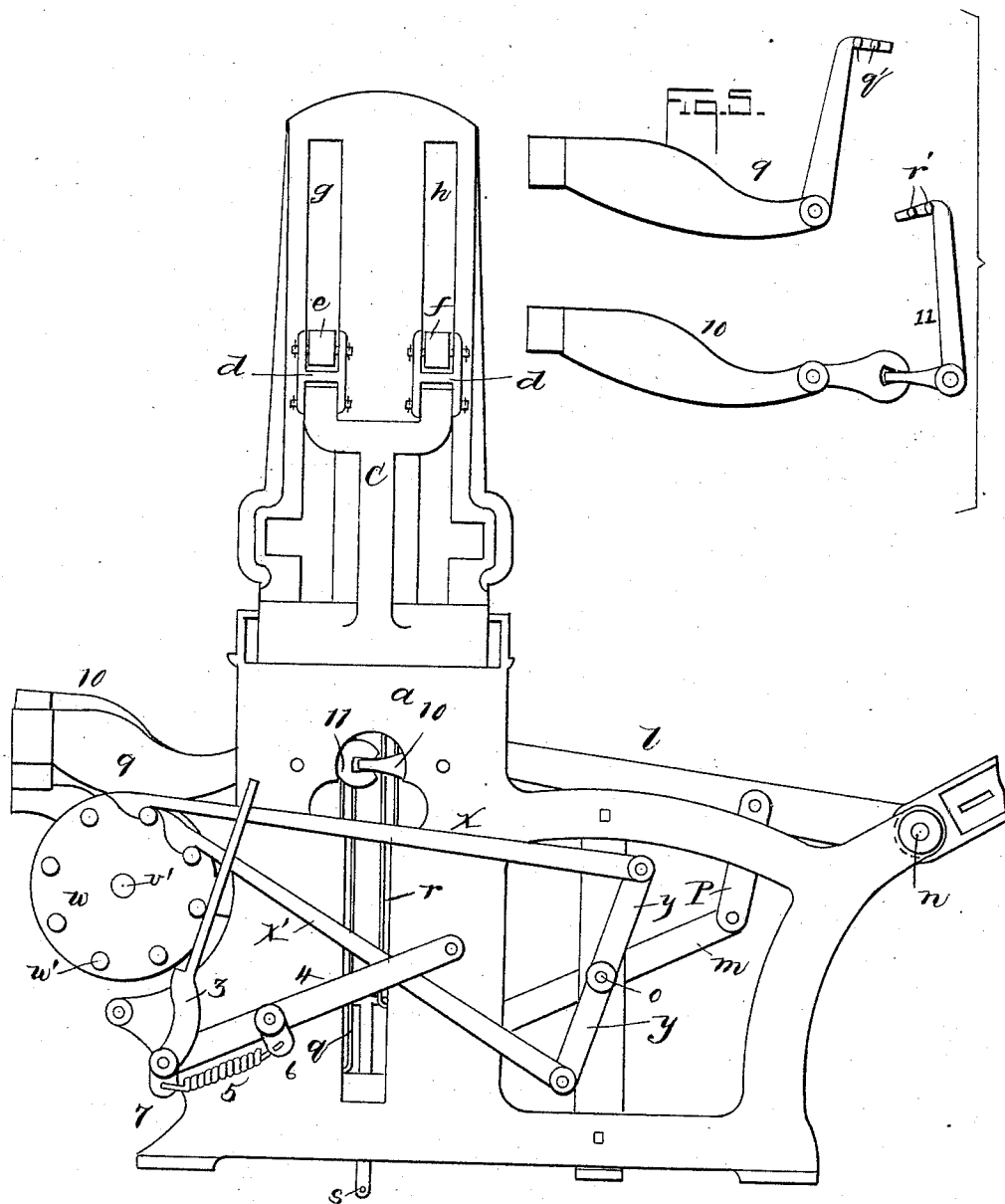
(No Model.)

3 Sheets—Sheet 1.

G. W. STAFFORD.
SHEDDING MECHANISM FOR LOOMS.

No. 475,712.

Patented May 24, 1892.



Fig_1_

WITNESSES_

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(No Model.)

