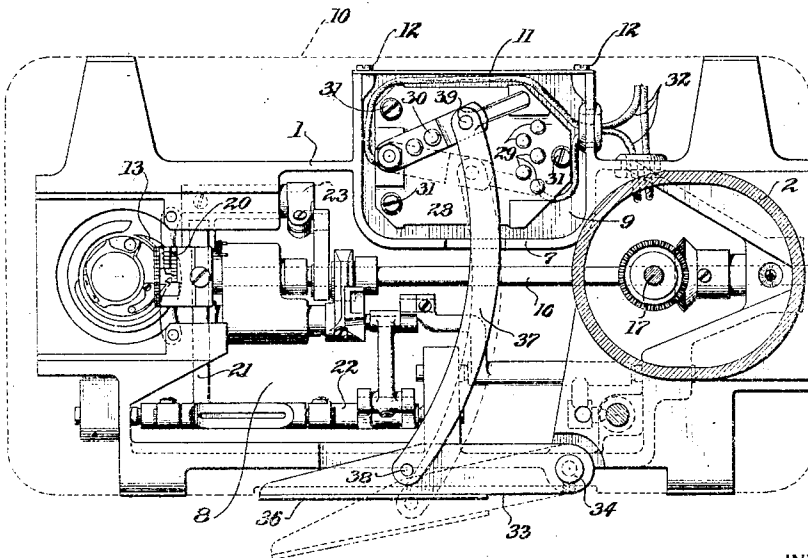
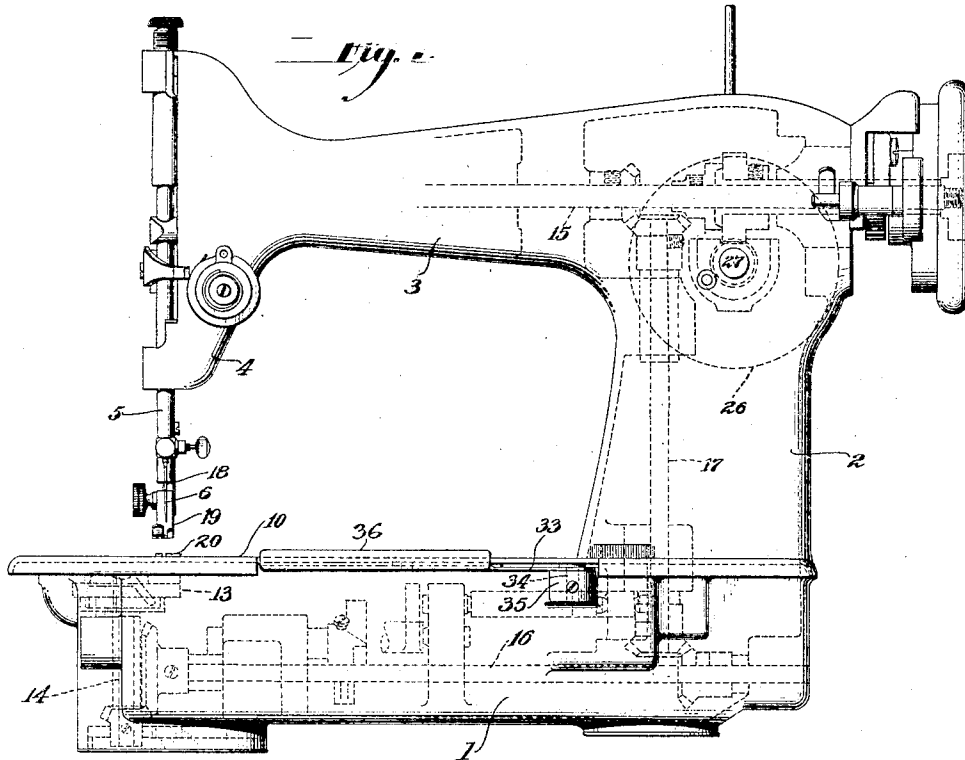


M. HEMLEB.
ELECTRICALLY CONTROLLED SEWING MACHINE.
APPLICATION FILED OCT. 4, 1919.

1,409,951.

Patented Mar. 21, 1922.

2 SHEETS—SHEET 1.



WITNESSES:

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Fig. 2.

