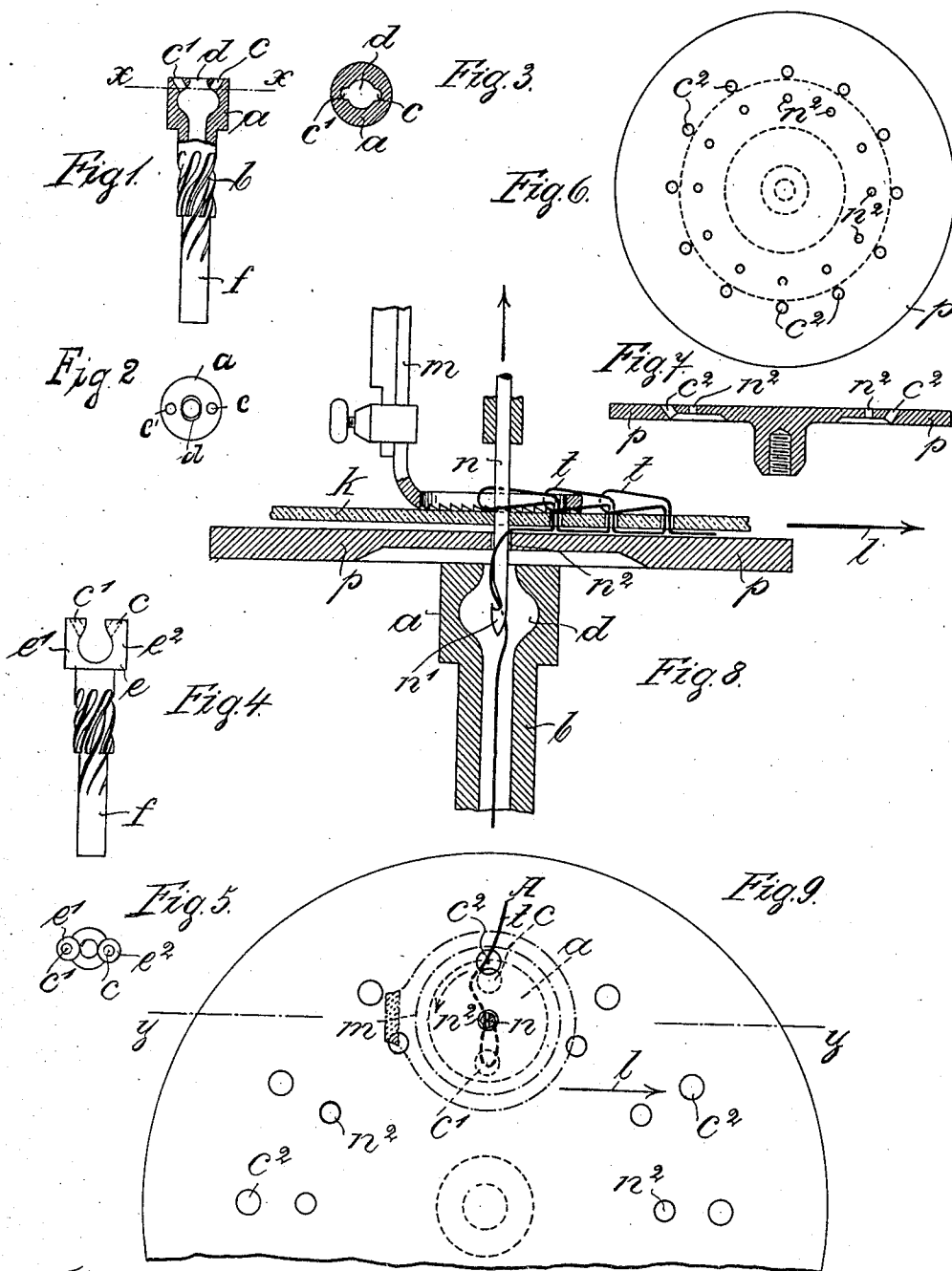


No. 872,152.

PATENTED NOV. 26, 1907.

J. SCHROEDER.
EMBROIDERING MACHINE.
APPLICATION FILED NOV. 26, 1906.

2 SHEETS—SHEET 1.



Witnesses:
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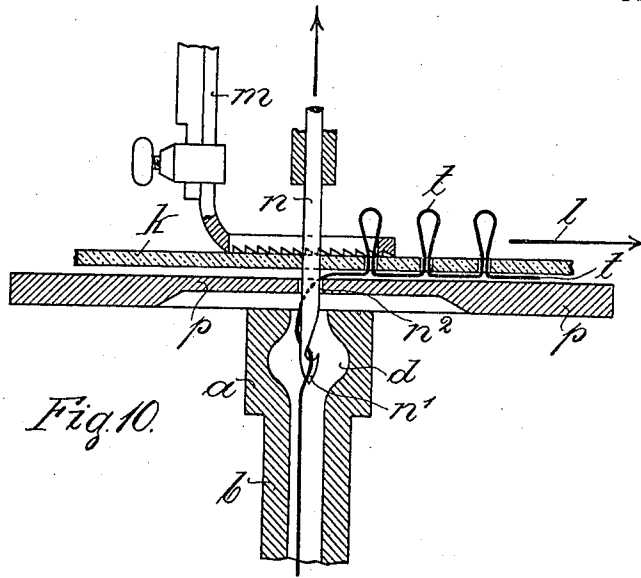


Fig. 10.

