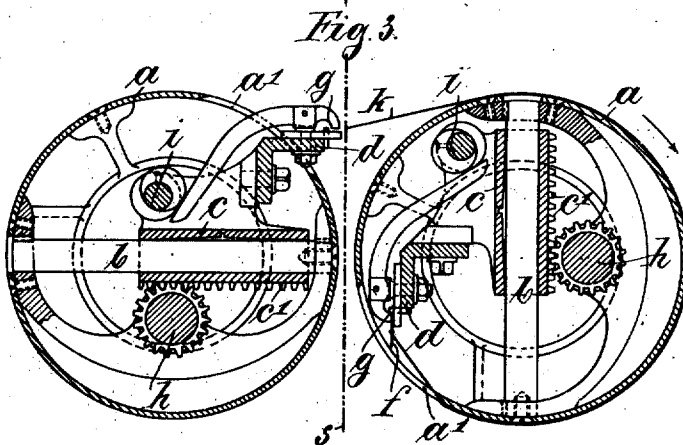
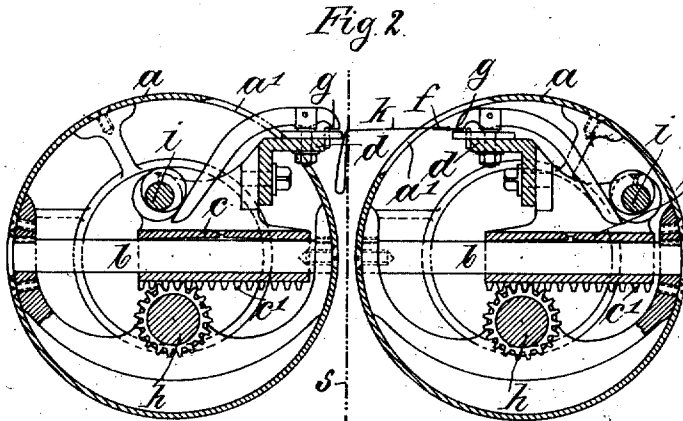
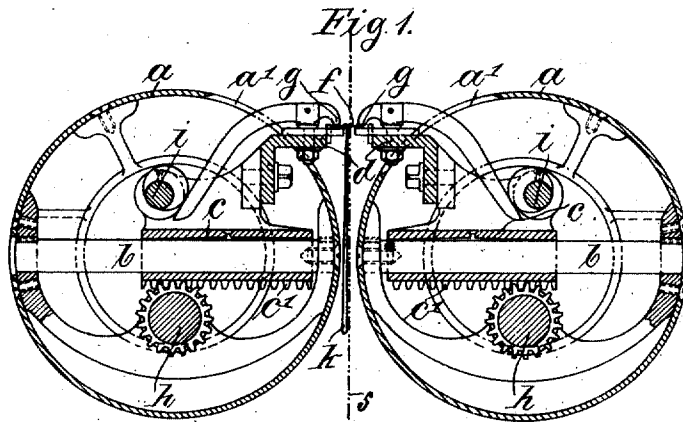


J. J. KNECHT.
 EMBROIDERING MACHINE.
 APPLICATION FILED JAN. 28, 1909.

1,000,180.

Patented Aug. 8, 1911



Witnesses:
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UNITED STATES PATENT OFFICE.

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EMBROIDERING-MACHINE.

1,000,180.

Specification of Letters Patent.

Patented Aug. 8, 1911.

Application filed January 28, 1909. Serial No. 474,798.

To all whom it may concern:

Be it known that I, JOHANN JAKOB KNECHT, a citizen of the Confederation of Switzerland, and resident of 10 Uhnenstrasse, Chemnitz, in the Kingdom of Saxony, German Empire, have invented certain new and useful Improvements in Embroidering-Machines, of which the following is a specification.

10. This invention relates to machines for embroidering cloth and the like, in which a suitable length of thread is embroidered in the cloth.

The object of the present invention is to avoid the employment of the usual carriage for the thread grippers by means of which the threads were drawn through the cloth.

15 According to the present invention the considerable travel of the long and heavy carriage is avoided and a direct and uniform tension of the needle thread is secured. This result is obtained by first transmitting to the thread gripper a short motion at right angles to the cloth or the like to be embroidered and then rotating the said gripper about an axis at right angles to the thread and parallel to the cloth.

It is advisable to support the gripper on a suitable carriage reciprocating within a rotatable hollow member provided with an opening through which the gripper is adapted to move. With this arrangement the gripper first seizes the thread and then draws the same within the hollow rotatable member. This member then rotates so that the thread is wound around the exterior of the said hollow member. At the end of the rotation of the hollow member the thread is completely drawn through the material and the hollow member then rotates backward to its original position. In this position the gripper moves outward toward the cloth and passes the thread again through the cloth. The thread so passed through the cloth, is taken up by a similar device arranged on the other side of the cloth and the process described above is repeated.

