(No Model.)

H. WYMAN.

SHEDDING MECHANISM FOR LOOMS.

No. 532,225. Patented Jan. 8, 1895.

Fig. 1.

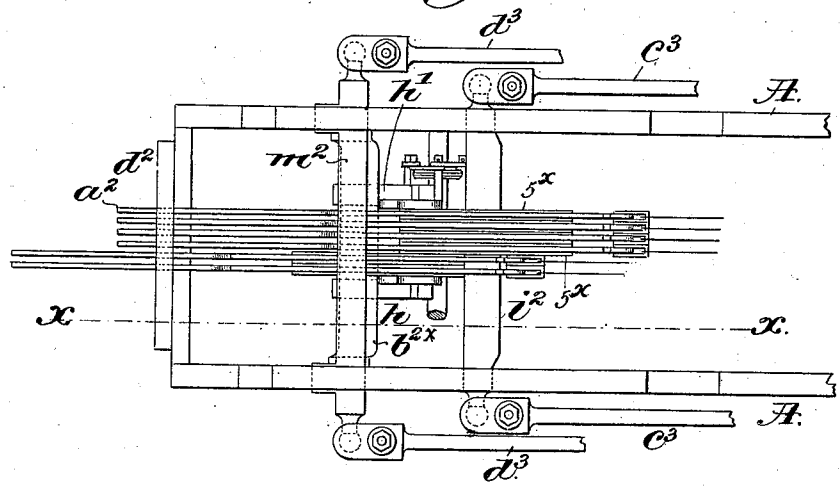


Fig. 2.

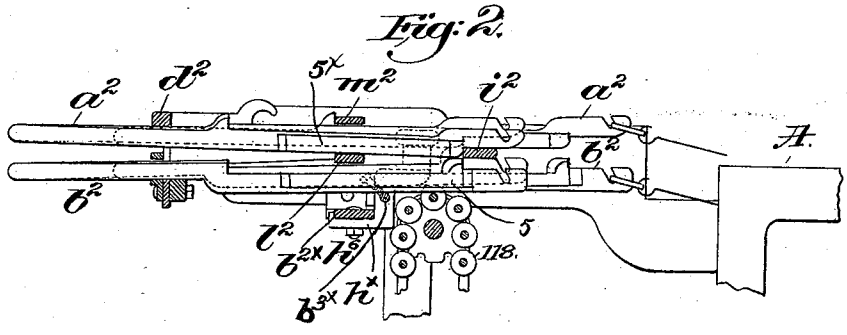


Fig. 3.

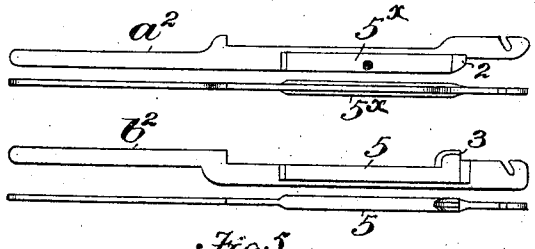


Fig. 4.

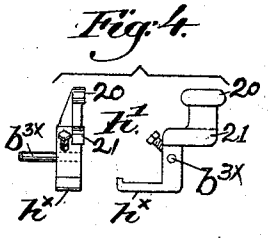
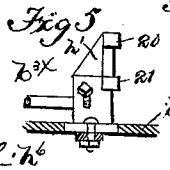


Fig. 5



Witnesses.
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UNITED STATES PATENT OFFICE.

HORACE WYMAN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE CROMPTON LOOM WORKS, OF SAME PLACE.

SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 532,225, dated January 8, 1895.

Application filed April 13, 1894. Serial No. 507,357. (No model.)

To all whom it may concern:

Be it known that I, HORACE WYMAN, of Worcester, county of Worcester, State of Massachusetts, have invented an Improvement in Shedding Mechanism for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to improve and simplify the jack mechanism in connection with a loom of the kind represented in United States Patent No. 412,689, dated October 8, 1889.

The patent referred to contains two sets of sliding hooked jacks, one superimposed on the other, each jack of each set of jacks having at its upper side a notch to be engaged by an evener, the jack of the lowermost set employed to depress the harness frames having a projection at its upper edge, while the uppermost jack used in elevating the harness frames has a notch or projection at its lower side, one or the other of the notches or projections last referred to being adapted to be engaged by one and the same bar, which acts as an elevator or depressor as the case may be, the jacks being distributed by or through the action of the pattern chain or surface while an evener holds the jacks, with the notches referred to, substantially in the same vertical plane, so that the lifter, as the bar is denominated, which acts either to depress or elevate the heddle frame, according to which jack it engages, may be made to engage the jack which is put into its plane of movement.

In the loom described in the patent referred to, two sets of guides were shown and necessary in order to keep the jacks in proper position during their sliding movement. In practice these guides wear rapidly, and the set separating the jacks near their inner ends were found to occupy valuable space in the loom, and when the number of harness frames was to be changed extra time was required to replace the guide.

I have by experiment ascertained that the innermost set of guides referred to may be dispensed with, and the jacks be made to guide themselves one against the other, and to effect this I have increased the width of the jacks at or near the notches or projections which are to be engaged by the lifter, so that the said jacks of each set bear against the jacks at each side of them, one acting to keep the other in upright position, and wear of the jacks one against the other in no way tends to leave the jack in such condition that it can tip or rock sidewise in its movements. The outer ends of the jacks are reduced in thickness and are placed in the usual guide.

