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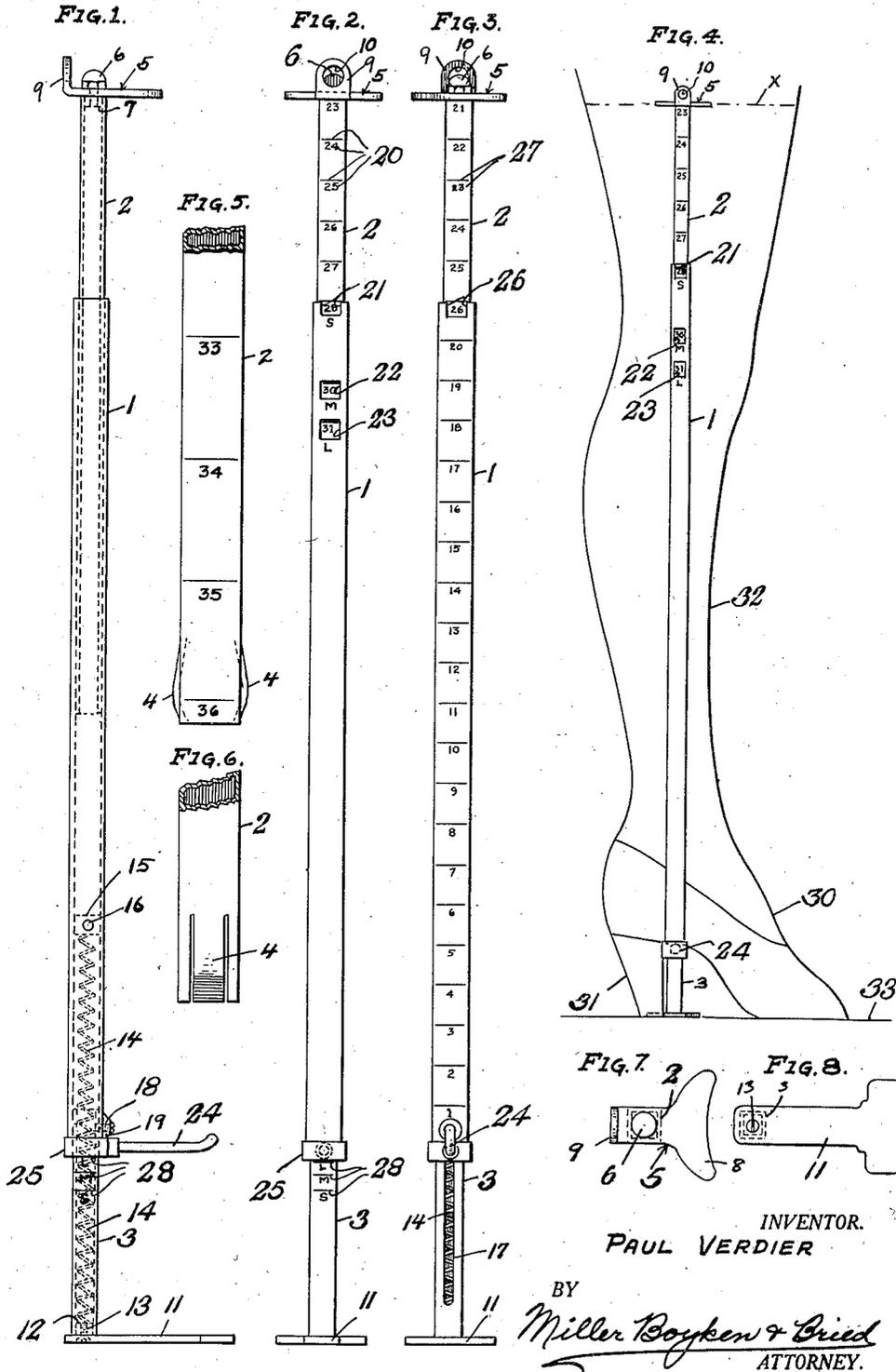
P. VERDIER

2,125,530

HOSIERY CALCULATOR

Filed Oct. 30, 1936

2 Sheets-Sheet 1



INVENTOR.
PAUL VERDIER

BY
Miller Boyken & Dried
ATTORNEY.

