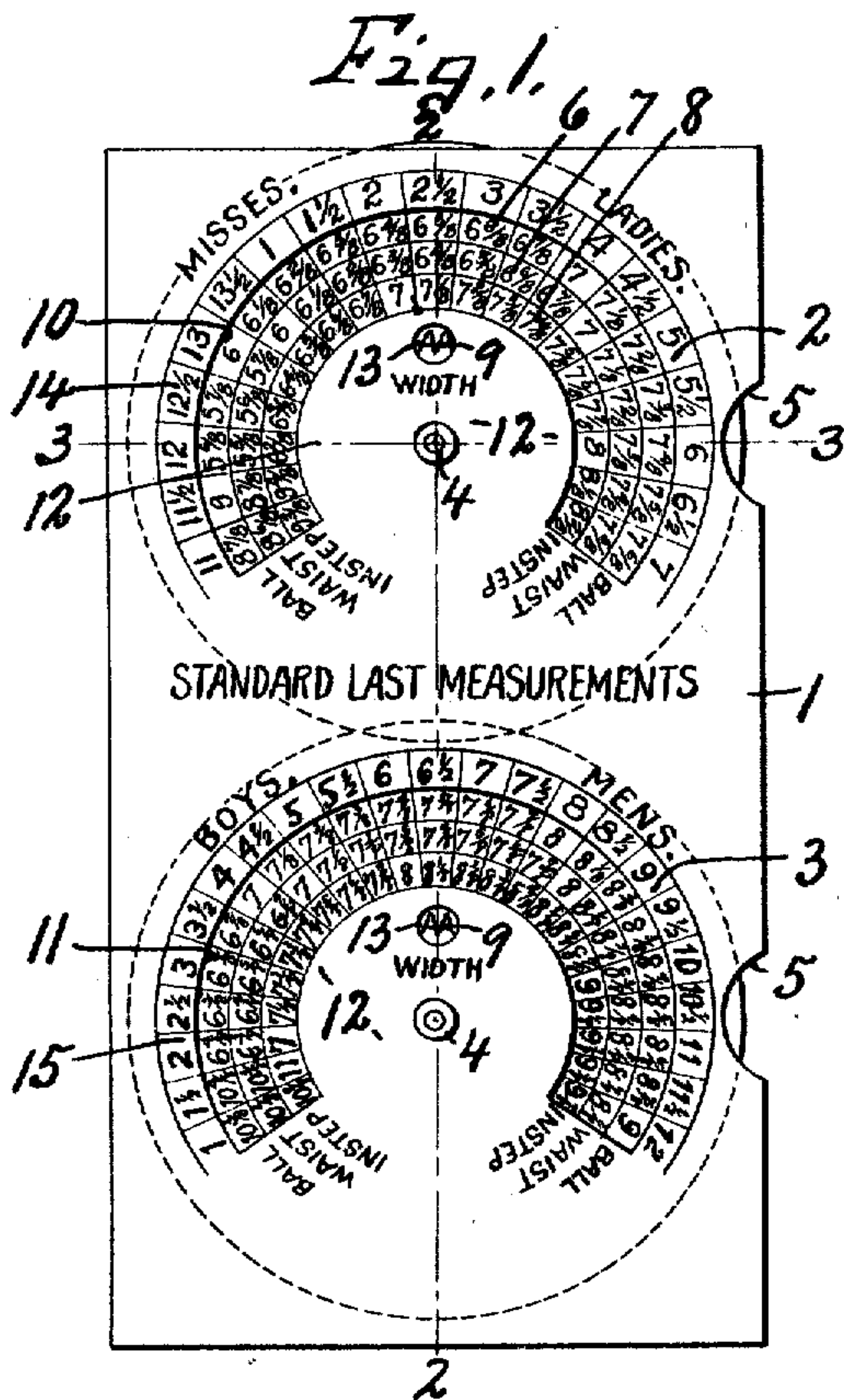


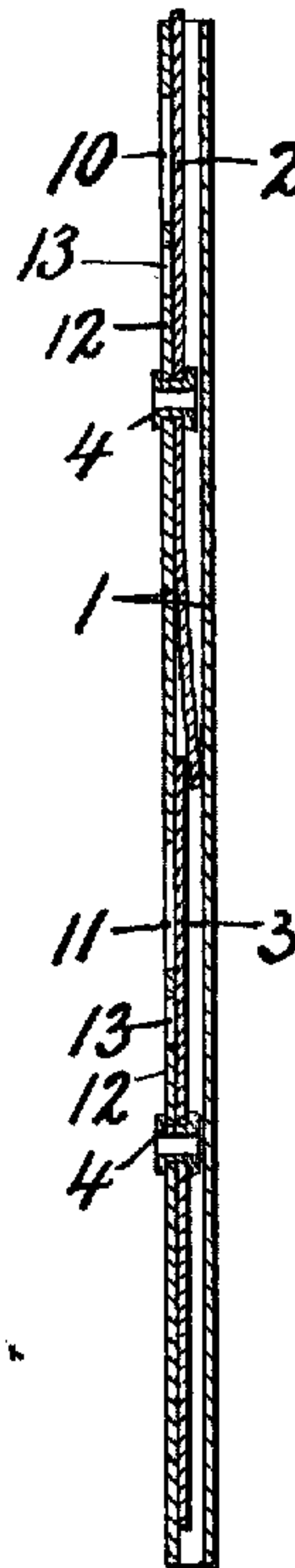
J. C. DIEFENBACH.  
 SCALE FOR INDICATING STANDARD