

(No Model.)

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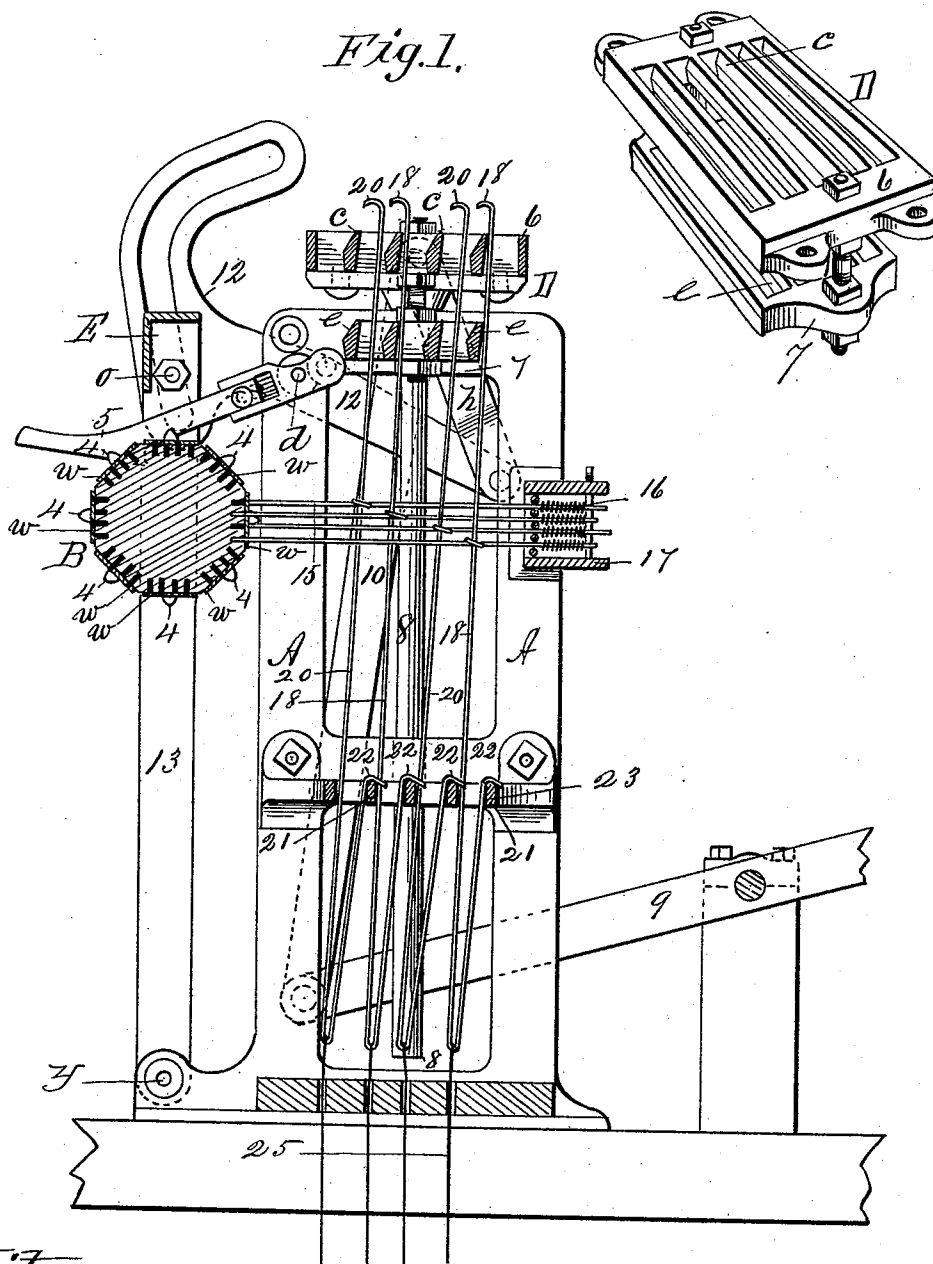
J. C. LIBERTY.
JACQUARD MECHANISM FOR LOOMS.

No. 465,411.