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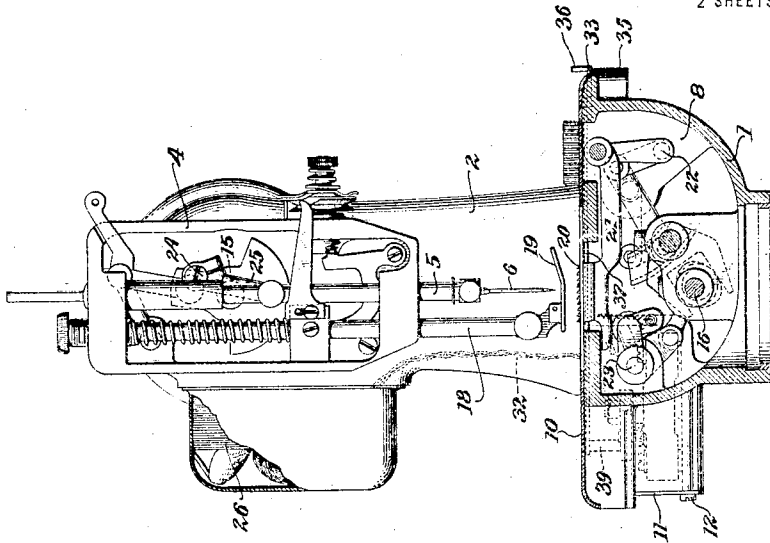


Fig. 3.

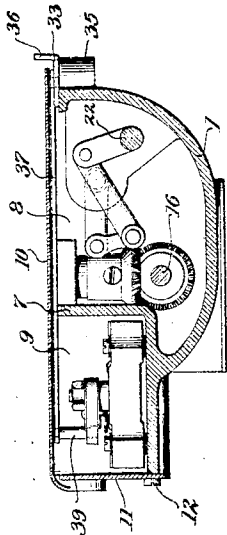


Fig. 4.

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UNITED STATES PATENT OFFICE.

MARTIN HEMLEB, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

ELECTRICALLY-CONTROLLED SEWING MACHINE.

1,409,951.

Specification of Letters Patent. Patented Mar. 21, 1922.

Application filed October 4, 1919. Serial No. 328,511.

To all whom it may concern:

Be it known that I, MARTIN HEMLEB, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Electrically-Controlled Sewing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to motor-driven sewing machines and has for an object to provide a sewing head with a built-in motor-speed controlling device which may be operated manually without necessitating removal of the operator's hand from its position in guiding the work to the sewing instrumentalities.

A further object of the invention is to provide a sewing machine with a simple and efficient motor-speed controller which occupies no extra space in addition to that taken up by the sewing head and which is located in an out-of-the-way position wherein it is protected from an accumulation of lint, oil, &c.

Still further, the invention has for an object to provide a sewing machine with a motor speed controller which may be operated with a minimum of effort and attention on the part of the operator and which, in effect, is a built-in part of the machine organization, as distinguished from an attachment, and need not be made up into a separate package for carriage.

Still further, the invention has for an object to provide a self-contained electrically driven and controlled sewing head which is complete in itself and may be seated upon any of the usual types of sewing cabinets or portable bases, the controller being readily accessible and removable as a unit for repair or replacement.

Further objects of the invention will appear from the following description and claims.

The invention is a further development of the devices disclosed in my copending applications Serial Nos. 311,849 and 311,850, filed July 18, 1919, and Serial No. 312,618, filed July 22, 1919, and, in its preferred embodiment, incorporates many of the desirable features of the above devices in a sewing head constructed substantially in accordance with the disclosure of the patent to Dosch et al., No. 1,304,750 of May 27, 1919. A driving

motor mounted on the machine frame and connected to the operating mechanism substantially in accordance with the disclosure of the Dosch et al. Patent No. 1,311,114 of July 22, 1919, is also preferably included in the general organization.

In the present instance a motor controller or rheostat, including a series of contact points and a swinging contact arm, is detachably mounted as a unit within a closed compartment in the frame of the machine bed below the cloth-plate and intermediate the bracket-arm standard and the line of seam-formation. Thus the controller is disposed in an out-of-the-way position and is protected from an accumulation of oil and lint which would tend to impair its efficiency and which might become ignited from sparks at the contact points. This disposition of the controller also makes for compactness inasmuch as the complete organization occupies no more space in a cabinet or portable base than the ordinary belt or hand driven sewing head.

The controller may be operated from a handle which is preferably pivoted at one end to the frame and is disposed horizontally along the forward edge of the cloth-plate. At its free end, the handle terminates closely adjacent the line of feed and the operator is thus enabled to shift the handle to stop, start or change the speed of the machine, without relinquishing manual control of the work being stitched. A single link bar serves to connect the handle with the controller proper; being connected in the present instance to the pivoted contact arm which plays over the contact points.

In the accompanying drawings, Fig. 1 is a side elevation of a sewing head embodying the invention. Fig. 2 is a horizontal section through the bracket-arm standard showing the bed in plan, the cloth-plate being removed to expose the mechanism housed within the bed. Fig. 3 is a front end elevation of the machine showing the bed in transverse vertical section at the stitching point. Fig. 4 is a transverse vertical section of the machine bed showing the division of the bed into compartments for the operating mechanism and controller.