3 Sheets—Sheet 3.

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Fig. 3.

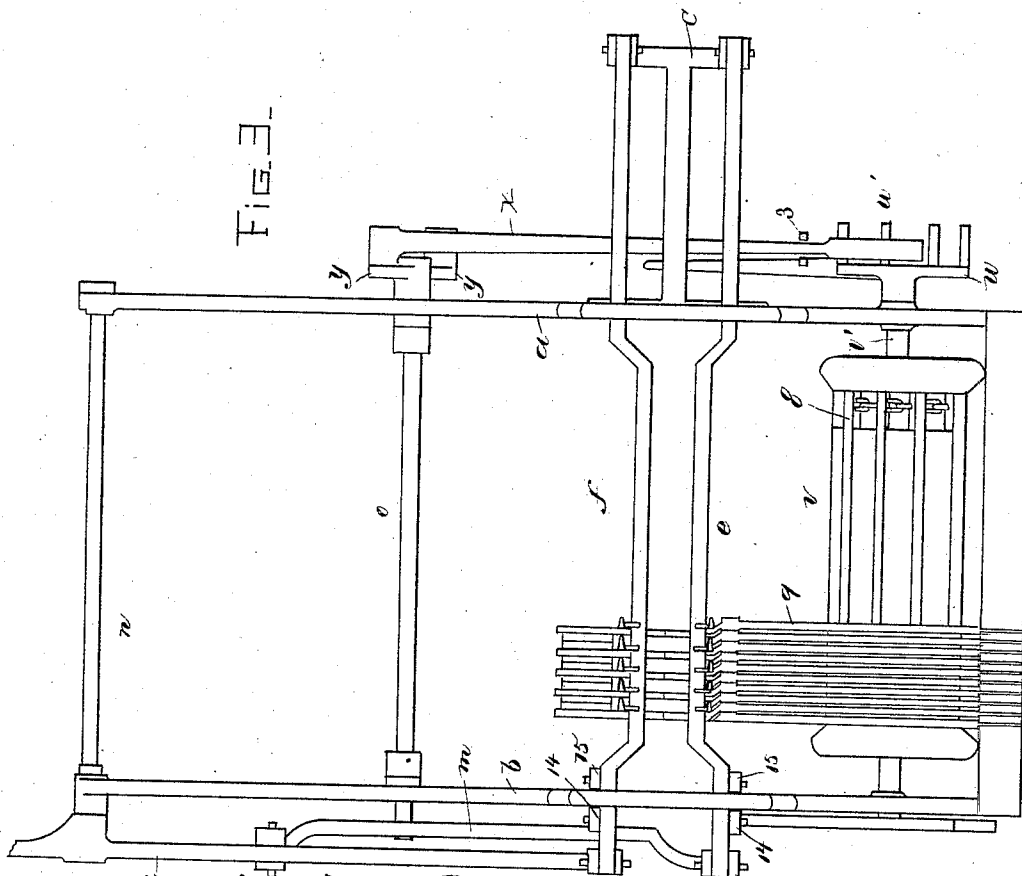
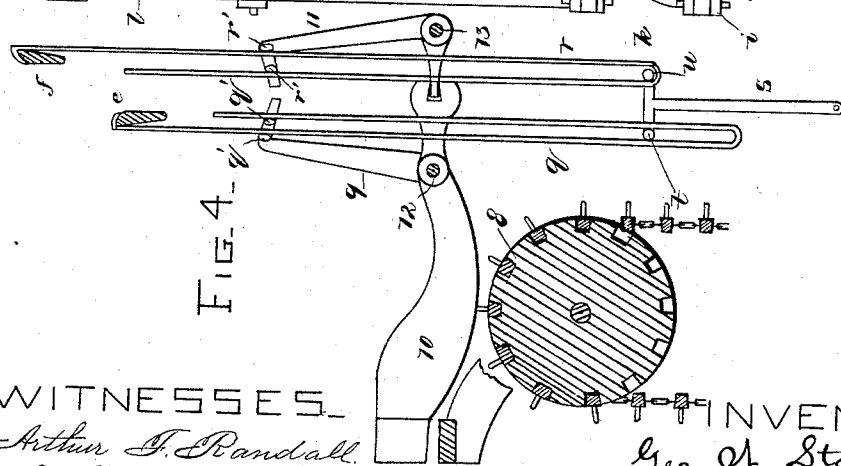


Fig. 4.