Patented Dec. 15, 1891.

Fig. 2.

Fig. 1.



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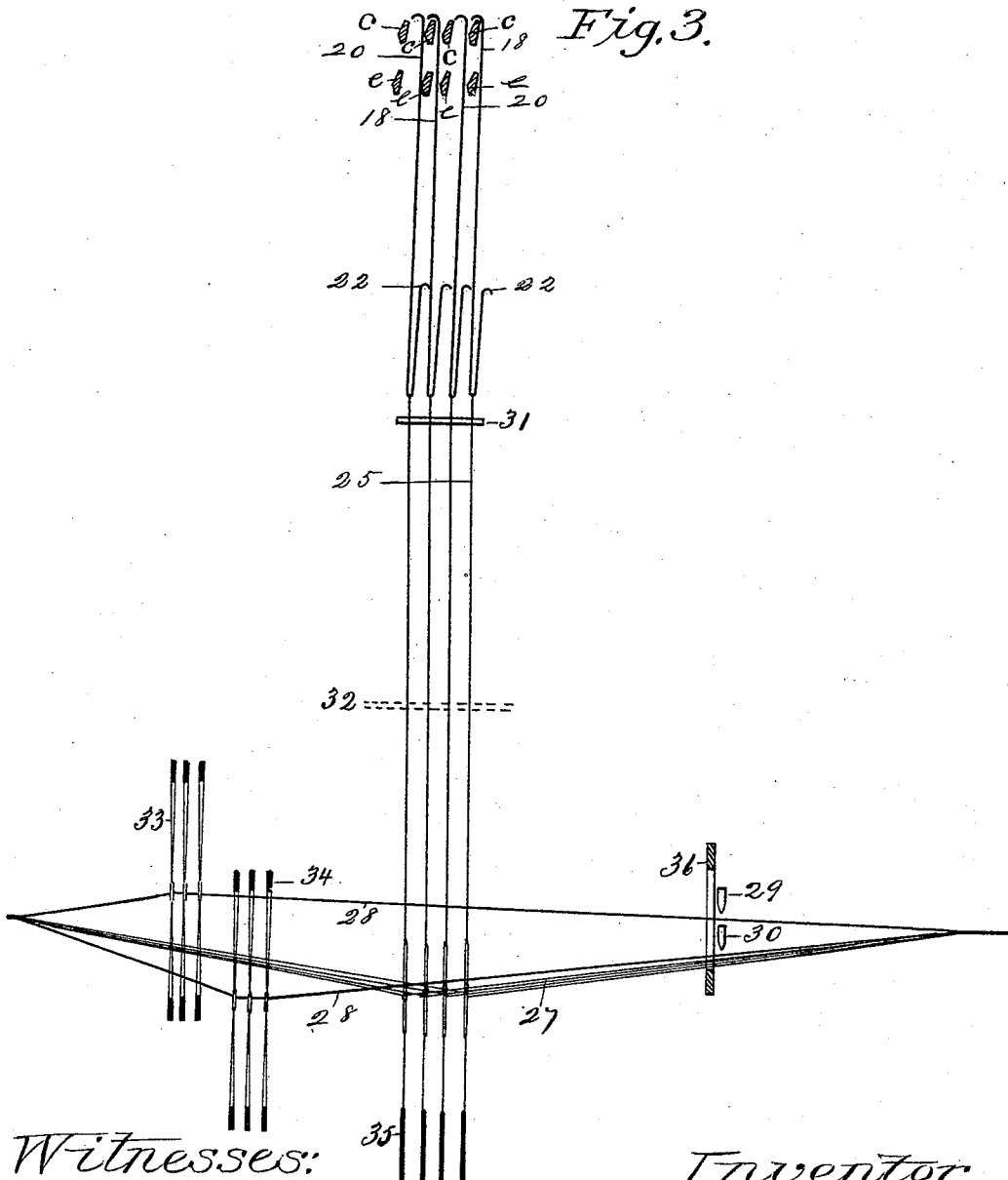
(No Model.)

3 Sheets—Sheet 2.

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JACQUARD MECHANISM FOR LOOMS.

