

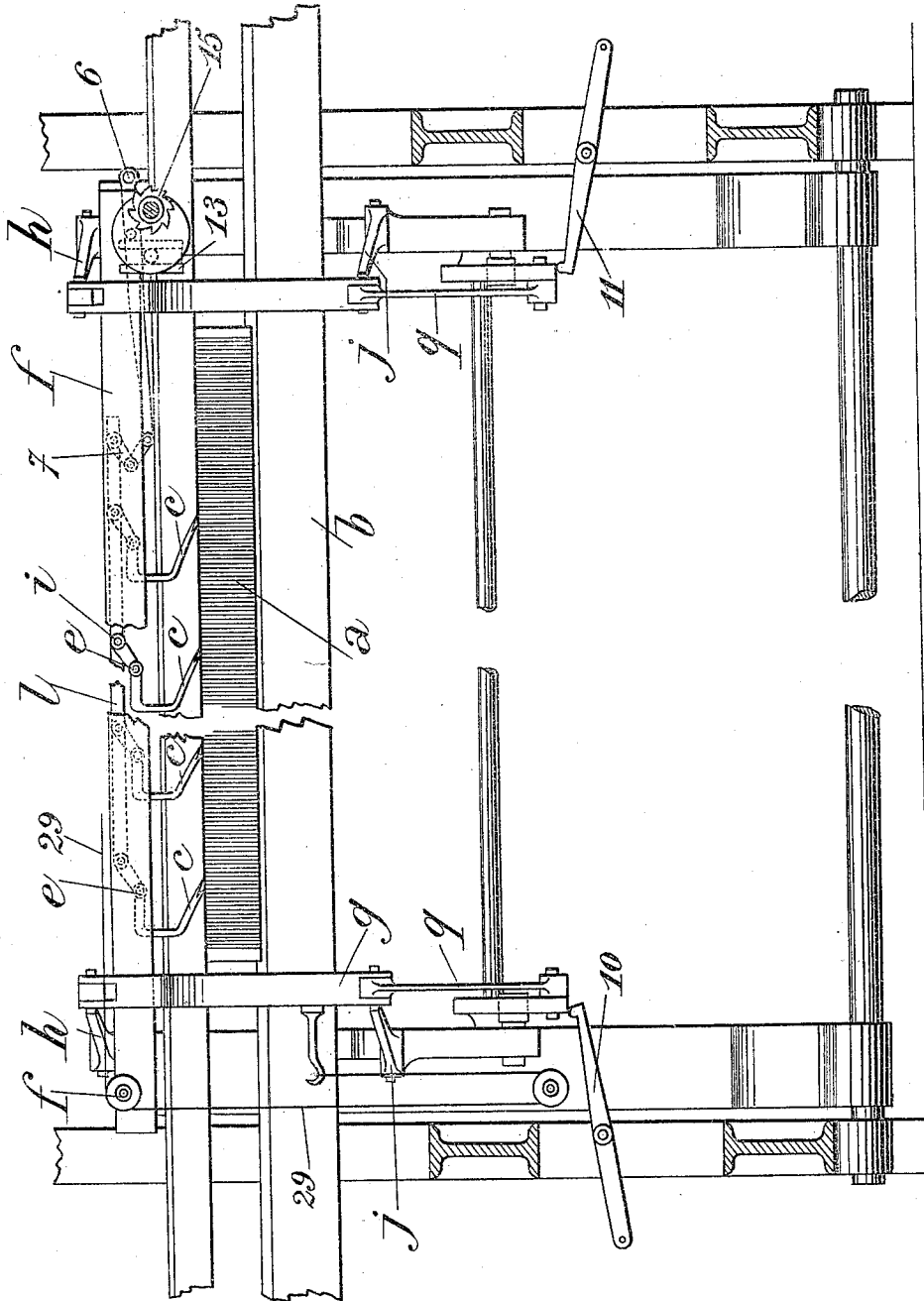
L. VEYRON.
EMBROIDERY ATTACHMENT FOR WEAVING LOOMS.
APPLICATION FILED DEC. 30, 1908.

960,741.

Patented June 7, 1910.

