July 26, 1927. 1,636,754

M. J. O'SULLIVAN

FOOT MEASURING DEVICE

Filed March 1, 1926

Fig. 1

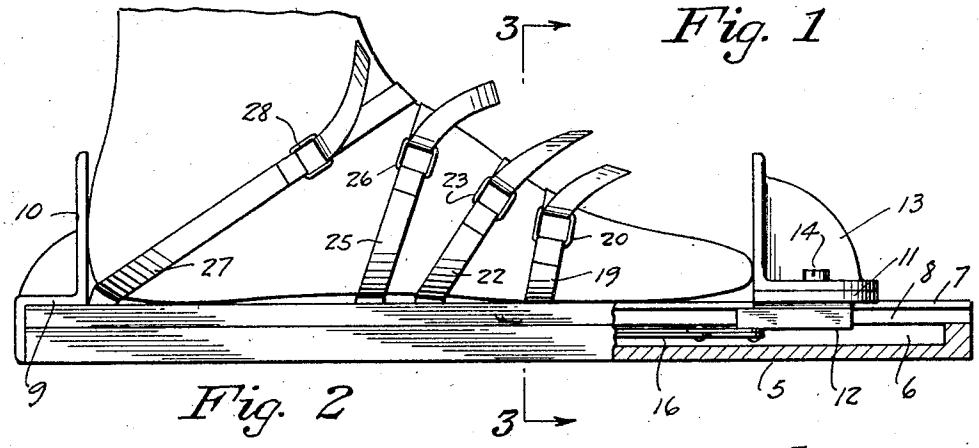


Fig. 2

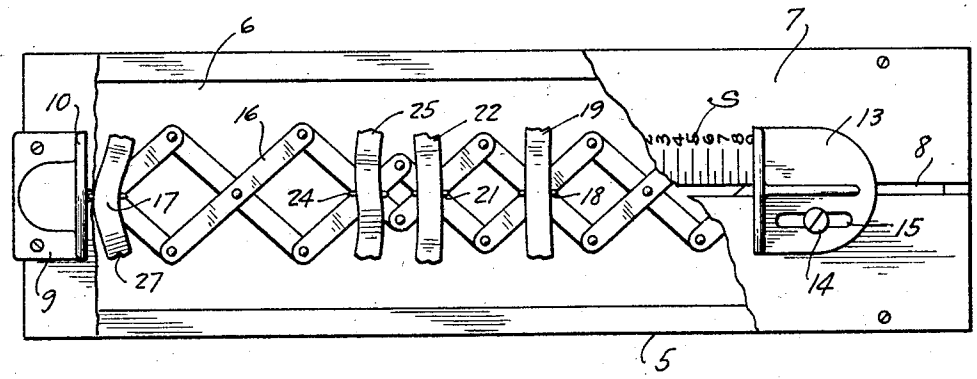


Fig. 4

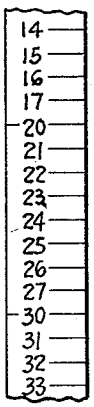
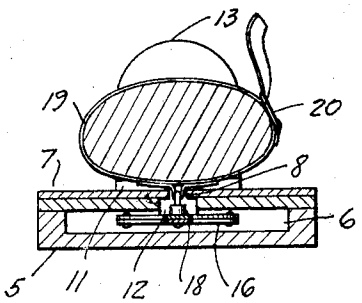


Fig. 3



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UNITED STATES PATENT OFFICE.

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FOOT-MEASURING DEVICE.

Application filed March 1, 1926. Serial No. 91,402.

This invention relates to a device for measuring feet, lasts and the like. Such measurements are especially useful in the manufacture of footwear. In the practical measurements of feet, the following dimensions should be determined: The length of the foot; and the supplementary peripheral lengths of the ball, the waist, the instep, and the heel. The longitudinal location of the several dimensions above mentioned is dependent upon the length of the foot, but varies in certain fixed proportions. The present device contemplates the provision of a device having an expansible foot length indicator carrying at selected locations supplementary measuring elements, these being mounted so as to be proportionately moved with the expansion and contraction of the indicator.

It is the primary object of this invention to provide a device of the character described which has a wide range of expansion, requires a minimum of work in adjustment, may be quickly operated, is compact, simple in structure and economical to construct. Another object of this invention is to provide a device of the character described which may be arranged to measure both feet and lasts.

These objects together with other objects and corresponding accomplishments are obtained by means of the embodiment of my invention illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevation of my device partly in section showing it as applied to a foot; Fig. 2 is a plan view with a portion of the top of the device broken away; Fig. 3 is a section as seen on the line 3—3 of Fig. 1; and Fig. 4 is a fragment of a measuring tape.

Referring more particularly to the drawing a base 5 is provided, it being preferably rectangular in plan and having a cavity 6. A cover 7 is mounted upon the base and provided with a longitudinally extending slot 8, thereby providing a slideway. At one end of the base is a heel stop 9 fixed in position and having an upright abutment plate 10 with which the heel of a foot or last may be engaged. Slidably mounted upon the base is a body 11 having a slide block 12 depending from the under side and extending through the slot 8. Mounted upon the body is a toe abutment plate 13. This plate is secured to the body by means of a set screw 14 extending through an elongated bolt hole 15, so that the position of the plate 13 upon the body may be adjusted. Marked upon the cover at the slot 8 is a scale S for showing the length or distance between the heel plate 10 and the body of the toe plate 11 in terms of the usual foot sizes. Thus, a foot length gage is provided.

