2 Sheets—Sheet 1.

I. L. WILBER.

Mechanism for Operating the Harnesses of Fancy Looms.

No. 198,555. **Patented Dec. 25, 1877.**

Fig. 1.

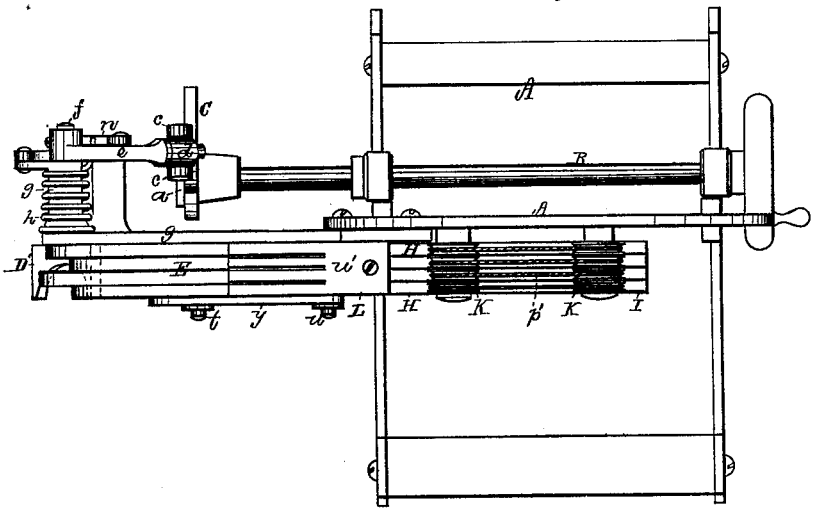
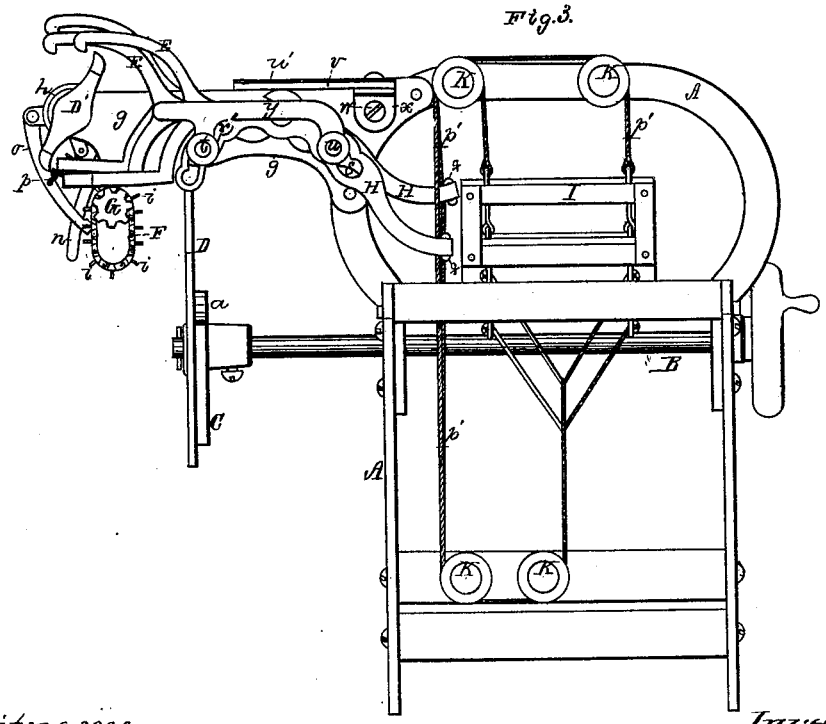


Fig. 3.



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2 Sheets—Sheet 2.