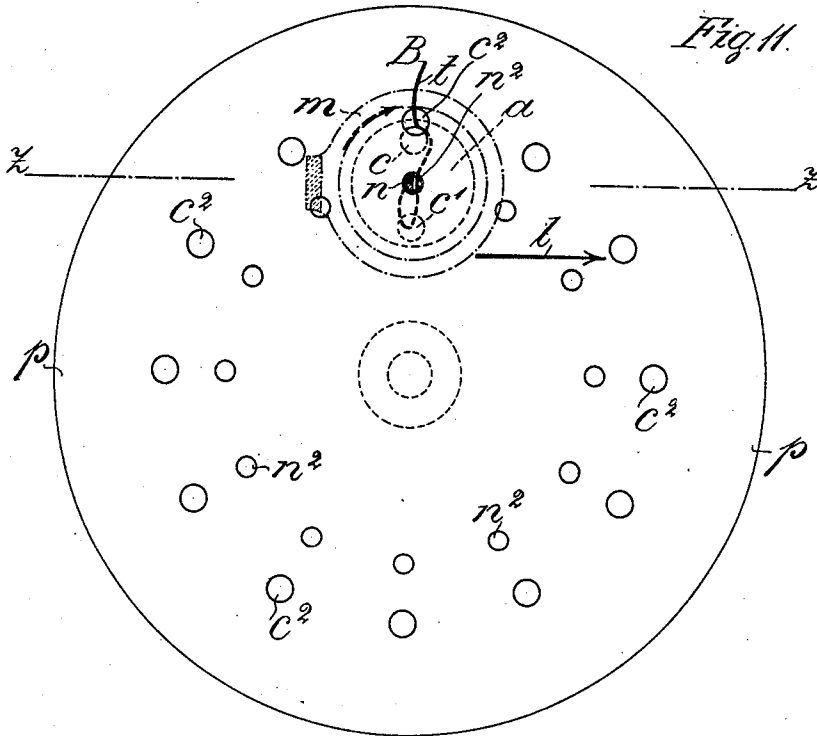


Fig. 11.

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UNITED STATES PATENT OFFICE.

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EMBROIDERING-MACHINE.

No. 872,152.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed November 26, 1906. Serial No. 345,171.

To all whom it may concern:

Be it known that I, JOHANN SCHROEDER, a subject of the King of Prussia, German Emperor, and resident of 35^a Schwedterstrasse, Berlin, Kingdom of Prussia, German Empire, have invented an Improvement in Embroidering-Machines, of which the following is an exact description.

Embroidering machines operated from a crank handle for producing chain-stitches are provided with a thread-feeding tool, which delivers the thread to a hooked needle or properly speaking brings the thread in the path of the needle-hook. These feeders as hitherto known possessed an open hook swinging to and fro around its axis, thereby bringing the thread in the proper position to engage the needle. Now it happened quite often, that the thread would fall out of these hooks, which meant a stopping of the machine each time in order to replace the thread.

To avoid such delays and make a continuous working of the machine possible is one of the objects of this invention. Another one is to enable the operator to change from one stitch-form to another one without much loss of time and without employing a complicated reversing device. The stitch-forms that principally come in consideration are so called "chain-stitches" and "moss"-stitches. In the former ones each loop after being pulled through the cloth by the needle is linked or chained to the preceding loop, whereas in the latter form the loop after being pulled through is left projecting above the cloth, thus giving the embroidery surface a moss like appearance, hence its name. Whenever a change of work from chain- to moss-stitching took place much time was lost in resetting and reversing the machines equipped with thread-feeders of the older type. This is obviated if a thread-feeder as described herein is used in combination with the improved stitch-plate, which also forms a part of my invention. For I found that if I employ a thread-feeder as described, I can simplify the usual form of stitch-plates by doing away with the slots extending from the outer circles of holes—hereafter called the thread-catch-holes—to the edge of the stitch-plate. These slots were a necessity in the older forms of stitch-plates where they were used in combination with a thread-feeder provided with the hook attachment, for the

thread, after being pulled through the feeder body had to be carried sidewise in order to be conducted into the hook of the feeder. My proposed feeder requires but a simple pulling up of the thread by means of one of those well known thread-hooks which is conducted through one of the catch-holes in the stitch-plate, the latter hole being in line with one of the side-holes of the feeder.

The absence of slots in my stitchplate does not limit me to the size of the stitchplate, consequently I can give it any diameter wanted, which is of quite an advantage in practice inasmuch as the rather large feed-bars used now-a-days for advancing the cloth will always remain within the space occupied by the properly dimensioned stitching plate, thus operating upon a perfect level and even plane and never go beyond this space, as has been the case in former construction.

