

(No Model.)

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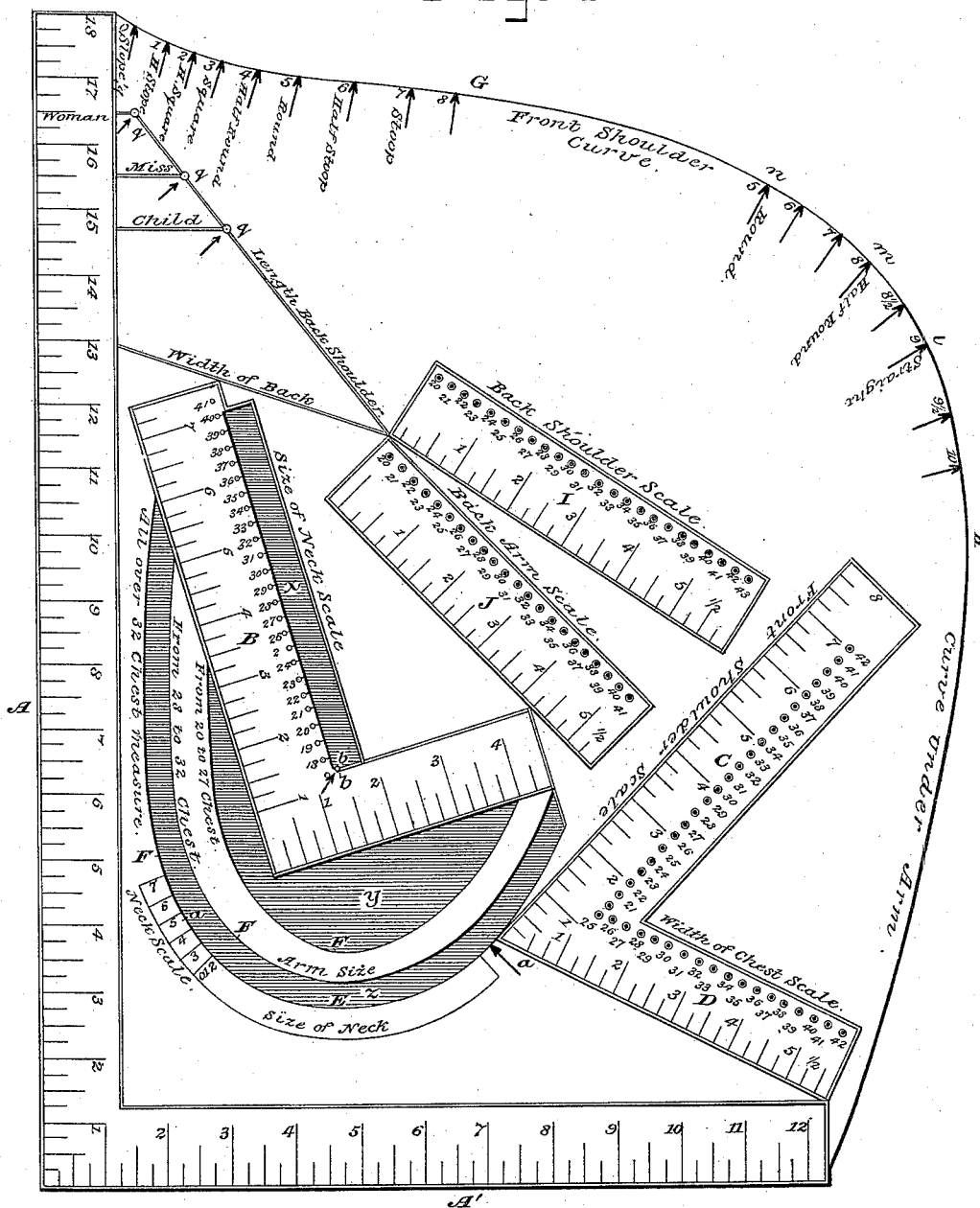
J. W. LIVINGSTON.