I. L. WILBER.

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Fig 2

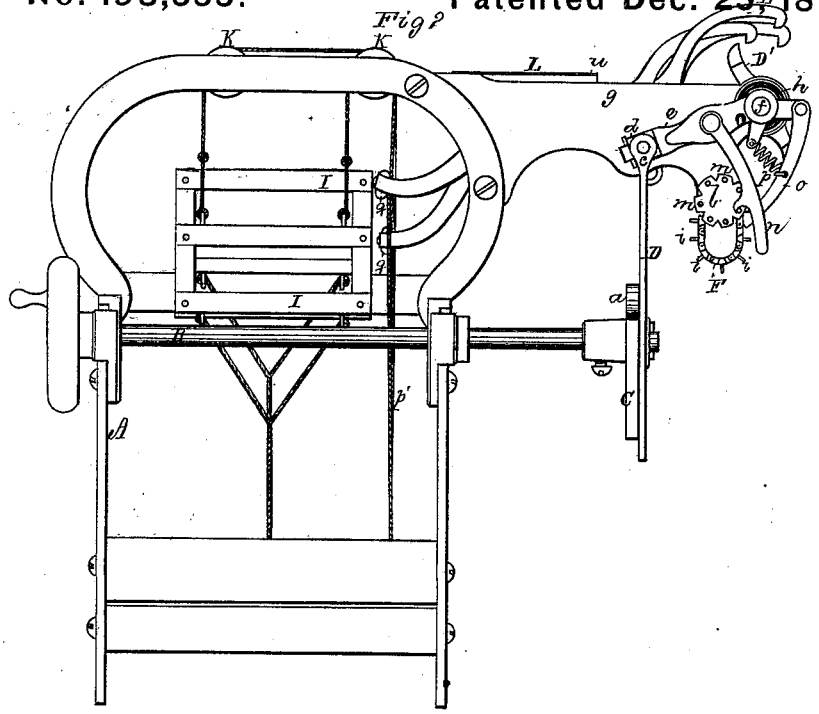


Fig 4.

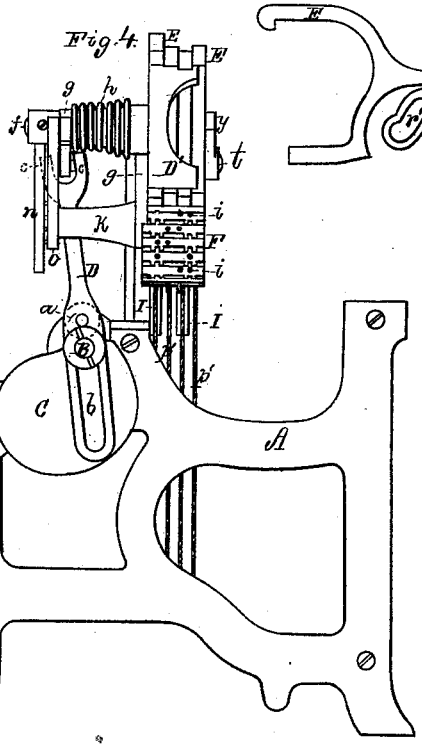
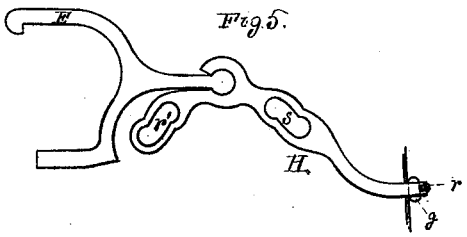


Fig 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

ISAAC L. WILBER, OF TAUNTON, MASSACHUSETTS.

IMPROVEMENT IN MECHANISMS FOR OPERATING THE HARNESSES OF FANCY-LOOMS.

Specification forming part of Letters Patent No. **198,555**, dated December 25, 1877; application filed September 18, 1877.

To all whom it may concern:

Be it known that I, ISAAC L. WILBER, of Taunton, of the county of Bristol, of the State of Massachusetts, have invented new and useful Improvements in Mechanism for Operating the Harnesses of Fancy-Looms; and do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a rear elevation; Fig. 3, a front elevation, and Fig. 4 an end view, of a loom frame and harness provided with my invention. Fig. 5 is a side view of one of the harness-operating levers and its hooked fork.

My invention consists, first, in the combination of a harness-operative slide-bar, having two locking-slots, with two supporting and stationary studs, and with a hooked fork and a vibrator, such fork being jointed to the slide-bar, and all being essentially as set forth; second, in the combination of a vibrator, having mechanism for imparting to it a reciprocating rotary motion, with a series of hooked forks and their double-slotted slide-bars, and their two supporting-studs, and the harnesses and a pattern-chain, all being applied and to operate as specified; third, in the combination of the series of harness double-slotted operative slide-bars, their two supporting-studs, the hooked forks, and the vibrator and pattern-chain, having mechanism for operating them, substantially as set forth.

One great advantage of my fancy-loom harness-operative mechanism over most, if not all, others in use, is its simplicity of construction and operation, whereby it can be afforded at a moderate cost to the manufacturer.