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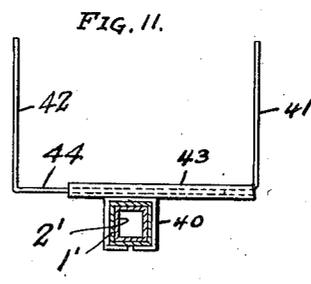
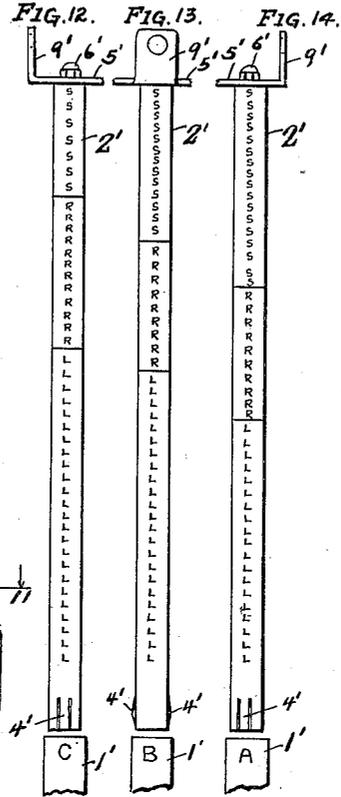
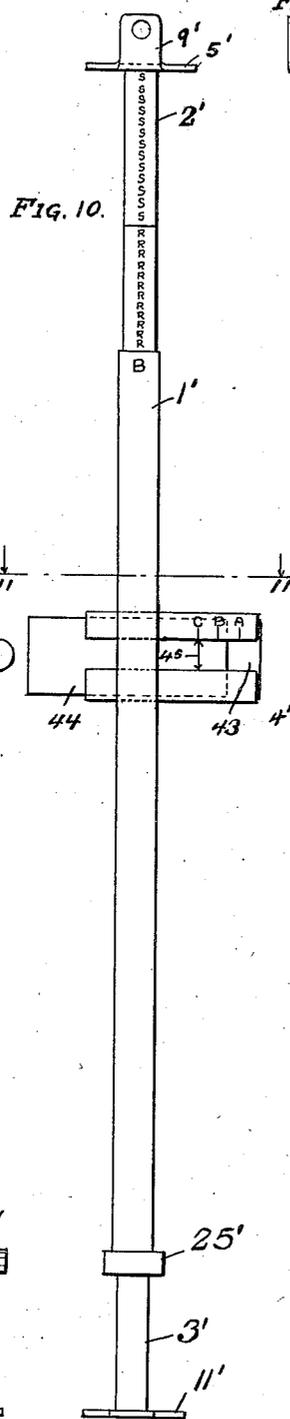
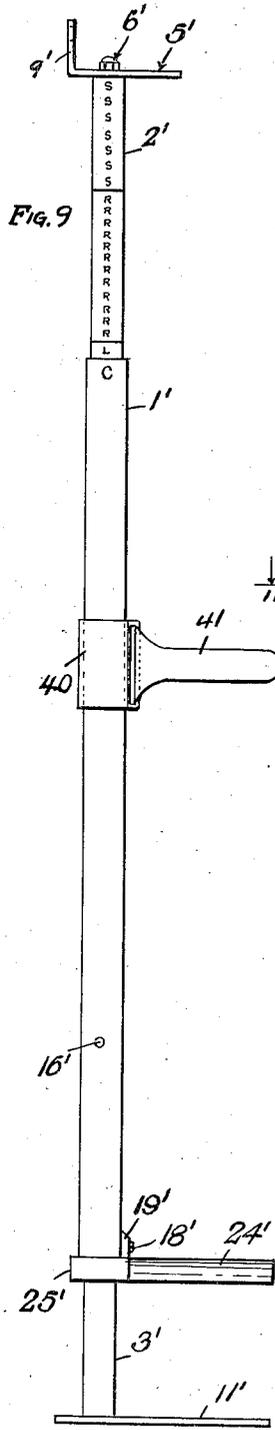
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UNITED STATES PATENT OFFICE

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HOSIERY CALCULATOR

Paul Verdier, San Francisco, Calif.

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10 Claims. (Cl. 33—8)

This device relates to a device for quickly and accurately determining, in advance of a fitting, the correct size stocking required to reach a certain designated height on legs of various sizes, and has for its object the provision of such device that is simple, compact, and adapted to be quickly and accurately positioned relative to the leg of a wearer for making calculations from the instep of the foot to various heights along the leg irrespective of the height of the heel of the shoe on the foot of the wearer, and a further object is the provision of means for quickly and accurately determining the size of the leg of the wearer and also simple and effective means for obtaining the correct calculation for length of hosiery at a glance.