METHOD OF AND APPARATUS FOR CUTTING PATTERNS FOR DRESSES.

No. 307,664.

Patented Nov. 4, 1884.

Fig. 1.



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(No Model.)

3 Sheets—Sheet 2.

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Fig. 3.

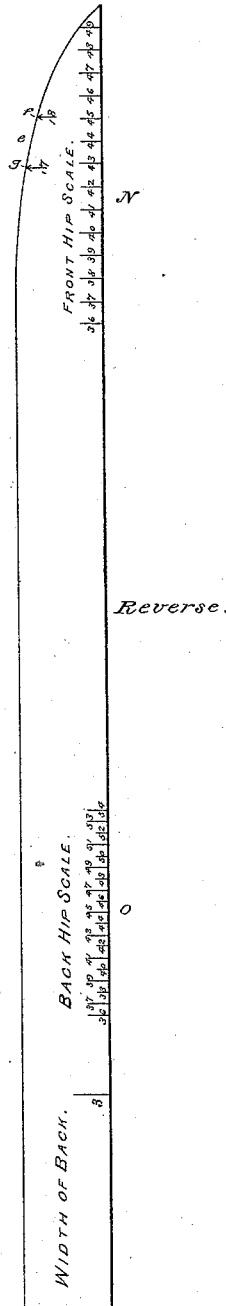
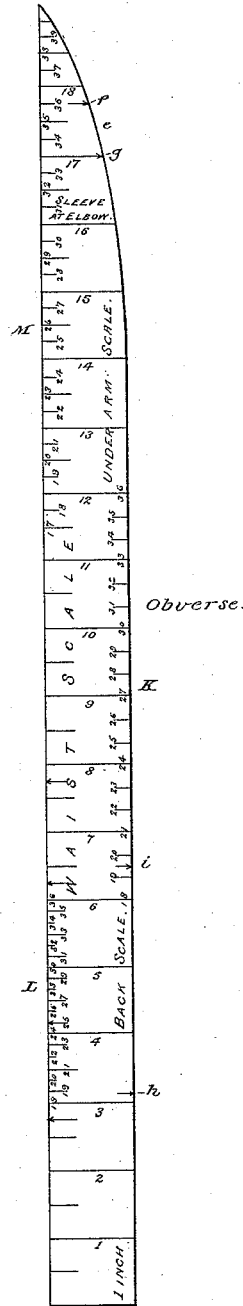


Fig. 2.



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3 Sheets—Sheet 3.

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Fig. 4.

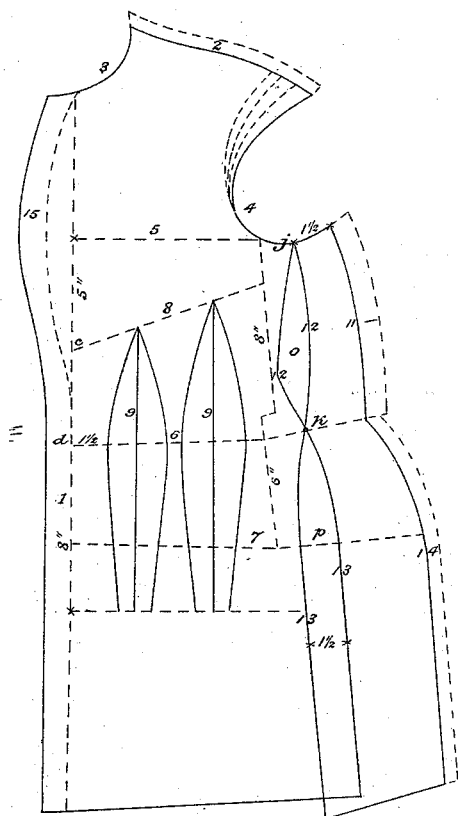


Fig. 5.

