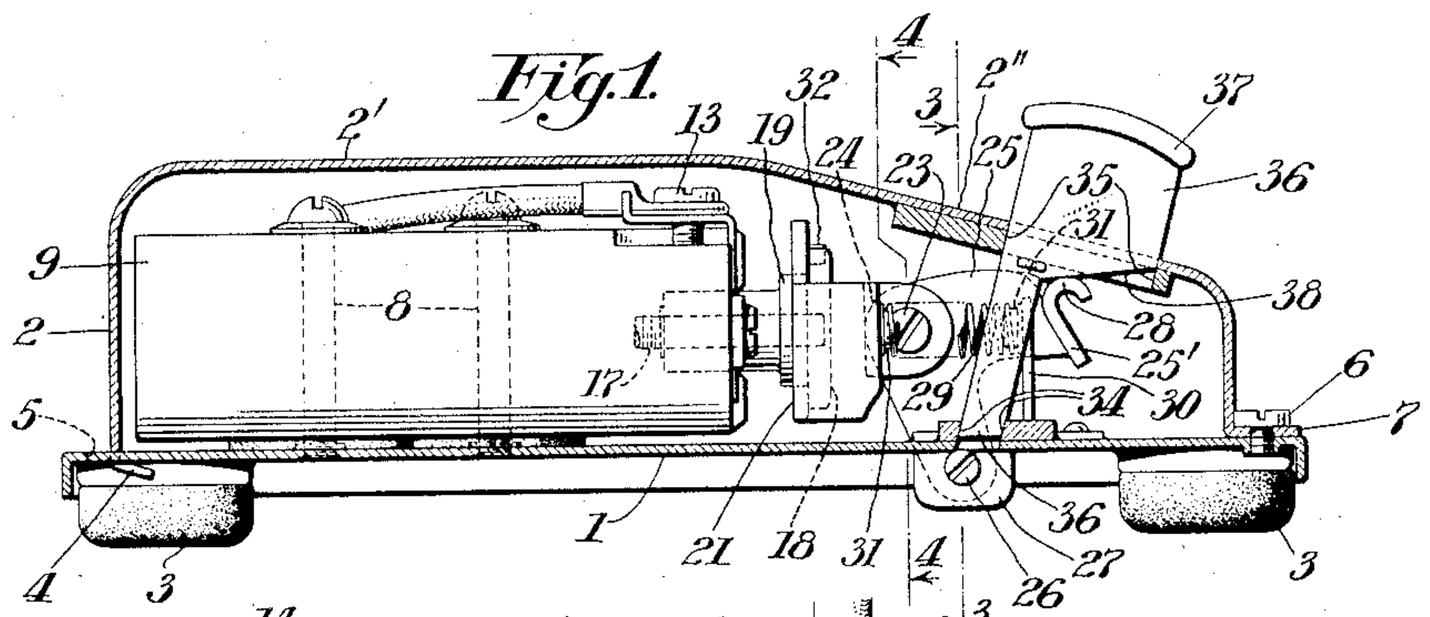
Nov. 26, 1935. D. H. CHASON 2,022,491

FOOT OPERATED MOTOR CONTROLLER

Filed Dec. 29, 1932

Fig. 1.



