

(No Model.)

3 Sheets—Sheet 1.

G. W. STAFFORD.
SHEDDING MECHANISM FOR LOOMS.

No. 466,876.

Patented Jan. 12, 1892.

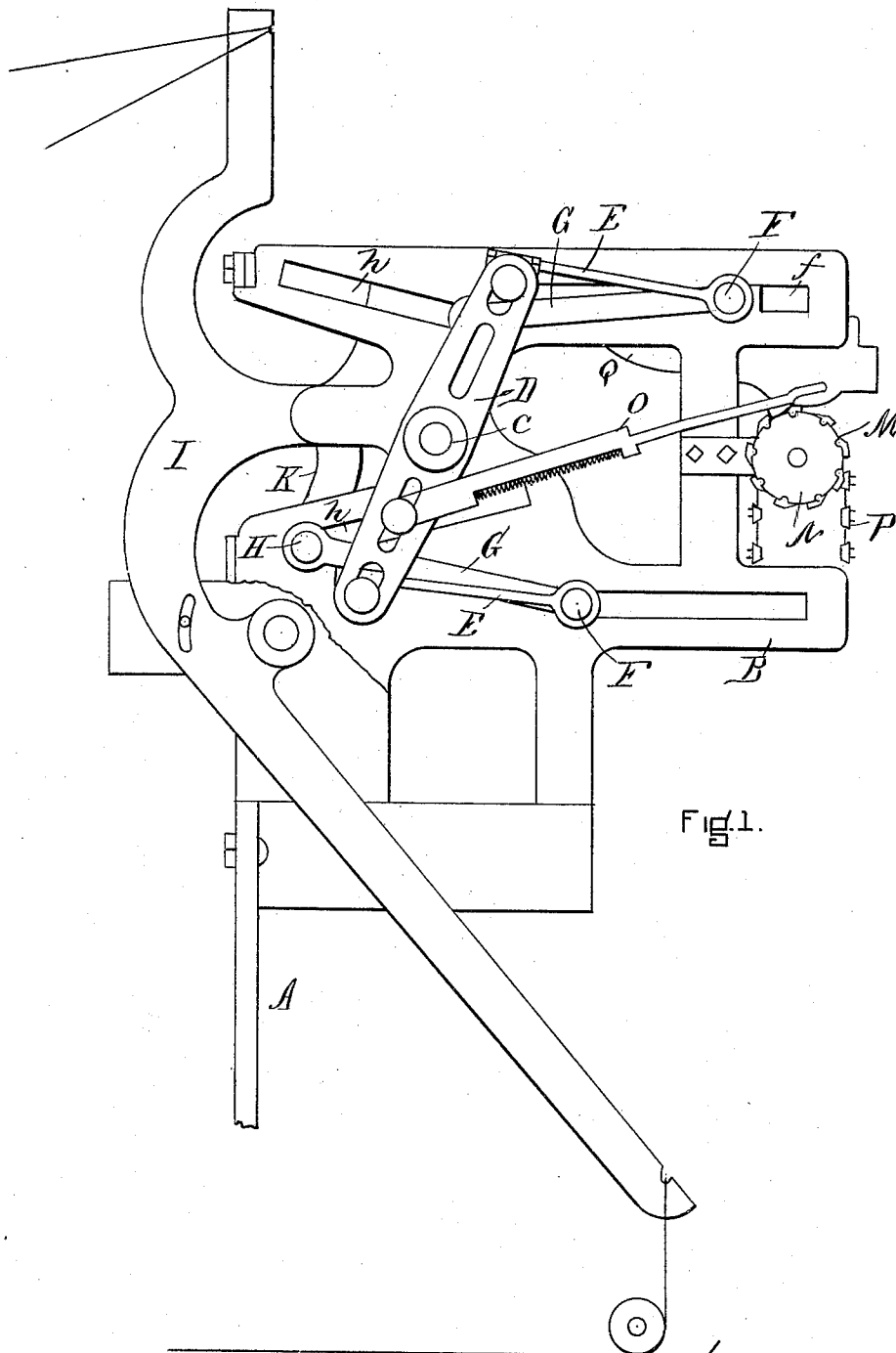


Fig. 1.

WITNESSES.

