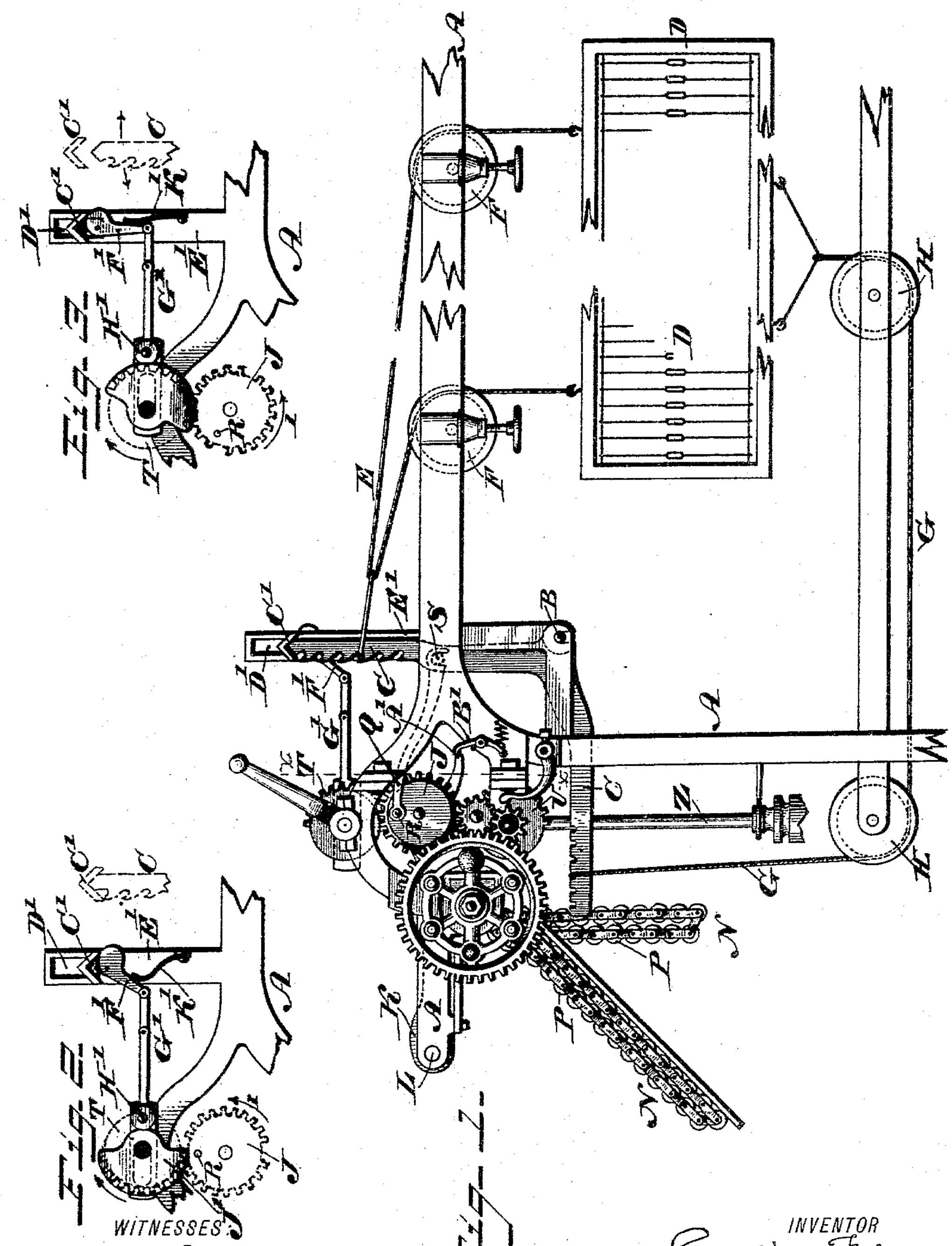
(No Model.) 2 Sheets—Sheet 1.

C. FALVEY.

SHEDDING MECHANISM FOR LOOMS.

No. 490,106. Patented Jan. 17, 1893.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

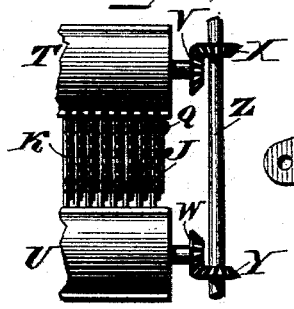


Fig. 5.

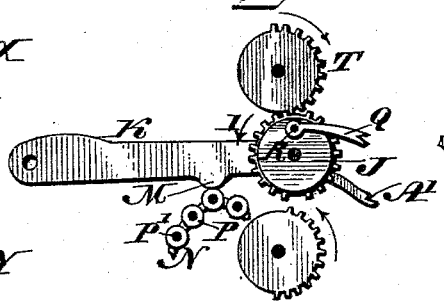


Fig. 6.