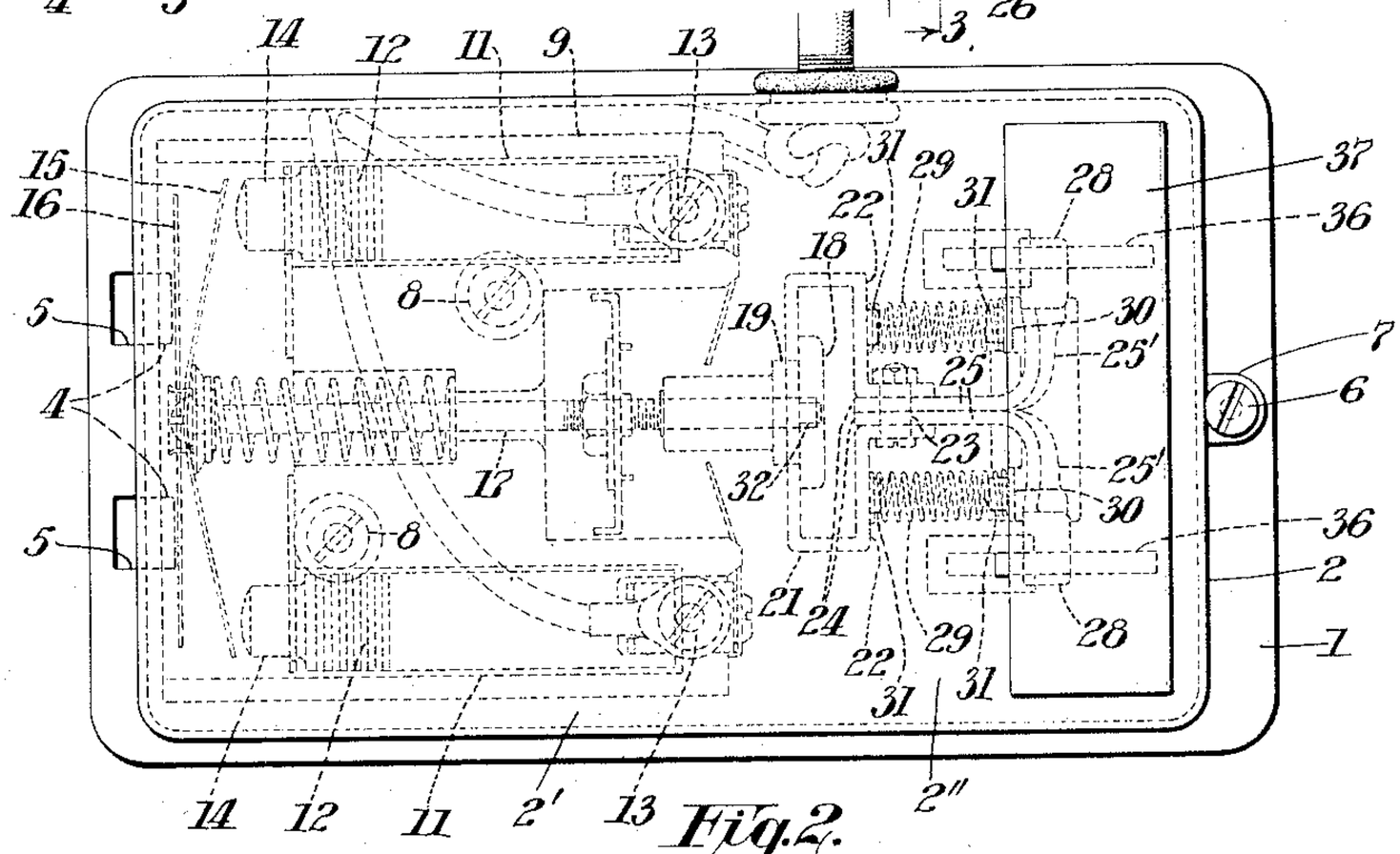


Fig. 2.

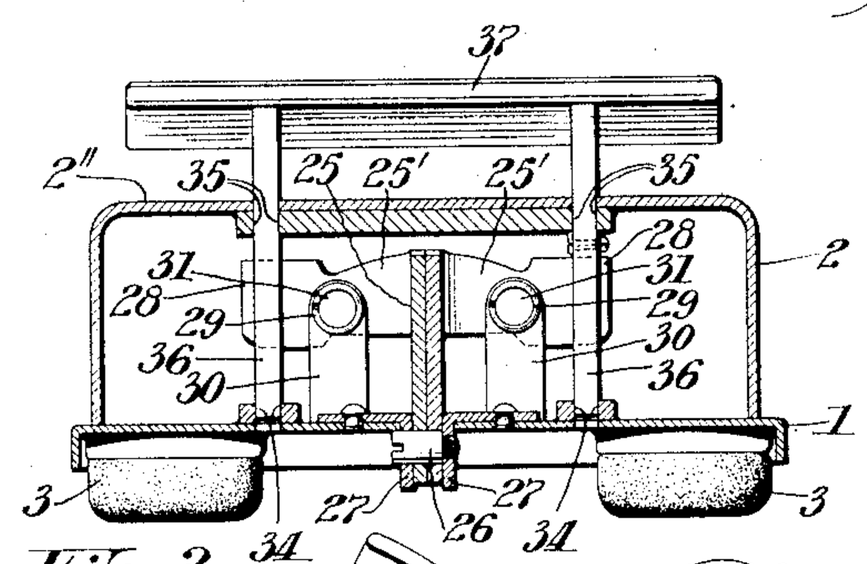


Fig. 3.