The toe plate body 11 is secured or connected to a pantograph 16 mounted in the cavity of the base and fixed in position to the base at the other end as indicated by 17. Thus, on sliding the toe stop back and forth upon the base, the pantograph will be expanded and contracted. Secured to the pantograph and extending through slot 8 is a pin 18. This pin is located upon the pantograph at a position proportioned to the position of the ball of the foot. This pantograph and pin provide a proportional movement. Secured to the pin 18 is a tape 19 having an eye 20. The tape is arranged so that one end thereof may be passed through the eye and the transverse peripheral dimension of a body thereby indicated as best shown in Figs. 1 and 3. Extending through the slot 8 is another pin 21 having secured thereto a tape 22 provided with an eye 23. The pin 21 is located at the waist of the foot. A third pin 24 extends through the slot and is secured to the pantograph, it being provided with a tape 25 and an eye 26. Pin 24 is located at the instep and is for the purpose of measuring that portion of the foot. It will be noted that the position of pins 18, 21, and 24, are changed with the movement of the pantograph and the movement of the toe stop, but their relative positions proportional to the distance between the heel and toe stops remain unchanged.

A foot to be measured is placed upon the base with its heel abutting the heel stop or abutment plate 10. The toe stop is then moved to engage the toe, and the length or size of the foot may be read from the scale S on the base. Movement of the toe stop will have caused the ball, waist, and instep tapes to be properly positioned. The tapes are then passed around the foot, as indicated in Fig. 1 for the supplementary measurements.

In Fig. 4 I have shown a scale which is useful for measuring with the tape. The scale is divided into eighths of inches. The

first eighth is marked 1, the second 2, and so on, the seventh being marked 7; the eighth is marked 10, the ninth 11, and so on; the sixteenth is marked 20, and the twenty-fourth is marked 30. The scale is used in the following manner. The tens in the numbers indicate inches, and the units the number of eighths. For illustration, 15 indicates 1⅝ inches, twenty-seven 2⅞ inches, and thirty-three would indicate 3⅜ inches. Such a scale is convenient for the purpose of reading.

It is obvious that the units of length used for measurements is immaterial to the invention. It is also obvious that the device is not limited to measurement of feet. The lasts for a given size of foot are longer than the foot. In order to make the measuring device adaptable for lasts for comparison of measurements to the foot, the screw 14 is loosened and the plate 13 is moved upon the body so that the difference in lengths between the foot and the last will not change the tape locations already determined by the foot.

What I claim is:

1. A measuring device comprising an expansible foot length gage including a pantograph, and supplementary measuring devices located on said pantograph whereby said supplementary devices will be moved proportional to the movement of said gage.

2. A measuring device comprising an expansible foot length gage including a pantograph, and supplementary measuring devices located on said pantograph, each of said supplementary devices comprising a tape for embracing the foot transversely.

3. A foot measuring device comprising an expansible foot length gage including front and rear abutments, a pantograph comprising a jointed parallelogram connecting said abutments, and supplementary measuring devices mounted on said pantograph whereby said supplementary devices will be located proportional to the distance between said abutments.

4. A measuring device comprising an expansible foot length gage including front and rear abutments, a pantograph comprising a jointed parallelogram connecting said abutments, and supplementary measuring devices mounted on said pantograph whereby said supplementary devices will be located proportional to the distance between said abutments, each of said supplementary measuring devices comprising a tape embracing the foot transversely.

5. A foot measuring device comprising a a base having a slideway, a pantograph mounted in said slideway with one end fixed, a heel stop secured at the point of fixture of said pantograph, a toe stop secured to the other end of said pantograph and supplementary measuring devices mounted on said pantograph whereby said supplementary devices will be located proportional to the position of said toe stop.

6. A foot measuring device comprising a base having a slideway therein, a pantograph mounted in said slideway with one end fixed, a heel stop secured at the point of fixture of said pantograph, a toe stop secured to the other end of said pantograph, and supplementary measuring devices mounted on said pantograph whereby said supplementary devices will be moved proportional to the movement of said toe stop, each of said supplementary measuring devices comprising a tape for embracing the foot transversely.

7. A foot measuring device comprising a base having a slideway therein, a pantograph mounted in said way with one end fixed, a heel stop secured at the point of fixture of said pantograph, a toe stop comprising a body secured to the other end of said pantograph and an upright abutment adjustable lengthwise of said body, and supplementary measuring devices mounted on said pantograph, whereby said supplementary devices will be moved proportional to the movement of said toe stop.

8. A foot measuring device comprising a base having a slideway therein, a pantograph mounted in said way with one end fixed, a heel stop secured at the point of fixture of said pantograph, a toe stop comprising a body secured to the other end of said pantograph and an upright abutment adjustable lengthwise on said body, and supplementary measuring devices mounted on said pantograph whereby said supplementary devices will be moved proportional to the movement of said toe stop, each of said supplementary devices comprising a tape for embracing the foot transverse.

In witness that I claim the foregoing I have hereunto subscribed my name this 18th day of February, 1926.

MICHAEL J. O'SULLIVAN.