UNITED STATES PATENT OFFICE.

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MOTOR-DRIVEN SEWING MACHINE.

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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 Motor-Driven Sewing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to controllers for motor-driven sewing machines in general, and more particularly to motor-controllers for sewing machines of the so-called "portable" type.

15 In the trade, a sewing machine of the portable type is distinguished from machines of the cabinet or treadle-stand type in that the sewing head is adapted to be received within a hand-carrying case and may be readily transported from place to place and set up for use upon an ordinary table, desk or other flat topped support commonly used in household establishments.

20 Herefore, motor-driven sewing machines of the portable type have commonly included a foot-operated controller which was connected in the motor-circuit by means of a length of conductor-cord sufficient to permit the controller to be stationed upon the floor within convenient reach of the operator's foot. To enable the foot-controller to withstand usage upon the floor, it was made comparatively heavy and bulky. When transporting a machine with this equipment from one place to another, the controller, together with the connecting cord, must be made up into a separate and rather bulky package which renders the complete outfit troublesome and heavy to carry around. Furthermore, the controller is easily overturned or shifted out of place by accidental contact of the operator's foot therewith.

25 The present invention has for one of its chief objects to provide a power-driven sewing machine which may be readily transported from place to place in the usual hand-carrying case and set up for use upon an ordinary table, and which embodies a controller so constructed and arranged that it need not be placed upon the floor and may be operated otherwise than by the hands or arms of the operator which should be free to handle the work.

30 Another object of the invention is to provide a portable motor-driven sewing machine with a knee-shift control of such a nature that the machine may be quickly set up for use upon an ordinary table without special fittings of any sort which require to be fastened to or mounted upon the table to carry the knee-shift mechanism.

35 Still further, the invention has for an object to provide a knee-shift control for motor-driven sewing machines in general which may be used when desired and may be readily taken down or gotten out of the way when not desired.

40 To the attainment of the objects in view, a motor-controller of any suitable type may be mounted within the base of a portable carrying case for the machine and operated by a novel knee-shift mechanism supported preferably by the portable carrying case independently of the table upon which the machine is stationed. The knee-shift may be in the form of a lever-arm which hangs downwardly from the base of the machine and is quickly detachable from operative position, suitable clips being preferably provided within the carrying case to receive the knee-shift lever when the machine is not in use.

45 A feature of the invention is the quickly detachable knee which hangs from the machine and may be readily removed from operative position when not in use.

50 The invention further comprises certain novel details of construction hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings, Fig. 1 is a front side elevation of the machine as stationed for use upon an ordinary table. Fig. 2 is a longitudinal vertical section through the cover-member of the hand carrying case. Fig. 3 is a transverse vertical section through the base member of the carrying case, showing the motor-controller and operating means therefor. Fig. 4 is a plan view of the controller as mounted within the base and Fig. 5 is a detail perspective view of the hub end of the controller-operating knee-shift.

In the embodiment of the invention chosen for the purpose of the present disclosure, A represents the usual sewing head including the bed 1, standard 2 and overhanging bracket-arm 3 in which is journaled the reciprocating needle-bar 4 carrying the nee.
dile 5. The sewing head is conveniently driven by means of an electric or other suitable motor 6 which is mounted upon the bracket 7 screwed to the standard 2 and is connected to the usual hand-wheel 8 by means of the driving belt 9.

In accordance with the present improvement, in its preferred embodiment, the sewing head A may be stationed for use upon an ordinary table B and is preferably seated upon the base-section 10 of a hand-carrying case which also includes the cover-section 11 adapted to enclose the sewing head A when the machine is not in use. The base-section 10 is preferably made in rectangular form with front and rear side-wall members 12 and end-wall members 13 and is also preferably provided with a partition 14 dividing it into compartments 15 and 16, the former 20 to receive the body-portion of the sewing head and the latter to receive the motor-controller to be described.

The motor-controller preferably comprises a metallic casing 17 adapted to be secured by screws 18 to the bottom wall 19 of the compartment 16. Within the casing 17 is mounted the usual variable resistance unit 20 including the pivoted contactor 21 and the series of contact points 22 over which the contactor 21 plays to start, stop and control the speed of the motor 6 in a manner well understood. In the present instance, the resistance unit 20 is connected in series with the motor 6 to the source of electrical energy. Any of the various other well known motor-controlling devices and wiring schemes may, of course, be used in lieu of that shown and described.

