Dec. 22, 1936. D. H. CHASON 2,065,428

ELECTRIC SEWING MACHINE CABINET

Filed Aug. 17, 1935 3 Sheets-Sheet 1

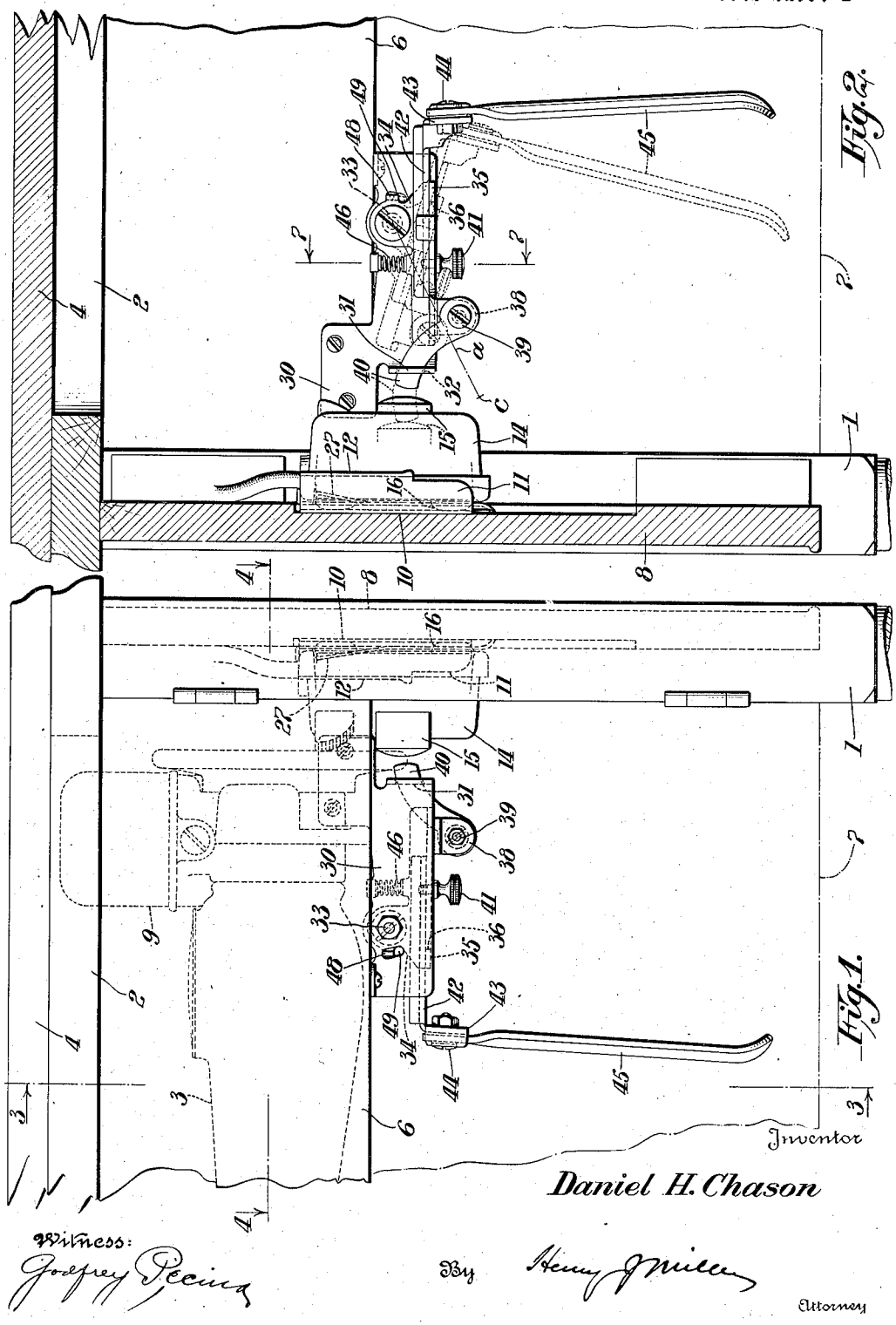


Fig. 2.

Fig. 1.