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GEORGE W. STAFFORD, OF PROVIDENCE, RHODE ISLAND.

SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 475,712, dated May 24, 1892.

Application filed December 14, 1891. Serial No. 414,993. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. STAFFORD, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Shedding Mechanisms for Looms, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to shedding mechanisms for looms, and in particular to the class of shedding mechanisms which are known as "double-acting dobbies."

The object of my invention is to simplify the working parts of such dobbies, and particularly to dispense with one of the pattern-chains and pattern-chain drums or cylinders now usually employed in upright double-action dobbies.

My invention consists in a novel improved construction and combination of parts, whereby I am enabled to secure the foregoing object, and it will first be fully described with reference to the accompanying drawings, and then be distinctly defined and particularly pointed out in the claims at the close of this specification.

In the drawings, Figure 1 is a view in side elevation of a dobby embodying my invention. Fig. 2 is a similar view, but showing the side of the dobby opposite to that side thereof which is represented in Fig. 1. Fig. 3 is a view of the dobby in plan. Figs. 4 and 5 are view of details, these views being partly sectional.

The side frames of a dobby are represented at *a b*, and *c* is a bracket projecting from the side frame *a* and having pivoted to projecting portions thereof the lower portions of links *d d*, to the upper portions of which are pivoted the forward ends of the knives *e f*. These knives work in vertical slots *g h*, formed in the side frames, and upon each knife, at both sides of the side frame *b*, are friction-rollers 14 15, which bear against the said side frame to cause the rear ends of the knives to move in straight vertical lines. At the rear side of side frame *b* the rear ends of the knives have connected therewith the upper ends of connecting-rods *i k*, the lower ends of which rods are connected with the inner

arms of levers *l m*. The lever *l* is mounted on a rock-shaft *n*, journaled in the side frame, and its outwardly-extending arm, which is only in part shown in Figs. 1, 2, and 3 of the drawings, is intended to be connected in practice with some working part of the loom to which the dobby is applied and whereby the said lever *l* shall be caused to make one complete movement or vibration for each two picks of the loom. Lever *m* is mounted upon the rock-shaft *o*, which is also journaled in the side frames *a b*, and the outer arm of the said lever is connected by the link *p* with the inner arm of the lever *l*, whereby the inner ends of the levers *l m* and the rear ends of the knives *e f*, connected therewith, are caused to move simultaneously in opposite directions. By this means the knives are caused alternately to rise and fall at the successive picks of the loom, one knife ascending at the first pick and the other knife ascending at the second pick, while the first knife descends. The outer edges of the knives at the upper sides thereof engage with the turned-over top ends of the hooks *q r*. The said hooks are arranged in pairs with the two hooks of each pair facing each other, as shown in Fig. 4, and with each pair of hooks co-operates a T-headed lifting-bar *s*, this lifting-bar being provided with two studs *tu*, each of which studs enters the loop of one of the hooks *q r*. With the depending lower end of the lifting-bars the cords or straps leading to the harness-frames are connected. Heretofore in connection with the hooks arranged in pairs and forming two lines of hooks facing each other, as just described, it has been customary to employ two pattern-cylinders, one cylinder for each row of hooks, indicator fingers or levers sometimes being interposed between the hooks and the pattern-cylinders.

In my improved mechanism represented in the drawings I employ one pattern-cylinder *v* and an arrangement of indicator-levers presently to be described, whereby the hooks of both series are controlled in their positions from the said single cylinder. The shaft *v'* of the said pattern-cylinder carries at one end a disk or wheel *w*, provided with pins *w'*. Preferably the pattern-cylinder is advanced one step at every pick of the loom. Accord-