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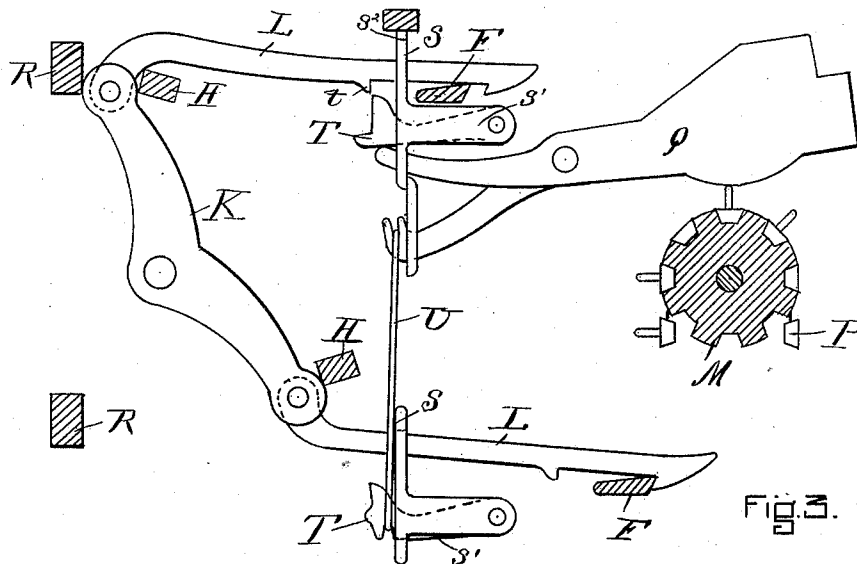
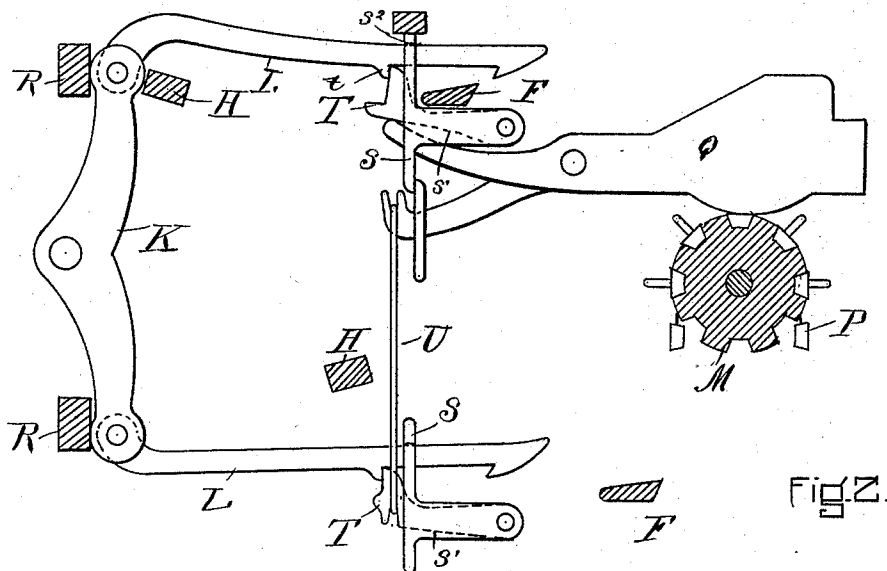
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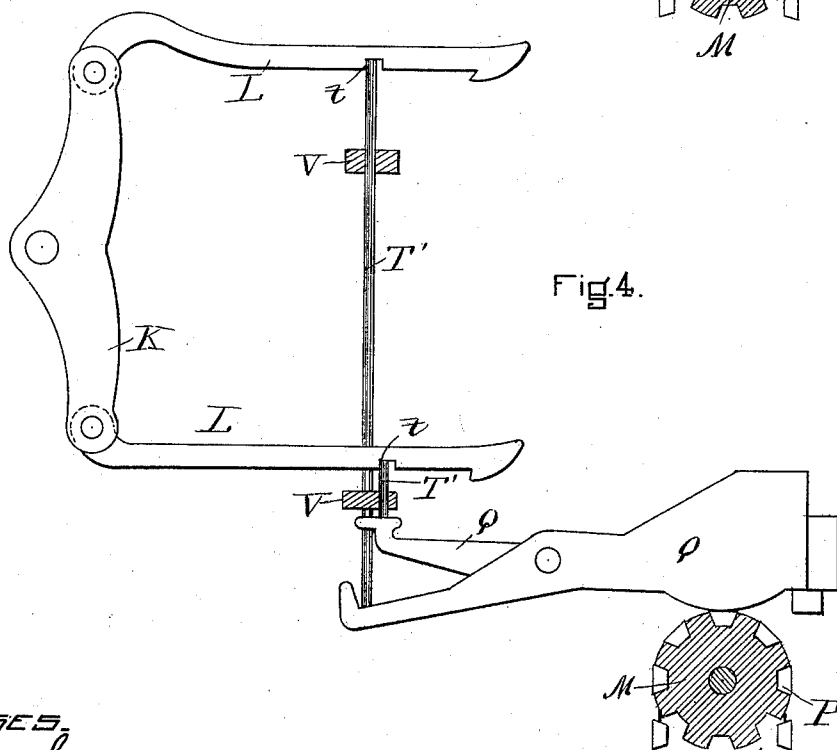
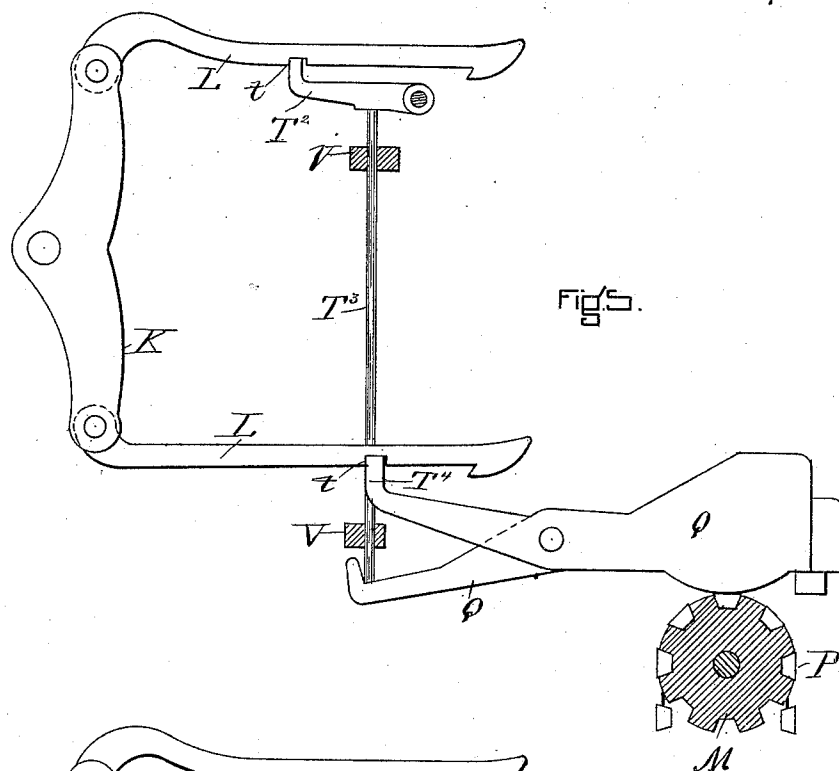
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UNITED STATES PATENT OFFICE.