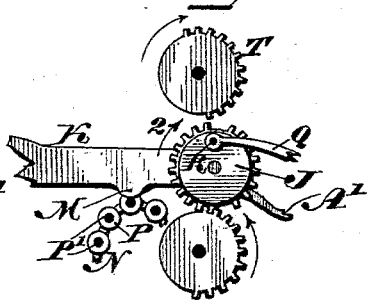


Fig. 7.

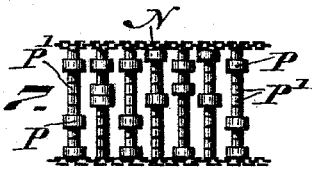


Fig. 8.

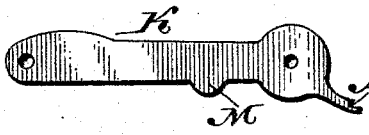


Fig. 11.

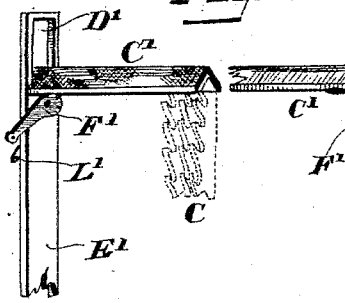


Fig. 9.

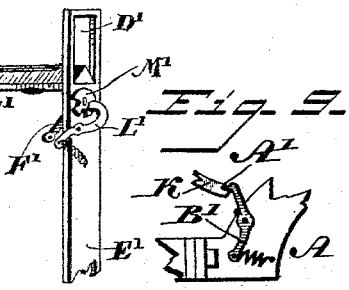
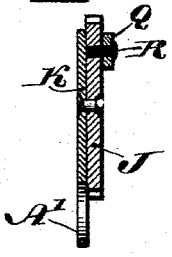


Fig. 10.



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SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 490,106, dated January 17, 1893.

Application filed May 2, 1891. Serial No. 391,324. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS FALVEY, a citizen of the United States, residing at Sprague, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Shedding Mechanism for Looms, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to improvements in close shed looms, and has for its object the construction of operating mechanism for the heddles of a close shed loom, which can be readily placed in position on a loom or removed therefrom, and for this purpose it consists of the combination of parts hereinafter set forth.

Figure 1 represents a side view of a portion of a frame of a loom with mechanism embodying my invention. Figs. 2 and 3 represent side views of the locking and releasing mechanism of the harness jacks, in different positions. Fig. 4 represents a partial view on line *x*, *x*, Fig. 1. Figs. 5 and 6 represent respectively, side views of a vibrator lever with a vibrator gear thereon in connection with the upper and lower cylinder gears respectively. Fig. 7 represents a plan view of a portion of the pattern chain. Fig. 8 represents a side view of a vibrator lever. Fig. 9 represents a side view of the locking mechanism for the vibrator lever. Fig. 10 represents a vertical section of a vibrator lever and vibrator gear. Fig. 11 represents a perspective view of the locking device for the harness jacks.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings:—A designates the frame of the loom, on a cross-bar B of which, are pivoted the harness jacks C. The upper limb of each of the said jacks is connected with the upper portion of a heddle D by a cord E, which is guided on the rollers F on the frame A; and the lower limb of the jack is connected with the lower portion of the said heddle by a cord G which is guided on the rollers H, H, on the said frame, whereby the oscillation of the jack either raises and lowers or lowers and raises the said heddle.

To operate each jack, a vibrator gear J is employed, the said gear being journaled on a vibrator lever K, which is pivoted at one end to a cross-bar L of the frame A, and has on its underside a projecting portion M adapted to rest on the pattern chain N, which is of any usual construction, so as to be raised by the contact of the larger rollers P thereof.

An arm Q pivotally connected at one end to a wrist-pin R on the upper side of the gear wheel J, and at the other end to a stud or pin S on the upper limb of the jack, connects the latter with the said gear wheel.

To operate the vibrator gear wheels J, the same are adapted to mesh with either of the two rotary cylinder gears T and U, located respectively on opposite sides of said gear wheels and provided with cogs on one half of their circumferential surfaces, the other half being plain, for a purpose hereinafter explained. The cylinder gears T and U are provided with bevel gears V and W respectively, which mesh with the bevel gears X and Y on a rotary shaft Z, receiving power from any suitable source. The wrist pin R of the vibrator gear wheel J and the teeth or cogs of the cylinder gears T and U are so arranged that a semi-rotation of the said vibrator gear wheel by the cylinder gears respectively, will move the said wrist pin from directly above the journal of the vibrator gear to directly below the same; if operated by the gear T, the movement will first raise the heddle then lower it, and if operated by the gear U, will first lower the heddle then raise it, during the said semi-rotation.