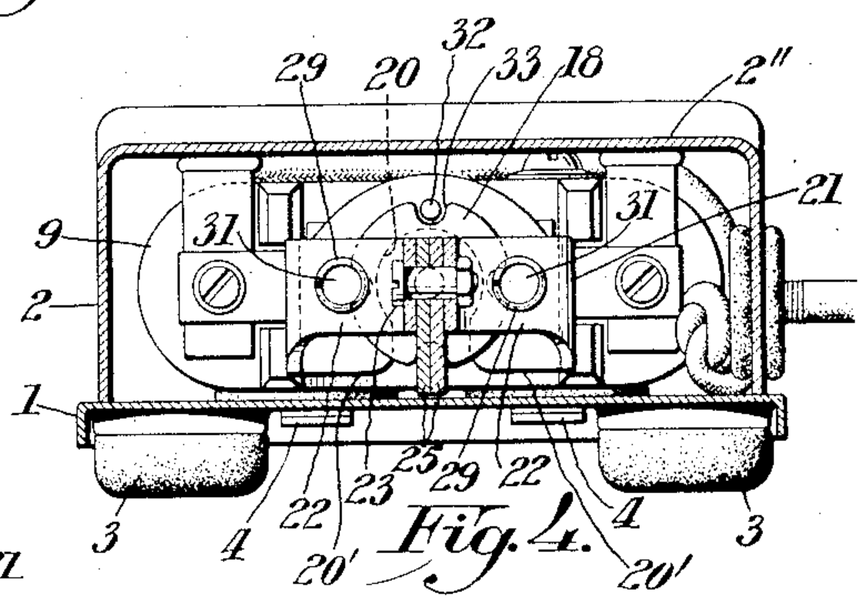


Fig. 4.

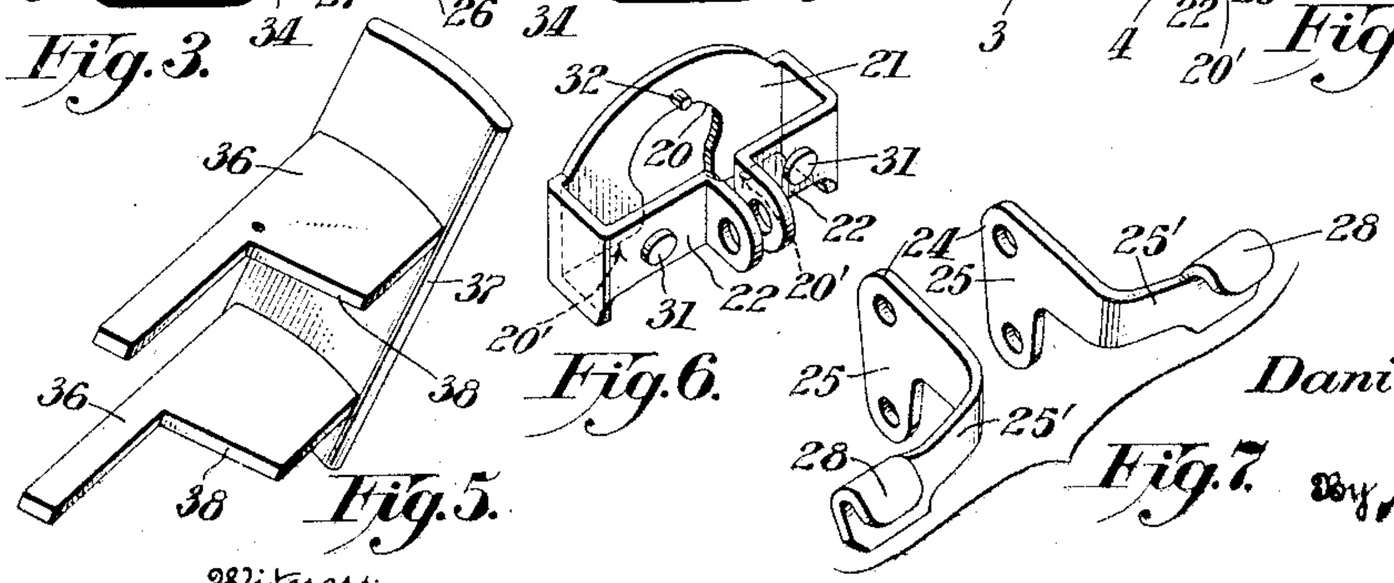


Fig. 5.