No. 465,411.

Patented Dec. 15, 1891.



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(No Model.)

3 Sheets—Sheet 3.

J. C. LIBERTY.
JACQUARD MECHANISM FOR LOOMS.

No. 465,411.

Patented Dec. 15, 1891.

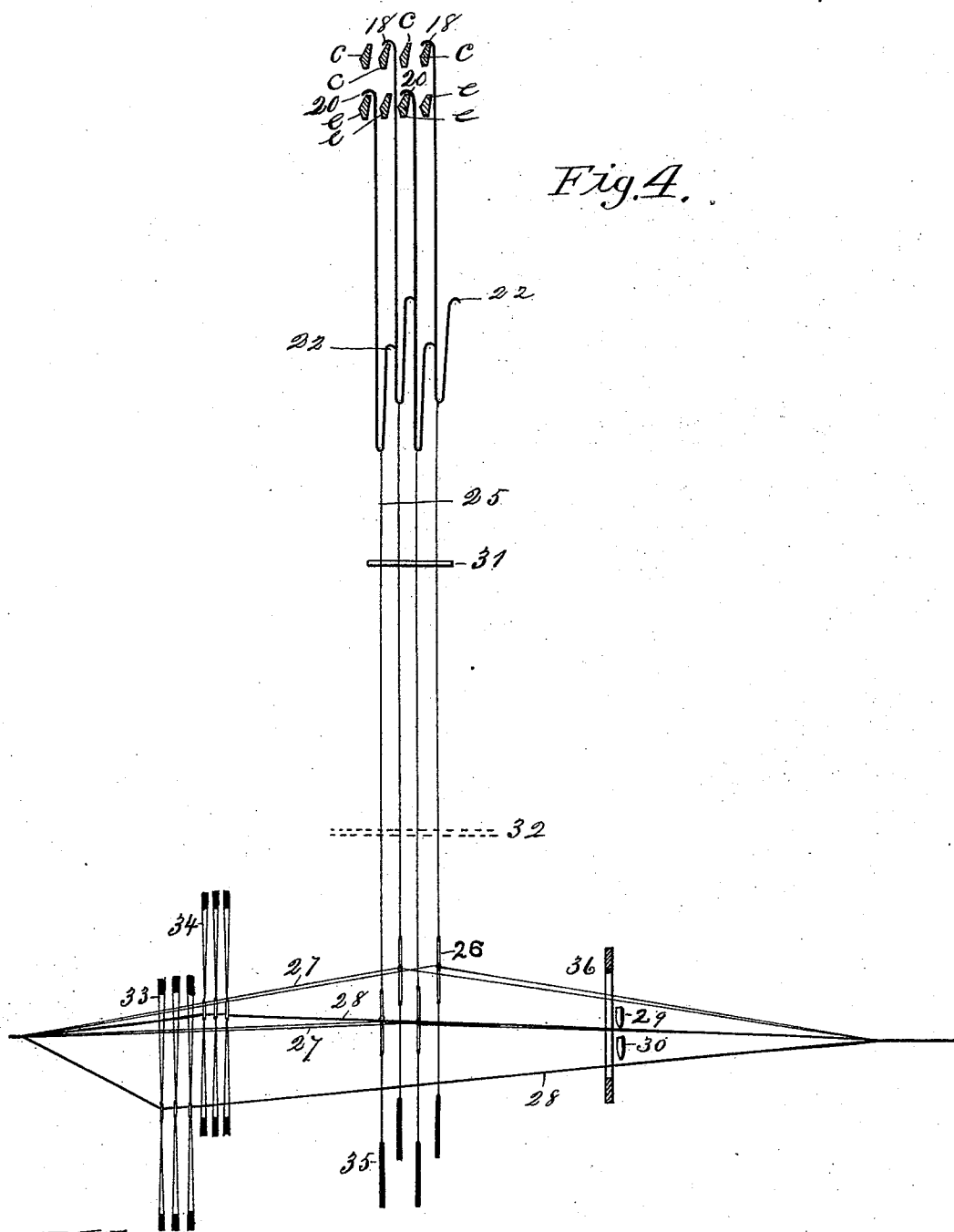


Fig. 4.