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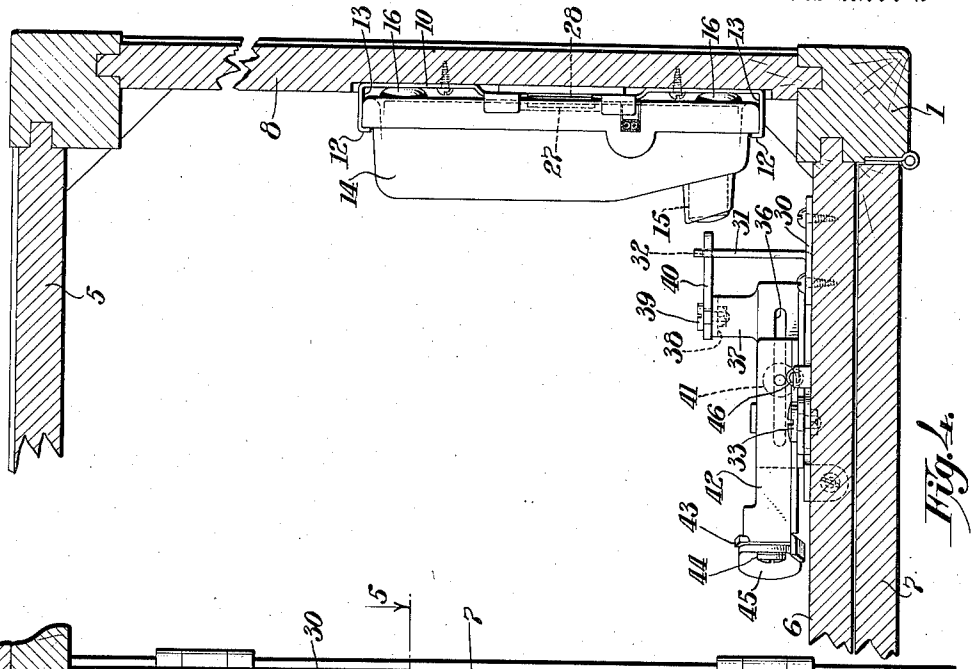


Fig. 4.

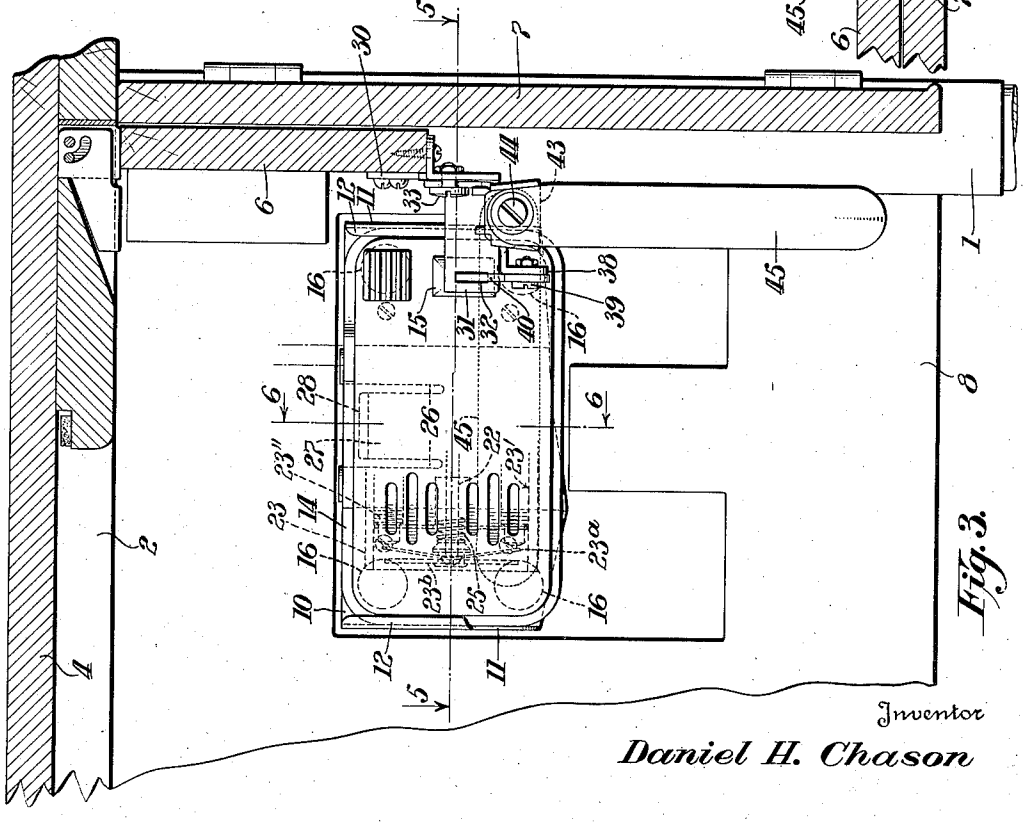


Fig. 3.

