

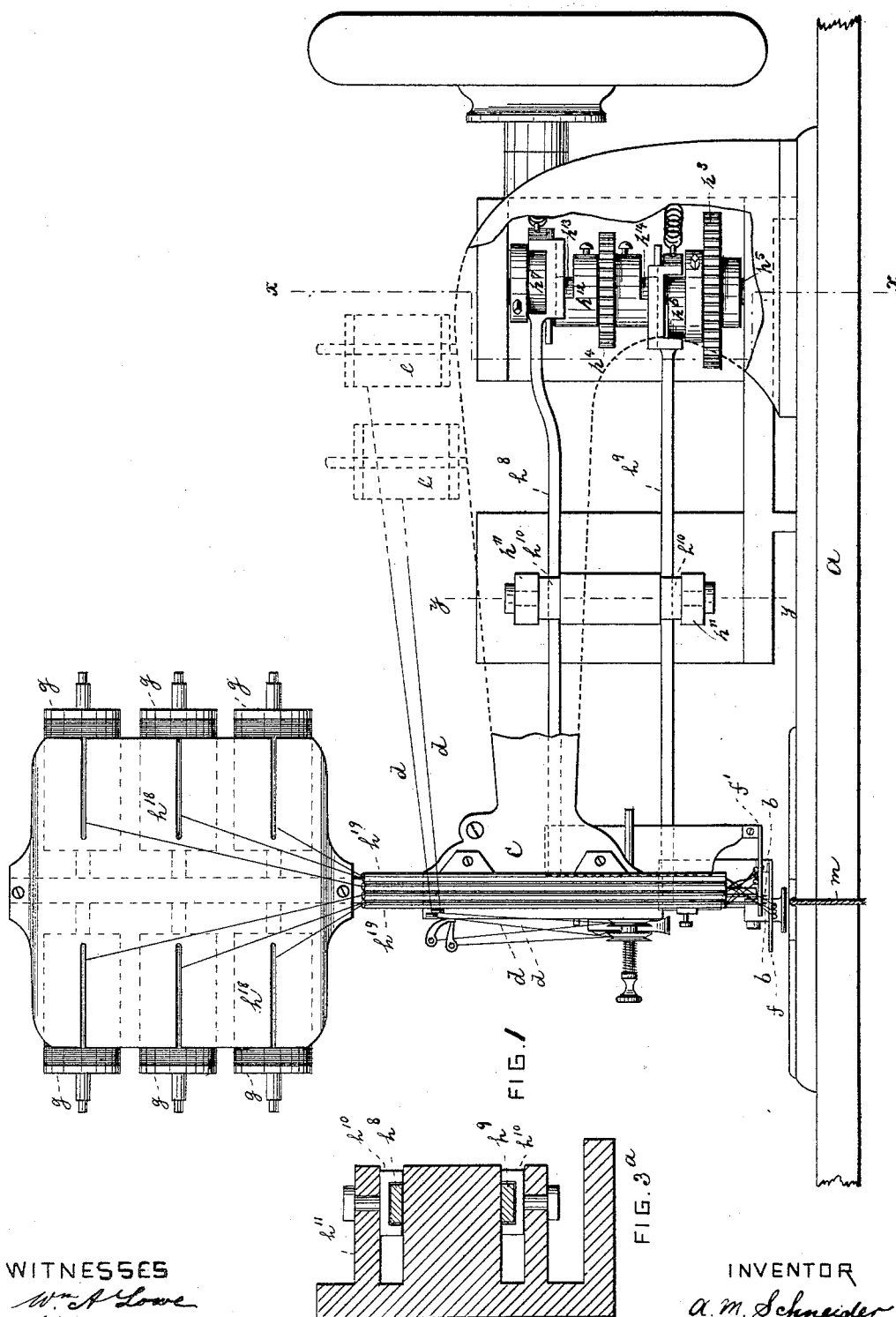
(No Model.)

4 Sheets—Sheet 1.

A. M. SCHNEIDER.
EMBROIDERING MACHINE.

No. 419,221.