In the preferred embodiment of the invention, as illustrated, the sewing head is formed with a frame casting comprising the trough-shaped bed 1 from one end of which

risers the standard 2 of the bracket-arm 3 terminating in the head 4 in which is journaled the reciprocating needle-bar 5 carrying the needle 6.

- 5 The bed 1 is divided by means of the vertical wall or partition 7 into two open-topped compartments 8 and 9 which are adapted to be closed by means of the detachable cloth-plate 10 similar in construction to that disclosed in the Dosch et al. Patent No. 1,304,750 above referred to. The smaller compartment 9 is located in rear of the larger or main compartment 8 and is disposed between the standard 2 and the line of feed, substantially within the periphery of the cloth-plate 10. The rearward wall 11 of the compartment 9 is in the form of a removable plate which is held in position by screws 12.

- The needle 6 cooperates with the usual loop-taker or rotary hook 13 carried by the vertical shaft 14 which is journaled within the bed 1 and is connected to the main-shaft 15 of the machine by means of the usual operative connections or interconnecting means including the lower horizontal shaft 16 disposed within the bed 1 and the upright shaft 17 within the standard 2.

- The head 4 carries the usual spring-pressed presser-bar 18 and presser-foot 19 which acts in opposition to the four-motion feed-dog 20 carried by the usual feed-bar 21 and actuated by suitable connections with the usual feed-advancing and feed-lifting rock-shafts 22 and 23, respectively, which are journaled within the bed 1 and receive motion from the shaft 16 in the customary manner as disclosed, for example, in the said Dosch et al. Patent No. 1,304,750. It will thus be noted that the various operative connections for the loop-taker and feed-dog are housed within the main compartment 8. The needle-bar is, of course, actuated from the main-shaft 15 through the usual crank 24 and link 25.

- 45 The machine is driven by a suitable electric motor 26 connected in any usual or suitable manner to the interconnecting mechanism or shafts 15, 16, 17 between the needle and loop-taker. Preferably, the motor is mounted on or carried by the frame of the sewing head although this not essential to the invention in certain of its aspects. In the embodiment illustrated, the motor 26 is removably seated as a unit within a suitable aperture in the rearward wall of the standard 2 with its driving shaft 27 spiral-gearred to the shaft 15, thus affording a built-in construction substantially as disclosed in the said Dosch et al. Patent No. 1,311,114.

- 60 The motor speed controller may be of any suitable type, such for example, as the usual variable resistance unit comprising a base 28 incasing the resistance wires which are connected with the series of contact points 29 over which plays the pivoted contactor-

arm 30. The resistance unit is detachably secured within the compartment 9 of the bed by means of screws 31 and, in the embodiment illustrated, is electrically connected in series with the motor 26 by means of suitable conductors 32.

The controller may be manually operated by means of the control lever 33 which is pivoted at 34 to the frame lug 35. The lever 33 extends horizontally along the forward edge of the cloth-plate 10 toward the line of seam-formation and has its forward edge bent up to form a finger piece or handle 36 which is closely adjacent the line of seam-formation and may be manipulated by the palm or third and fourth fingers of the operator's right hand while the remaining fingers are controlling the work. The lever 33 is connected to the contactor-arm 30 by means of a simple link 37 which, at its forward end, is pivotally connected to the lever 33 at 38 and at its rearward end is pivotally connected to the post 39 fixed to the contactor-arm 30. The link 37 is concealed beneath the cloth-plate 10 and affords a simple, direct and positive connection between the handle 36 and controller proper.

While it is desirable to provide the sewing machine frame with a housing for the controller it is to be understood that the invention, in certain of its aspects as claimed, is not limited to such housing of the controller. Having thus set forth the nature of the invention, what I claim herein is—

1. A motor driven sewing head including a hollow, trough-shaped bed and a cloth-plate for closing the open top of said bed, and electrical control mechanism therefor including a motor-controller disposed beneath the cloth-plate and above the bottom of said bed, and means including an operating arm and connections for operating said controller.

2. A sewing machine having, in combination, a motor-driven sewing head including a cloth-plate, and electrical control mechanism therefor including a motor-controller disposed below the level of said cloth-plate, a pivoted hand-lever extending along the forward edge of the cloth-plate and terminating within reach of the operator's hand without necessitating the removal of the hand from its position in guiding the work, and a link-bar pivotally connected at its forward end to said hand-lever and extending transversely of the cloth-plate, the rearward end of said link-bar being connected to said controller.