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ELECTRIC SEWING MACHINE CABINET

Filed Aug. 17, 1935 3 Sheets-Sheet 3

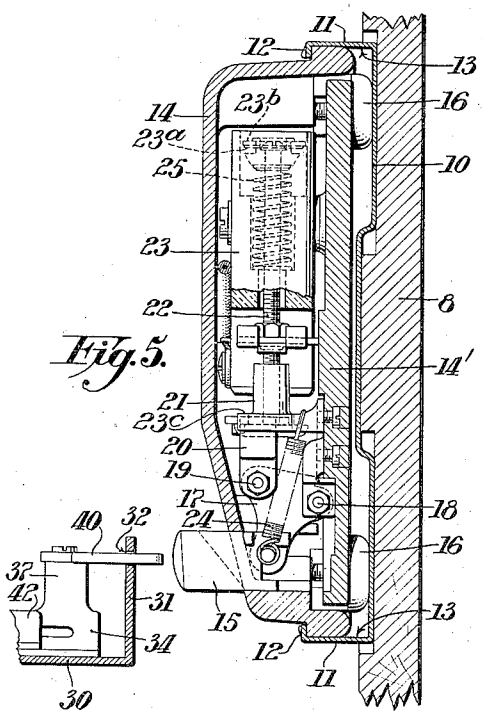


Fig. 5.

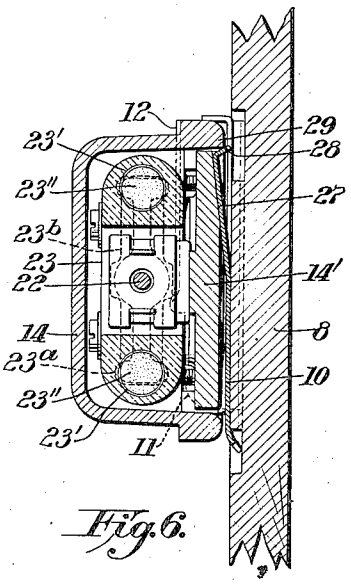


Fig. 6.

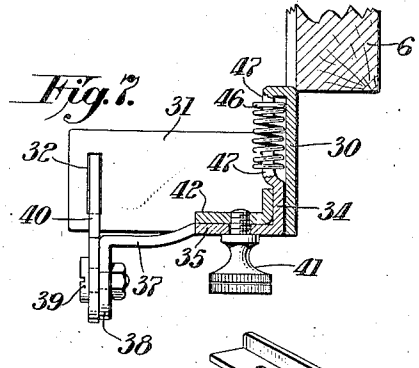


Fig. 7.

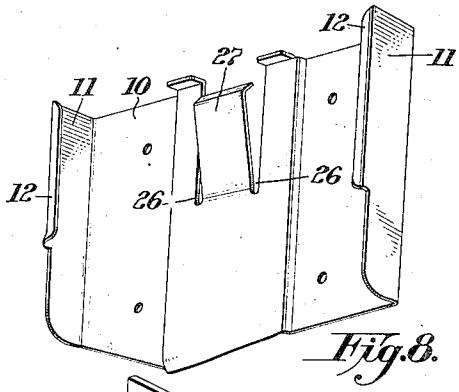


Fig. 8.

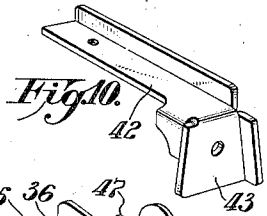


Fig. 10.

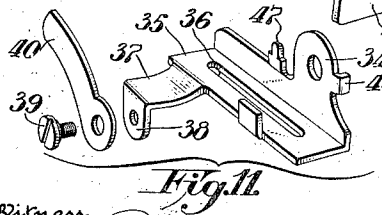


Fig. 11.

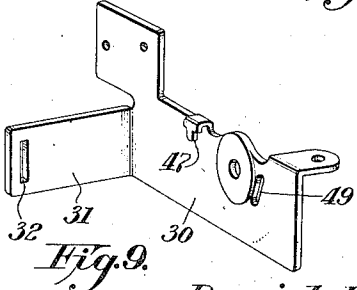


Fig. 9.

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Patented Dec. 22, 1936 2,065,428

UNITED STATES PATENT OFFICE

2,065,428

ELECTRIC SEWING MACHINE CABINET

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Application August 17, 1935, Serial No. 36,681

7 Claims. (Cl. 311—16)

This invention relates to electric sewing machine cabinets or tables of the type disclosed in the application of H. J. Goosman and R. Kaier, Serial No. 23,187, filed May 24, 1935, which embodies a sewing machine motor-controller of the foot-operated type and a knee-shift device for operating it, the parts being so constructed and arranged that the controller may be readily detached from the cabinet or table and placed upon the floor for foot operation without disturbing the knee-shift mechanism.