Other objects and advantages will appear in the drawings and description annexed hereto.

In the drawings, Fig. 1 is a lateral side elevational view of my device with dotted lines showing interior construction.

Fig. 2 is a rear side elevational view of my device as seen at right angles to Fig. 1.

Fig. 3 is a front side elevational view of my device showing the side opposite that of Fig. 2.

Fig. 4 is a reduced rear side elevational view of my device showing the device relative to a leg and foot of a person when in use.

Fig. 5 is an enlarged fragmentary view, partly in section and partly in elevation, of the lower end of the upper telescopic member of the device.

Fig. 6 is an enlarged fragmentary view, partly in section and partly in elevation, of the lower end of the upper telescopic member of my device as seen at right angles to Fig. 5.

Fig. 7 is a top plan view of the upper end of my device.

Fig. 8 is a bottom plan view of the lower end of my device.

Fig. 9 is an elevational view of another form of my device.

Fig. 10 is an elevational view of the device of Fig. 9 taken at right angles thereto.

Fig. 11 is a sectional view of the device of Fig. 10 taken along the line 11—11 of Fig. 10.

Figs. 12 to 14 are fragmentary elevational views respectively of the upper portion of my device, showing three sides thereof.

Briefly described, my device as shown in the drawings is similar to a device shown in my co-pending application Serial No. 55,737, filed December 23, 1935, and is for a similar purpose.

Heretofore, ladies' hosiery has generally been fitted according to foot size, and although at-

tempts have been made to supply hosiery in various lengths, insofar as I am aware no means has been provided for quickly and accurately determining the height to which a stocking will reach when fitted to the leg of a person in advance of an actual fitting. Hosiery will shorten when fitted to a leg according to the size of the leg; that is, the larger the leg in diameter at the calf the greater the stocking will shorten in length, and the smaller the leg in diameter at the calf, the less will be the shortening. Obviously foot size has no relation to the diameter of the calf of the leg, hence a person with a small foot not infrequently has a large calf and a long leg or vice versa. If the leg is long and large there is a different degree in the shortening of the stocking when fitted than when the leg is long and slender. With my device, it is possible to quickly and accurately determine the exact height to which a stocking will reach on any leg irrespective of the variations, whereby the operator may readily supply a stocking that will reach the desired height prior to an actual fitting, thereby effecting a material saving in time, labor and expense and insuring against possible error in result.

In detail the device shown in Figs. 1 to 8, comprises a vertical tubular standard 1, preferably square in cross section and of relatively light sheet metal, and an upper tubular post 2, also square in cross section and telescopically slidable within the standard for vertical extension from the upper end of the standard, while a tubular base stem 3, square in cross section, is telescopically slidable in and out of the lower end of the standard.

Post 2 is provided at its lower end, with resilient fingers 4 formed from the opposite side walls of the post adjacent the lower end thereof to project slightly outwardly and then inwardly so the outwardly projecting portion will frictionally engage the inner sides of the standard for frictionally supporting the post at any desired degree of extension from the post, while the shape of the fingers permits ready insertion of the post within the standard in case it is completely withdrawn therefrom, or for assemblage of the device.

A horizontally disposed flat plate 5 is secured to the upper end of post 2 by any suitable means, such as a stud bolt 6 engaging in a filler block 7, that is brazed or soldered in the upper end of the post. The plate 5 is formed to generally crescent shape at 8, as seen in Fig. 8, where it projects from a side of the post so that when the post lies alongside the leg of a person, the crescent shape

outline of the edge of portion 8 will substantially conform to the horizontal contour of the leg. The opposite end of the plate is turned upwardly at 9 and apertured at 10 for suspending the device from a suitable hook.

The stem 3 is provided at its lower end with an elongated base plate 11 of generally T shape, the end of the leg extending across the bottom end of the stem and the arms disposed outwardly of the same side of the device as the crescent shape portion 8 of plate 5 extends. The plate 11 is rigidly secured to a filler block 12 by a screw 13, which block is soldered or welded into the lower end of the stem, although it may be brazed or soldered direct to the lower end of the stem or secured in any other suitable manner to hold it rigid with the stem and against turning relative thereto.