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UNITED STATES PATENT OFFICE.

JERRY C. LIBERTY, OF EASTHAMPTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO EDMUND H. SAWYER, OF SAME PLACE.

JACQUARD MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 465,411, dated December 15, 1891.

Application filed October 10, 1890. Serial No. 367,652. (No model.)

To all whom it may concern:

Be it known that I, JERRY C. LIBERTY, a citizen of the United States, residing at Easthampton, in the county of Hampshire and State of Massachusetts, have invented new and useful Improvements in Jacquard Mechanism for Looms, of which the following is a specification.

This invention relates to Jacquard mechanism for looms, the object being to improve and simplify the construction and arrangement of the griff-frames and coacting devices in Jacquard looms, whereby pattern-weaving thereby is greatly facilitated; and the invention consists in the construction and arrangement of parts, all as hereinafter more fully described, and particularly pointed out in the claim.

In the drawings forming part of this specification, Figure 1 is a vertical sectional view of the upper portion of the frame of a Jacquard loom having my improvements applied thereto. Fig. 2 is a perspective view of the griff-frame. Figs. 3 and 4 are side elevations, partly in section, illustrating a series of griff-bars, a series of griff-hooks in their operative positions, and warp and hook connections therewith, below described.

In the drawings, A indicates the part of the frame at the top of a Jacquard loom, on which the pattern-cylinder, the needles, the hooks, and the griff are supported and operated.

B is the needle-board cylinder, having thereon the pegs 4, which serve to support and retain the pattern-cards *w* in operative positions on the several sides of the cylinder. A suitable frame consisting of two upright bars 13, (only one of which is shown in the drawings,) united at their upper ends by a cross-brace E, provides a support for said cylinder, whose shaft runs in suitable bearings therein. Said frame is pivotally attached to the base of the frame A at *y*, whereby it is permitted to have the usual vibratory motion in order to move said cylinder from and toward the ends of the needles in the usual way to provide for turning the cylinder to bring side after side thereof of opposite the ends of the needles. One or more catches 5, pivoted to the frame A, one end of which rests upon a part of said cylinder,

engages therewith when the latter swings from the ends of the needles, and thus causes the cylinder to turn partly over each time said cylinder-frame swings outward, and thus the pattern-cards *w* on each face of the cylinder are brought in succession before the ends of the needles. The said vibratory motion is imparted to the said cylinder-supporting frame by means of the slotted cam-lever 12, which is pivoted at *d* on frame A, the slot in said lever engaging a stud *o* in one of the uprights 13 of said cylinder-frame. The cam-lever 12 is given its requisite vibrating motion each time the griff D rises by means of its connection therewith by a connecting-bar *h*.

The griff D is attached to the upper ends of two pending posts 8, (one only being shown,) which engage in suitable perforations in frame A, and the requisite reciprocating vertical movement is imparted to the griff by means of a pivoted lever 9, which is operated by suitable connection with a loom, on which the frame A may be placed, whereby it is vibrated in a vertical plane. Connection between said lever 9 and the griff is made by means of a bar 10, pivotally connected therebetween. If said lever 9 be made bifurcated, as is generally the case, its bifurcated ends are connected to the opposite ends of the griff by two of said bars 10. Said griff D, as clearly shown in Fig. 2, consists of two rectangular frames 6 and 7, arranged one above the other and each provided with longitudinally-extending bars *c* and *e* for engagement with the hooks of the hook-wires 18 and 20, which at their upper portions have each but a single hook, as shown, to draw the same upward, and thus produce the desired sheds in the warp through their connection therewith by means of the usual harness, consisting of the heddles, and their usual connections with said hooks, including the neck-cords 25. The upper griff-frame 6 engages the hooks 18, which operate to open the pattern-shed in the part of the warp 27 and the lower griff-frame 7, as seen in Fig. 4, engages the hooks 20, which operate to open the shed in the part of the warp 28, forming the body or binder of the work.