Patented Jan. 14, 1890.



WITNESSES

Wm A Lowe
A. Jonghman.

INVENTOR

A. M. Schneider
per Roeder & Briesen
his attorneys

(No Model.)

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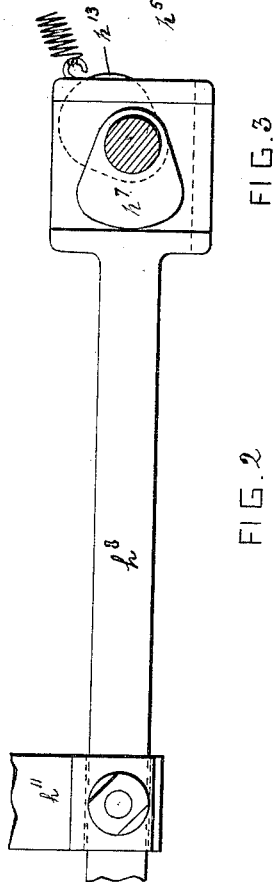


FIG. 3

FIG. 2

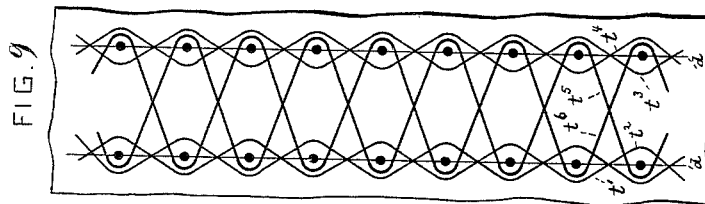
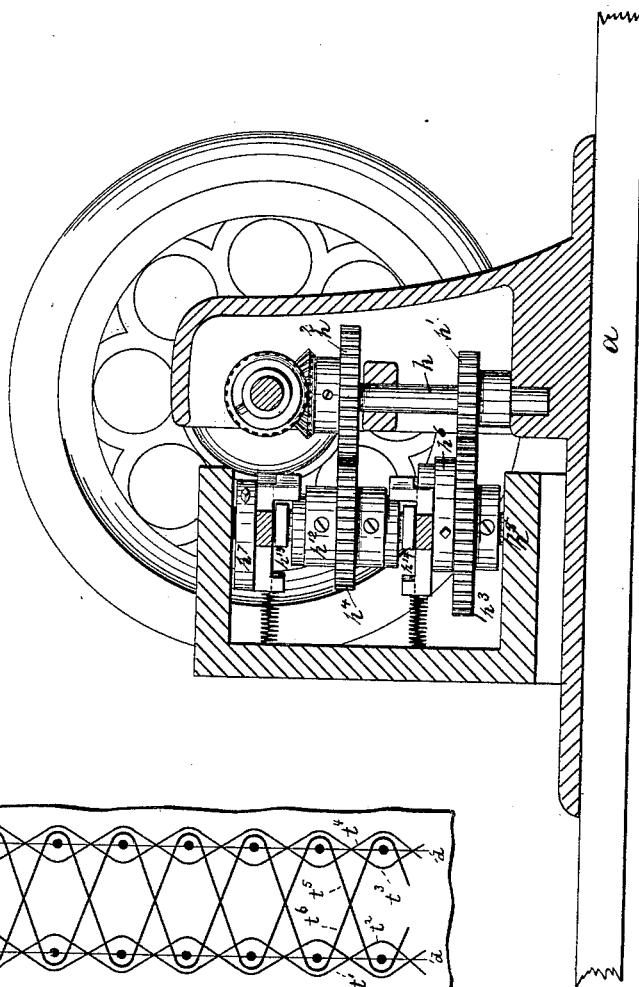


