L. SCHWARZMANN.

EMBROIDERY SEWING MACHINE.

APPLICATION FILED JULY 21, 1915.

1,234,398.

Patented July 24, 1917.

3 SHEETS—SHEET 1.

Fig. 5

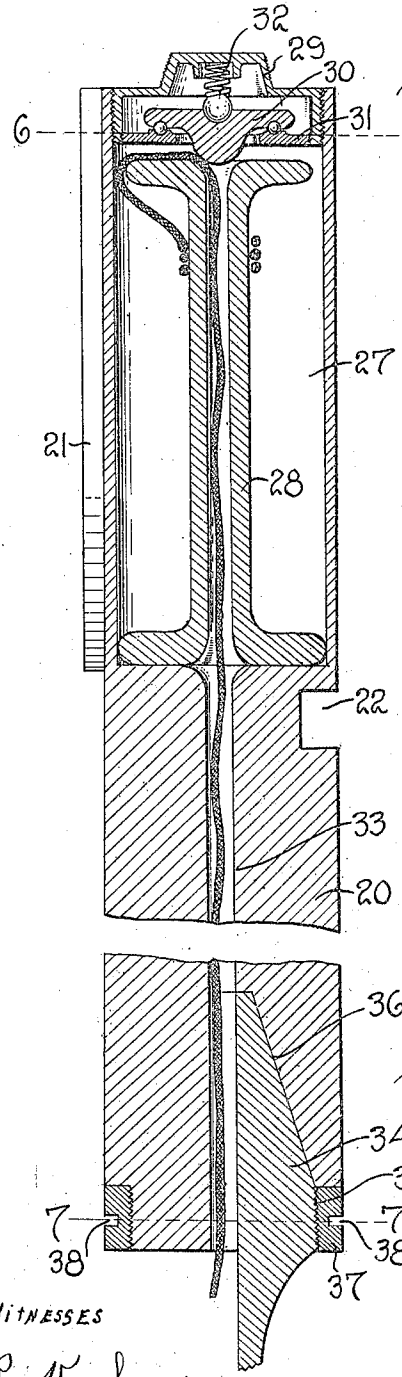


Fig. 1

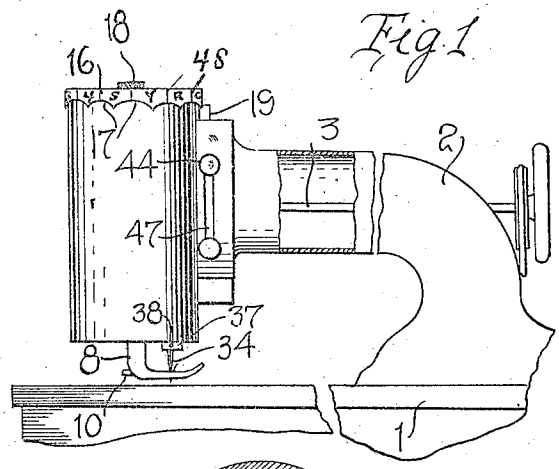


Fig. 6

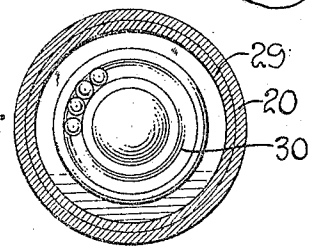
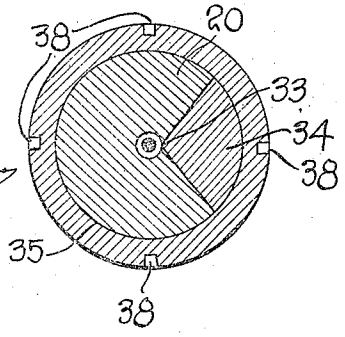


Fig. 7



WITNESSES

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3 SHEETS—SHEET 2.