GEORGE W. STAFFORD, OF PROVIDENCE, RHODE ISLAND.

SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 466,876, dated January 12, 1892.

Application filed July 1, 1891. Serial No. 398,121. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. STAFFORD, of 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.

My invention relates to that class of shedding mechanisms for looms which is known as "dobbies," and in particular to positive dobbies. In a positive dobbie there are used "depressors," so-called, these depressors acting to carry inward the hooked jacks after they have been drawn out by the lifters, and also acting when the harness-levers should be moved to depress the harnesses to carry in a positive manner the upper ends of such levers toward the frame of the loom. In the usual form of such dobbie check-bars are employed, the same being disposed adjacent to the free ends of the hook-jacks, and in such positions relative to the said ends that when the said hooked jacks are at the inner extremes of their movement and are not acted upon by the pattern devices to depress them into engagement with the outwardly-moving lifters, the said free ends of the hooked jacks engage with the check-bars to prevent any outward movement of the jacks, such as might result from various causes, and which might occasion the formation of an imperfect shed in the warp-threads. Dobbies having such checks have in their operation manifested one defect—namely, in consequence of play permitted between the ends of the hooked jacks and the check-bars (this play resulting from the necessity of providing room for permitting the said ends freely to rise into position to engage the said bars and to drop out of engagement again) the harnesses, after being shifted, are permitted to move under the strain of the warp-threads to such an extent as to considerably alter the position of the latter. While the play or endwise movement of the jacks themselves may be slight, the movement becomes considerably multiplied or increased at the free ends of the harness-levers, so that considerable movement of the said free ends and of the harnesses and warp-threads is permitted.