Fig. 6.

Fig. 7.

Witness:

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UNITED STATES PATENT OFFICE

2,022,491

FOOT-OPERATED MOTOR CONTROLLER

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Application December 29, 1932, Serial No. 649,289

7 Claims. (Cl. 201—51)

This invention relates to foot-operated controllers for electric sewing machines and has for an object to provide a simplified and improved foot-controller of the type in question which is of compact construction and free from the heretofore annoying fault of creeping over the floor upon which it rests for use.

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 drawing 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.

Fig. 1 is a longitudinal vertical section through the controller casing showing the controller operating mechanism in elevation. Fig. 2 is a top plan view of the controller. Figs. 3 and 4 are, respectively, transverse sections on the lines 3—3 and 4—4, Fig. 1. Figs. 5, 6 and 7 are perspective views of elements of the controller operating mechanism.

The controller illustrated comprises a base 1 and removable cover 2. The cover 2 has a rearwardly disposed flat horizontal portion 2' and a forwardly disposed downwardly sloping portion 2''; the term "forwardly" meaning in a direction toward the foot of the operator or toward the right in Fig. 1. The base 1 has secured to its under side rubber feet 3 adapted to rest upon the floor. The cover 2 is provided at one end with hook-tongues 4 which pass through apertures 5 in the base 1 and engage the under side of the latter. A single fastening screw 6 passes through the tongue 7 extending forwardly from the cover 2 and is threaded into the base 1 to secure the cover upon the base.

Fastened to the base 1 by screws 8 is a conventional carbon-compression-type rheostat unit 9 such as disclosed in the United States patents to D. H. Chason, No. 1,643,292, of Sept. 27, 1927, and No. 1,792,818, of Feb. 17, 1931. Such a rheostat unit comprises a porcelain body formed with spaced wells or chambers 11 for the stacks of carbon resistance disks 12 which substantially fill the wells 11 and are electrically connected to the terminals 13. The stacks 12 also comprise the compression heads 14 which are bridged by the bow-spring contact-member 15 backed by a stiffer spring member 16. From the centers of the springs 15 and 16 there extends a pull-rod or draw-bar 17 having a screw-threaded end carrying an adjustable nut 18 the shank 19 of which passes through an aperture 20 in a draw-head 21. The draw-head 21 is of rectangular frame-like form, as shown in dotted lines in Fig. 2, and includes a pair of inwardly extending arms 22 which are pivotally connected by the bolt 23 to the knees 24 of the side-by-side elements 25 of a bell-crank lever pivoted at the lower ends of their vertical legs at 26 to the spaced ears 27 extending downwardly from the base 1. The forwardly extending arms 25' of the elements 25 of the bell-crank lever are bent outwardly in opposite directions and at their extremities are formed with folded over ears 28 presenting upper rounded bearing surfaces for engagement by the pedal member to be described. A pair of recovery springs 29 are interposed between stationary posts 30 rising from the base 1 and the arms 22 of the draw-head. Spring-positioning pins 31 are of course provided on the posts 30 and arms 22. A pin 32 on the draw-head 21 engages a notch 33 in the flange of the adjusting nut 18 to hold the latter in adjusted position on the draw-bar 17.

Mounted in the inclined guideways 34, 35 in the base 1 and cover 2, respectively, are the legs 36 of a pedal-member 37. The legs 36 are formed with cam-shoulders 38 which engage the upper rounded surfaces of the ears 28 of the bell-crank lever 25. Foot-pressure upon the pedal 37 causes the legs 36 to slide downwardly in the guideways 34, 35, thereby causing the cam-shoulders 38 to depress the ends 28 of the bell-crank lever elements 25 and swing the latter about their common fulcrum 26, exerting a pull upon the draw-head 21 and draw-bar 17 of the variable resistance unit. A pull upon the draw-bar 17 first closes the electric circuit through the stacks 12 of resistance disks and then exerts a gradually increasing spring pressure thereon which gradually lowers the electrical resistance thereof.

