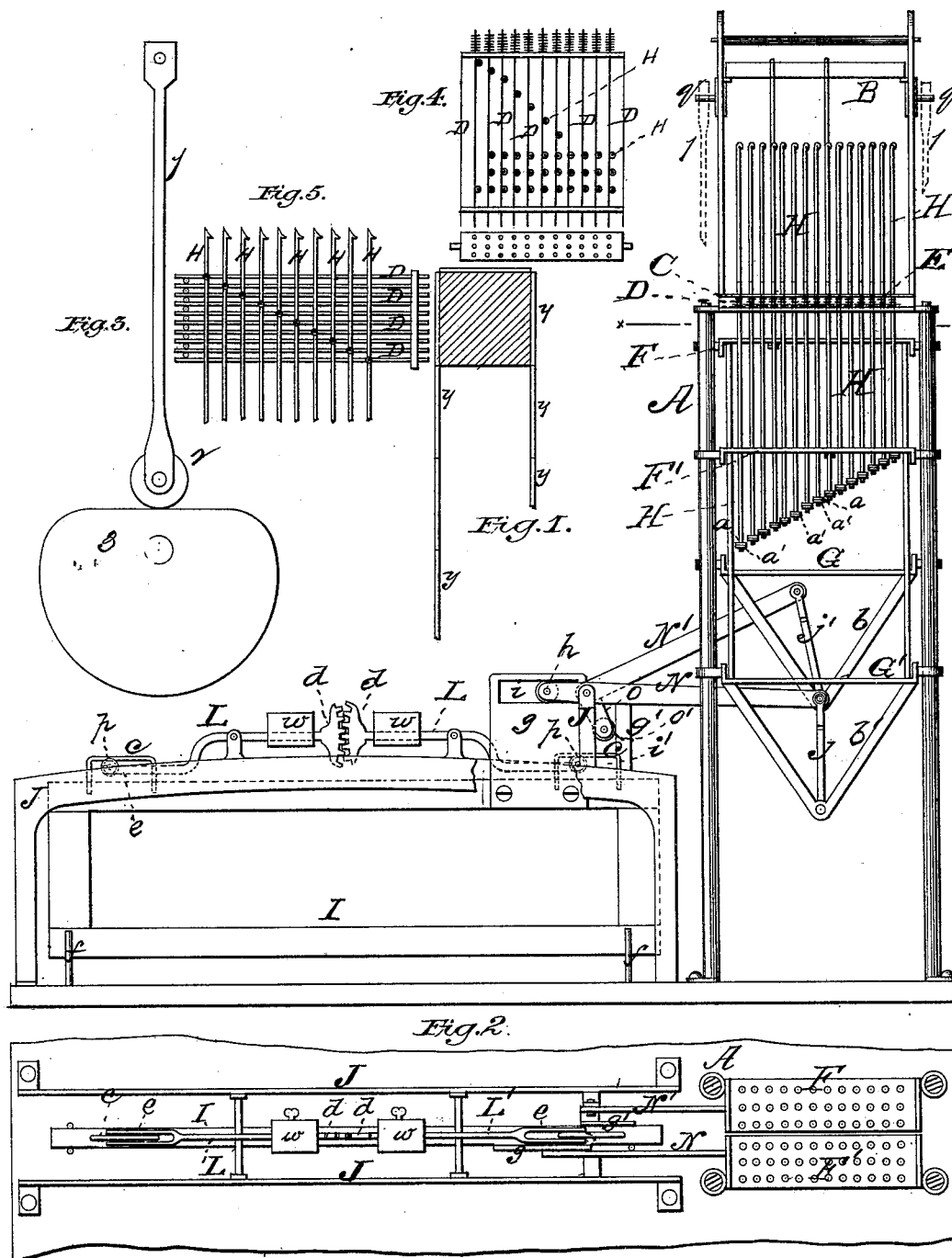


M. UMSTADTER.  
Jacquard Attachment for Embroidering-Machines.  
No. 214,209.      Patented April 8, 1879.



WITNESSES

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## IMPROVEMENT IN JACQUARD ATTACHMENTS FOR EMBROIDERING-MACHINES.

Specification forming part of Letters Patent No. **214,209**, dated April 8, 1879; application filed July 16, 1878.

### *To all whom it may concern:*

Be it known that I, M. UMSTADTER, of Norfolk, in the county of Norfolk and State of Virginia, have invented a new and valuable Improvement in Jacquard Attachments for Embroidering-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of my invention. Fig. 2 is a horizontal section of the same, taken through the line *x x*, Fig. 1; and Figs. 3, 4, and 5 are detail views.

This invention has relation to improvements in Jacquard attachments for embroidering-machines, the Jacquard mechanism being an improvement upon that for which Letters Patent of the United States were issued to G. F. Eisenhardt, dated February 22, 1876, and numbered 173,924.

My invention consists in two independent sets of hooks arranged and regulated in connection with the other parts of a Jacquard mechanism in such manner that each set of hooks will move the fabric or material operated on in a direction at right angles to the other.

It also consists in hooked rods having their lower ends screw-threaded and provided with adjusting-nuts, whereby the endwise throw of the said rods may be regulated at pleasure.

It furthermore consists in certain other minor improvements, as will be hereinafter more fully shown and described.

In the annexed drawings, the letter A designates the frame of a jacquard having a vertically-movable knife-plate, B, and below said plate a plate, C, through which pass the usual needles D. Each of these needles is looped around one of the hooked rods H, and face the cards *y*, that are perforated so as to throw whichever of these rods may be desired in or out of connection with the knives on the plate B as it rises and falls.

The rods H are of various length, and are hooked at their upper ends and screw-threaded at their lower extremities. They are also ar-

ranged in two independent sets, and each of the said rods extends through a grating fixed to the frame, which guides them in their endwise movements.