It will be seen that as a vibrator lever K is raised by contact with a large roller P, its gear wheel J is brought into engagement with the upper cylinder gear T, so that the said gear wheel J makes a semi-rotation in the direction of the arrow 1, Fig. 5, owing to only one half of the periphery of the cylinder gear T having cogs thereon, thereby operating by means of its arm Q, the jack C, so as to raise the connected heddle.

Each of the vibrator levers K is kept, by its own weight, in contact with the pattern chain N, so as to be operated thereby, and when not in contact with a roller P of the same, is lowered, being in contact with a small roller P′

of said chain, whereby its vibrator gear wheel J is engaged by the lower cylinder gear U, and motion in an opposite direction from that imparted to it by the cylinder gear T, or in the direction of the arrow 2 Fig. 6, is given to the said gear wheel J, operating the jack C so as to first lower and then raise its heddle. To insure the contact of each of the vibrator levers with the pattern chain, and the engagement of the gears J with the gears U the end of each of the said levers is provided with a toe A′, which is engaged by a spring-controlled lever B′ pivoted to a suitable portion or attachment to the frame but as such means is old and is not claimed herein, further description or illustration thereof is deemed unnecessary.

To hold the jacks in place, when the heddles are at rest or closed, a locking bar C′, recessed on its underside is employed; the said bar resting on the upper ends of the jacks C and having its ends movable in the slots D′ in the upper ends of the side pieces E′ of the frame A. To raise the said locking bar C′ so as to release the jacks, when it is necessary to operate the same, cam levers F′, bearing against the underside of the ends of the said bar, are secured to the side pieces E′ and operated by means of the jointed rods G′, which are connected with said levers, each of said rods having a slotted head provided with a roller H thereon. The cams J′, mounted on the journals of the cylinder gear T, engage the rollers H′, operating the rods G′ and levers F′, so as to lift the bar C′. The spring K′ suitably secured to the side pieces E′ serve to keep the cam levers depressed, and the spring pawls L′ engaging in recesses in the disks M′ which are secured to and movable with said levers, serve to lock the latter. The parts are so timed that when the shed is closed, and the heddles are on the same plane, the cams J′ are in the position shown in Fig. 2, so that the bar C′ rests on the upper ends of the harness jacks C locking the same in place, during a semi-rotation of the rotary cylinder gear U, or when the toothed or cogged peripheral portions of the said gear are not engaging and operating the vibrating gear J. It will be noticed that the said cylinder gears move uniformly but in opposite directions, making one rotation each pick or movement of the pattern chain.

The vibrator gear J has on its opposite sides, which first engage the respective cylinder gears, plain portions without cogs or teeth, in order that there be no jar or violent contact of interlocking or meshing teeth.

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

1. In a close shed loom, a frame a harness jack with heddle, a vibrator lever with gear wheel thereon, mechanism substantially as described for operating said lever, two rotary cylinder gears on opposite sides of the gear wheel, each having partially plain and partially toothed surfaces, an arm pivotally connected to a wrist pin on the upper side of the gear wheel, and to a stud on the upper limb of the jack, said wrist pin and teeth of the cylinders being so arranged that a semi-rotation of the said gear wheel will move the wrist-pin from directly above the journal of the gear wheel to directly below it, whereby a heddle will be completely raised and lowered, or lowered and raised during a semi-rotation of a gear cylinder said parts being combined substantially as described.

2. A frame with side pieces having slots therein in their upper ends, oscillating jacks, a locking bar having a recessed under face and with its ends in said slots and adapted to hold said jacks in place, cam levers secured to the said side pieces, jointed rods having slotted heads and secured to said levers, and cylinder gears with cams mounted on the journals thereof, said parts being combined substantially as described.

3. In a loom of the character described, harness jacks, a locking movable bar, pivoted levers bearing against the said bar to release the same, disks with recesses connected to said levers and spring pressed pawls adapted to engage in the recesses of said disk, said parts being combined substantially as described.

4. A frame with slotted side pieces, a locking bar recessed on its underside and with ends movable in said slots, harness jacks engaged by said bar, a pivoted lever bearing against said bar, a rotary cylinder gear with a partly plain and a partly toothed circumferential surface, a vibrator wheel adapted to engage said cylinder gear and having a pivoted arm connected with the said jacks, a cam on the journal of said cylinder gear, a rod pivoted to the said lever and having a slotted head mounted on the journal of the cylinder gear, and a roller on said head in contact with said cam, said parts being combined substantially as described.

CORNELIUS FALVEY.

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ROBT. AITON.