4 SHEETS—SHEET 1.

FIG. 1



WITNESSES

W. P. Burke
Edw. D. Spring.

INVENTOR

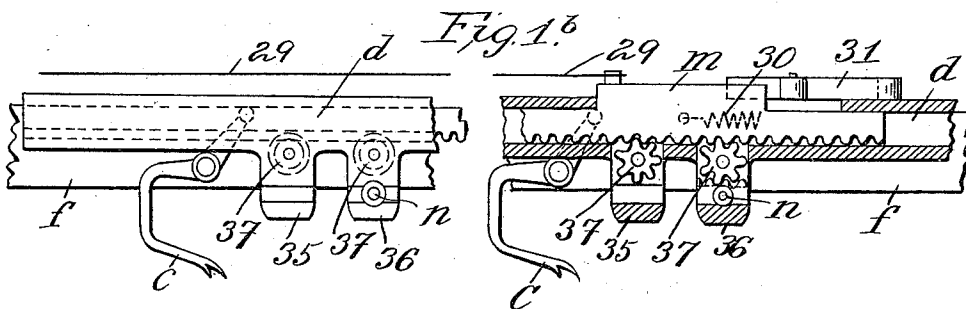
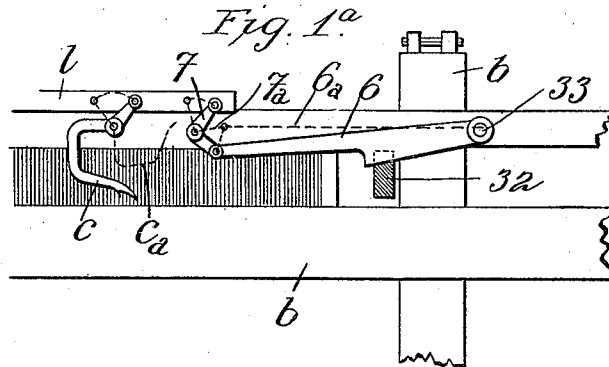
Louis Veyron
BY *Chas. M. Miller*
ATTY.

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Attest.
Bent M. Stahl.
L. B. Middleton

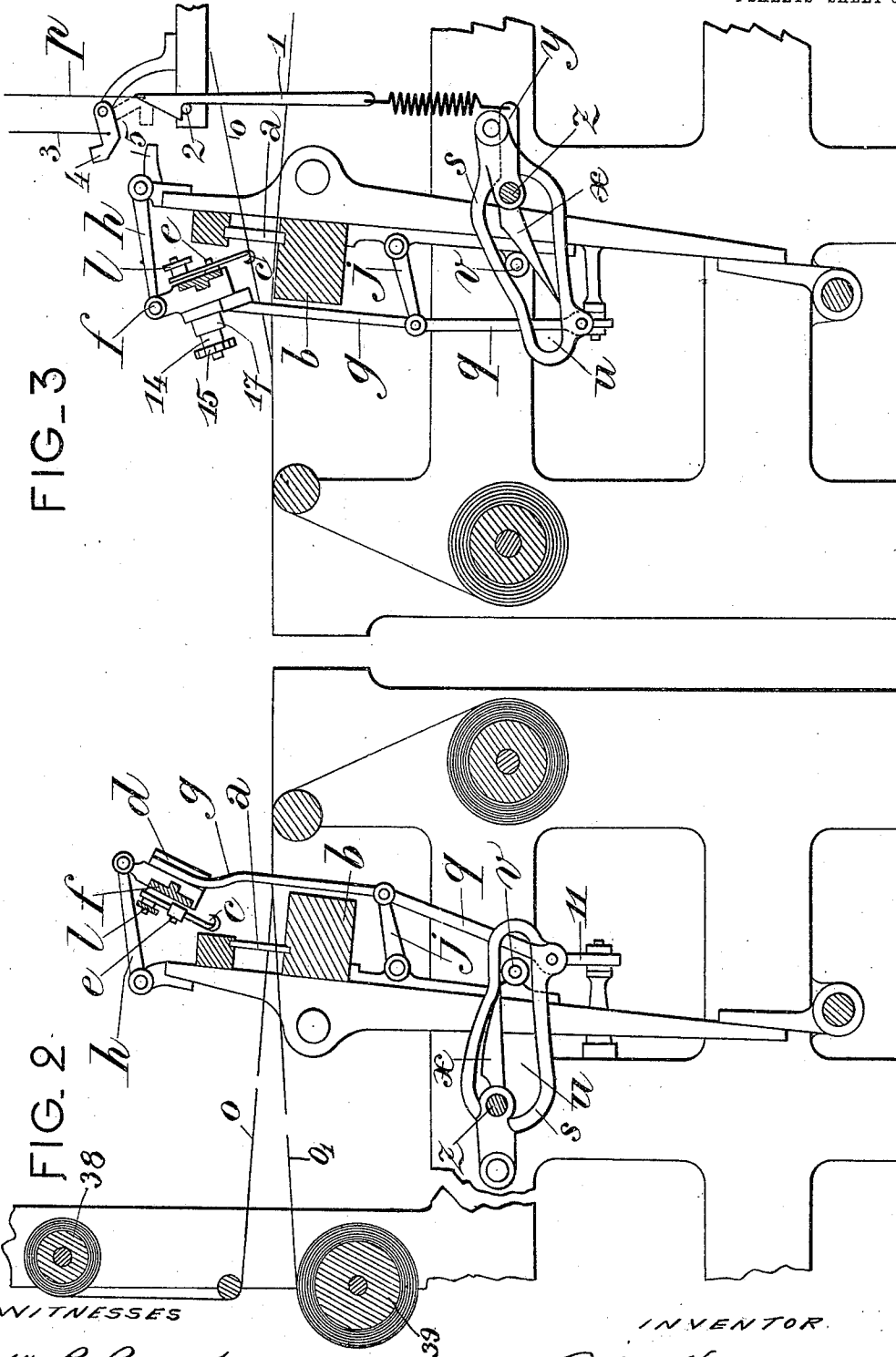
Inventor
Louis Veyron.
Wm. Wallace White, Jr.