LAST MEASUREMENTS.  
 APPLICATION FILED AUG. 30, 1909.

998,603.

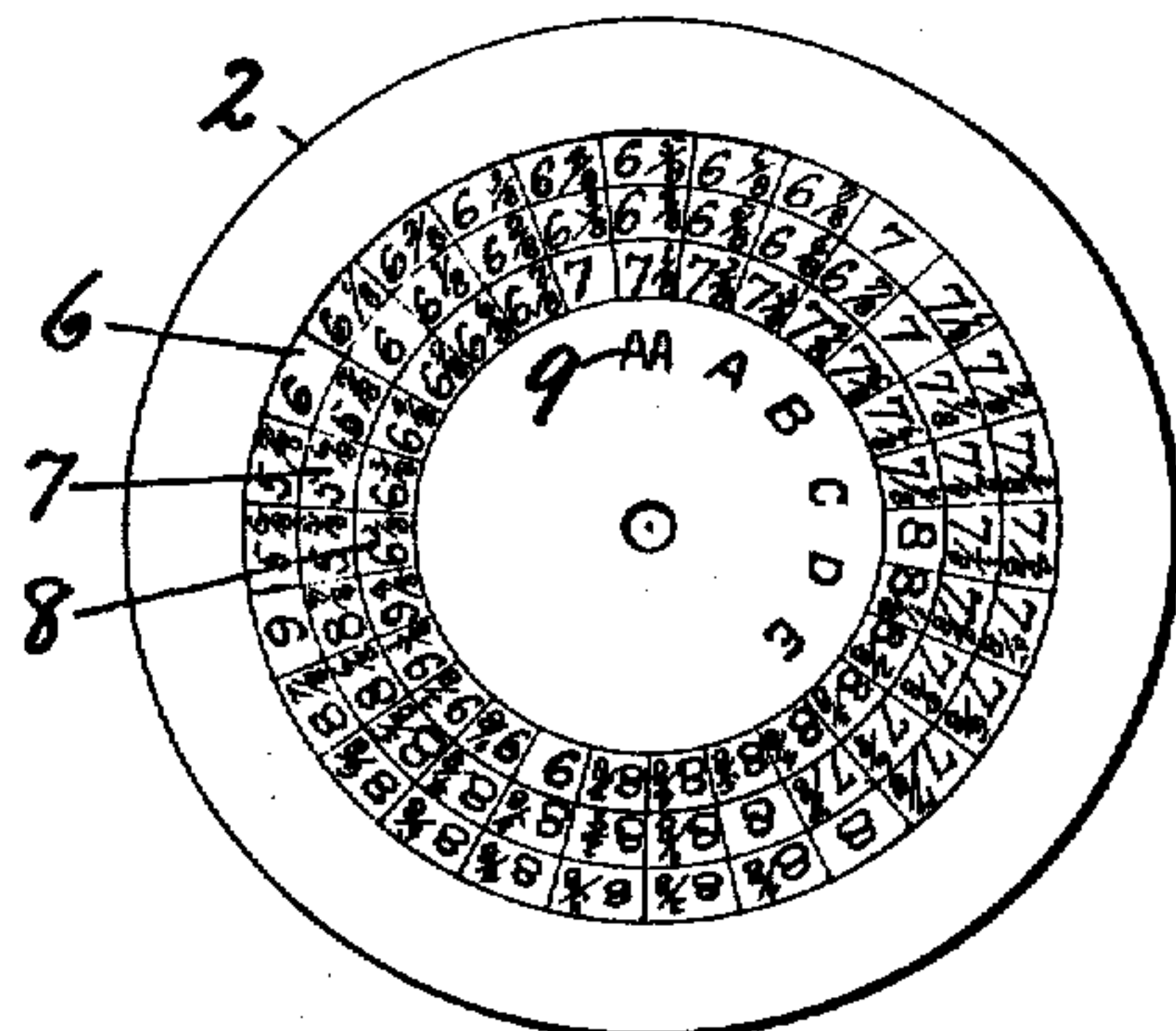
Patented July 25, 1911.