The invention is illustrated in the accompanying drawings, in which:-

50. Figures 1 to 3 represent cross sections through the needle moving device according to the present invention, Fig. 1 representing the first stage in the operation, in which the needle is seized by the gripper on the right hand; Fig. 2 representing the second stage

in which the gripper has been withdrawn within the rotatable member; Fig. 3 representing the third stage in which the thread has been drawn through the material after a partial revolution of the rotatable member.

60. In carrying the invention into effect according to the form shown in the drawings two hollow cylindrical members or drums *a* are rotatably mounted on each side of the cloth indicated by *s s*. Diametrically within said drums there are supported guides *b*, on which carriers *c* are slidably mounted. The carriers *c* are provided with teeth *c'* adapted to engage with a pinion *h*. The carriers *c* support brackets *d* on which the gripping arms *g* are mounted, and also the needles *f*. An eccentric *i* also mounted in bearings on the carrier is arranged to operate on the tail end of the gripping arm *g*. The grippers are arranged to normally project through openings *a'* in the drum *a*, but so as to be capable of being drawn within the hollow member as shown in Fig. 2.

80. The embroidery thread to be drawn through the cloth *s* is indicated by the line *k* in Fig. 1 as hanging loosely in a loop on the lefthand side of the cloth. The righthand gripper *g* then seizes the needle *f* projecting through the cloth and by means of the pinion *h* the carriage *c* is moved into the position shown in Fig. 2. In this position the gripper *g* has carried the needle *f* and thread *k* within the hollow member *a*. The hollow member *a* now rotates in the direction of the arrow *x* in Fig. 3, whereby the needle *f* is carried around with the gripper *g* and the thread *k* is caused to lie around the cylindrical surface of the hollow member *a*. In this way an even tension on the thread *k* is secured. When the limit of the motion has been reached, the hollow member *a* again returns in the direction opposite to the arrow *x* to the initial position shown in Fig. 2. The pinion *h* then rotates so that the carrier *c* is moved into the position shown in Fig. 1 in which the needle *f* is passed through the cloth *s* to be gripped by the opposite carrier and gripper *g* on the lefthand side of the cloth. The mechanism on the lefthand side of the cloth then operates in the manner described with reference to the righthand mechanism. With this device it will be seen that the draw on the thread is always uniform.

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I claim:-

1. In a machine for embroidering cloth and the like, the combination with a needle, of a needle gripper, means for moving said gripper at substantially right angles to the cloth so as to draw said needle through the cloth, and means for rotating said gripper about a fixed axis at right angles to the movement of said needle.
2. In a machine for embroidering cloth and the like, the combination with a needle, of a needle gripper capable of reciprocation at substantially right angles to the cloth so as to draw said needle through the cloth, a guide for said gripper and means for rotating said gripper about a fixed axis at right angles to the movement of said needle.
3. In a machine for embroidering cloth and the like, the combination with a needle, of a needle gripper arranged on either side of the cloth each capable of reciprocation at substantially right angles to the cloth, means for moving the needle gripper, so as to draw said needle through the cloth, guides for each of said grippers, and means for rotating said guides about a fixed axis at right angles to the movements of said needle.
4. In a machine for embroidering cloth and the like, the combination with a threaded needle, of a needle gripper, means for moving said gripper at substantially right angles to the cloth so as to draw said needle through the cloth, means for rotating said gripper about a fixed axis at right angles to the movement of said needle, and means rotating about said axis for drawing said thread.
5. In a machine for embroidering cloth and the like, a hollow member capable of oscillatory rotation and having an opening therein, a needle gripper slidably mounted within said hollow member, and means for

moving said gripper through said opening substantially at right angles to the cloth.

6. In a machine for embroidering cloth and the like, a hollow drum capable of oscillatory rotation and having an opening therein, a needle gripper, a carrier for said gripper slidably mounted within said hollow drum, and means for moving said carrier substantially at right angles to the cloth so as to move said gripper through said opening.

7. In a machine for embroidering cloth and the like, a hollow drum capable of oscillatory rotation and having an opening therein, a needle gripper, a guide diametrically arranged within said hollow drum, a carrier slidable on said guide, means for moving said carrier on said guide, and a needle gripper mounted on said carrier and adapted, on the motion of said carrier, to pass through the opening.

8. In a machine for embroidering cloth and the like, the combination with a needle, of a needle gripper adapted to revolve about a fixed axis arranged at substantially right angles to the direction of movement of said needle, and means for opening and closing said grippers.

9. In a machine for embroidering cloth and the like, the combination with a threaded needle, of a gripper adapted to revolve about a fixed axis arranged at substantially right angles to the direction of movement of said needle, means for opening and closing said grippers and means rotating about said axis for supporting said thread.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOHANN JAKOB KNECHT.

Witnesses:

WILLIAM J. KORYETSUY,
FREDERICK J. DIETZMAN.