The main object of my invention is to provide an improved arrangement of checking devices, and one object which I have attained by the invention is the obviation of play between the hooked jacks and the checking devices and of the resulting improper movement of the harnesses.

My invention consists in an improved construction and combination of parts, which will first be fully described with reference to the accompanying drawings, and then will be particularly pointed out in the claims at the close of this specification.

In the accompanying drawings, Figure 1 is a view in side elevation, showing a dobbie of the kind to which my invention relates, a harness-lever and cording, and part of a loom-frame. Figs. 2 and 3 are views in sectional side elevation, showing the preferred embodiment of my invention, the parts being represented in different positions in the two figures. Figs. 4 and 5 are similar views representing other modifications.

In Fig. 1, A is part of the framing of a loom. B is part of the frame of the dobbie. C is a rock-shaft, mounted in bearings in frame B and carrying at each end a lever D, the opposite ends of which are connected by rods E with the ends of lifters F, sliding in slots *f* in the frame B, the said ends of the said lifters being connected by rods G with the ends of the depressors H, sliding in slots *h* in the frame B. I is a harness-lever, and K is a connector pivoted on the said harness-lever. The said connector has the hooked jacks L pivoted to its ends, as shown in Figs. 2 and 3. M is the pattern-cylinder; N, the ratchet-wheel on one end of the said cylinder. O is a draw-pawl engaging with said ratchet-wheel and pivoted to one arm of the lever D. (Shown in Fig. 1.) P is a pattern-chain passing around the cylinder M, and Q are the indicator-fingers acted upon by the pegs or pins on the pattern-chain. R are the usual girts or back-stop bars for the ends of connectors K, and S are grates serving to separate and guide the hooked ends of the jacks.

All of the parts so far mentioned are of the usual form and construction, and will be arranged and operated in the usual manner.

In connection with the hooked jacks and in lieu of the stationary check-bars heretofore employed I employ for each separate one of the hooked jacks an individual movable check, each check being capable of movement independently of the others and each engaging with its appropriate one of the hooked jacks. These movable checks are combined with the hooked jacks in such manner that when a jack which has been lifted out of position for engagement with a lifter is to remain at the inner extreme of its movement it shall continue engaged by its appropriate check, and that when the jack is dropped into position for engagement with the adjacent lifter the said check shall become disengaged from the jack, leaving it free to be moved outward by the lifter. These checks may variously be constructed and applied, although in all cases they will be interposed between the indicator-finger and the jack, and the jack will rest thereon, the check engaging with a shoulder on the jack.

In Figs. 2 and 3 I have illustrated the preferred embodiment of my invention. In these figures the separate movable checks T are represented as formed of dogs, each pivoted at one end of a lug or projection s' on a bar of one of the grates S, and each formed with an abutting face or shoulder at its free end fitted for engagement with a shoulder on the under side of one of the hooked jacks. The hooked jacks severally rest upon the separate movable checks, one of the said checks being interposed between each of the hooked jacks of the upper series of the hooked jacks and the inner end of the corresponding indicator-finger and one of said jacks being supported by the loop or needle U, suspended from each of the indicator-fingers for controlling the positions of the hooked jacks of the lower series of hooked jacks. When the outer ends of the indicator-fingers rest on the surface of the uppermost bar of the pattern-chain, or on the surface of the cylinder when no chain is employed, there being no pegs or pins present to raise the outer ends, then the inner ends of the indicator-fingers will lift the movable checks, carrying them against the under sides of the hooked jacks, and thereby lifting the hooked jacks out of position to be engaged by the lifters, this action in lifting the jacks out of engagement with the lifters of course taking place only when the lifters are respectively at the inner extremes of their strokes. When a check has been raised, the jack being in its normal inner or retracted position, the end of the check passes behind the shoulder t on the corresponding jack, and thereby the check becomes engaged with the jack in a manner to prevent outward endwise movement of the latter. When a pattern peg or pin operates to raise the outer end of an indicator-finger, the corresponding check and jack first drop together and then the check passes out of engagement

with the shoulder t on the jack. In the construction represented in Figs. 2 and 3 the check remains in engagement with the shoulder t on the jack in a plane above that of the pivot of the check. Consequently any strain upon the harness and its connections and any friction of one part against another tending to move the jack outwardly will act through the shoulder t upon the check in a manner to force the jack upward until the upper side thereof contacts with the end s^2 of the space between the adjacent bars of the grates S, and then the parts will be held firmly and immovably until the check is dropped, when the jack will fall at once.