Fig. 2

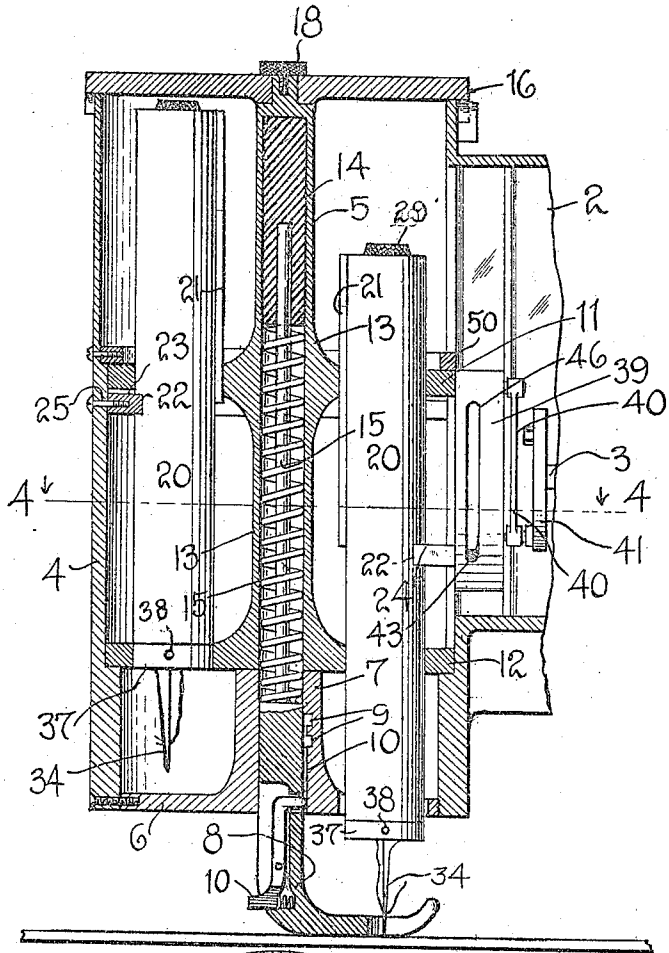
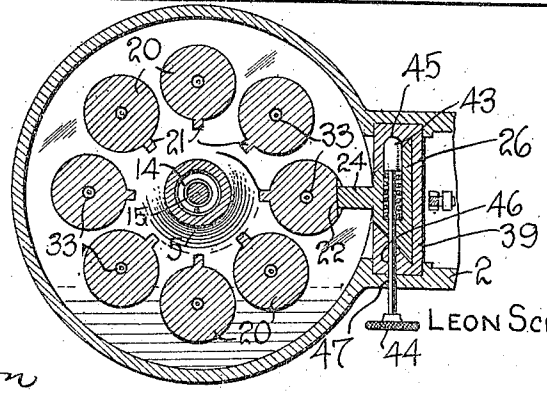


Fig. 4



Witnesses

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3 SHEETS—SHEET 3.