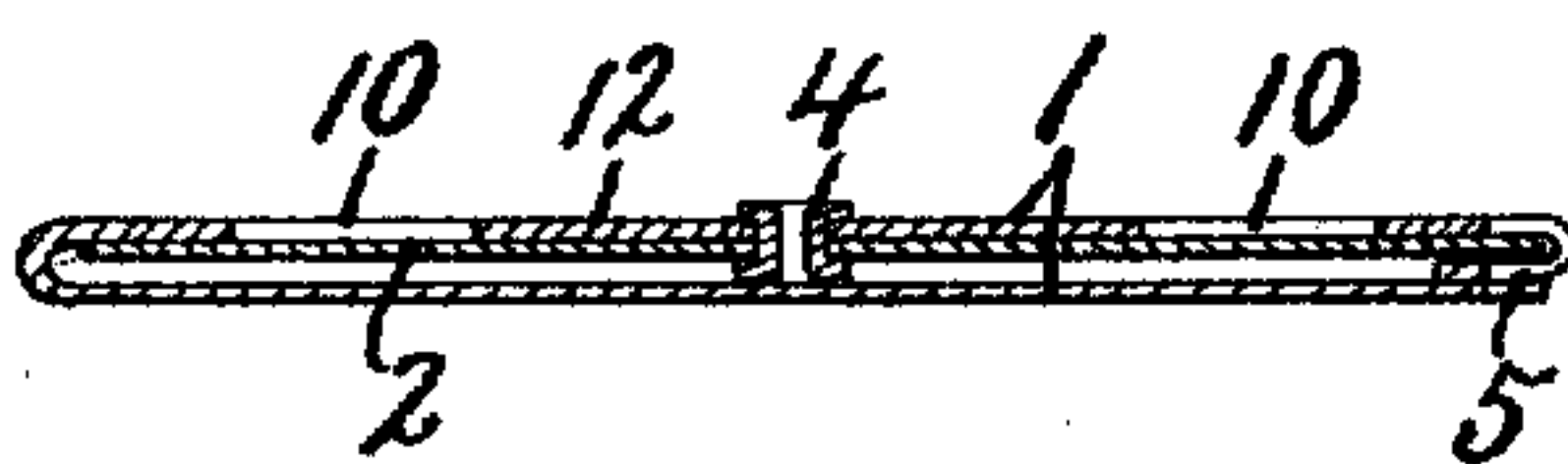
*Fig. 2.*



*Fig. 4.*



*Fig. 3.*



Witnesses.  
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*H. E. Chas.*

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*By: Howard P. Brinson* Attorney.



# UNITED STATES PATENT OFFICE.

JOHN C. DIEFENBACH, OF CINCINNATI, OHIO, ASSIGNOR TO THE WHITEHEAD & HOAG COMPANY, OF NEWARK, NEW JERSEY.

SCALE FOR INDICATING STANDARD-LAST MEASUREMENTS.

998,603.

Specification of Letters Patent. Patented July 25, 1911.

Application filed August 30, 1909. Serial No. 515,215.

*To all whom it may concern:*

Be it known that I, JOHN C. DIEFENBACH, of Cincinnati, in the county of Hamilton, in the State of Ohio, have invented new and

5 useful Improvements in Scales for Indicating Standard-Last Measurements, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

10 This invention relates to certain improvements in scales for indicating standard last measurements, such, for example, as the "ball", "waist" and "instep" measurements of standard lengths and widths of

15 shoes or other foot wear.