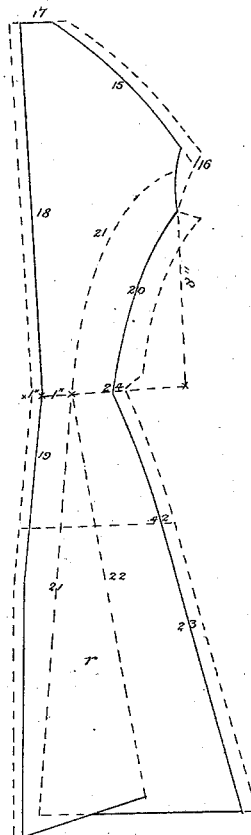
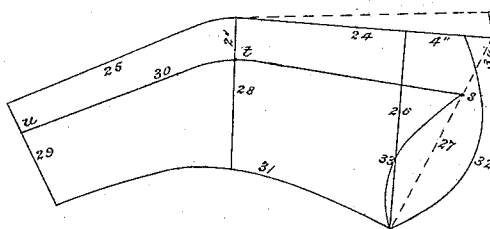


Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES W. LIVINGSTON, OF NEW YORK, N. Y.

METHOD OF AND APPARATUS FOR CUTTING PATTERNS FOR DRESSES.

SPECIFICATION forming part of Letters Patent No. 307,664, dated November 4, 1884.

Application filed January 29, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. LIVINGSTON, a citizen of the United States, and a resident of the city, county, and State of New York, have invented an Improved Apparatus and System for Cutting Patterns for Dresses, &c., of which the following is a specification.

My invention relates to an apparatus employed in carrying out my system of cutting out patterns for dresses and other similar garments. The human form being irregular and formed of broken curves, some convex and some concave, it has been almost universally the custom to prepare patterns by fitting them over forms having a more or less close approximation to an ideally perfect human form. This method requires an after fitting of the dress or garment to the person of the wearer. Attempts have been made to construct charts and scales for cutting patterns for such garments; but, so far as I am aware, these have all possessed some defects or have not been complete. It has been my aim to apply to the human form the principles of square measures—such as are employed in measuring and shaping angular bodies—in order to obtain such accuracy in the cutting that, when the garment is cut and made it will fit and require no taking up or letting out. Therefore I call my system the "System of Squares."

In order that my invention may be the better understood, reference may be had to the accompanying drawings, wherein—

Figure 1 is a view of the drafting apparatus, which forms the principal feature of my invention; and Figs. 2 and 3 are views of the opposite sides of the reducing scale or rule. Figs. 4, 5, and 6 show, respectively, patterns for the front and side body, the back, and sleeve of a dress-pattern cut according to my system and with my apparatus and scales.

Referring to Fig. 1, A A' is the marginal square, the long branch A of which forms the left-hand margin of the apparatus, and the shorter branch A' of which forms the lower margin or base. B is the square bearing the "size-of-neck" scale. C is the scale for height of shoulder, called "front-shoulder" scale. D is the scale for width of chest. E is the curve for neck. F F F are three curves for the arm-size. These scales are all employed in shaping

the front of the dress. The upper and right-hand sides of the apparatus are formed of a continuous irregular curve. The upper side, G, is for giving the proper curve to the shoulder, and the right-hand side, H, gives the proper curve under the arms, which I call the "French curve."

For shaping the back, I is the back-shoulder scale, and J is the back-arm scale. All of the above scales are graduated to one-fifth—that is to say, an inch in the measurement of the person is represented in these scales by a fifth of an inch.