A feature of the invention is the mounting of the pedal 37 in guideways inclined to the vertical. The direction and amount of inclination is such that the line of motion of the pedal is substantially tangent to a circle struck from a center coincident with the point where the operator's heel normally rests upon the floor when the ball of the foot is resting upon the pedal. This feature prevents creeping of the controller over the floor under repeated operations thereof.

Because of its extreme compactness the present controller is particularly well adapted for use in connection with portable electric sewing machines of small size; the controller being easily

stored in the restricted space between the bed and overhanging bracket-arm of the sewing machine, when the outfit is not in use.

It will be observed that the aperture **20** opens into the bottom side or edge **20'** of the draw-head **21**. This feature is of advantage in that it permits the draw-head to be readily disconnected from the adjusting nut **18** and draw-bar **17** by swinging it upwardly about its pivotal connection **23** with the bell-crank lever elements **25**. Such disconnection is often desirable for permitting adjustment of the nut **18** on the draw-bar **17** or for permitting ready removal and replacement of the rheostat unit **9**.

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

1. An electric motor-controller comprising a casing having a bottom wall adapted to rest for use upon the floor, a variable electrical resistance unit mounted within said casing and having an operating draw-bar, a bell-crank lever having a pair of angularly related arms joined to form a knee, said knee being connected to said draw-bar, one of said arms being pivoted on a horizontal axis to the bottom wall of said casing, and a bodily movable pedal slidably supported by said casing and operatively engaging the other arm of said bell-crank lever.

2. An electric motor-controller comprising a casing having a bottom wall adapted to rest for use upon the floor, a variable electrical resistance unit mounted within said casing and having an operating draw-bar, a bell-crank lever having a pair of angularly related arms joined to form a knee, said knee being connected to said draw-bar, one of said arms being pivoted on a horizontal axis to the bottom wall of said casing, and a bodily movable pedal slidably supported by said casing and having a cam-shoulder engaging the other arm of said bell-crank lever.

3. An electric motor-controller comprising a casing having a bottom wall adapted to rest for use upon the floor, a variable electrical resistance unit mounted within said casing and having a horizontally disposed operating draw-bar, a bell-crank lever pivoted at the end of one of its arms to said casing, a draw-head pivoted to the knee of said bell-crank lever and adjustably connected to said draw-bar, and a pedal slidably supported by said casing for bodily movement and operatively connected to the other arm of said bell-crank lever.

4. An electric motor-controller comprising a flat rectangular casing adapted to rest for use upon the floor, said casing having at one end thereof spaced parallel guideways, a horizontal pedal-bar having spaced downwardly extending legs received in said guideways, said legs having cam-shoulders thereon, a bell-crank lever pivoted to said casing and operatively engaged by said cam-shoulders, and a variable electrical resistance unit disposed in said casing and having an operating draw-bar connected to said bell-crank lever.

5. An electric motor-controller comprising a casing adapted to rest for use upon the floor, said casing having a flat bottom wall and a top wall having a flat horizontal rearwardly disposed portion and a downwardly and forwardly sloping forwardly disposed portion, alined guideways in said base and sloping forwardly disposed portion, the line of said guideways being at all times inclined downwardly and rearwardly at a fixed angle to the vertical, a pedal-slide mounted in said guideways, and a variable electrical resistance unit housed within said casing and operatively connected to said pedal-slide, said pedal-slide having a surface above the downwardly and forwardly sloping portion of said casing adapted for engagement by the foot of the operator.

6. An electric motor-controller comprising a base, an electrical resistance unit mounted on said base, and including an operating draw-bar having an adjusting nut thereon, pedal-operated mechanism mounted on said base independently of said resistance unit and including a pivotally mounted draw-head engaging said adjusting nut and having a clearance aperture for said draw-bar opening into one side of the draw-head, whereby the latter may be swung about its pivot to disconnect it from said draw-bar.

7. A rheostat comprising a flat rectangular box-like casing adapted in use to rest upon the floor, a compressible resistance unit housed within one end of said casing and having a horizontally disposed operating draw-bar, a pedal member mounted to slide bodily up and down in the other end of said casing, and an operative connection between said pedal member and said draw-bar including a bell-crank lever one arm of which is fulcrumed on the bottom wall of said casing and the knee of which is connected to said draw-bar, the other arm of said bell-crank lever being engaged by said pedal member.

DANIEL H. CHASON.