It is well known that the sizes of shoes, and, therefore, the lasts upon which the shoes are formed, are usually classified as "boys'", "men's", "misses'" and "ladies'" sizes, the

20 various lengths of shoes of each class being designated by specific numerals, usually graduated in half sizes, the "boys'" and "men's" lengths running in half sizes from 1 to 12 inclusive, while the misses' sizes usually run from 11 to 13½ inclusive and the

25 ladies' sizes from 1 to 7 inclusive. The widths of the shoes are usually defined by letters, such as "AA", "A", "B", "C", "D" and "E".

30 In the manufacture of shoes at least three measurements are taken, one around the ball, another around the waist and another around the instep of the foot, and these measurements are standardized for given lengths and

35 widths of shoes for each specific class. For example, the ball, waist and instep measurements for a last of a certain class and predetermined size and width will always be the same.

40 My object, therefore, is to provide a convenient pocket scale by which any one skilled or unskilled in the art may readily determine what measurements for the ball, waist and instep of the last are necessary for a

45 predetermined length and width of any class of shoe or last.

Another object is to inclose the rotary parts or disks within a suitable case or sheathing to which said disks are pivoted,

50 and to provide one edge of the sheath with suitable cutouts or finger openings extending beyond the peripheries of the disks to

permit said disks to be rotated by pressure of the finger against the periphery thereof.

Other objects and uses will be brought out 55 in the following description:

In the drawings—Figure 1 is a front elevation of a last measurement scale embodying the various features of my invention. Figs. 2 and 3 are respectively longitudinal 60 and transverse sectional views taken on lines 2—2 and 3—3, Fig. 1. Fig. 4 is a front face view of one of the detached disks.

The entire device is preferably made of such size as to be conveniently carried in 65 the pocket of any ordinary garment and comprises a flat sheath or case —1— and one or more (in this instance two) rotary disks —2— and —3— which are centrally pivoted by suitable eyelets —4— to the front 70 side of the sheath or casing —1—, the centers of the disks being located some distance apart, approximately equal to the combined radii of both disks, which, in this instance, are of substantially the same diameter, and, 75 therefore, the distance between their centers is substantially equal to the diameter of one of the disks.

The sheath —1— is preferably made of a single sheet of comparatively thin, yet reasonably stiff, celluloid or equivalent material, folded along its longitudinal center upon itself and having its longitudinal edges adhesively, or otherwise, secured together forming a flat tubular casing open at both 85 ends to conceal and protect the greater portion of the disks and at the same time to enable the entire sheath or casing with the disks therein to be held in the hand so the disks may be readily rotated by the other 90 hand. One of the longitudinal edges (preferably the right hand edge when facing the front of the sheath) is provided with, in this instance, two cutouts —5— extending inwardly and radially toward the center of 95 the disks and beyond their peripheral edges so as to expose this portion of the disks for engagement by the finger to rotate said disks.

By folding the sheet which forms the cas- 100 ing in the manner described, it is evident that such casing is provided with a back piece and a front piece, which, together constitute a flat supporting plate for the disks



but are separated slightly to permit the free operation of said disks without undue friction, the pivotal eyelets —4— being, in this instance, passed through the front side only

5 of the sheath.

Each disk is provided with a plurality of, in this instance three, concentric rows of numerals arranged in radial columns of substantially the same width, as best seen in

10 Fig. 4. These concentric rows of numerals are arranged in sequence and in close juxtaposition some distance from the center and represent measurements around different portions of the last. For example, the inner

15 row of numerals represents measurements around the instep, the intermediate row represents measurements around the waist of the last, while the outer row represents the measurements around the ball of the

20 last, as will be hereinafter more fully explained. Each disk is also provided with an inner concentric row of letters —9— representing various widths of lasts or shoes which are formed thereon, said row of letters

25 being arranged within the innermost row of numerals and still some distance from the center, or axis of revolution of the disk.

