Nov. 28, 1950 A. M. SMITH 2,531,477

FOOT MEASURING DEVICE

Filed Sept. 26, 1949 2 Sheets-Sheet 1

Fig. 1.

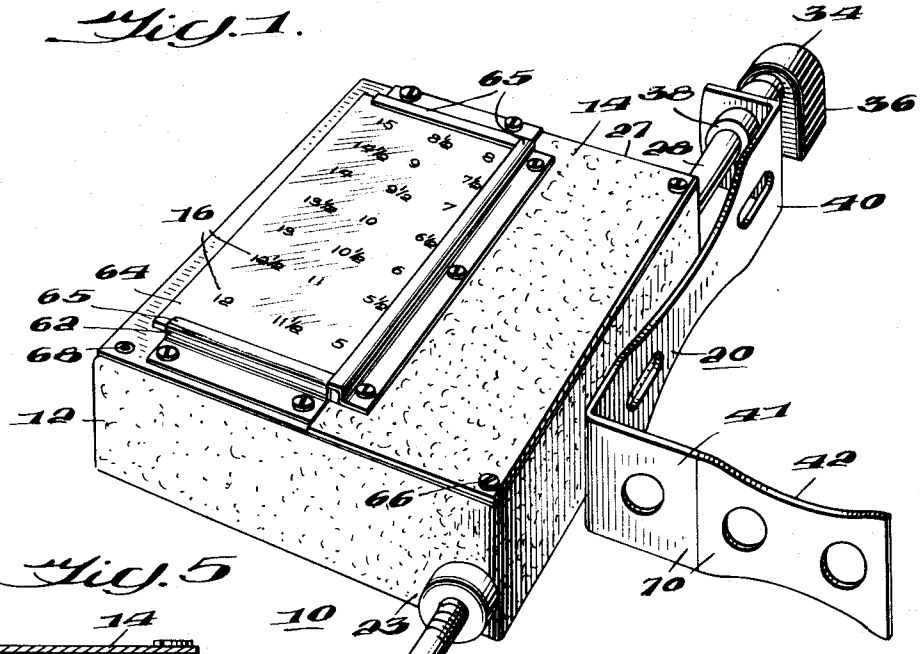


Fig. 5

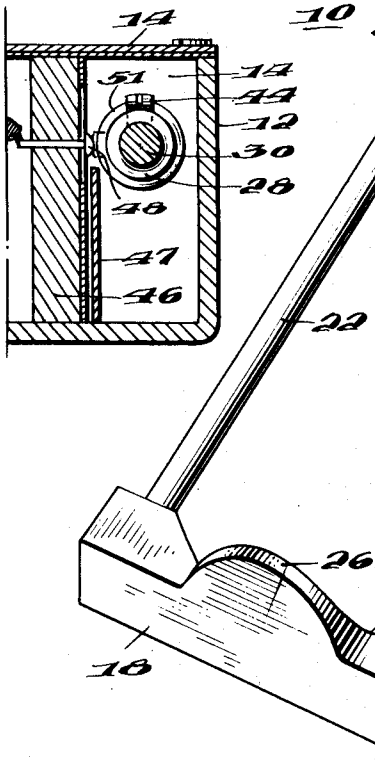
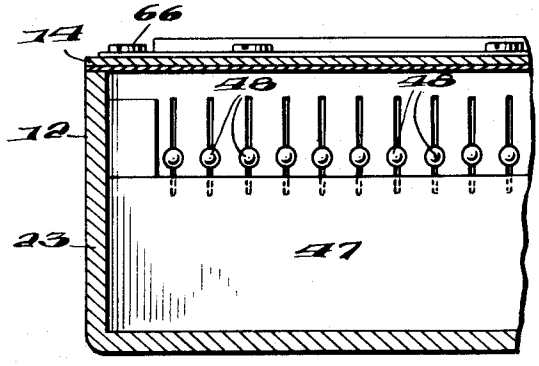


Fig. 6.