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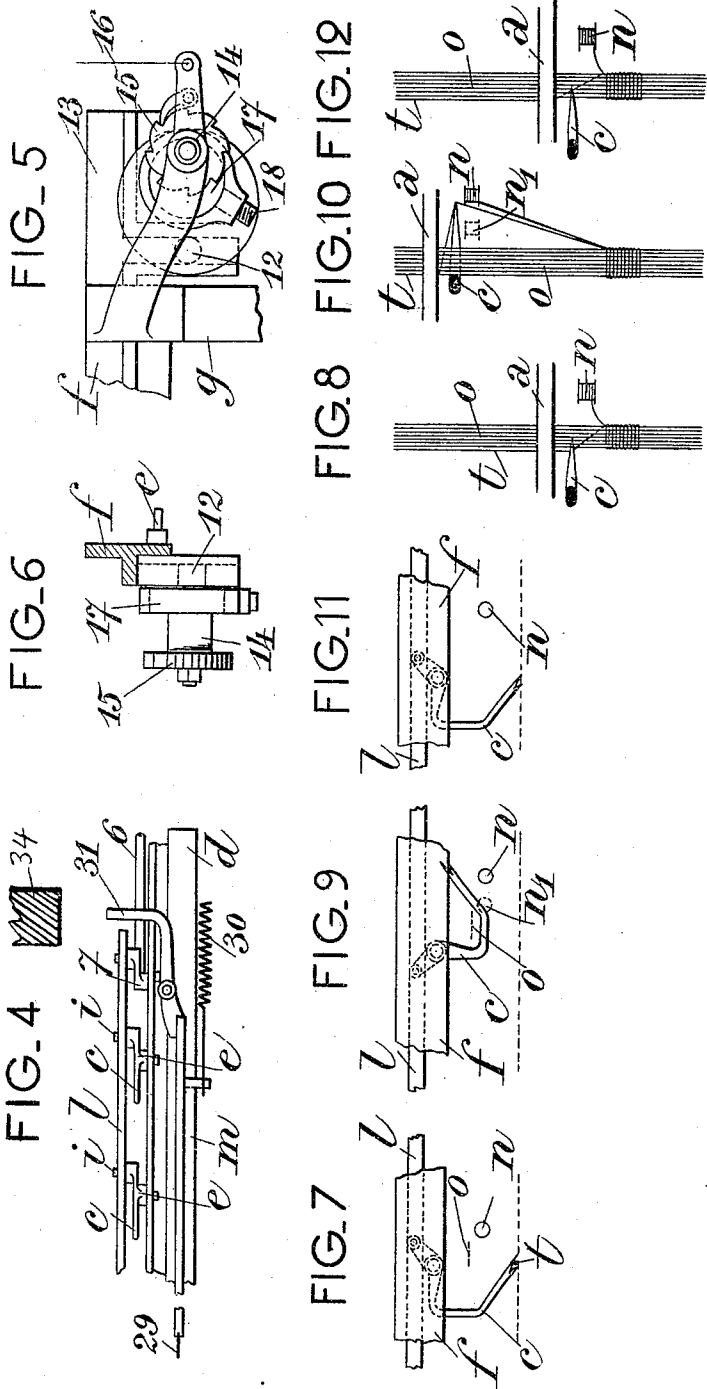
INVENTOR

Louis Veyron.
By *Wm. M. M. M. M.* ATT'Y.