The front side of the sheath —1— is formed with one or more, in this instance 2,

30 circular openings —10— and —11—, one for each disk, each opening being of substantially the same radial width as the combined width of the several rows of numerals, while the length of each opening exceeds a half circle, or 180°, but is less than a

35 complete circle. The ends of the openings —10— and —11— terminate on radial lines some distance below the axes of their respective disks, leaving a circular tongue —12—

40 integral with the front side of the sheath —1—. The eyelets —4— are secured centrally to these circular tongues which are also provided near their upper edges with small circular sight openings —13— through

45 which the letters, as "AA," "A," "B," "C," "D" and "E" of the row —9— may be made visible as the disks are rotated. The front side of the sheath is also provided with one or more, in this instance two, circular

50 rows —14— and —15— of numerals running around the outer edges of the openings —10— and —11— in close proximity thereto and corresponding in width to the width of radial columns of numerals of their respective

55 disks.

The upper row —14— of numerals is divided into two sets or classes, those of one set representing the lengths of what is commonly known as "misses'" shoes, while those

60 of the other set designate the length of "ladies'" shoes, the words "Misses" and "Ladies" being marked opposite their respective sets. In like manner the row —15— of numerals is divided into two sets of

65 classes, those of one set representing the

length of "boys'" shoes, and those of the other set "men's" shoes, which terms, "Boys" and "Mens" are also printed or otherwise impressed upon the front of the sheath in close proximity to their respective

70 sets of numerals. Each of the tongues —12— is provided with the word "Width" in close proximity to the sight openings —13— indicating, together with the letters which may be registered with said openings,

75 the widths of the last or shoe. At the end of each of the sight openings —10— and —11— and printed upon the front face of the sheath or casing —1—, are the words "Ball," "Waist" and "Instep" indicating respec-

80 tively the measurements expressed by numerals in the outer, intermediate and inner circular rows —6—, —7— and —8— upon the disks —2— and —3—. The set of numerals representing the "misses'" shoes,

85 reading from left to right from the front face of the sheath —1—, is numbered consecutively in half sizes from 11 to 13½ and 1 to 2½, while those of the set representing "ladies'" shoes are numbered consecutively

90 in half sizes from 3 to 7. In like manner the set of numerals for the "boys'" sizes run from 1 to 6, while those corresponding to the "men's" sizes run from 7 to 12. Although I have specified the extreme limits

95 of the lengths of shoes for various classes, it is evident that such limitations may be varied.

It will be observed that the letters representing the width of shoes are arranged in radial alinement with alternate radial columns of numerals on the disk, which allows the intervening columns of each disk to be registered with any one of the numerals of

100 the outer row on the front of the sheath or casing to give the standard "ball," "waist," and "instep" measurements for such intervening widths.

In the operation of my invention, supposing it is desired to ascertain the standard

110 "ball," "waist" and "instep" measurements for an "AA" width "ladies'" shoe number 4, then by rotating the upper disk until the letters "AA" appear at the corresponding sight opening —13—, it will be

115 observed that the radial column of numerals alined with the numeral 4 of the outer row, reading from the outer row on the disk inwardly, will be 7, 6½ and 7½, thus indicating in inches the standard measurements for the "ball," "waist" and "instep"

120 of a number 4 "ladies'" shoe, "AA" width. In like manner the same standard measurements may be ascertained for either "misses,'" "boys'" or "men's" shoes for

125 any width from "AA" to "E," and for any length or number of shoe.

What I claim is:—

A device for indicating standard measurements of shoe lasts comprising a support

130



having disposed concentrically thereof means  
for indicating the different lengths of shoe  
lasts, said means in the form of numbers,  
said support further having below said  
5 means an aperture and in proximity to said  
means a relatively wide concentric sight  
opening, and a shiftable disk pivoted to the  
inner face of said support and provided  
10 with a series of parallel circular rows of  
numbers exposable through said opening,  
each number of one row associating with  
the adjacent numbers of the other rows, the  
associating numbers constituting a radially-  
15 spectively ball, waist and instep measure-

ments for a certain length and width of  
last when the disk is shifted to position a set  
to register with a length indication simulta-  
neously with the exposure of a width indi-  
cation through said aperture, and said disk 20  
further provided with a concentric row of  
letters to indicate widths of lasts each inde-  
pendently exposable through said aperture.

In witness whereof I have hereunto set  
my hand this 12th day of August, 1909.

JOHN C. DIEFENBACH.

Witnesses:

WALTER A. KNIGHT,  
A. L. TILDESLEY.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."

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