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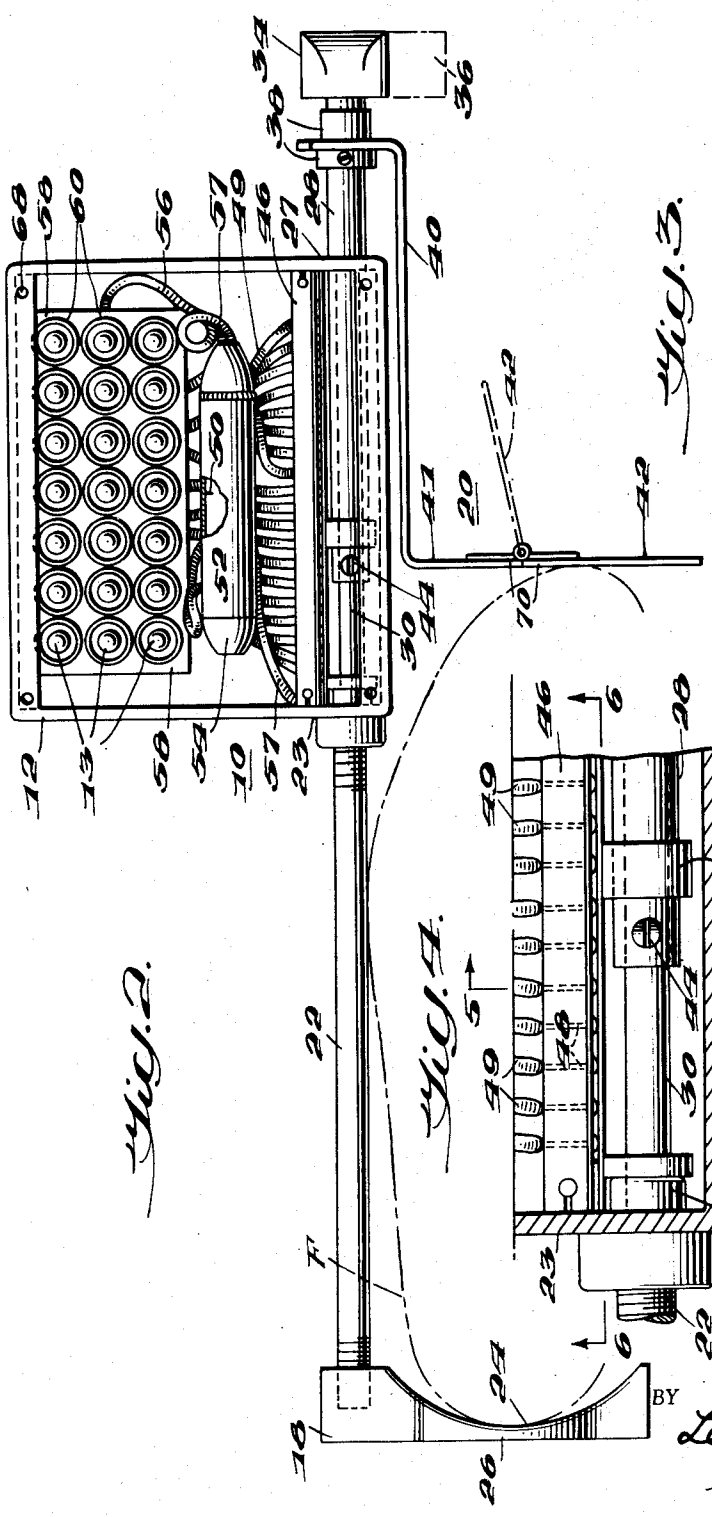


Fig. 2.

Fig. 3.

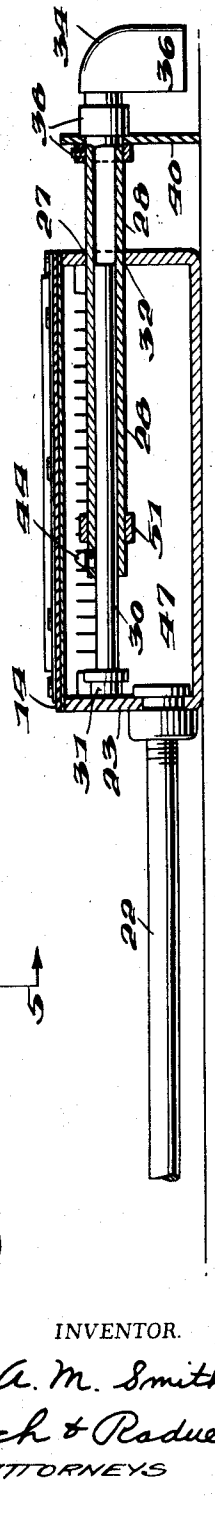


Fig. 4.

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FOOT MEASURING DEVICE

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Application September 26, 1949, Serial No. 117,795

6 Claims. (Cl. 33—3)

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This invention relates to a foot measuring device and in particular to a device which will give visual indication of the proper size of shoe called for by a foot measured therein.

A general object of the invention is to equip a foot measuring device with illumination means so that only the indicia corresponding to the proper shoe size will be illuminated and visible to both the salesmen and the customers.