In Fig. 4 I have shown a modification in which the pivoted dogs of Figs. 2 and 3 are replaced by vertically-sliding needles T' T' , which rest at their lower ends upon the inner ends of the indicator-fingers Q, and are supported and guided by being passed through holes in the cross-bars V. In Fig. 5 the checks of the upper series of hooked jacks are formed as pivoted dogs T^2 , each resting on the upper end of a wire or needle T^3 , which at its lower end rests on the inner end of an indicator-finger Q. In this figure the checks T^4 for the lower series of hooked jacks, instead of being formed as separate rods T' , as in Fig. 4, are shown formed integral with the inner ends of the indicator-fingers, which control the positions of the hooked jacks of the said lower series, this latter construction being an equivalent of the construction shown in connection with the lower series of jacks in Fig. 4 and differing therefrom only in having the checks formed integral with the indicator-fingers instead of separate therefrom. Further variations and modifications may be made without departing from the spirit of my invention. In all cases, however, whether the checks be formed separate from the indicator-fingers or integral therewith, they are characterized by moving with the indicator-fingers and acting against the jacks to move the latter vertically.

When a hooked jack has been engaged by its lifter and drawn out, if the movement of the pattern-cylinder should present a bar having no peg or pin to support the indicator-finger corresponding with said jack the indicator-finger will bear the movable check upward against the under side of the jack until the time in the inward movement of the latter and the adjacent depressor when the shoulder t passes the end of the check, whereupon the latter will pass up immediately into position in front of the shoulder, thereby locking the jack. The inward movement of the lifter having been completed, the jack will rise out of engagement with the lifter and remain at the inner extremity of its movement until required to change by the pattern. By employing individual movable checks, substantially such as those herein described, I am enabled to so construct, arrange, and proportion the parts that there shall be no noticeable play or

lost motion between the shoulder on a jack and the corresponding check.

I claim as my invention—

1. A dobby for looms having therein, in combination with a reciprocating lifter, a jack provided with a checking-shoulder, and pattern-controlling mechanism serving to determine the engagement of the said jack by the lifter and embracing a pattern-surface, and means intermediate said surface and the jack for controlling the position of the latter under the dictation of the pattern-surface, the said means also engaging with the locking-shoulder on the jack when the latter has been raised out of position to engage with the lifter to thereby hold the jack in its normal retracted position, substantially as described.

2. A dobby for looms having therein, in combination with a reciprocating lifter, a jack provided with a checking-shoulder, and pattern-controlling devices serving to determine the engagement of the said jack by the lifter and embracing a pattern-surface, an indicator-finger, and an individual check for the said jack movable with the said indicator-finger and acting against the jack to move the same vertically, the said individual check engaging with the checking-shoulder of the jack when the jack has been raised by the check out of position for engagement with the lifter and after the jack has been retracted into its inner position to thereby hold the jack in its normal retracted position, substantially as described.

3. A dobby for looms having therein, in combination with a reciprocating lifter, a jack

provided with a checking-shoulder, and pattern-controlling devices to determine the engagement of the said jack by the lifter and embracing a pattern-surface, an indicator-finger, and an individual pivoted check for the said jack movable with the said indicator-finger and acting against the jack to move the same vertically, the said pivoted check engaging with the checking-shoulder on the jack when the jack has been raised by the check out of position for engagement with the lifter and after the jack has been retracted into its inner position to thereby hold the jack in its normal retracted position, substantially as described.

4. The combination, with a harness-lever and connector pivoted thereon, hooked jacks pivoted to the connector and having shoulders for engagement with checks, indicator-fingers, a pattern-surface, and lifters and depressors, of individual checks for the respective jacks movable with the respective indicator-fingers and acting against the jacks to move the same vertically, the said individual checks engaging with the checking-shoulders on the jacks when the jacks have been raised by the checks out of position for engagement with the lifters and after the jacks have been retracted to their inner position to thereby hold the jacks in their normal retracted position, substantially as described.

GEO. W. STAFFORD.

Witnesses:

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WILLIAM E. PEABODY.