Enclosed within stem 3 and extending upwardly above the upper end of the stem into standard 1 is an expansion coil spring 14 adapted to engage at its upper end against a block 15 secured within the standard by a pin 16 or other suitable manner, and at its lower end the spring engages against the lower closed end of stem 3 or filler block 13. One side of stem 3 is vertically slotted as at 17 to pass the end of a screw 18 that threadedly extends through a reinforcing boss 19, and one side of standard 1 adjacent the lower end of the standard and to within the slot 17, but not sufficiently far to interfere with the free compression of the spring. The spring 14 is slightly under compression when the wall of the stem closing the upper end of the slot 17 is in engagement therewith and the stem is fully extended as indicated in the drawings. This construction, as described above, permits the use of a long spring, thus enabling ease of operation and also permitting a considerable extension of plate 11 from the lower end of the standard for a purpose later to be described.

The side of post 1 opposite the side of the device from which the base plate and crescent shape member 8 project, is graduated by horizontal lines at inch intervals commencing from about the plate 5, each line graduation being numerically marked with a whole number of successively increasing value below each line commencing with the numeral 23 at the upper end of the post and from thence downwardly, as indicated at 20. These lines and numbers are inscribed in the metal and preferably filled with a suitable contrasting color to be readily seen and which also precludes any chance of the lines or numbers becoming effaced by continual sliding of the post in and out of the standard.

The upper end of the standard on the same side as the indicia 20 is cut away at 21 so as to permit the number for the line it designates to be visible for reading when the line is even with the top end of the standard, as seen in Fig. 2, and also, when the post is fully collapsed within the standard for the shortest measurement, the numeral "23" adjacent the plate 5 is visible for reading.

On the same side of standard 1, and spaced a distance below the cut-out or recess 21, about equal to the vertical distance of two adjacent spaces between alternate graduation lines, a rectangular opening 22 is provided so as to expose the numeral two graduations below the one appearing in the cut-out 21, and at the same time directly below opening 22 is another rectangular opening 23 formed in the wall of the standard, but spaced from opening 22 a distance about equal

to that between adjacent graduation lines on post 2. Consequently upon sliding post 2 upwardly or downwardly within standard 1, three of the indicia or graduation numerals will simultaneously appear in cut-out 21, opening 22, and opening 23, respectively.

The cut-out 21 is indicated by the letter "S" inscribed in standard 1 directly below the cut-out, and openings 22 and 23 are respectively marked "M" and "L", these letters indicating "small", "medium", and "large".

On the side of the device opposite the indicia above described, the standard 1 is inscribed with horizontal lines one inch apart commencing at the lower end of the standard about one inch above the upper side of a horizontally projecting arm 24 rigidly secured at one end to the lower end of standard 1 by a square collar 25 that is brazed, soldered or riveted to the lower end of the standard. This arm is turned up slightly at its outer end, as indicated, and projects from the same side of standard 1 as the base plate 11 projects from side of stem 3.

The inch graduations are suitably numbered immediately below each line commencing with the numeral "1" at the bottom and terminating with "20" at the upper end of the standard one inch below the upper end thereof.

The side of standard 1 is cut out or recessed at 26 on the side bearing the inch scale in the same manner as and directly opposite the cut-out 21. On the outer side of the post adjacent the cut-out 26 are inscribed horizontal lines an inch apart and positioned directly opposite the lines inscribed on the opposite side of the post. Numbers are inscribed below the lines on the side adjacent the cut-out 26 commencing with "21" at the top of the post and increasing in value downwardly along the post, as "21", "22", "23", etc. These graduation lines and numbers are indicated on the drawings at 27 and it will be noted that the indicia 27 are two digits lower in value than the indicia 20 appearing on the opposite side of the post, and that the number appearing in cut-out 26 will always represent the actual distance between the upper side of arm 24 and the plate 5 and no other numbers will appear through the side of the standard adjacent cut-out 26 except the one appearing through said cut-out.

The stem 3 is also inscribed with three horizontal vertically spaced lines at 28 and the upper line being adjacent the lower end of standard 1, and marked "L" and the others in descending succession being marked "M" and "S". All three will appear when the stem 3 is fully extended and these indicia may appear on the three imperforate sides of the stem or only on one of the three sides, if desired, but preferably on the sides extending parallel with arm 24.