The invention has for an object to provide such an electric sewing machine cabinet with an improved controller-operating knee-shift mechanism which is adjustable to meet the individual requirements of the operator and which may be operated with less tiring effort on the part of the operator.

With the above and other objects in view, as will hereinafter appear, the invention comprises the devices, combinations and arrangements of parts hereinafter set forth and illustrated in the accompanying drawings of a preferred embodiment of the invention, from which the several features of the invention and the advantages attained thereby will be readily understood by those skilled in the art.

In the accompanying drawings Fig. 1 is a fragmentary front elevation of an electric sewing machine cabinet embodying the invention. Fig. 2 is a vertical section through the cabinet showing the sewing machine motor controller operating knee-shift mechanism in rear elevation. Fig. 3 is a vertical section on the line 3—3, Fig. 1. Fig. 4 is a horizontal section on the line 4—4, Fig. 1. Fig. 5 is a horizontal section on the line 5—5, Fig. 3. Fig. 6 is a vertical section on the line 6—6, Fig. 3. Fig. 7 is a section on the line 7—7, Fig. 2. Fig. 8 is a perspective view of the controller-supporting slideway. Fig. 9 is a perspective view of the supporting bracket for the controller-operating knee-shift mechanism, and Figs. 10 and 11 are perspective views of elements of the knee-shift mechanism.

In the drawings 1 represents the legs of a drop-head sewing machine cabinet or table having the usual apertured top 2 for reception of the base of the sewing machine head 3 when raised to operative position above the table-top. The table also has the usual cover-leaf 4, rear wall 5, front wall 6, hinged doors, one of which is shown at 7, and end walls, one of which is shown at 8, said walls defining a cavity below the top 2 for reception of the sewing head 3 when not in use. The sewing head 3 carries the usual driving motor 9 which may be constructed substantially in accordance with the disclosure of the U. S. patent to Peets, No. 1,934,373, dated Nov. 7, 1933.

Screwed to the end wall 8 is the controller support 10 in the form of a flat sheet-metal plate having its side marginal portions 11 bent at right angles to the plane of the plate and formed with overhanging lips 12 defining a slideway 13, Fig. 5, for reception of the ribbed casing 14 of the motor-controller which is preferably constructed substantially in accordance with the disclosure of the U. S. patent application of Carl R. Schenk, Serial No. 35,913, filed Aug. 13, 1935. Such a controller has an operating pedal slide 15 and supporting feet 16 adapted to rest upon the floor for foot-operation. It also has within its casing 14 a lever 17 which is engaged and actuated by the pedal slide 15 and is fulcrumed at 18 on the base member 14' of the casing. The lever 17 is connected at 19 to a pull-strap 20 engaging the adjusting nut 21 screwed onto the pull-rod 22 of the conventional carbon compression resistor unit 23, such as disclosed in the U. S. patent to Chason, No. 1,643,292, dated Sept. 27, 1927. It will be understood that pressure applied to the pedal slide 15 starts the sewing machine motor 9 and regulates the speed thereof in accordance with the distance the pedal slide is pushed into the casing 14. The motor-controller unit includes the usual spaced wells 23' for the stacks 23'' of carbon disks bridged by the weak contact bow-spring 23^a backed by the stiff bow-spring 23^b; the springs 23^a, 23^b being centrally carried by the pull-rod 22 which is biased by the recovery spring 25. The lever 17 is biased by the spring 24 anchored to the horn 23^c rising from the controller base 14'. Thus the stresses of the several springs 24, 25, 23^a and 23^b, must be overcome by the operator in forcing the pedal slide 15 into the casing 14 to speed up the sewing machine motor.

The plate 10 is slotted at 26, 26, Fig. 8, to form the spring tongue 27 the inclined upper end 28 of which engages the skirt 29 of the controller casing 14 and yieldingly retains the latter in the slideway 13 of the plate 10. The controller may be instantly removed from the plate 10, by exerting a down pull or push upon the controller, and placed upon the floor for foot operation.

For knee-operation there is mounted on the front wall 6 of the table a bracket 30 having a guide-arm 31 standing normal thereto and provided with a guide slot 32 for a purpose to be described. The bracket 30 has pivotally mounted thereon at 33 the upstanding ear 34 of a knee-shift lever having a horizontally disposed body-por-

tion 35 which is formed with a slot 36 and has at one end a lateral extension 37 terminating in a downturned vertical ear 38 to which is pivoted at 39 one end of a curved thrust-member 40. The thrust-member 40 passes through the guide-slot 32 in the arm 31 and is positioned by the latter to engage the pedal slide 15 of the motor-controller.