Figure 1 of the drawings represents a top or plan view of a sufficient portion of a loom containing my improvements to enable my invention to be understood. Fig. 2 is a section thereof in the line x, Fig. 1, and Fig. 3 shows one jack of both sets of jacks in two positions. Fig. 4 is a detail of one of the guides or plates co-operating with the set of sliding jacks. Fig. 5 is a detail showing, in section, part of a stand adjustably connected to its supporting-bar.

The loom frame A, the pattern surface 118, the evener m^2, l^2, represented as two bars but adapted to be moved in unison by the same pair of links d^3, the lifter i^2 adapted to be moved by links c^3, both connected in practice at their ends with arms of a suitable rock-shaft, and the guide d^2 for the outer ends of the jacks a^2, b^2, each of said jacks having at its upper side a suitable shoulder or projection to be engaged by one or the other part of the evener, the jack a^2 having at its under side a notch or shoulder 2 while the jack b^2 has at its upper side a notch or shoulder 3, are and may be all substantially as shown in the said patent.

In accordance with my invention I have entirely dispensed with the comb-like guide e^2 represented in said patent, and I have provided each of the jacks of both sets of jacks with an elongated bearing surface, the bearing surface 5 for the jacks b^2 in the lower set being located somewhat above the lower edges of the jacks, while the bearing surface $5^\times$ for the jacks a^2 are shown as located somewhat nearer the lower edge of said jacks. There is a bearing surface such as described at each side of each jack, so that when said jacks are placed side by side, the bearing surfaces of the jacks of each set will lie and rub against the bearing surface of the adjacent

jacks in the same set, or, in other words, the jacks of each set are packed up side by side one closely against another and there held in such position by side plates h, h', one of which is shown detached in Fig. 4, each side plate having a foot $h^{\times}$, which is adjustably attached by a bolt h^6 to a bracket $b^{2\times}$ suitably secured to the frame-work and two bearing surfaces 20, 21, one for each set of jacks, said bearing surfaces receiving against them the wearing surfaces 5 of said jacks.

One of the side plates h, h', supports a rod $b^{3\times}$, see Figs. 2 and 4, placed immediately under the lower series of jacks, which rod acts to support said jacks when they are not supported on the rolls of the pattern chain.

Whenever it is desired to use a greater or less number of harness frames, it is only necessary to adjust the positions of the side plates and lay the extra number of jacks in place, or in case a less number of harness frames are to be used the extra jacks may be readily withdrawn and the side plates brought together.

In operation it will be understood that the under sides of the series of jacks a^2 at their inner ends lie directly upon the series of lower jacks b^2 and that the pattern surface or chain acts against the under sides of the lower jacks. Now when the evener acts or is moved back away from the side of the loom it will pull back with it all the jacks, so that all the projections acted upon by the eveners will be in the same line, the shed being closed, and the warps being brought to the same level. The evener having acted to bring all the jacks back into their normal positions with the shoulders 2 and 3 of the jacks a^2, b^2, in the same vertical plane, the pattern surface will act and will so distribute the jacks that either the shoulder 2 of the jack a^2 or the shoulder 3 of the jack b^2 will be in the path of movement of the lifter i^2 when the lifter is moved away from the loom side, and if the lifter engages the shoulder of the jack a^2 the harness frame connected therewith will be raised, and if it engages the shoulder 3 of the jack b^2 then the harness frame connected with that jack will be lowered, and when the lifter is acting upon the shoulders of one or the other sets of jacks to draw them away from the loom side the evener at the same time will be moving toward the loom side, letting those jacks which are not engaged by the lifter slide toward the loom side, and the shed having been opened the evener will again be moved in the opposite direction engaging all the jacks and moving them back to their starting position and closing the shed.

By placing the wearing surfaces 5 near the upper edges of the jacks b^2 and not letting the said surfaces extend to the under edge thereof, said under edge is left thinner than through the jack in line with the wearing surfaces, and, the lower edge of the jack being thinner, it may be kept unerringly centrally with relation to the rolls or projections of the pattern surface, and each roll acts on only its own jack and cannot touch and lift an adjacent jack which would produce faults in the shed, and this is liable to happen where the edge of the jack and the roll are of substantially the same thickness and the jack has any lateral play on the roll.

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

1. In a loom, a series of superimposed sliding notched jacks provided at their sides with projecting wearing surfaces, the wearing surfaces of each set of jacks being adapted to contact with the wearing surfaces alongside of it in the same set, and side guides or plates to keep the jacks of each series directly in contact one with the other, to operate, substantially as described.

2. A pattern chain, combined with a series of superimposed jacks provided with wearing surfaces contacting one with the other, the lower edges of the jacks where they contact with the pattern chain rolls or projections being of less thickness than the said rolls, whereby each roll is prevented from striking and lifting only its own proper jack, substantially as described.

3. The side plates for the sets of jacks, each side plate being provided with upper and lower bearing surfaces 20, 21, a bracket, and adjusting devices to adjustably connect the said side plates thereto, substantially as described.

4. A pattern surface, a jack supporting rod $b^{3\times}$, and a support for said rod, combined with a series of superimposed jacks, the lowermost jacks of the series resting on said rod when not sustained by the pattern surface, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HORACE WYMAN.

Witnesses:
JUSTIN A. WARE,
SAMUEL B. SCHOFIELD.