FIG. 9

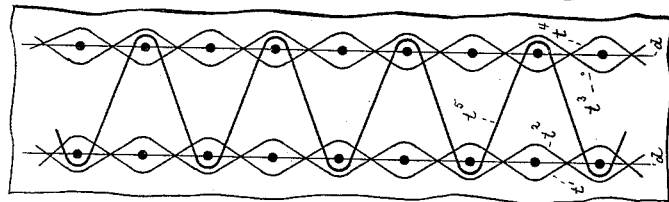


FIG. 8

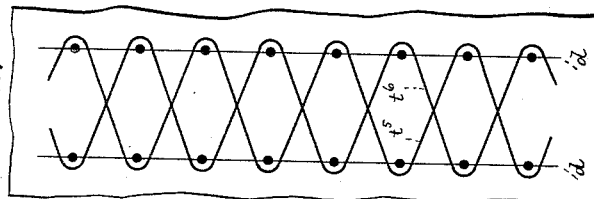


FIG. 7

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FIG. 4

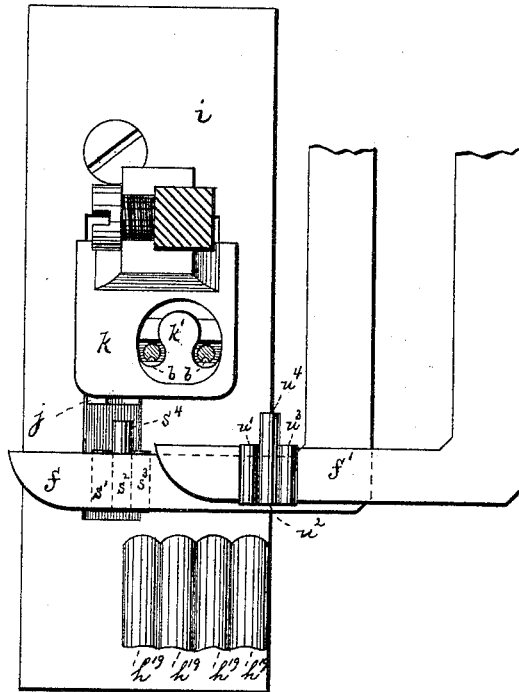


FIG. 5

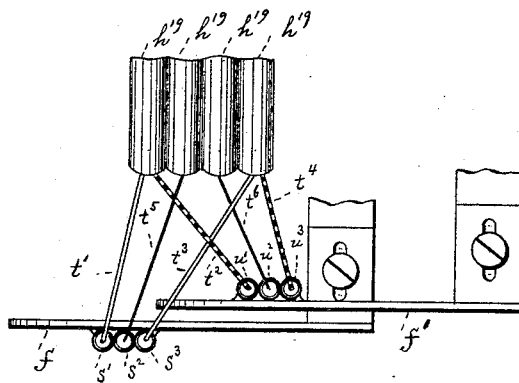
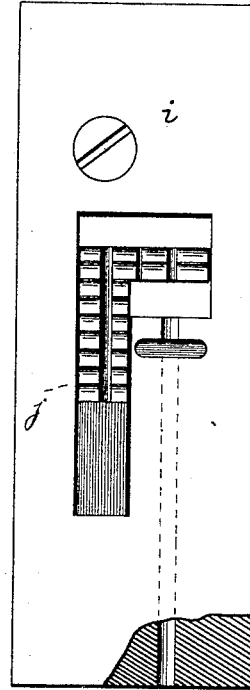