3. A sewing machine having, in combination, a frame including a trough-shaped bed casting and a detachable cloth-plate, stitch-forming and feeding mechanisms incorporated in said frame and including operating mechanism below the cloth-plate, a driving motor, a motor-controller mounted in the

hollow bed beneath the cloth-plate and above the bottom of the frame casting and adapted for electrical connection with a driving motor, and a manually operable device and connections for operating the controller.

4. A sewing machine having, in combination, a frame including a hollow trough-like bed casting formed with compartments, an overhanging bracket-arm supported by said bed casting, stitch-forming mechanism incorporated in said frame and including operative connections housed within one of said compartments, and a motor controller housed within another of said compartments and adapted for electrical connection with a driving motor.

5. A sewing machine having, in combination, a frame casting including a bracket-arm and a trough-like controller housing below said bracket-arm, stitch-forming mechanism incorporated in said frame and including operative connections below the bracket-arm and outside of said housing, a cloth-plate adapted to form a cover for said controller housing, a motor-controller mounted within said housing and adapted for electrical connection to a driving motor, and operating means connected to said controller.

6. A sewing machine having, in combination, a frame casting including a hollow trough-shaped bed divided into open-topped compartments, a cloth-plate closing the tops of said compartments, stitch-forming mechanism incorporated in said frame and including operative connections mounted within one of said compartments, a motor-controller mounted within another of said compartments and adapted for electrical connection with a driving motor, and an operating connection extended exteriorly of the controller compartment and operatively connected with the controller.

7. A sewing machine having, in combination, a frame casting including a hollow trough-shaped bed divided into open-topped compartments, a cloth-plate closing the tops of said compartments, stitch-forming mechanism incorporated in said frame and including operative connections mounted within one of said compartments, a motor-controller mounted within another of said compartments and adapted for electrical connection with a driving motor, and an operating arm disposed at the front of the machine and operatively connected to said controller.

8. A sewing machine having, in combination, a frame casting including a hollow trough-shaped bed divided into open-topped compartments, a cloth-plate closing the tops of said compartments, stitch-forming mechanism incorporated in said frame and including operative connections mounted within one of said compartments, a motor-controller mounted within another of said compartments and adapted for electrical connection

with a driving motor, a horizontally disposed pivotally mounted handle extending along the forward edge of the cloth-plate, and a link connection between said handle and controller.

9. An electrically driven sewing head having, in combination, a frame, stitch-forming and feeding mechanisms incorporated in said frame, a driving motor for said mechanisms carried by said frame, a motor-controller compartment built into said frame, a motor-controller mounted in said compartment and an operating handle located adjacent the line of feed and within reach of the operator's forearm or hand while actively engaged in guiding the work.

10. An electrically driven sewing machine having, in combination, a frame including a hollow trough-shaped bed and an overhanging bracket-arm, a partition within said bed dividing it into compartments, stitch-forming mechanism incorporated in said frame and including operative connections within one of said compartments, a driving motor carried by said head, a motor-controller mounted within another of said compartments and electrically connected to said motor, an operating handle and an operative connection between said handle and controller.

11. A sewing machine having, in combination, a frame including a flat rectangular cloth-plate, a standard rising from a position at one end of the cloth-plate, a bracket-arm free at one end and at its opposite end carried by said standard, stitch-forming and feeding mechanisms incorporated in said frame and including a reciprocating needle carried at the free end of the bracket-arm, a motor-speed controller located within the periphery of said cloth-plate intermediate the standard and needle-path, and an operating handle connected to said controller.

12. An electrically driven sewing head having, in combination, a frame casting formed with a compartment, stitch-forming and feeding mechanisms incorporated in said frame, a driving motor carried by said frame and connected to said mechanisms, a motor-controller mounted within said compartment of the frame, and an operating handle connected to said controller.

13. A sewing machine having, in combination, a frame including a bed, standard and bracket-arm, a cloth-plate, stitch-forming and feeding mechanisms incorporated in said frame, a driving motor, a motor controller at the rear of the machine, an operating handle at the front of the machine, and a connection extending under the cloth-plate from the handle to the controller.

14. A sewing head having a frame including a hollow bed-casting formed with a compartment, stitch-forming mechanism

and feeding mechanism incorporated in said frame and including operating mechanism journaled in said bed-casting, a driving motor, and a motor-controller mounted in
5 said compartment and electrically connected to said motor.

15. A sewing head having, in combination, a frame including a hollow trough-shaped bed and a flat rectangular cloth-
10 plate adapted to be received within the

usual rectangular opening in the top of an ordinary sewing machine stand, stitch-forming and feeding mechanisms incorporated in said frame, a driving motor, and a motor-controller built into said hollow
15 bed and electrically connected to said motor.

In testimony whereof, I have signed my name to this specification.

MARTIN HEMLEB.