Having thus briefly described the principal features of the apparatus, I will now proceed to explain its use, beginning with the front of the dress. We will suppose the measure has been taken, resulting as follows: around chest, 32; waist, 24; under arm, 8; front, 14; back, 16; hip, 42. These measurements are in inches with the tape drawn tightly. Lay the apparatus on the paper from which the pattern is to be cut, and draw a hem-line parallel with its edge and distant the width of the marginal square A. Place the long side of the square A even with this hem-line, (1 in Fig. 4,) and make dots on the paper at 32 on the scales B, C, and D. Note that 32 is the chest-measure, and that this governs all these measures, viz: size of neck, height of shoulder, and width of chest. Now move the apparatus down and draw the shoulder-line (2 in Fig. 4) with curve G from the size-of-neck-scale dot to the front-shoulder-scale dot. Note that between the length of front 14 and length of back 16 is a difference of two inches, and this difference governs the shape of the curve on shoulder. The greater this difference is the rounder will be the shoulder. Therefore, in placing curve G to the neck-scale dot, place that one of the numerals 1 2 3, &c., on curve G at said dot that corresponds with this difference of back and front. In this case it will be 2. I have marked these figures with arrows, and written the shape of the shoulder it forms, as "round," "half-stoop," &c.; but these are not essential. Now draw down the apparatus, and draw a second curved line for shoulder half an inch from the first, to allow for a seam. Now, to draw the neck-curve, (3 in Fig. 4,) place the arrow a on curve E at the dot made from size-of-neck scale B, and that numeral on the neck-curve

scale (at a') which corresponds with the selected numeral on the curve G (2 in this case) on the hem-line 1, and draw the neck-curve. I will say that no difference is made here for numerals 0, 1, and 2, and the scale begins with these three numerals. I will also say that in order to enable me to see the drafting-paper clearly and to draw the curves for the neck and armhole the parts of the apparatus lettered x , y , and z , and tinted, are cut out. The scales C, D, I, and J are, by preference, perforated in order to insure greater accuracy in making the dots. Now, to draw the curve at the arm-size, (4 in Fig. 4,) place the arrow b (at the lower end of scale B) at the dot made at 32 on chest-scale D, and bring the straighter side of the arm-size curve F, marked for 32, (chest-measure,) to coincide with the dot made at 32 on shoulder-scale C, and draw line 4 around the curve F. This gives a long shoulder suited to a chest-measure of thirty-two inches; but if a shorter shoulder is required, this may be effected by setting the curve inside the dot at the point of the shoulder, as indicated by dotted lines in Fig. 4. Now place the long side of square A even with hem-line 1, and the lower edge of its short arm A' tangent with curve 4, and draw a cross-line, 5. Measure five inches down from this line and make dot c on hem-line. Measure from neck down hem-line fourteen inches for length of front down to waist at d . Measure from d down eight inches for bottom darts. Place square under arm-size curve 4, and measure down eight inches to waist-line under arm. Measure down six inches below waist-line for hip-line. In Fig. 4, 6 is the waist-line, and 7 the hip-line.

I will now briefly describe the reducing scale or rule shown in Figs. 2 and 3, and which is useful in laying out the darts and getting waist and hip measures. This scale is a flat rule about nineteen inches long and one and one-fourth inch wide. It is graduated in inches and halves on one side, and bears proportional scales—namely, waist-scale, under-arm scale, and back-scale—on the obverse side, Fig. 2, and a back-hip scale and front-hip scale on the reverse side, Fig. 3. The edge is formed into a curve at e at one end, which curve is used for shaping the darts, for the elbows of sleeves, and for other purposes. The waist-scale K is one-third, the back-scale L is one-sixth, and the under-arm scale M is one-fourth. The front-hip scale N is one-third, and the back-hip scale O is one-sixth. The arrows f and g on the curve e , Fig. 3, indicate the points of the curve to place at the points of the darts to get fuller or flatter curves, as desired. The arrows h and i on the waist-scale are to indicate the points of the darts.