Another object of the invention is to provide a novel switch means arranged so that the indicia will not light up until the device has been adjusted to the length of the foot being measured, and the switch actuated.

A further object of the invention is to provide a foot measuring device of the illuminated type including an enclosed small size, dry cell battery and a sliding contact, which contact is controlled by an operating member normally biased in a circuit open position.

A still further object of the invention is to provide novel means whereby the right or left foot may be measured on the same side of the measuring device, thereby eliminating clumsy manipulations and adjustments prevalent in prior devices.

Other novel features of improvement contributing to the ease and efficiency of operation of the foot measuring device will be apparent and readily understood from the following detailed description of the preferred embodiment of the invention taken in connection with the accompanying drawings, in which:

Fig. 1 is a top perspective view of the foot measuring device of this invention;

Fig. 2 is a top plan view of the device with a part of the device removed illustrating the arrangement of the indicia illuminating means, and showing in dotted lines the position of a foot being measured;

Fig. 3 is a side elevation partly in section showing details of the switch means;

Fig. 4 is a fragmentary top plan view partly in section showing further details of the switch means;

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4 looking in the direction of the arrows and showing the open and closed positions of the switch means; and

Fig. 6 is an enclosed sectional view taken on the line 6—6 of Fig. 4 looking in the direction of the arrows and showing other details of the switch means.

Referring to the drawings, the numeral 10 generally indicates the improved foot measuring device, which includes a housing box 12, a series of electric lamps 13, a removable cover 14, a set of indicia 16, a fixed heel abutment plate 18, and an adjustable toe contacting plate 20.

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The rectangular box or container 12 has a rod 22 rigidly secured to one end corner portion 23 upon the outer end of which rod is mounted the heel plate 18. This plate 18 is symmetrically and concavely curved at 24 to fit the heel extremity of either foot, and is provided with an upstanding central flange 26 of the same curvature.

On the opposite end 27 of the box 12 a tubular arm 28 is slidably mounted and secured for movement in a path parallel to the rod 22. This slidable arm 28 extends through an opening 32 (Fig. 3) in the end 27 and telescopes over a guide bar 30 which is positioned on the inside of container 12 and secured at 31 to the inside of end 23 by a screw connection or other suitable means. The clearances between the arm 28, the opening 32 and the bar 30 are made quite small to eliminate any loose play between the parts.

The outer end of the slidable arm 28 carries an actuating handle 34 in the form of an unbalanced weight. This handle 34 has an elongated and heavy depending portion 36. As the arm 28 is free to turn as well as to slide, the weight portion 36 will keep the arm 28 turned to the position shown by the full lines in the drawings, unless it is manually actuated, lifted or turned to the broken line position also indicated. The function of this weight bias is an important feature of the invention that will be fully understood when the operation of the device is described in detail.

One end of the toe plate 20 is securely mounted for relative rotation on the arm 28 between two collars 38. These collars 38 must be very accurately positioned on the arm 28 so that the distance between the heel and toe plate will afford an accurate measure of the foot length for correct determination of shoe size. The toe plate 20 may be shaped from an angle strip 40 of metal, and is provided with a hingedly connected end portion 42.

The toe plate 20 extends generally along one side of the box 12 toward the heel abutment plate 18, with a short leg 41 and the one-way hinged portion 42 projecting outward and perpendicular to the line of measurement.

Referring to Fig. 2, the hinged portion 42 is normally in the dotted line inoperative position when measuring the right foot, but is extended to the full line position when the left foot is to be measured. The outline of the left foot F shown

in this figure illustrates the symmetrical relationship of the toe and heel plates.

The slidable arm 28 is also provided with a contact button 44 on its inner end. Suitably mounted adjacent the bar 30 and parallel thereto is a box partition 46. This partition carries a number of contact pins 48 which extend through the partition and have enlarged portions engageable by the button 44 when the arm 28 is appropriately rotated. The contact button is shown in engagement with one of the contact pins 48 in dotted lines in Fig. 5. The number of contacts 46 depends upon the number of shoe sizes and half sizes desired in the measuring device.

A thin strip 47 is placed between the partition 46 and the slidable arm 28. This strip terminates just below the contact pins 48 and with the aid of a small spacer collar 51 of insulating material mounted on the metal arm 28 aids in keeping the metal parts from contacting until the arm and handle 34 are turned. The collar 51 riding as it does on the upper part of strip 47, also aids in steadying the rod and eliminating side play.