In operation, the operator first places the device horizontally and measures the calf of the leg between arm 24 and base plate 11. The result may indicate "M" or "medium" on the scale on stem 3. The device is then placed in upright position with the base plate 11 on the floor. The foot 30 of the purchaser is then placed over the arm 24, with the arm fitting across the instep and the standard will move downwardly, compressing spring 14 according to the height of the heel 31 of the purchaser's shoe, the arm 24 always being firmly in engagement with the instep, and the leg 32 being straight, since the purchaser stands firmly on the floor 33. The post 2 is then moved upwardly to the height X that the

purchaser desires the stocking to reach. The operator then observes the indicia appearing in opening 22 in standard 1, which in the case illustrated, indicates "30", meaning that a stocking thirty inches from instep to top will be required to reach that height on the leg although the actual distance between the arm 24 and line X is 26 inches. Had the scale 28 indicated "S", or "small", a 28-inch stocking would reach the height indicated at X, the numeral 28 being the one appearing in the cut-out 21 and had the scale 28 indicated "L", then a 31-inch stocking would have been required. All these figures simultaneously appear through the side wall of standard 1 and are instantly readable, hence the proper length stocking can be instantly determined for any size leg without further manipulation than elevating the plate 5 to the height desired.

The provision of square tubing for the post, standard and base plate, insures against turning of one part relative to the other and it also furnishes a surface for the proper scales. The base plate 11 being of the shape described will clear the heel and sole of the shoe so the operator will not stand on the plate, but can stand firmly on the floor. Arm 24, being of relatively small diameter, will automatically slide into the instep of the shoe and will firmly be held there.

In the device of Figs. 9 to 14, the upper telescopic post 2' is provided with three separate sets of indicia, each set comprising three adjacent zones of vertical length respectively indicated "S", "R" and "L", meaning "small", "regular" and "large". These markings are arbitrary as to the character of indicia, since figures or other letters may be used, but the meaning conveyed is similar.

One of the sets of indicia marked "S", "R" and "L" is on each of the three sides of the post 2', the zone marked "S" being uppermost, the zone "R" next below and adjacent thereto, and the zone "L" being lowermost and adjacent zone "R".

The upper end of the standard 1' is marked "A", "B" and "C", there being no openings or cut-out portion as in Figs. 1 to 8. When the post 2' is received within standard 1' the letters "A", "B", "C" are respectively on one of the three sides of the standard 1' so that "A" is on the same side as one of the sets of indicia and "C" is on the same side as the third set of indicia.

On the standard 1' is a vertically slidable gage element comprising a square collar 40 vertically slidable on standard 1' to various heights and to which collar is secured a pair of horizontally extending arms 41, 42 projecting from the blank side of standard 1'.

The arm 41 is formed with a right angle guide member 43, which guide member is a flat strip of material folded over at its upper and lower edges to provide a channel at the top and bottom edges of the strip for slidably receiving opposite top and bottom edges of a right angle extension 44 of arm 42 for movement of the arm 41, 42 toward and away from each other relatively. The guide member 43 extends horizontally past the collar at opposite ends, as seen in Figs. 10 and 11 and is inscribed at predetermined horizontally spaced points with the letters "A", "B", "C", while the extension 44 is marked with a line 45 adapted to register with the letters upon sliding extension 44 horizontally on the guide strip.

In actual practice the foot of the person de-

siring to purchase hosiery is placed on the arm 24' with the instep engaging over said arm in the same manner as described for Figs. 1 to 8, and then the gage element is raised and the arms moved together so as to touch the sides of the leg, front and back, at the thickest point of the calf. The operator then moves the upper telescopic member to the desired height along the upper leg. If the thickness of the calf is such that the line 44 registers with the indicia "C" on the gage device the operator reads the exposed indicia on the post 2' adjacent the indicia "C" at the upper end of standard 1', which, in the illustration, Fig. 9, is shown to be "L", meaning that stocking in order to reach the height on the leg indicated by the plate 5' must be a size "CL" stocking.

It will be seen that the zones marked on post 2' are so arranged that for a "C" size calf and for an "A" or a "B" size calf, there is a considerable variation in the length necessary to reach a predetermined uniform height, since a "small" or "S" length stocking may be required for an "A" of very small calf, whereas for the same desired height on a "C" size calf an "R" or a "regular" length stocking may be necessary. Also for all sized calves an "R" length stocking may be the correct length depending upon the height the person desires the stocking to reach.