Below the grating E are arranged the independent plates F F', having spaced perforations to receive the said rods, and each of said plates appertaining to one of the sets thereof. These plates are vertically movable in the frame A, and are connected with and properly braced to the independent metallic plates G G' by suitable rods.

The rods H are of various lengths, and project below plates F F'. They are provided upon their lower extremities, which are screw-threaded, with nuts *a*, by means of which the endwise throw of the said rods is regulated at pleasure.

The plates G G' move in unison with the perforated plates F F'—the plate G with the plate F, and the plate F' with the plate G'; but the movements of said plates, as above paired, are independent of each other.

In practice I shall hold the nut *a* to its adjustment by means of a second nut, *a'*; but I do not wish to be understood as limiting myself to any precise mode of attaining this adjustability.

Upon the under sides of the plates G G', respectively, are secured the rigid angular hangers *b b'*, the object of which will hereinafter appear.

I represents a rectangular metallic or wooden frame, provided upon its upper edge with oblong staples *c*, and arranged between the parallel upright supporting-frames J, upon which are journaled the vertically-vibrating levers L. The adjacent ends of these levers are provided with the engaged segmental gears *d*, and their outer forked ends, *e*, that straddle the staples *c*, are connected to the said staples by means of pins *p* passing through the said ends *e* under the said staples in such manner that the frame has free endwise movement. This frame is balanced by the weights *w*, applied upon the supporting-arms L, between their fulcrums and their engaged segmental geared ends, and is held against lateral displacement by the guides or guide-pins *f*.

*g g'* represent strong metallic plates, secured to the frame I, at each side thereof, and pro-

vided, respectively, with a horizontal slot, *i*, and a vertical slot, *i'*.

The plate *g* is connected to a pitman, *j*, pivoted to the lower end of the hanger *b'* of plate *G* by means of a straight lever, *N*, having its fulcrum on the contiguous support *J*, and provided on its weight end with a projecting pin, *h*, engaged in slot *i*, and having an anti-friction roller thereon.

The plate *g'* is also connected with a similar pitman, *j'*, on the end of the hanger *b* of plate *G* by an angular lever, *N'*, that carries upon its weight end an anti-friction roller, *O*, which is engaged with slot *i'*.

By raising or lowering the plate *G* the frame *I* is lowered or raised, and by moving plate *G'* vertically the said frame is moved endwise or laterally, these movements being absolutely independent of each other.

The operation of the mechanism is as follows: The design having been made, and it having been ascertained which of the intersecting points will form the desired pattern, the cards are punched, so that the rods that will bring the fabric on the frame *I* to these points will hook upon the knives of the knife-plate as it is raised. This is accomplished by means of a pitman, *1*, pivoted to the knife-plate, as shown at *q*, at each side thereof, and carrying on its lower end an anti-friction roller, *2*. This roller bears against a cam, *3*, actuated by suitable mechanism, that raises and lowers the knife-plate alternately. I do not, however, confine myself to this specific lifting device.

As the knife-plate rises the perforated frames *F F'* remain stationary until the nuts upon those of the hooked rods *H* that are engaged with the knife-plate strike against the plates *F F'*, when they rise, and, through the angular hangers *b b'*, connecting-rods *j j'*, straight lever *N*, angular lever *N'*, and the horizontally and vertically slotted plates *g g'* upon the frame carrying the fabric, impart both a vertical and horizontal movement to the said frame.

The needle or other mechanism performs its work at a point of the fabric where it was known that the hooks caught up would draw it corresponding to the initial or desired point of the design. This being done, the knife-plate descends and another card throws two other hooks into engagement with the knife-plate, and the result above described is reproduced upon a second point of the fabric. This movement is continued until the design is perfectly worked in. This may also be accomplished by a system of ropes and pulleys.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a suspended balanced frame, *I*, and the frame *A*, having a movable knife-plate, *B*, the plates *F G* and *F' G'*, and a lever mechanism connecting plates *G G'* with the fabric-frame, of the rods *H*, arranged in two independent sets, hooked at their upper ends, and one set extending through the plates *F G*, and the other through the plates *F' G'*, each rod being screw-threaded at its lower end and provided with an adjusting-nut, substantially as specified.

2. The combination, with a jacquard having endwise-movable hooks arranged in two independent sets and provided with adjusting-nuts on their lower ends, of the connected vertically-movable frames *F* and *G* and *F'* and *G'*, respectively, and an intermediate mechanism connecting each of frames *G G'* with a suspended fabric-frame, one mechanism moving the frame vertically and the other horizontally, substantially as specified.

3. The combination, with a suspended balanced fabric-frame having plates *g g'*, provided, respectively, with a horizontal slot, *i*, and a vertical slot, *i'*, of the rectilinear lever *N*, engaging slot *i*, and the angular lever *N'*, engaging slot *i'*, the independent slide-plates *G G'*, having, respectively, the hangers *b b'*, the pitmen *j j'*, connecting, respectively, the hanger *b* and lever *N* and the hanger *b'* and lever *N'*, the perforated plates *F F'*, respectively, above the plates *G G'*, the vertically-movable knife-plate *B*, and the rods *H*, adapted to be hooked over the knives of the plate, and provided with an adjusting-nut at their lower ends, substantially as specified.

4. The combination, with a suspended balanced fabric-frame and an independent frame guiding a movable knife-plate, of the vertically-movable perforated plates *F F'*, connected by a lever mechanism with the fabric-frame, rods *H*, arranged in independent sets, hooked at their upper ends, adjustable as to length, extending through plates *F F'*, and thrown by a jacquard into engagement with the knife-plate, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

MICHAEL UMSTADTER.

Witnesses:

CHARLES MYERS,  
W. T. SIMCOE.