FIG. 6

WITNESSES

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FIG. 11

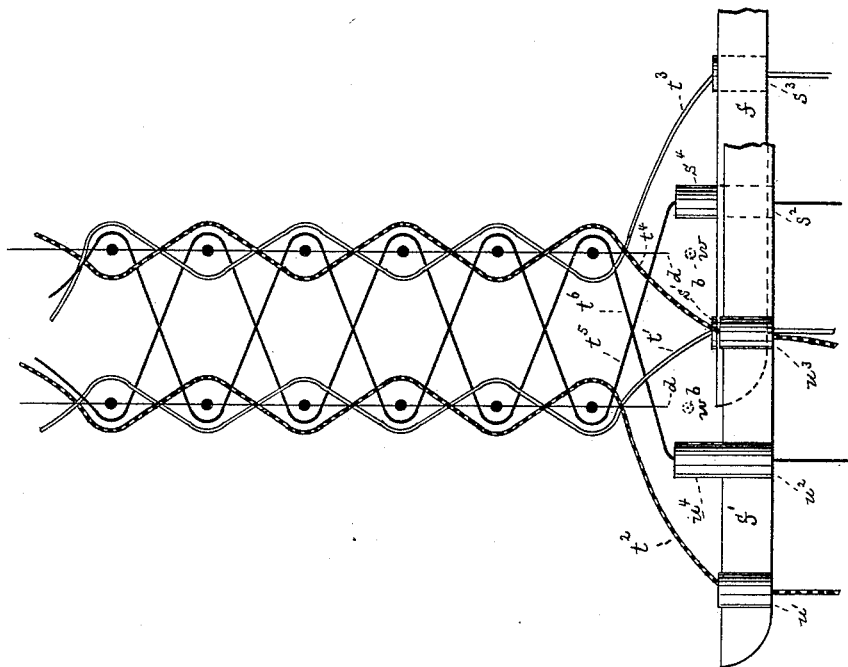
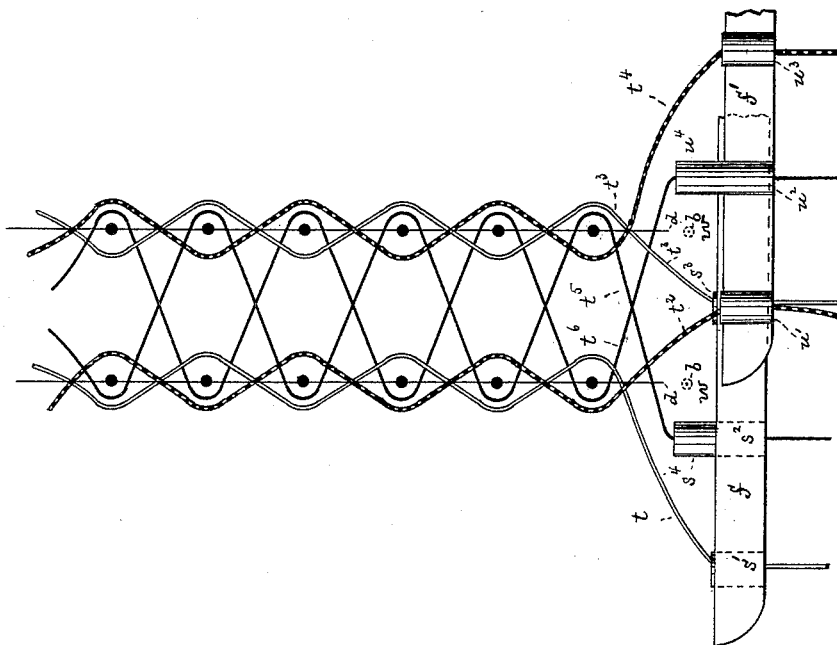


FIG. 10



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UNITED STATES PATENT OFFICE.

ALEXANDER M. SCHNEIDER, OF NEW YORK, N. Y.

EMBROIDERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 419,221, dated January 14, 1890.

Application filed June 24, 1889, Serial No. 315,316. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER M. SCHNEIDER, of New York city, New York, have invented an Improved Sewing-Machine, of which the following is a specification.

This invention relates to a sewing-machine for forming braid-like ornaments or borders upon fabrics.

The machine is provided with two needles, and in front of the needles a pair of oscillating thread-carriers, reciprocating horizontally, feed the chain-threads to the needles, so as to form loops upon the face of the fabric. These loops are sewed down by the needle-threads.

The invention consists in the various features of improvement more fully pointed out in the claim.