Adjustably secured to the horizontal body-portion of the lever 35, by means of a screw 41 passing through the slot 36, is an extension bar 42 terminating at one end in a downturned ear 43 on which is frictionally pivoted at 44 the knee-engaged arm 45 of the knee-shift lever, which arm 45 is shiftable about the pivot 44 from full line operative position, Fig. 3, to dotted line concealed position. A recovery spring 46 is interposed between the knee-shift lever 35 and the bracket 30, being anchored on the spring-positioning points 47 on the respective members. An ear 48 on the lever 35 enters a slot 49 in the bracket 30 and the ends of the slot 49 limit the movement of the lever 35 about its pivot 33. By loosening the screw 41 the extension bar 42 and knee-engaged arm 45 may be shifted lengthwise of the slot 36 to position the arm 45 to suit the individual operator.

The knee-shift mechanism operates as a toggle device upon the pedal member 15 of the controller. It will be seen that in the movement of the knee-shift lever 35, 42, 45 from full-line position to dotted line position, Fig. 2, the pivotal connection 39 between the lever 34 and the thrust-member 40 approaches alinement with the operative ends of the toggle-elements 34, 40 represented by the pivotal point 33 and the free end of the thrust-member 40, thus relieving the operator of the tiring effort necessary to force the pedal member 15 to its extreme inward position. The curvature of the thrust-member 40 is such that, as the member 40 is guided by the slot 32, the free end of such member moves substantially horizontally. This is shown in Fig. 2. A line *a* connecting the center *c* of curvature of the thrust-member 40 with the pivotal axis 33 of the lever 35 passes substantially midway between the extreme positions of the pivotal connection 39 or knuckle joint of the toggle elements 34, 40.

The invention is not to be understood as limited to details of construction and relative arrangements of parts herein shown and described and not particularly pointed out in the appended claims.

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

1. The combination with an electric sewing machine cabinet having a motor-controller of the foot-operated type detachably mounted as a unit in said cabinet and including a pedal member, of knee-shift mechanism mounted on said table independently of said motor-controller and including pivotally connected toggle elements one of which is a bodily movable thrust-bar operative to directly engage and actuate said pedal member, the pivotal connection between said toggle elements being arranged to approach alinement with the operative ends of said toggle elements in the movement of said pedal member by said knee-shift mechanism.

2. The combination with a sewing machine cabinet, of a knee-shift lever pivotally carried by said cabinet, a thrust-member pivotally connected at one end to said knee-shift lever, a stationary guide for and between the ends of said thrust-member, and a sewing machine motor-controller carried by said table and having a movable control member positioned to be engaged directly by the free end of said thrust-member.

3. A knee-shift mechanism for operating a sewing machine motor-controller, said mechanism comprising a bracket adapted to be secured to a sewing machine table and having a slotted guide-arm, a knee-shift lever fulcrumed on said bracket, and a thrust-member pivotally connected at one end to said knee-shift lever and received in the slot in said guide-arm.

4. A knee-shift mechanism for operating a sewing machine motor-controller, said mechanism comprising a bracket adapted to be secured to a sewing machine table and having a slotted guide-arm, a knee-shift lever fulcrumed on said bracket, and a curved thrust-member pivotally connected at one end to said knee-shift lever and received in the slot in said guide-arm.

5. A knee-shift mechanism for operating a sewing machine motor-controller, said mechanism comprising a bracket adapted to be secured to a sewing machine table and having a slotted guide-arm, a knee-shift lever fulcrumed on said bracket, and a curved thrust-member pivotally connected at one end to said knee-shift lever and received in the slot in said guide-arm, the point of pivotal connection between said knee-shift lever and curved thrust-member having a range of motion crossing a line joining the fulcrum of said knee-shift lever and the center of curvature of said thrust-member.

6. A knee-shift mechanism comprising a sheet metal plate-like bracket adapted for attachment to a sewing machine table and having an arm bent to stand at an angle to the main or body-portion of said bracket, said arm being formed with a guide-slot, a knee-shift lever fulcrumed on said bracket, and a thrust-member received in said slot and pivotally connected to said knee-shift lever.

7. A knee-shift mechanism for operating a sewing machine motor-controller, said mechanism comprising a bracket adapted to be secured to a sewing machine table, a sheet metal lever having a horizontal plate-like body-portion and an upstanding ear pivotally connected to said bracket, said lever having a depending ear, a motor-controller-operating thrust-member pivotally connected at one end to said depending ear, and an arm on said bracket formed with a guideway for said thrust-member.

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