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 4 SHEETS—SHEET 4.



WITNESSES
 W. P. Burr
 Chas. D. Spring

INVENTOR
 Louis Veyron
 BY *[Signature]*
 ATTORNEY

UNITED STATES PATENT OFFICE.

LOUIS VEYRON, OF PARIS, FRANCE.

EMBROIDERY ATTACHMENT FOR WEAVING-LOOMS.

960,741.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed December 30, 1908. Serial No. 469,928.

To all whom it may concern:

Be it known that I, LOUIS VEYRON, a citizen of the French Republic, residing at Paris, in France, have invented certain new and useful Improvements in Embroidery Attachments for Weaving-Looms, of which the following is a specification.

This invention relates to a continuous thread embroidery apparatus adapted to be mounted on a mechanical weaving loom of any system for the purpose of obtaining figured or embroidered patterns in one or more colors.

The apparatus essentially comprises a series of hooks each adapted to conduct a loop of the weft into the shed formed by the jacquard or other shedding mechanism, and a series of small or auxiliary shuttles each adapted to traverse one of said loops for the purpose of depositing or introducing a binding thread before the return movement of the hook. These shuttles are conducted by an embroidery batten of known construction.

The apparatus is constructed to operate automatically at the desired times and is arrested by means of special latches acting in conjunction with the jacquard mechanism and while it is in operation the movement of the main shuttle for the fabric is stopped.

The accompanying drawings show the embroidery attachment applied to an ordinary mechanical loom.

Figure 1 is a front elevation showing the attachment mounted on the loom. Figs. 1^a and 1^b are detail views. Fig. 2 is a side elevation of the same from the left of Fig. 1 with parts in section. Fig. 3 is a similar view to Fig. 2 from the right of Fig. 1. Fig. 4 is a detail plan view of part of the apparatus shown in Fig. 1. Figs. 5 and 6 are a side elevation and sectional detail view respectively, showing the spacing mechanism for the pattern on an enlarged scale. Figs. 7 and 8, 9 and 10, 11 and 12 are elevations and plan views respectively showing the different phases of the embroidery stitch.

The apparatus is mounted on the batten *b* above the reed *a*. Fig. 1 shows only the series of hooks *c*, the shuttles carrying the

binding threads being arranged in front thereof on the embroidery attachment *d* shown more particularly in Fig. 4. The said hooks *c* operate in front of the reed and are each pivoted at *e* to a bar *f* carried by two arms *g* adapted to have vertical movement and carried by levers *h* and *j* pivoted to the batten. The bar *f* is adapted to slide horizontally on the arms *g*. The hooks *c* carry short arms *i* engaging a coupling rod *l* by which they can be simultaneously actuated. The attachment member *d* (Fig. 4) is located in front of the hooks *c* on the bar *f* which it follows in all its movements, and carries as many shuttles as there are hooks said shuttles being actuated in the known manner by a sliding rack *m* as shown more clearly in Fig. 1^b. As shown in this figure, the member *b* is attached to the forward part of the bar *f* which bears the hooks *c*. At the right of each hook the member *d* bears two plungers 35, 36, and a shuttle *n* which passes from one to the other by means of pinions 37 operated by the rack *m* drawn at the time desired by the cord 29 and returned by the spring 30.

By reference to Figs. 7 to 12 the function and operation of these parts will be evident, the mechanical means employed for movement thereof being however hereinafter described. The thread or threads *o* which forms or form the embroidered pattern are carried by reels 38 at the rear of the loom, and each traverses the heddles of the jacquard or other shedding mechanism (not shown) and then the reed *a* at left of the patterns to be embroidered. The hooks *c* are arranged at the left hand side of these patterns while the auxiliary embroidering shuttles *n* are located at the right thereof. The lower thread *o'* is wound on the roll or reel 39. These rolls or reels 38 and 39 may be provided with the well known means of preserving the proper tension. At the moment when the embroiderer is to be operated, the bar *f* is caused to move downward at the commencement of the rear stroke of the batten causing the hook *c* to assume the position shown in Figs. 7 and 8 in which said hook is ready to seize the thread *t* raised by the jacquard and to cause it to pass under the raised warp threads *o*. During the rear

stroke of the batten, the rod *l* is drawn toward the left, thus causing the hook *c* to describe an arc of a circle and carry the thread *t* to a point slightly above the shuttle *n* as shown in Figs. 9 and 10. The shuttle is then caused to move to the position *n*₁ (shown in dotted lines) below the thread *t* and then during the return of the batten to the front, the hook *c* returns to its original position, the entire attachment rises again and the shuttle *n* returns toward the right passing above the thread *t* (Figs. 11 and 12); this thread being now firmly beaten up into the fabric by the stroke of the batten and reed. These operations are repeated as many times as necessary to produce successive embroidery stitches and are automatically arrested when the main shuttles for weaving the fabric are to operate.