In the accompanying drawings, Figure 1 is a side elevation of my sewing-machine above the work-table. Fig. 2 is a vertical cross-section on the line xx , Fig. 1; Fig. 3, a top view of rod or lever h^8 . Fig. 3^a is a cross-section on line yy , Fig. 1. Fig. 4 is a detail top view of the thread-carriers; Fig. 5, a top view of the feed-plate; Fig. 6, an end view of the thread-carriers. Figs. 7, 8, and 9 are enlarged views of three different kinds of work produced by the machine. Figs. 10 and 11 are diagrams showing the thread-carriers in their two extreme positions and the position of the various threads.

The letter a represents the work-table of a sewing-machine of any suitable construction, and provided with two needles $b\ b$ in its head c , that operate in conjunction with a shuttle or hook-thread, as usual. The needles $b\ b$ receive their threads $d\ d$ from spools $e\ e$. In front of the two needles $b\ b$ there are placed a pair of thread-carriers $f\ f'$, secured to a pair of reciprocating and oscillating levers, operating in manner hereinafter described. The object of these thread-carriers is to cross the threads that are to be secured upon the face of the fabric, and which I term the "chain-threads," and to present them to the needles. The spools g of these chain-threads (preferably six in number) pass their threads through a slotted shield h^{18} , which has for its object to keep the threads properly separated. Thence the threads enter a number of guide-

carriers $f\ f'$. Normally the machine sews with six chain-threads, and in order to more clearly understand the invention inspection of Fig. 9 is invited, which shows the normal work. Here it will be seen that two chain-threads t' and t^2 interloop around one needle-thread, while a similar pair of chain-threads t^3 and t^4 interloop around the second needle-thread. Finally, two chain-threads t^5 and t^6 form central crosses and are engaged by both needle-threads.

Now, referring back to the machine, each carrier $f\ f'$ has preferably three perforations or thread-guides from the front toward the rear—viz., toward the needles. The guides of carrier f are marked $s'\ s^2\ s^3$ and those of carrier f' are marked $u'\ u^2\ u^3$. The two end perforations of each carrier—viz., the perforations s' and s^3 and the perforations u' and u^3 —are of the same length; but the central perforations s^2 and u^2 terminate in rearwardly-projecting tubes s^4 and u^4 , and thus feed their threads to the needles at a different plane than the end perforations. In other words, each thread-carrier is provided with two kinds of thread-guides, one kind ($s'\ s^2\ u'\ u^2$) being shorter than the other kind ($s^2\ s^4\ u^2\ u^4$) or extending less far to the rear. This feature of the construction is of importance, as it so separates or spreads the several threads around the needles that a proper space w is created for the needles to descend.

The threads $t'\ t^2\ t^3\ t^4\ t^5\ t^6$, after leaving the guide-tubes h^{19} , are passed through the guides of the thread-carriers $f\ f'$ in the following way, Fig. 10: Thread t' enters perforation s' of guide f . Thread t^2 enters perforation u' of guide f' . Thread t^3 enters perforation s^3 of guide f . Thread t^4 enters perforation u^3 of guide f' . Thread t^5 enters perforation s^2 of guide f . Thread t^6 enters perforation u^2 of guide f' . The motion to be imparted to the thread-carriers $f\ f'$ is such that they should reciprocate horizontally in front of both the needles simultaneously in opposite directions, and that they should at the same time move away from and toward the needles. This latter motion is necessary, as in their two extreme positions, Figs. 10 and 11, the tubes $s^4\ u^4$ project behind the needles, and therefore, if the thread-carriers would simply reciprocate, the tubes would interfere with

the needles. Therefore, starting with Fig. 10, which shows one extreme position, the thread-carriers are thrown forward, (toward the operator,) as shown in Fig. 4, to clear the needles before they occupy their other extreme position, illustrated in Fig. 11.