Fig. 3

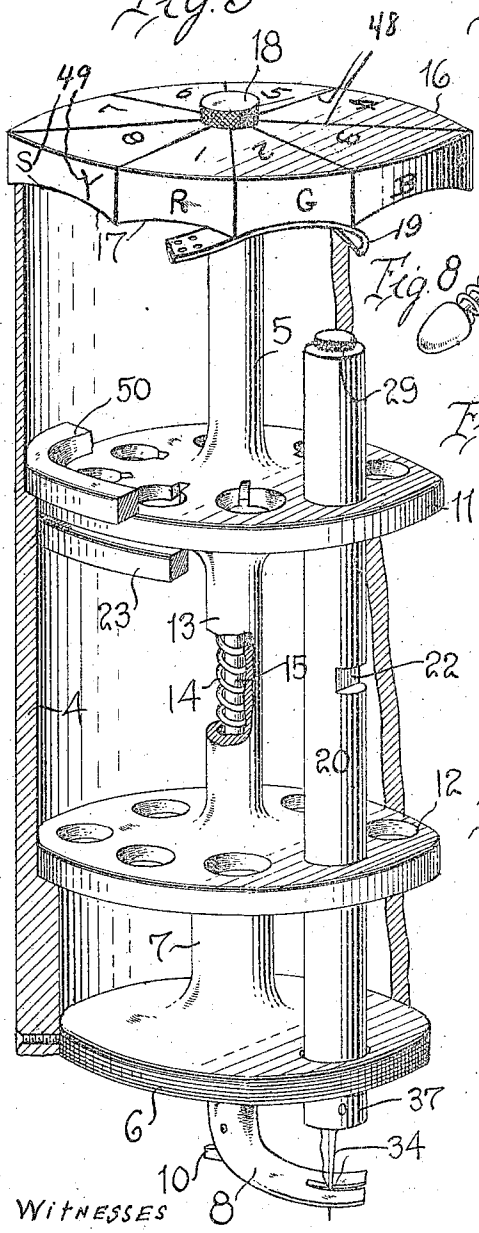


Fig. 12

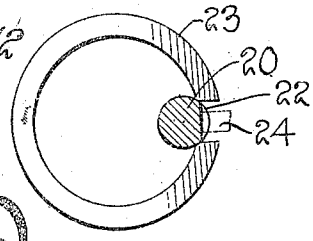


Fig. 8

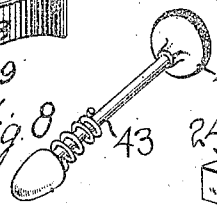


Fig. 9

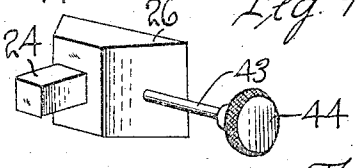


Fig. 11

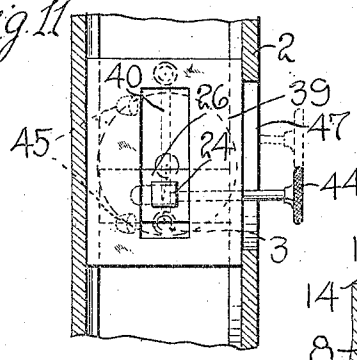


Fig. 10

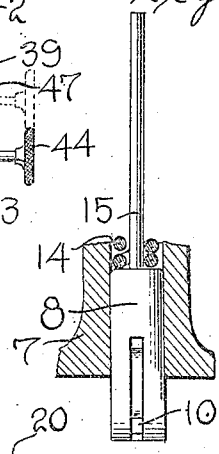


Fig. 13

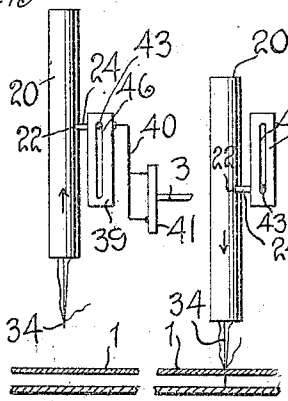
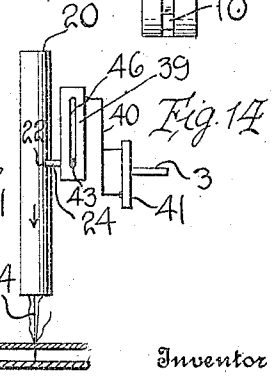


Fig. 14



Witnesses

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UNITED STATES PATENT OFFICE.

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EMBROIDERY-SEWING MACHINE.

1,234,398. Specification of Letters Patent. Patented July 24, 1917.

Application filed July 21, 1915. Serial No. 41,123.

To all whom it may concern:

Be it known that I, LEON SCHWARZMANN, a subject of the Emperor of Russia, and a resident of Washington, District of Columbia, have invented certain new and useful Improvements in Embroidery-Sewing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in the novel features hereinafter described, reference being had to the accompanying drawings, which show one embodiment of my invention which I have selected for the purpose of illustration, and the said invention is fully disclosed in the following description and claims.

Referring to the said drawings:

Figure 1 is a side view of a sewing-machine head having my improvement applied thereto;

Fig. 2 is an enlarged vertical sectional view of the needle-holder casing;

Fig. 3 is a perspective view of the needle-holder carrier;

Fig. 4 is a horizontal sectional view taken on line 4—4 of Fig. 2;

Fig. 5 is a vertical sectional view of one of the combined needle carrier and thread holders;

Fig. 6 is a section taken on line 6—6 of Fig. 5;

Fig. 7 is a horizontal sectional view taken on line 7—7 of Fig. 5;

Fig. 8 is a detail showing the needle holders, retaining ring, and operating lug;

Fig. 9 is a perspective view of a detail showing the needle-holder-operating lug carriage;

Fig. 10 is a perspective view of the carriage-locking plunger;

Fig. 11 is a detail sectional view of the carriage and its guides;

Fig. 12 is a detail of the presser foot and its locking member;

Fig. 13 is a detail showing one of the needle holders after being brought into engagement with the operating lug; and

Fig. 14 is a detail showing one of the needle holders after it has reached its lowermost position.

My invention relates primarily to embroidery sewing machines, although it is applicable to sewing machines of other classes, the object being to provide a machine of this character in which a plurality of needles and threads of different colors and thicknesses may be brought into position for independent operation, whereby the necessity of changing needles and threads is overcome.