The improved and simplified construction of the thread feeder as well as the stitchplate are especially well adapted for producing moss stitches in embroidery work.

In order to make my invention better understood I illustrate same by several figures, of which

Figure 1 represents a partial section and a side-view of the feeder, Fig. 2 a top view of the face of the feeder, Fig. 3 a section through feeder-head on line *x—x* on Fig. 1, Fig. 4 a side-view and Fig. 5 a top-view of a different form of the feeder head. Fig. 6 is a top view of the new form of the stitching plate and Fig. 7 is a sectional side-view through the center of the stitching plate. Fig. 8 illustrates in a sectional view the position of needle, feed-bar and stitch-plate for making "chain"-stitches, the needle being in an upward motion and the cloth advancing in the direction of the arrow. The section is taken on line *y—y* of Fig. 9. Fig. 9 shows a top view of the arrangement represented by Fig. 8 in a position just ready to begin making chain-stitches, the feed-bar being shown in dotted lines. The thread *t* has been pulled through side-hole *c* of feeder and the latter has been turned 180° in the direction of the arrow shown. Fig. 10 shows a sectional view of the same arrangement as represented by Fig. 8, but for the production of moss stitches section is taken on line *z—z* of Fig. 11. Fig. 11 represents a top-view of the arrangement shown in Fig. 10 in a position just ready to

begin making moss stitches, the feed-bar being shown in dotted lines. The thread has been pulled through hole c^1 of the feeder and the latter has been turned 180° in the direction of the arrow shown.

Figs. 1, 2, and 3 represent a feeder f constructed in form of a plain rotating cylindrical body, where the middle part of the shank is provided with a helix. The surfaces of the head are perfectly smooth, the upper part of same, the face, shows two small side-holes c , and c' , which terminate in the center-hole d . Through one of these small side-holes the thread is pulled and as will be readily observed a falling out of same is rendered impossible.

If chain-stitches are to be produced the manipulations are as follows: One of the side holes, say c for instance is placed beneath one of the outer holes c^2 of the stitch plate p . These latter thread-catch-holes are drilled thus that the center line of each one forms one straight line with the center-line of the holes c or c' of the feeder below. Now a common thread hook is pushed through both holes c^2 and c in order to catch and pull up the thread coming up through the hollow center d of the feeder. Hereupon the thread end is caught and held and the feeder is turned 180° , so that the thread is pulled across the opening d of the feeder and thereby pulled into the path of the needle n . This very condition is illustrated by Fig. 9, where the feeder f is just turned 180° and the thread t having been pulled through hole c is held at A. Now the chain stitching commences and is produced in a form as illustrated by Fig. 8. The cloth k is advanced in the direction of the arrow l by means of the feed-bar m . In producing chain-stitches the hooked end n' of the needle n must point in the opposite direction of the advancing cloth in order to interlock each thread loop pulled through the cloth k with the preceding one. The needle n works and pulls the thread through holes n^2 on the second inner row of the stitch plate, called the stitch-holes. If moss stitches are to be produced, there is no further manipulation necessary but to reverse the direction of the needle hook n' by turning it 180° (see Figs. 10 and 11), so that the needle hook n' points in the direction of the advancing cloth and hereupon the thread is to be exchanged from side-hole c to side-hole c' . Then again the feeder f is turned in the direction of the arrow shown and the thread—this time coming up through hole c' —is carried across hole d of the feeder f and thereby in the path of the

needle hook n' , the end of the thread t being held at B. Now the sewing of the moss stitches may begin. The needle hook n' in its upward motion catches the thread t and carries it in form of a loop through the cloth, but as the hook n' points in the direction of the advancing cloth k , it follows, that the hook slips out of the loop as the latter advances in the direction of the arrow l . Thus each loop is left projecting above the cloth as illustrated by Fig. 10.

As it is the principal feature of the new thread feeder to possess two channel-like guides for the thread in form of holes inclosed all around, the conclusion presents itself that the form of the thread-feeder does not have to necessarily be a cylindrical body.

Figs. 4 and 5 show a feeder where the head e of same is developed in U-shape. Here the two small side-holes c and c' are drilled into special attached wings e' and e^2 . This construction does not alter the function of the feeder in any respect, as will be readily seen if comparing it with first described form of same. It only represents a somewhat simpler form of construction and it is a matter of course that similar other forms can be employed.

As long as but one particular kind of stitches are to be produced by the machine of course one single side-hole in the feeder would suffice for the thread to pass through. The same thing holds true if provisions are made to turn the feeder 180° whenever a change of work from chain stitching to moss-stitching takes place.

Having thus fully described the nature of my said invention, what I desire to secure by Letters Patent of the United States is:

In an embroidering machine, a hooked needle, a thread feeder adapted to be oscillated through 180° acting to thread the needle and provided with two oppositely situated holes through one of which the thread is passed and a stitch plate provided with two rows of holes, the holes of each row equidistant from the center of the plate and the holes of one row being located so as to cooperate with the holes in the thread feeder and the holes of the other row situated so that the needle may pass therethrough, substantially as described.

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

JOHANN SCHROEDER.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.