The vibrating and reciprocating motion may be imparted to the thread-carriers by any cam mechanism. That which I have shown, more particularly in Figs. 1, 2, 3, and 3^a, consists of the following arrangement: Upon the spindle *h*, driven from the work-shaft, are keyed the two cogs *h'* and *h''*, intergearing, respectively, with cogs *h³* and *h⁴*. The cog *h³* is mounted upon an arbor *h⁵*, which is thus revolved. The arbor *h⁵* is provided with a pair of cams *h⁶* *h⁷*, projecting in opposite directions and engaging levers *h⁸* and *h⁹*. These levers pass through the straps *h¹⁰*, Fig. 3^a, swiveled to their supporting-frame *h¹¹*. Thus the levers are reciprocated. To the free ends of levers *h⁸* *h⁹* the thread-carriers *f f'* are secured.

The vibrating motion is imparted to the levers *h⁸* *h⁹* by the cog-wheel *h⁴*, as follows: The cog-wheel *h⁴* is fast upon a sleeve *h¹²*, surrounding arbor *h⁵*. To this sleeve are secured the cams *h¹³* *h¹⁴*. These cams project in the same direction, and by engaging levers *h⁸* *h⁹* vibrate these levers simultaneously. The size of the cogs is such that each lever is reciprocated once for each complete motion of the needle, while it is vibrated once for each two motions of the needle.

With reference to Figs. 4 and 5 the lever *i* represents the work-plate, *j* the feed-dog, and *k* the presser-foot. A peculiarity of this presser-foot is that it is perforated, so that the needles *b b* pass through it, and that between the needles the presser-foot is provided with a flat lip *k'*, to hold down the work at the center.

The operation of the machine will be readily understood.

The threads being passed through the thread-guides, as already described, and the cloth being properly introduced beneath the presser-foot, the machine is set in motion. The two most right-hand threads of the thread-carriers—viz., the threads passing through the guides *s³* *u³*—will cross and recross around one needle, while the two most left-hand threads will cross and recross around the other needle. The central threads will be carried across both needles. Fig. 10 shows the position of the parts at one descent of the needles. After the formation of the stitch the carriers *f f'*, by the vibration of their levers, are brought forward to clear the needles, as in Fig. 4. At the same time the carriers cross in front of the needles, and are then again thrown backward to again bring

their tubes back of the needles, as in Fig. 11.

The ornamental borders produced by this machine may be varied by simply taking away some of the threads. Thus in Fig. 7 all the four end threads have been taken out of the machine, and the braid-like ornament is simply formed by the two central threads *t⁵* *t⁶*.

In Fig. 8 the four end threads *t' t² t³ t⁴* are retained, while but one central thread *t⁵* is used, the other one being omitted.

If desired, a cord *m* may be fed under the work-plate, which is secured to the under side of the fabric to strengthen the same.

What I claim is—

1. The combination of a sewing-machine having a pair of needles with a pair of thread-carriers in front of the needles, and with means for reciprocating the thread-carriers simultaneously in opposite directions in front of the needles and backward and forward at the sides of the needles, substantially as specified.

2. The combination of a sewing-machine having a pair of needles with a pair of perforated thread-carriers having rearward extensions *s⁴* *u⁴*, adapted to deliver the thread behind the needles, and with means for reciprocating the thread-carriers simultaneously in opposite directions in front of the needles and backward and forward at the sides of the needles, substantially as specified.

3. The combination of a sewing-machine having a pair of needles with a pair of thread-carriers, each thread-carrier being provided with thread-guides of unequal length, and with means for reciprocating the thread-carriers laterally in front of the needles and backward and forward at the sides of the needles, substantially as specified.

4. The combination of a sewing-machine having a pair of needles with a pair of vibrating and reciprocating levers, and with a pair of thread-carriers secured thereto, each thread-carrier being provided with thread-guides of unequal length, substantially as specified.

5. The combination of a sewing-machine having a pair of needles with a pair of vibrating and reciprocating levers, a pair of thread-guides secured thereto, a thread-dividing slotted shield, and a series of thread-carrying tubes, substantially as specified.

6. The combination of a sewing-machine having a pair of needles with a pair of vibrating and reciprocating levers, a pair of thread-guides secured thereto, and with a perforated presser-foot having a lip between the needles, substantially as specified.

ALEXANDER M. SCHNEIDER.

Witnesses:

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WM. WAGNER.