The pivoted contactor 21 is formed in its upper side with a longitudinal slot 23 which is entered by the depending pin 24 carried by a lever-arm 25 which is pivoted upon the pin 26 fixed in an apertured lug 27 on the casing 17. The downturned opposite side end 25 of the lever-arm 25 is received within a recess in an end wall of the casing 17 which affords opposed stops 28 limiting the movement of the lever 25 in opposite directions. The lever-arm 25 is further 50 formed with a downturned ear 29 carrying a lateral positioning pin 30 which enters one end of a compression spring 31 the opposite end of which embraces a second positioning pin 32 on the adjacent side wall of the casing 17. This spring serves to yieldingly hold the controller arm 21 in the "off" 55 position.

An important feature of the present improvement is the knee-shift control of a portable, power-driven sewing machine adapted for use upon an ordinary table without the necessity of securing additional fittings, brackets etc. to the table. In the present embodiment of the invention, the 65 controller casing 17 supports a bearing lug 33 in which is journaled a horizontal rock-shaft 34 extending within the casing and carrying a crank-arm 35 which extends upwardly and terminates within a clearance aperture 36 in the lever-arm 25. A collar 70 on the shaft 34 cooperates with the crank-arm 35 to confine the shaft against endwise movement. The shaft 34 is in line with and projects into a cylindrical aperture 38 in the front side wall 12 of the base section 10; the aperture 38 being large enough to admit the apertured cylindrical hub 39 of the knee-shift arm 40. A bayonet-joint connection is provided between the knee-shift 40 and the shaft 34 in order that the knee-shift may be quickly placed in or removed from operative position. This connection comprises the L-shaped slot 41 in the wall of the hub 39 and lateral pin 42 upon the shaft 34. The knee-shift arm is thus supported at its upper end at a point above the level of the top of the table B and extends downwardly in overhanging relation with the edge of the table to a position within convenient reach of the operator's knee.

When the machine is not in use the knee-shift 40 may be placed within the cover 11 and held by means of suitable clips 43. A portable machine, with the present equipment, is entirely self-contained and comparatively light in weight and may be quickly and conveniently set up for operation; both hands of the operator being entirely free for manipulation of the work.

The feature of detachability of the knee-shift control lever is believed to be novel in connection with sewing machines generally.

Having thus set forth the nature of the invention, what I claim is:

1. A portable motor-driven sewing machine having, in combination, a portable base adapted in use to rest upon an ordinary table, sewing mechanism carried by said base, a driving motor, a motor-controller, and a controller operating arm mounted upon said base and connected to said controller, the free end of the arm terminating below said level of the bottom of said base and within reach of the operator's knee.

2. A portable motor-driven sewing machine having, in combination, a portable base adapted in use to rest upon an ordinary table, sewing mechanism carried by said base, a driving motor, a motor-controller, and a controller operating arm connected to said controller and supported at a point above the level of the bottom of said base, the free end of said arm terminating below said level and within reach of the operator's knee.

3. A portable motor-driven sewing machine comprising, in combination, a sewing head, a portable base therefor adapted in use to rest upon an ordinary table, a driving motor, a motor-controller, and a controller operating arm connected to said controller and supported at a point above the level of the bottom of said base.
motor, a motor-controller, and a controller operating knee-shift supported by said base and adapted to overhang the front edge of the table on which the machine is stationed for use.

4. A portable motor-driven sewing machine comprising, in combination, a sewing head, a portable base therefor adapted in use to rest upon an ordinary table, a driving motor, a motor-controller, and a controller operating knee-shift, detachably connected to said controller and supported by said base, said knee-shift being adapted to overhang the front edge of the table on which the machine is stationed for use.

5. A portable motor-driven sewing machine comprising, in combination, a sewing head, a portable base therefor adapted in use to rest upon an ordinary table, a driving motor, a motor-controller, and a controller operating knee-shift lever, and a bayonet joint connection between said controller and knee-shift lever disposed above the level of the bottom of said base and permitting ready removal of the latter from operative position.