I will now proceed to describe how this reducing-scale is used. Place the scale with the lower edge of its square end on the hem-line at dot c , and let the upper edge tangent arm-size curve 4, and make dots at h and i for tops

of darts. The oblique line thus formed is numbered 8 in Fig. 4, and the darts 9 9. Now place square end of reducing-scale at hem-line, its lower edge coinciding with dot d , and its upper edge coinciding with dot eight inches below arm-size curve 4, and draw waist-line 6 out to 24 on waist-scale K. Now measure out from hem-line straight across and below the dot at waist under the arm, and mark or dot the size of waist on the under arm scale M, allowing one inch more for seam. Now draw lines vertically from h and i for center of darts, and draw in the darts with curved end e of the reducing-scale, placing the straight edge of the scale or rule on the axial line of the dart, and carrying these lines down to the waist-line. The first dart should be one and one-half inch from the hem-line, and they should be one-half an inch apart on waist-line. To finish the darts below the waist, draw a line square across from the hem-line eight inches below the waist, and make dots on this line at the arrows (see Fig. 2) on the reducing-scale along the edge of the back-scale L. Draw lines from the sides of the darts down to these dots, either curved or straight, as circumstances may require. The fullness of the dart is determined by the measure under the arm down to waist. The less this measure is, the fuller should be the dart. To get the curve (11 in Fig. 4) at the back of the side body, place the arrow f on curve e on the reducing-scale to the end of arm-size curve 4 and to the dot below marked for the under-arm seam at waist, and draw curve 11. Then draw back the scale and make another line an inch from the first to allow for seam. For drawing the lines under the arm for the seam between front and side body, measure in from curve 11 at curve 4 one and one-half inch where the chest-measure is thirty-two inches, and make dot j . At the waist get a point, k , midway between the back-dart and the back-line on curve 11. Draw the curved lines 12 12 with the curve H on right side of apparatus, beginning at one or the other of the arrows l m n , according to the rotundity required in the curve. For the present, measure under arm eight inches. Begin the curve at m , marked "half-round." The curves drawn will intersect at k , and are continued to bottom of garment, forming lines 13 13, by the curve e on the reducing-scale. The distance between lines 13 13 should be one and one-half inch for all sizes. To get front-hip measure, measure across from hem-line on hip-line (six inches below waist) with the reducing-scale, and mark a dot at 42 on front-hip scale N, this being the measure around hips. Then add half an inch more for seam. Now, with curve e on the reducing-scale, draw the line 14 from waist down over hips. In cutting, the dart o under arm is cut out and the part p doubled to give proper form from arm over hip. To give fullness over chest, take measure over bosom, deduct chest-measure from this, make the proper division, and measure it out from

the hem-line *a*. Then, with the proper curve G or H on the apparatus, draw the line 15.

I will now describe how the pattern for the back is drawn, referring to Fig. 5, which shows the pattern for the back. Place the apparatus, Fig. 1, on the paper, with long branch of square A even with edge of same. Make a dot through first one of three perforations, *g*, for back of neck, and at the numerals 32 (chest-measure) on the back-shoulder scale I and the back-arm scale J. Now take the reducing-scale and place its point at the point of the shoulder and at the first dot made, and draw line 15. Then draw a line half an inch above this for seam. Take two inches off the shoulder, and from the dot at this point draw a line, 16, with point of reducing-scale to the dot made at 32 on scale J. Measure down from this last-named dot a distance half an inch less than measure under arm to waist, (in this case eight inches,) and make a dot. Now place reducing-scale across on a level with this dot, and measure from center of back 24 (waist-measure) on the back-scale L; also, dot one inch for slope in center of back and one inch for width in center of back. Now place the square end of reducing-scale at back of neck and lay off width of same for back of neck, as at 17, and then draw line 18 from end of this to dot at waist for slope. This gives one inch slope. Now draw a line, 19, from waist to edge of pattern six inches below. Now, with the curve H on the apparatus, draw curved line 20 from the waist to arm-size 16, and another line one inch outside of this for seam. Now, from a point half-way in line 16, take the curve H and draw line 21 to waist-line, intersecting this line at the dot previously made for width in center of back. Continue line 21 down straight as long as you want garment. Now, at six inches below waist, measure from middle of back across hips with back-hip scale O, making a dot at 42, (measure of hips,) and add one inch for seam; also, make a dot at three inches from center of back and draw line 22 through this dot to the intersection of line 21 with waist-line. Now draw line 23 through waist-measure dot and hip-measure dot, with the curve and straight edge of reducing-scale, and another line outside for seam, as shown. The part *r* is used twice to give fullness.