When the patterns of an embroidery series have been executed and before the commencement of the following series, the entire attachment is caused to move automatically to the right or left according to the spacing of the pattern.

The aforesaid downward movement of the attachment at the desired time is regulated by a cord, wire or equivalent *p* connected to the shedding mechanism (Fig. 3) but the power is furnished by the movement of the batten. For this purpose the rods *g* which carry the attachment are connected by rods *q* to levers *s* pivoted to the frame. Each lever *s* carries at its front a guide track *u* in which runs a roller *v* carried by the batten. In said guide track oscillates an inclined plane *x* which according to its position will pass above said roller *v* as shown in Fig. 2 or below the same as shown in Fig. 3. In the first case (Fig. 2) the track *u* being formed according to the arc of a circle described by the movement of the roller *v* the lever *s* will remain stationary, but in the second case (Fig. 3), the roller *v* passing onto the inclined plane *x* causes said lever *s* to be lowered and by means of the rods *g* and *q* compels the attachment to descend. Similar mechanism is located at each side of the loom and the two inclined planes *x* being rigidly interconnected by a transverse shaft *z* the movement of the attachment remains parallel. To effect such descending movement of the attachment the cord *p* (Fig. 3) is connected to the lever *y* keyed on the shaft *z*, said lever being integral with the inclined plane *x*. This connection is effected by means of a latch 1 which during the passage of the lower shuttle, which immediately precedes the entry into operation of the member or stitcher *d*, engages a fixed pin 2 where it remains during the entire time that the embroidery attachment is in operation. A second cord 3 connected to the shedding mechanism is attached to a small lever 4 which is

also raised during the same time but falls back in front of the latch 1 thus permitting an abutment 5 carried by the batten to disengage the latch 1 from the pin 2 when said batten arrives at the end of its backward stroke. The latch then descends while lifting the inclined plane *x* and the attachment will remain in its upper position until traction is again exerted on the cord *p*. The latch is caused to descend by its own weight, when the block 4 is about to be interposed between this latch and the abutment 5, which drives back the whole when the batten arrives at the end of the stroke.

While the embroidery attachment is in operation, the hooks *c* are operated by a lever 6 (Fig. 1) pivoted to the batten and connected by an angle lever 7 to the coupling rod *l* of the hooks. The said lever 6 is actuated by a fixed inclined plane with which it contacts at the proper moment. The to and fro movement of the batten thus produces the movement of the hooks while the embroidering attachment is in operation and when the latter moves upward the lever 6 does not engage the aforesaid inclined plane and the hooks remain in their position of rest (Fig. 1).

While the embroiderer is in operation the shuttles *n* must pass alternately from right to left, Figs. 9 and 10, and from left to right, Figs. 11 and 12, for which purpose the rack *m* before referred to (Fig. 4) is drawn to the left by a cord, wire or equivalent 29 and to the right by a spring 30. The cord 29 is connected to the rod *g* at the left hand side of the batten (Fig. 1) in such a manner as to draw said rack toward the left on upward movement of the attachment and a latch 31 holds it in this position so that the attachment will not operate. In this position of the parts the shuttles are at the right as shown in Figs. 7 and 8. When the attachment descends, the latch 31 engages a fixed stop at the back of the batten which causes the rack to be released whereby the same moves back to the right under the action of the spring 30, and causes the shuttles to move to the left below the thread *t* (Figs. 9 and 10). The action of the fabric shuttles is suspended during the operation of the embroiderer attachment by known devices by means of levers 10 and 11 actuated during the descent of said attachment.