In the drawings, A denotes the loom-frame, and B is the crank-shaft for driving the lay. Near one end of the said shaft there is fastened to it a cam, C, shaped as represented, and having its periphery against that of a friction-wheel, *a*, applied to a connecting rod or bar, D. The latter has a long pivotal slot, *b*, in it, to receive the shaft, upon which it turns. The rod, furcated at its upper end, has its prongs *c c* pivoted to a short sleeve, *d*, that turns on an arm, *e*, extended from a short shaft, *f*. The latter has a bearing in a bracket, *g*, projecting from the loom-frame in manner as represented. A helical spring, *h*, encompasses the bearing, and is fastened to the bracket and the arm, and serves to depress the latter and to keep the friction-wheel in close contact with the cam.

There is fastened to the shaft *f* what I term the "vibrator" D′, which, shaped as shown, is arranged, as represented, between the prongs of a series of hooked forks, E, each of which, formed as exhibited in Fig. 5, is arranged over a pattern-chain, F, partially encompassing and suspended from a sprocket-wheel, G. The links or bars of the pattern-chain are to be furnished with pins *i* for forcing the forks upward at the proper times. The sprocket-wheel of the pattern-chain is fixed on a shaft, *k*, duly supported in the bracket, and provided with a ratchet-wheel, *l*, having a series of studs, *m*, projecting from its side at equal distances apart. An impelling-pawl, *n*, pivoted to the arm *e*, engages with such series of studs, so as to partially turn the wheel during each downward movement of the arm. A retaining-pawl, *o*, pivoted to the strut and arranged with the ratchet-wheel, and pressed up to its periphery by a spring, *p*, serves to prevent back motion of the ratchet-wheel.

Each hooked fork E is jointed at the end of its shank to one of a series of curved slide-bars, H, which, at their inner ends, are connected to the working lines *p′* of the harnesses I. These lines, attached to the upper and lower edges or parts of the several harnesses, and led around guide-wheels, as shown at K K K K, pass through the slide-bars, and are held to them by means of gibs and clamp-screws, one of such gibs being shown at *q* and its clamp-screw at *r* in Fig. 5. The clamp-screw screws into the end of the guide-bar and against the gib, which, arranged within the slide-bar, is, by the screw, forced against the harness line or lines going through the bar.

Each of the said slide-bars H is provided with two locking-slots, *r′ s*, formed and arranged in it, as represented in Fig. 5, the slide-bar being supported by two stationary pins or studs, *t u*, extending from the bracket. The slide-bar, while in operation, has longitudinal and vertical movements upon such pins or studs, it, at the termination of each vertical movement, being locked or so supported by

the slots and the studs as to be estopped from any accidental movement tending to move the harness from its proper position.

While in operation the vibrator has a reciprocating rotary motion imparted to it, which causes it to meet and advance all the forks that may be raised by the pins of the pattern-chain and retract all the rest of such forks. While a fork may be in the act of being retracted the harness connected with its double-slotted guide-bar will be depressed, and it will be raised during an advance of the slide-bar.

Bearing on the series of slides H is an elastic friction-comb, L, consisting of a metallic plate, *u'*, and a wooden facing or plate, *v*, arranged and slotted, as shown. Each elastic tooth or prong of the comb rests on one of the slides, and keeps it borne down upon its studs. The said comb is fastened by one or more screws, *w*, to a projection or shelf, *x*, extended from the bracket.

A plate, *y*, having the two studs or pins *t u* extending through it, and secured to them by set-screws, serves to keep the slide-bars on the said pins.

By means of the cam C and the slotted connection-rod D, applied to the crank-shaft and to the arm *e*, I am enabled to move the vibrator to better advantage relatively to the forks than I could by a crank and a connecting-rod.

The operation of my improved loom-harness-actuating mechanism may be thus described: On the crank-shaft being revolved, an intermittent rotary motion will be imparted to the pattern-chain, and the vibrator will have a reciprocating rotary motion, whereby all the forks raised by the pattern-chain at any time will be moved forward, and the depressed ones will be retracted by the said vibrator, thereby causing some of the harnesses to be drawn upward and others to be drawn downward.

I claim as my invention as follows:

1. The combination of the harness-operative slide-bar H, having the two pivotal slots *r' s* arranged in it, substantially in manner as shown, with the two supporting and stationary pins or studs *t u*, the hooked fork E, and a vibrator, D', all being essentially as set forth.

2. The combination of the vibrator D', having mechanism for imparting to it a reciprocating rotary motion, with a series of hooked forks, E, and their double-slotted slide-bars H, their two supporting-studs *t u*, the harnesses I, and a pattern-chain, F, all being substantially as specified.

3. The combination of the series of harness double-slotted operative slide-bars H, their two supporting-studs *t u*, the hooked forks E, the vibrator D', and pattern-chain F, having mechanism for operating them, substantially as set forth.

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Witnesses:

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