ingly the pins w' are engaged by the two draw-pawls $x x'$, the said pawls being pivoted to the opposite arms of the lever y , mounted on the forward end of the rock-shaft o , and one or the other of the said pawls acting to turn the pattern-cylinder at every pick. At its opposite end the said shaft v' carries a locking-wheel z , the notches or recesses in the periphery of the said locking-wheel being entered in succession by the curved end of the locking-arm 1, this arm being pivoted to the side frame b and acted upon by a spring 2, which holds the free end thereof pressed against the locking-wheel. For the purpose of turning back the pattern-cylinder, as may be required during the weaving, a turning-back pawl 3 is provided, this pawl being pivotally mounted upon a lever 4, pivoted upon the side frame a and having in practice a cord connected with the end thereof opposite the end to which the pawl is pivoted for the purpose of enabling the lever to be conveniently operated by hand when desired. The pawl 3 has the free end thereof borne by a spring 5 against the pins w' of the wheel w , one end of this spring being connected to a portion 7 of the pawl below the pivot thereof and the other end thereof being connected to a portion of the lever 4. The said free end is forked so as to receive the pawls $x x'$, and when pawl 3 is moved upward to reverse the pattern-cylinder the forked end first lifts the said pawls $x x'$ off the pins w' . Above the pattern-cylinder v and the pattern-chain 8, passing around the said pattern-cylinder, are the indicator-levers. The indicator-levers, through which the pins or indicators on the pattern-chain act to determine the position of the hooks $q r$ and the engagement of the said hooks with the knives $e f$, are provided, as usual, with weighted portions resting upon the cylinder and pattern-chain. The levers which coact with the hooks q of the series of hooks which is nearer to the pattern-cylinder are simple L-shaped levers or bell-cranks 9, the vertical arms or members whereof have projecting portions provided with lugs q' , that bear against the upright portions of the hooks q . The levers which coact with the hooks r of the series of hooks which are the farthest from the pattern-cylinder are compound levers. Of these compound levers the members 10 are simple levers alternating with the levers 9, while the members 11 are L-shaped levers or bell-cranks having lugs r' for acting upon the vertical portions of the hooks r . The levers 9 and 10 alternate in position above the pattern-cylinder v and are pivoted side by side upon the cross-rod 12 at the side of the hooks which is toward the pattern-cylinder, while the levers 11 are piv-

oted on the cross-rod 13 on the side of the said hooks which is opposite to that on which the pattern-cylinder is located. The levers 10 and 11 have interlocking portions, as shown in Fig. 4, whereby when the outer end of the lever 10 is raised by a pin or indicator upon the pattern-chain passing around the pattern-cylinder, the free end of the corresponding lever 11 is moved to press the hook r , which is acted upon thereby, into position to be engaged by the knife f .

From the foregoing the operation of the parts of the improved dobby will be readily understood by those conversant with the art.

I claim as my invention—

1. The combination, with the knives, means for operating the same alternately, the pattern-cylinder, and means for rotating the same, of the hooks arranged in pairs, as described, and the indicator-levers formed of alternately-arranged simple levers and compound levers, substantially as described.

2. The combination, with the side frames $a b$, the bracket c , the links d , pivoted to the said bracket, the knives $e f$, pivotally connected to the said links, the rods $i k$, pivotally connected with the free ends of the said knives, the levers $l m$, with which the lower ends of said rods are pivotally connected, the rock-shaft o , the link p , connecting the levers $l m$, the lever y , carried by the rock-shaft o , the pawls $x x'$, connected with opposite arms of the said lever y , the pattern-cylinder, the pin-wheel mounted on the shaft thereof, the levers 9, 10, and 11, acted upon by the indicators of the pattern, and the hooks $q r$, acted upon by the said levers 9, 10, and 11 and arranged in pairs, all substantially as and for the purposes set forth.

3. The combination, with the levers $l m$, the link p , connecting the lever l to the lever m , the rock-shaft o , on which the said lever m is mounted, the knives $e f$, operating connections between the levers and the knives, and the hooks $q r$, arranged in pairs, of a single pattern-cylinder located at one side of the series of hooks, devices intermediate the cylinder and hooks for determining the position of the latter and their engagement with the knives in accordance with the dictates of the pattern-indicators, and devices intermediate the pattern-cylinder and the rock-shaft, whereby the former is actuated from the latter, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEO. W. STAFFORD.

Witnesses:

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C. FRANK PARKHURST.