The repeat or spacing of the embroidery patterns is produced by means shown in Figs. 1, 5 and 6, comprising a pin 12 on a crank disk engaging a guide groove 13 in the bar *f* which carries the hooks. The axle of said crank disk rotates in a socket 14 carried by the rod *g*. The said axle carries a ratchet 15 with which engages a pawl actuated by a cord 16 in connection with the jacquard mechanism. In order to vary the

travel of the crank pin 12 it is adapted to rotate about an eccentric 17 and be fixed in the desired position by a set screw 18. This travel being once adjusted it is sufficient, until the attachment is again at rest, to cause the cord 16 to be actuated by the jacquard mechanism as many times as necessary to cause the ratchet wheel 15 to make a half revolution, so that the attachment will be displaced either to the right or left for a distance proportionate to the travel of the crank pin. In the example shown the ratchet wheel 15 having eight teeth it will be necessary to actuate it four times running, each time it is required to produce a repeat. In Fig. 5 the crank pin 12 is adjusted for its greatest travel and the bar *f* is moved to its extreme right hand position.

The arrangements above described can be varied as to detail according to the kind of loom to which they are to be applied.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. In a loom the combination with the batten thereof and means for disposing a series of threads longitudinally of the loom of an embroidery attachment, comprising a series of hooks each adapted to receive and conduct a loop of such thread into the warp, a series of shuttles each adapted to traverse one of said loops and deposit a binding thread therefor, and means for operating said hooks and shuttles during the rearward movement of the batten.

2. In a loom the combination with the batten thereof and means for disposing a series of threads longitudinally of the loom of an embroidery attachment comprising a series of pivotal hooks, means whereby said hooks are each caused to rotate and simultaneously engage one of said threads and conduct a loop thereof into the shedded warp, a series of shuttles corresponding in number to the hooks and each adapted to traverse one of said loops and deposit a binding thread therefor and means for bringing the attachment into the plane of operation and for effecting the aforesaid operations of the hooks and shuttles during the rearward movement of the batten.

3. In a loom the combination with the batten thereof and means for disposing a series of threads longitudinally of the loom of an embroidery attachment comprising a series of hooks each adapted to receive and conduct a loop of such thread into the warp, a series of shuttles each adapted to traverse one of said loops and deposit a binding thread therefor, means for operating said hooks and shuttles during the rearward movement of the batten and means controlled by the shedding mechanism of the loom for automatically determining the time

at which said attachment shall be brought into operation and for arresting such operation.

4. In a loom the combination with the batten thereof and means for disposing a series of threads longitudinally of the loom of an embroidery attachment, comprising a series of hooks each adapted to receive and conduct a loop of such thread into the warp, a series of shuttles each adapted to traverse one of said loops and deposit a binding thread therefor, means for operating said hooks and shuttles during the rearward movement of the batten and means whereby the movement of the main loom shuttle is arrested during the operation of the embroidery attachment.

5. In a loom the combination with the batten thereof and means for disposing a series of threads longitudinally of the loom of an embroidery attachment, comprising a series of hooks each adapted to receive and conduct a loop of such thread into the warp, a series of shuttles each adapted to traverse one of said loops and deposit a binding thread therefor, means for operating said hooks and shuttles during the rearward movement of the batten and means for producing lateral movement of the attachment to determine the transverse spacing of the embroidery patterns.

6. In a loom the combination with the batten thereof and means for disposing a series of threads longitudinally of the loom of an embroidery attachment, comprising a series of hooks each adapted to receive and conduct a loop of such thread into the warp, a series of shuttles each adapted to traverse one of said loops and deposit a binding thread therefor, means for operating said hooks and shuttles during the rearward movement of the batten and means for producing lateral movement of the attachment to determine the transverse spacing of the embroidery patterns comprising a slide carrying the aforesaid hooks, a crank pin engaging said slide, pawl and ratchet mechanism operated by the shedding mechanism of the loom for driving said crank pin, and means for varying the throw of the latter.

7. In a loom the combination with the batten thereof and means for disposing a series of threads longitudinally of the loom, of an embroidery attachment comprising a series of hooks each adapted to receive and conduct such thread into the warp, a series of shuttles each adapted to traverse one of said loops and deposit a thread for binding the loops to the warp, means for operating said hooks and shuttles during the rearward movement of the batten, means controlled by the shedding mechanism of the loom for automatically controlling the time at which the hook and shuttle operating means shall

be brought into operation, and for arresting
such operation, means whereby the move-
ment of the main fabric shuttle is arrested
during the operation of said hooks and first
5 mentioned shuttles and means for producing
lateral movement of the attachment to de-
termine the transverse spacing of the em-
broidery patterns.

In witness whereof I have signed this
specification in the presence of two wit- 10
nesses.

LOUIS VEYRON.

Witnesses:

ADOLPHE CHENAULT,
H. C. COXE.