In the drawings, 1 designates the bed plate of a sewing machine having the usual overhanging bracket arm 2, in which is rotatably mounted the operating shaft 3. The arm 2 carries at its extremity a cylindrical casing 4, in which is rotatably mounted a thread- and needle-holder 5. The bottom of the casing 4 consists of a plate 6 which is screw-threaded to the lower end of the casing, and is provided with a vertical boss 7, in which is mounted for vertical vibration the presser foot 8. The boss 7 is provided with a plurality of notches 9, which are adapted to be engaged by a latch 10 on the presser foot, so that the presser foot may be raised to two different vertical positions for the purpose of inserting the cloth beneath the same or for entirely placing the same out of operative position.

The carrier 5 rests in the casing 4, its lower end bearing on the upper end of the boss 7, and comprises upper and lower disks 11 and 12. A hollow member 13 forms the core of said carrier, and a coiled spring 14 placed in said coil surrounds the spindle 15 carried by the upper end of the presser foot, the spring being for the purpose of normally forcing the presser foot downward.

The top of the casing comprises a lid 16, which is provided with scalloped edges 17, and is adapted to normally securely engage the core of the carrier 5 by means of the knurled thumb screw 18 so that the carrier 5 and lid 16 will move in unison. A leaf spring 19 carried by the bracket 2 engages the scallops in the lid, and prevents the same from turning freely.

A plurality of combined thread and needle carriers 20 pass through apertures formed in the disks 11 and 12, and are provided with keys 21, which permit the same to reciprocate vertically but prevent their rotation. Each of the combined needle and thread carriers are provided on their peripheries opposite the keys 21 with cut-away portions 22, which are adapted to be engaged by either a retaining ring 23 or an operating

lug 24, the former being secured to the casing 4 by means of screws 25, and the latter being carried by an adjustable member 26. The upper ends of the members 20 are hollowed out in order to form receptacles 27 for the reception of the thread spools 28, and the tops 29 of these receptacles are screwthreaded to engage the upper ends of the members 20. Each of the tops 29 is formed with a rotating member 30 which is pressed downwardly against an adjustable member 31 by means of a spring 32, ball bearings being provided between the rotating plate 30 and the adjustable plate 31. This plate 31 has a downwardly depending portion which is adapted to engage the upper end of the aperture of the spool 28 and act as a tensioning means for the thread, which is fed downwardly through the spool aperture and out through a passage 33 formed in the lower end of the needle- and thread-carrier 20. Each of these members 20 is adapted in practice to carry threads of different colors or grades, and needles of different grades, and the needles 34 have wedge-shaped tops which are provided with a screw-threaded portion 35 and enter apertures 36 formed in the lower ends of the members 20, and are retained therein by means of nuts 37, notches 38 being provided in the periphery of these nuts for adjusting the same.

The ring 23, which normally retains the members 20 in inoperative position, is provided on one side with a cut-away portion which allows the operating lug 24 to enter the casing and engage the notch 22 of one of the members 20, and so long as the members 20 are engaged by the ring 23, they are inoperative. When, however, the nut 18 at the upper end of the casing 4 is turned, it will bring the notch 22 of one of the members 20 into position to be engaged by the lug 24, and said lug being given a reciprocating movement by a means hereinafter described, that particular member 20 can be operated.

The means for reciprocating the lug 24 comprises a carriage 39, which is reciprocated vertically by means of a rod 40 which connects the same with an eccentric 41 carried by the shaft 3. Mounted in the carriage 39 is the adjustable member 26, which slides in the said carriage 39, and is provided with a spring-pressed plunger 43 having an operating handle 44 and adapted to engage holes 45 provided near the upper and lower end of the carriage 39, the rod of the handle 44 passing out through an elongated slot 46 provided on the side of the carriage 39 and also passing through a similar elongated slot 47 provided in the bracket arm 2, so that the lug 24 may be raised and lowered from the exterior of the machine. The object of providing this adjustable lug 24 is to permit the member 20, which has been brought into operating position, to be lowered to a point where it will effectively sew.

The lid 16 is divided by lines 48 into different areas, one being provided for each member 20, and designations 49 are placed both on the top and on the side of the lid, so that the same may be operated to bring the desired thread or needle into operative position. A retaining member 50 is also provided in said casing for the purpose of securing the carrier 5 in the same.