Each contact pin 48 is provided with a wire 49 connecting it to one of the lamps 13. Energy may be supplied by means of a small pen-sized dry battery 50, mounted in a tubular container 52. The flow current from the battery is controlled by a rotatable master switch 54 on one end of the container 52. The other end of the container receives a wire 56 leading from the battery to the lamps 13 and a wire 57 connected to the metal bar 30. The lamps 13 are connected in parallel and are secured to a base 58. There is one lamp for each contact 48, corresponding in progressive order to respective shoe sizes and half sizes. Each lamp has a tubular shade member 60 which directs the light only to the particular indicia 16 corresponding to the size shoe required by the foot measured.

As shown in Fig. 1, the box cover 14 has a rectangular opening 62 covered by an opaque piece of glass 64 which has transparent indicia 16 spaced thereon. Flanged strips 65 extend along three sides of the opening and slidably receive the glass 64. The cover 14 may be secured to the container 12 by means of screws 66 adapted to fit in holes 68 formed in each corner of both the container and cover.

If desired a small extension plate may be fastened to the bottom of the container 12 to support the toe plate 20, which of necessity must be freely rotatable on the sliding arm 28.

In describing the operation of the device it must be assumed that the slidable arm 28 and the toe contacting plate 20 which it carries are in the fully retracted position. The heel of the foot to be measured (which is resting on a fitting stool or other plane surface) is then placed in the curved portion 24 of the heel plate 18. If the right foot is being measured the hinged portion 42 may remain in the dotted line position (Fig. 2), but it must be extended when the left foot is to be measured. The operating handle 34 is now grasped in the hand with the depending portion 36 in the biased down position. In this position the contact button 44 is on the upper side of the sliding arm 28, and, therefore, the arm will slide on the guide bar 30 without contacting any of the pins 48. The handle is pushed in until the surface 70 of the toe plate 20 just touches the farthest extending toe (Fig. 2). The handle 34 is then given a quarter turn to the dotted line position shown in Fig. 2 and the contact button 44 will then engage one of the contact pins 48 to complete the circuit through the battery 50 to one of the lamps 13. This will be the lamp corresponding most closely to the size of shoe required by the foot measured and it will light up and illuminate the proper indicia 16.

The spacing of the indicia 16 in progressive columns as shown facilitates quick and accurate reading by the customer and the salesman.

There has thus been provided a novel foot measuring device that is simple to operate, and accurate in use because only the correct size is visible for reading.

Since other equivalent modifications and variations in detail will be prompted by the disclosure which has been made, the present invention is to be limited only to the scope and spirit of the appended claims.

I claim:

1. In a foot measuring device, a box-like housing, a set of individually displayable indicia indicative of shoe size carried by said housing, an elongated member secured adjacent one end and extending away from one side of said housing, a heel abutment plate fixedly mounted on said elongated member, an arm slidable parallel to said elongated member and extending into the housing through an opening therein opposite said one side, an actuating handle fixed to the outer end of said slidable arm for rotating the same, a toe plate assembly having its inner end secured to said arm for relative rotation in a fixed position lengthwise thereof, means cooperating with said slidable arm within said housing to selectively and individually display the corresponding size indicia upon predetermined rotation of said handle when the toe plate assembly through bodily adjustment has arrived at a determined position indicative of a foot size.

2. In a foot measuring device, a rectangular housing, a set of individually displayable indicia indicative of shoe size carried by said housing, a rod secured adjacent one corner and extending perpendicular to one side of said housing, a heel abutment plate fixedly mounted on said rod, a guide bar secured within said housing and extending perpendicular to the same side of the housing as said rod, a slidable arm extending into the housing through an opening therein and mounted for telescoping and rotating movement on said guide bar, an actuating handle fixed to the outer end of said slidable arm for rotating the same, a toe plate having one end securely mounted for relative rotation on the outer portion of said arm in a fixed longitudinal position inward of said handle, means cooperating with said slidable arm within said housing to selectively and individually display the corresponding size indicia upon rotation of said handle when the toe plate through adjustment has arrived at a determined position indicative of a foot size.