Fig. 6 illustrates the sleeve-pattern as cut by my chart and scale. Suppose the measures to be: around shoulder, 18; elbow, 14; hand, 10; length, 22—dimensions in inches. Place the reducing-scale on the paper and make a dot at the line marked "sleeve at elbow," and dot at lower side square end of rule. Then move square end of rule down so that dot will be at its upper edge, and draw a line, 24, down to point. This gives curve at elbow. Now turn scale over end for end, and fit curve *e* into curve at elbow, and draw line 25 for top of forearm. Allow two inches more for upper arm than forearm, but proportional somewhat

to length of shoulder of dress being cut. Measure along line 24 four inches from top of sleeve, and square across (line 26) equal to half the shoulder-measure—nine inches in this case. Then draw line 27 diagonally across, and dot at 3, three inches from upper end. Then draw line 28 across elbow, seven inches (half elbow-measure) long, and mark point *t* two inches from upper line. Then at hand draw line 29 equal in length to half the hand-measure—five inches in this case—and mark point *t* at two inches from upper line. Now draw lines 30 and 31 similar to upper sleeve-line, (24 25.) Then draw curves 32 and 33 with curve H on chart. This pattern combines both under and upper part of sleeve, as will be well understood.

I have now described how my apparatus and scales are employed in cutting the front, back, and sleeve of one style of dress, and this will be sufficient to enable any one to use it for any and all styles of garments, the judgment and experience of the operator being sufficient to supplement what is given herein.

I will again call attention to the fact that the chest-measure, taken above the breast, governs the size of neck, (scales B and E,) the height of shoulder, (scale C,) width of chest, (scale D,) length of back and shoulder, (scale I,) the arm-size, (scale J and curves F,) and the width of back. The length under arm governs the length of waist and shape of darts. The difference between front and back measures governs the shape of the shoulder and determines whether it shall be sloping or rounded. The side rule or square A being the base, the positions of scales B, C, D, I, and J with reference to it, as shown in Fig. 1, are all important. The shape of curves G and H and the neck and arm-size curves is also important.

As the correct size of the apparatus shown in Fig. 1 and the reducing-scale shown in Figs. 2 and 3 is a matter of importance, I will say that the graduations on square A A', and on the reducing-scale also, from 1 to 18, Fig. 2, are inches, and the drawings show these reduced to about one-third the full size.

The inch-graduations on square A A' and scales B C I J are not essential; but those on A A' are very convenient. A should, however, be a straight-edge.

Having thus described my invention, I claim—

1. An apparatus for use in drawing a pattern for the front of a dress or similar garment, provided with a straight-edge, A, with scales B, C, and D, and curves E, F, and G, graduated and adapted to be used substantially as set forth.

2. An apparatus for use in drawing a pattern for the back of a dress or similar garment, provided with a straight-edge, A, scales I J, and perforation or perforations *g*, all adapted to be used substantially as set forth.

3. An apparatus for use in drawing a pat-

tern for a dress or similar garment, provided
with a square, A A', graduated scales B, C,
D, E, I, and J, the perforations *g*, curves F,
and graduated curves G and H, all arranged
5 and adapted to be used substantially as set
forth.

4. The combination, with the apparatus pro-
vided with scales and curves, substantially as
described, of the reducing-scale provided with
10 curve *e*, arrows *f*, *g*, *h*, and *i*, waist-scale K,

back-scale L, under-arm scale M, front-hip
scale N, and back-hip scale O, all substan-
tially as and for the purposes set forth.

In witness whereof I have hereunto signed
my name in the presence of two subscribing 15
witnesses.

JAMES W. LIVINGSTON.

Witnesses:

HENRY CONNETT,
ARTHUR C. FRASER.