Fig. 1 shows the griff in its downward position and the hook-wires 18 and 20 occupy

ing the positions vertically relative to the bars of the said two griff-frames to which they are brought by the positions of the needles 15, having the usual coils through which said hook-wires are passed in the usual manner. Said hook-wires are provided with "rests" 22, just above their lower ends, which hook onto the usual rest-bars 21 in a frame 23, secured to the frame A, and thereby said wires are supported in their normal or lowermost positions, as shown in Fig. 1, in which figure the griff-frames are also shown in their downward positions. Said needles 15, as shown in Fig. 1, are arranged with their points opposite the pattern card *w* and are moved thereagainst by the springs 16—one on each needle—in the usual way, the points of such needles as may be opposite perforations in said pattern-card being caused by said springs 16 to enter the same, thus permitting certain of the needles to move endwise toward the cylinder B, as shown in said last-named figure, in which two needles are shown as having their points passed through said card and two others as, having their points resting against the surface of said card. The said two needles having their points entered into perforations in the pattern-card, are engaged with the hook-wires 18 18, and therefore the latter have their upper hook-bearing ends swung over certain of the bars *c* of the upper griff-frame 6 into such positions as insures the engagement of said bars with the hooks thereof when frame 6 shall move upward; but the other hooks of the series 20 20 occupy such positions between said bars *c* that they cannot be engaged by the latter, but will be engaged by certain of the bars *e* of the lower griff-frame 7, as the latter moves upward with the upper, as one frame 6, the positions of said hooks when so engaged by the griff-bars *c* and *e* being clearly illustrated in Fig. 4. Thus it is seen that two distinct griffs are provided, one above the other, but having coinciding or simultaneous vertical movements, the upper griff operating through the hooks engaging therewith, as described, and the usual harness connected thereto to form the shed in the warp for the pattern, and the lower griff similarly engaging other hooks to form the shed in the body of the work. Thus the two griffs while moving coincidingly act successively upon the warp to form the body and pattern sheds.

Fig. 3 illustrates the positions of the griffs 6 and 7 and the warp-forming parts operated thereby when the warp 28 is opened to produce sheds for the ground or body-work of the fabric, and Fig. 4 illustrates the positions of the griffs and said other parts when the warp is opened to produce sheds for the figure and the ground-work for the fabric. It is

obvious that in working said body and pattern-shed in the warp, which are opened substantially at the same time, two banks of shuttles are employed, as shown at 29 and 30, Figs. 3 and 4, the upper bank 29 for figure and working every alternate pick, and the lower for the body and working every pick. In said last-named figures 31 indicates the position of the comber-board, the dotted lines 32 that of the compass-board, 33 and 34 heddles, 35 lingoes, and 36 the reed, these several parts all being of the ordinary construction and arrangement. The above-described improvements are employed with especial advantage in weaving fancy styles of narrow fabric, but are applicable to all classes of fancy weaving in which Jacquard looms are used.

Said improvements present great advantages over the use of the dobby-chain head or cam motion, in which a comparatively limited number of harness can be used, and one machine can produce only one pattern, while said improvements permit of the use of an unlimited number of heddles, and various patterns can be produced in the same loom and with one machine with no change, excepting that of the pattern-cards. Said improvements are also positive in their action, and are operated so easily as to greatly reduce the strain upon the yarn when the shed is formed; and, furthermore, two distinct and separate sheds are formed with every lift in unison of the griff, which, as has been made clear, is insured from the operation of a single actuating-lever therefor.

The griffs 6 and 7, as herein shown, are made separately and united by suitable bolts; but it is obvious that they may, if desired, be cast as one piece.

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

The combination, with the series of griff or hook wires of a Jacquard loom, each having at its upper end but a single hook, of a griff embodying upper and lower frames therefor which are rigidly connected and adapted to have movements in unison, and each frame having as members thereof a series of rigid hook-engaging bars and a common operating-lever for simultaneously moving both of said frames, and means, substantially as described, for laterally moving and controlling the positions of the hook-wires, all whereby the bars of each frame may engage with different hooks of said series successively at one and the same upward movement thereof, substantially as set forth.

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Witnesses:

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