3. In a foot measuring device, a rectangular housing, a set of individually displayable indicia indicative of shoe size carried by said housing, a rod secured adjacent one corner and extending perpendicular to one side of said housing, a heel abutment plate fixedly mounted on the unsecured end of said rod, a guide bar secured within said housing and extending perpendicular to the same side of the housing as said rod, a slidable arm extending into the housing through an opening therein and mounted for telescoping and rotating movement on said guide bar, an actuating handle fixed to the outer end of said slidable arm for rotating the same, a toe plate having one

end securely mounted for relative rotation on the outer portion of said arm in a fixed longitudinal position inward of said handle, said toe plate having an offset portion extending parallel to said slidable arm and including a toe contacting portion projecting outwardly of and perpendicular to the line of measurement, said toe contacting portion including a one-way hinged piece adapted to swing in a direction away from said heel abutment plate, and said heel abutment plate having a symmetrical concavity in the surface facing said toe contacting portion and aligned with the hinge axis, a partition member in said housing extending from one side to the other in close proximity and parallel to said guide bar, contact pins extending transversely through said partition and having enlarged portions on one side parallel to and in substantial alignment with said slidable arm, a set of electric lamps in said housing corresponding to and located directly under said set of indicia, an open electric circuit between said contact pins, said lamps and said slidable arm, and a contact button mounted on the inner end of said slidable arm to close the circuit to one of said lamps for selectively and individually displaying the corresponding size indicia upon rotation of said handle when the toe plate through adjustment has arrived at a determined position indicative of a foot size.

4. In a foot measuring device according to claim 3 in which said actuating handle includes a biasing weight adapted to normally position said contact button out of engagement with said contact pins.

5. In a foot measuring device, a rectangular housing including front, rear and side surfaces and a top and a bottom connecting all of said surfaces, a set of individually displayable indicia indicative of shoe size mounted on the top of said housing, a rod secured adjacent one corner and extending perpendicular to one side of said housing, a heel abutment plate fixedly mounted on the unsecured end of said rod, said heel plate extending outwardly and perpendicularly from said rod well beyond the adjacent side surfaces of said housing, a guide bar secured within said housing and extending perpendicular to the same side of the housing as said rod, a tubular arm extending into the housing through an opening in the opposite side and mounted for telescoping and rotating movement on said guide bar, an actuating handle fixed to the outer end of said tubular arm for rotating the same, a biasing weight on said handle adapted to normally hold said arm from rotating, a toe plate having one end securely mounted for relative rotation on the outer portion of said arm in a fixed longitudinal position inward of said handle, a partition member in said housing extending from one side to the other in close proximity and parallel to said guide bar, contact pins extending transversely through said partition and having enlarged portions on one side parallel to and in substantial alignment with said slidable arm, a set of electric lamps in said housing corresponding to and located directly under said set of

indicia, an open electric circuit between said contact pins, said lamps and said slidable arm, and a contact button mounted on the inner end of said slidable arm to close the circuit to one of said lamps for selectively and individually displaying a corresponding size indicia upon rotation of said handle when the toe plate through adjustment has arrived at a determined position indicative of a foot size.

6. In a foot measuring device, a rectangular housing including front, rear and side surfaces and a top and a bottom connecting all of said surfaces, a set of individually displayable indicia indicative of shoe size mounted on the top of said housing, a rod secured adjacent one corner and extending perpendicular to one side of said housing, a heel abutment plate fixedly mounted on the unsecured end of said rod, said heel plate extending outwardly and perpendicularly from said rod well beyond the adjacent side surfaces of said housing, a guide bar secured within said housing and extending perpendicular to the same side of the housing as said rod, a tubular arm extending into the housing through an opening in the opposite side and mounted for telescoping and rotating movement on said guide bar, an actuating handle fixed to the outer end of said tubular arm for rotating the same, a biasing weight on said handle adapted to normally hold said arm from rotating, a toe plate having one end securely mounted for relative rotation on the outer portion of said arm in a fixed longitudinal position inward of said handle, said toe plate having a portion extending longitudinally of said front surface and including a toe contacting portion projecting outwardly of and perpendicular to the line of measurement and substantially parallel to the heel abutment plate, said toe contacting portion including a one-way hinge piece adapted to swing in a direction away from said heel abutment plate, and said heel abutment plate having a symmetrical concavity in the surface facing the toe contacting portion of said toe plate and aligned with the hinge axis, a partition member in said housing extending from one side to the other in close proximity and parallel to said guide bar, contact pins extending transversely through said partition and having enlarged portions on one side parallel to and in substantial alignment with said slidable arm, a set of electric lamps in said housing corresponding to and located directly under said set of indicia, a cylindrical lamp shade for each lamp arranged to direct light only to the indicium corresponding to said lamp, an open electric circuit between said contact pins, said lamps and said slidable arm, and a contact button mounted on the inner end of said slidable arm to close the circuit to one of said lamps for selectively and individually displaying a corresponding size indicia upon rotation of said handle when the toe plate through adjustment has arrived at a determined position indicative of a foot size.

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No references cited.