Having described my invention, I claim:

1. In a device of the character described, an elongated vertically disposed standard, an elongated post arranged in longitudinal extension thereto slidably secured to the post for longitudinal movement upwardly relative to the standard, an arm projecting laterally from the lower end of the standard formed to snugly fit across and engage the instep of a shoe on the foot of a standing person, said post and standard being of a length whereby when said post is extended and when the arm is in engagement with said instep the upper end of the post will reach a point substantially above the knee of said person, a vertical row of indicia inscribed on said post and said standard being provided with means for facilitating the reading of the indicia on said post adjacent the upper end of the standard.

2. In a construction as defined in claim 1, said standard being tubular, and said post telescopically fitting therein, and the means on the post for facilitating the reading of indicia on the post including an opening formed in the side wall of said standard.

3. In a construction as defined in claim 1, an extension projecting laterally from the upper end of said post in the same direction as the arm on the standard and an elongated stem slidably supported on the standard from the lower end thereof in longitudinal extension thereof for movement longitudinally of the stem and standard and spring means connected between the stem and standard yieldably forcing said stem to a position beyond the lower end of the standard in longitudinal extension thereof.

4. In a construction as defined in claim 1, said standard comprising a tube open at its lower end and a hollow elongated tubular stem telescopically fitted within the lower end of the standard for sliding to extended position in longitudinal alignment with the standard and a coil spring enclosed within said tubular stem, stop means secured to the standard for engagement by an end of the spring and a stop at the lower end of the stem engaged by the opposite end of

the spring, said spring being adapted to yieldably maintain said stem in extended position.

5 5. In a device of the character described, an elongated vertically disposed standard, an elongated post and an elongated stem disposed in longitudinal alignment with said standard telescopically supported on the standard at opposite ends thereof respectively for sliding longitudinally of the standard toward and away from each other, 10 vertically spaced laterally extending projections respectively secured to the post and standard and scale means for indicating the distance between said projections at various degrees of extension of the post relative to the standard, and means 15 yieldably urging said stem to its maximum degree of extension in a direction away from said post.

6. In a device of the character described, an elongated standard, a member fixedly secured to said standard and projecting laterally therefrom, 20 a pair of separate devices mounted on said standard at opposite sides of said member for movement of each of the devices toward and away from said member in a direction longitudinally of the standard, means providing for normal positioning of one of the devices sufficiently close to 25 said member to closely receive the calf of the leg of a person between said device and member, means for spacing the other device of the pair from said member substantially the distance from the instep to the knee of the person, and scale 30 indicia associated with said pair of devices and standard for indicating the various distances between the devices respectively and said member upon movement of said devices relative to said 35 member.

7. In a construction as defined in claim 6, said standard being tubular and formed with a plurality of openings in a side wall thereof, and means mounting one of said devices for movement comprising a post telescopically slidable 40 within said standard to various degrees of extension outwardly from an end the scale indicia indicating the distance between the device mounted on said means and said member being inscribed on a side of said post and arranged relative to 45 the openings in the side of the standard for observation of the indicia through said openings upon sliding the post relative to the standard.

8. In a device of the character described, an elongated vertically disposed standard, a first means slidably mounted thereon adapted to move to a plurality of positions above the knee of a person and a second means slidably mounted on 5 said standard adapted to move to a plurality of positions below the knee of said person, said second means being arranged and adapted to engage opposite sides of the calf of a person at the thickest portion thereof, and means on said standard adapted to engage the bottom of the foot 10 of said person.

9. In a construction as defined in claim 8, said first means comprising a post telescopically slidable within said standard formed with a vertical 15 row of spaced indicia marks on a lateral side thereof adapted to be uncovered for successively reading of said marks upon sliding said post vertically upwardly.

10. In a device of the character described, an elongated vertically disposed standard, a first means slidably mounted thereon adapted to move to a plurality of positions above the knee of a person, a second means slidably mounted on said 20 standard adapted to move to a plurality of positions below the knee of a person, means for positioning said standard with its lower end at the foot of said person, said second means including a pair of opposed generally horizontally 25 extending members mounted for movement toward and away from each other relatively and for receiving the calf of the leg of said person therebetween, separate arbitrary co-related indicia inscribed on said standard, and first means, 30 and said second means respectively arranged and adapted to designate the correct length of a stocking to be fitted on the leg of said person in order to reach a predetermined height on the leg according to the degree of elevation of said 35 first means and to the thickness of the calf of the person as determined by the degree of separation of said opposed members when said opposed members engage opposite sides of the calf of the 40 leg.

PAUL VERDIER. 45