The operation of my device is as follows: Motion being imparted to the shaft 3, the eccentric 41 is rotated and reciprocates the carriage 39, and with it its operating lug 24, so that the combined thread and needle holder, which is engaged by the lug 24, is operated. When it is desired to use a different thread or a different needle, the member 20 which was being operated is raised by the operator engaging the handle 44 and pulling the same outwardly, then lifting the adjustable member 26 until the plunger 43 is opposite the upper hole 45, where the operator releases the handle 44 and allows the plunger to be seated by its operating spring. The handle 18 is then turned to bring the desired thread and needle holder to operative position, where its notch 22 is engaged by the lug 24 and the adjustable member lowered into operative position, when the machine will continue its course.

When it is desired to renew the thread in any one of the combined thread- and needle-holders, its top 29 is removed and a new spool of thread 28 inserted, and when a needle 34 is to be renewed or replaced, the nut 37 is removed and a new needle inserted.

It is obvious that while I have shown one embodiment of my invention, it may be constructed in manners slightly different from the embodiment illustrated without departing from the spirit of my invention or sacrificing any of its advantages.

What I claim and desire to secure by Letters Patent is:

1. A sewing machine including a head, a driven shaft mounted therein, a plurality of needle holders mounted for independent reciprocative movement in said head, means actuated by said shaft for connection with any one of said needle holders for imparting reciprocative movement to the same, and means carried by said needle holders for controlling the supply of thread to be fed to each of said needles.

2. A sewing machine comprising a head, a driven shaft mounted therein, said head having a needle aperture therein, a plurality of needle holders mounted for independent reciprocative movement in said head, means for bringing any one of said needle holders into operative position over said needle aperture, and means for engagement

with any one of said needle holders and in driven connection with said shaft for imparting reciprocative movement to the particular needle holder in driving connection with said shaft.

3. A sewing machine comprising a head, a driven shaft mounted therein, a rotating carrier also mounted in said head, needle holders mounted in said carrier for reciprocating movement, and means connecting the needle holder to be actuated with the said driven shaft for imparting the necessary movement to the former.

4. A sewing machine including a head, a driven shaft mounted therein, a carrier rotatably mounted in said head, a plurality of reciprocal needle holders carried by said carrier and adapted to be brought into operative and inoperative position by the rotation of said carrier, and means in connection with said shaft to impart reciprocating movement to the particular needle holder in operative position at the time the machine is actuated.

5. A sewing machine comprising a head, a driven shaft mounted therein, a rotatable carrier also mounted in said head, a plurality of combined needle- and thread-holders in inoperative position, means for bringing one of said holders into operative position, and means connecting the driven shaft and the holder which is in operative position whereby the driven shaft will impart reciprocating movement to the last-named needle-holder.

6. A sewing machine comprising a head, a cylindrical casing carried by said head, and a driven shaft mounted in said head, a bottom provided in said casing and having a needle aperture, a carrier rotatably mounted in said casing, a plurality of combined needle- and thread-holders mounted in said carrier, means for connecting either one of said holders with the driven shaft when said holder is in position over said needle aperture.

7. A sewing machine comprising a head, a driven shaft mounted therein, a reciprocating carriage also mounted in said head, means for connecting said shaft, and said reciprocating carriage for imparting reciprocating movement to the latter, an adjustable member supported by said carriage, a plurality of needle-holders carried by said head, said adjustable member being adapted to independently engage either one of said needle holders, whereby the latter will be reciprocated with said carriage.

8. A sewing machine comprising a head, a shaft rotatably mounted therein, a reciprocating carriage also mounted in said head, an adjustable member supported by said carriage and provided with means for retaining the same in two different vertical positions, and a plurality of needle-holders, said needle-holders being adapted to be independently engaged by said adjustable member.

9. A sewing machine, comprising a head, a shaft rotatably mounted therein, a reciprocating needle-holder, means connecting said needle-holder and said shaft for reciprocating the former, a casing surrounding said needle-holder and being provided with a plurality of notches, a presser foot mounted in said casing, and a spring-pressed latch carried by said presser foot and adapted to engage either one of said notches.

10. In a sewing machine, a needle holder comprising a member having a receptacle therein, a thread spool carried in said receptacle, a cap for said receptacle, an adjustable plate on the inner end of the cap, and a spring-pressed rotating plate carried by the cap for exerting a tension on the thread, substantially as described.

11. A sewing machine comprising a head, a driven shaft mounted thereon, a cylindrical casing carried by said head, a rotatable carrier provided in said casing, a plurality of combined needle- and thread-holders mounted in said carrier, a cap provided upon said casing and movable with said carrier, scalloped edges provided in said cap, and means for engaging said scallops and preventing the free rotation of said cap.

In testimony whereof I have signed this specification.

LEON SCHWARZMANN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."