6. A motor-driven sewing machine having, in combination, a sewing head including a cloth plate, a driving motor, a hollow portable base including side and end walls, said base receiving within its cavity the parts of the sewing head, a cloth plate and being adapted to be stationery upon an ordinary table, a motor-controller mounted within said base, and a knee-shift lever and connections extending through the front side wall of said base and operatively connected to said controller, said knee-shift including a downwardly extending arm adapted to overhang the front edge of the table.

7. A motor-driven sewing machine having, in combination, a sewing head, a driving motor, a portable base supporting said sewing head and adapted to be stationed upon an ordinary table, a motor-controller stationed within said base, and a knee-shift controller lever including a downwardly extending horizontally pivoted lever-arm carried by said base and adapted to overhang the front edge of the table and extend within reach of the operator's knee.

8. A portable sewing machine having, in combination, a hollow portable base having a front wall, a sewing head seated upon said base, a driving motor, and a motor-controller including a movable contactor, a horizontal rock shaft for operating said contactor, and a knee-shift lever detachably connected to said shaft through an aperture in the front wall of said base.

9. A portable motor-driven sewing machine having, in combination, a substantially flat rectangular hollow base adapted to be used upon an ordinary table and constructed with side and end walls, the front side wall being provided with an aperture, a sewing head seated upon said base, a driving motor, a motor-controller mounted within said hollow base and including an operating shaft in line with said aperture, and a knee-shift lever having a hub adapted for insertion in said aperture and connection with said shaft.

10. A portable motor-driven sewing machine having, in combination, a substantially flat rectangular hollow base adapted to be used upon an ordinary table and constructed with side and end walls, the front side wall being provided with an aperture, a sewing head seated upon said base, a driving motor, a motor-controller mounted within said base and including an operating shaft in line with said aperture, a knee-shift lever arm having a hub adapted for insertion in said aperture, and a bayonet joint connection between said hub and shaft.

11. A portable motor-driven sewing machine adapted to be used upon an ordinary table and having, in combination, a portable base, a sewing head seated upon said base, a driving motor, a motor-controller, and a knee-shift lever detachably carried by said base and connected to said controller.

12. A portable motor-driven sewing machine adapted to be used upon an ordinary table and having, in combination, a sewing head, a driving motor, a motor-controller and connections including an operating shaft, disposed above the bottom of said base, and a knee-shift lever detachably supported by said shaft.

13. A portable motor-driven sewing machine adapted to be used upon an ordinary table and having, in combination, a sewing head, a driving motor, a motor-controller and connections including an operating shaft, a knee-shift lever, and a bayonet-joint connection between said knee-shift lever and said shaft.

14. A motor-driven sewing machine having, in combination, a sewing head, a support having an apertured front wall, a driving motor, a motor-controller and connections including an operating shaft in line with the aperture in said front wall, and a knee-shift lever detachably connected with said shaft.

15. A portable motor-driven sewing machine having, in combination, a sewing head including a cloth-plate, a hollow support receiving the parts of the sewing head below the cloth-plate, a driving motor, a motor-controller mounted in said hollow base, and a knee-shift lever arm connected to operate said controller and operatively sustained above the level of the bottom of said base and extending downwardly below said lever to a point within reach of the operator's knee.


17. A portable motor-driven sewing machine having, in combination, a substantially hollow base supporting said driving motor, a motor-controller and connections including an operating shaft.

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54. A portable motor-driven sewing machine having, in combination, a substantially hollow base supporting said driving motor, a motor-controller and connections including an operating shaft.
machine having, in combination, a substantially flat hollow base adapted to be used upon an ordinary table and constructed with an apertured front wall, a sewing head seated upon said base, a driving motor, a motor-controller, and connections including a knee-shift lever for operating said controller, said connections passing through an aperture in the front wall of said base and also including a rock-shaft in line with said aperture.

17. A portable motor-driven sewing machine adapted to be used on an ordinary table and including a portable supporting base, a driving motor, a motor-controller, and controller operating means including a knee-shift lever horizontally pivoted at a level above the bottom of said base and carried by the latter, said lever being adapted to overhang the front edge of the table upon which the machine is stationed for use and to extend downwardly to a point within reach of the operator's knee.

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

MARTIN HEMLER.