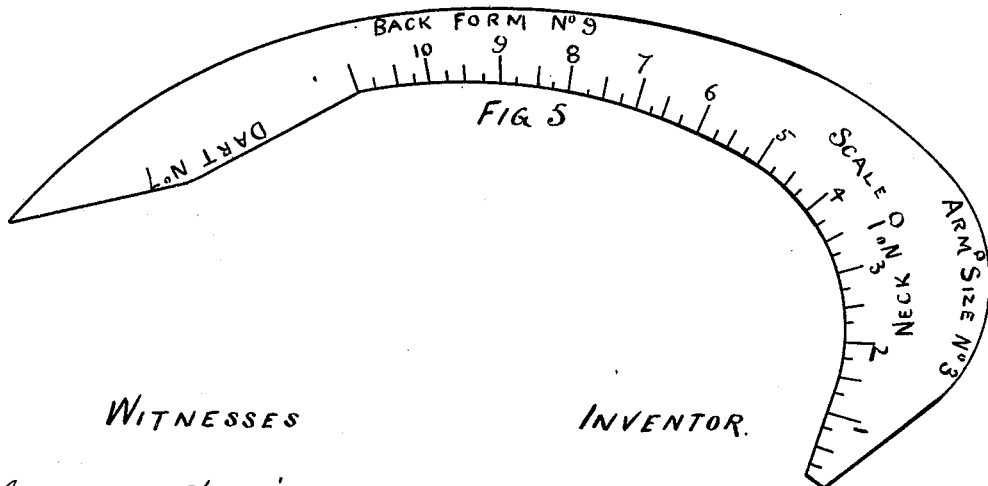
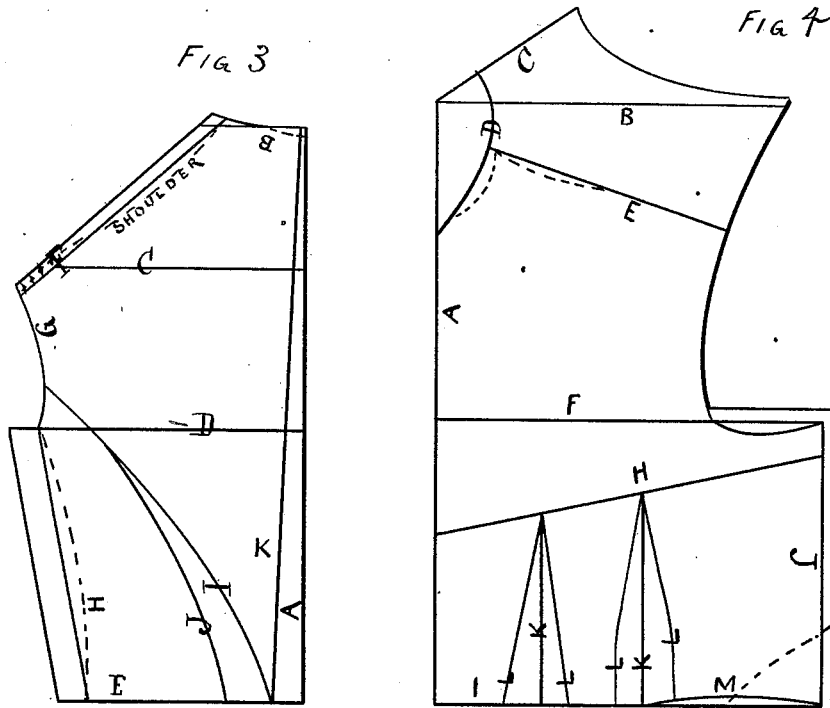




C. H. GRIFFIN.  
Dressmakers' Squares.

No. 195,925.

Patented Oct. 9, 1877.



WITNESSES

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# UNITED STATES PATENT OFFICE.

CALEB H. GRIFFIN, OF LYNN, ASSIGNOR OF ONE-HALF HIS RIGHT TO  
ELIZABETH ELLEN DURGIN, OF MALDEN CENTRE, MASS.

## IMPROVEMENT IN DRESS-MAKERS' SQUARES.

Specification forming part of Letters Patent No. **195,925**, dated October 9, 1877; application filed  
April 30, 1877.

*To all whom it may concern:*

Be it known that I, **CALEB HENRY GRIFFIN**, of the city of Lynn, Essex county, State of Massachusetts have invented a new and Improved Dress-Maker's Square for Drafting Clothes, of which the following is a specification:

The nature of my invention is that of a square made like the ordinary carpenter's square, with one exception, (see below,) but provided with certain figures, scales, characters, and lines, the same being used in combination with the ordinary measuring-tape, and in part with a curved scale, which forms the subject of another application of mine. The square is hinged at the junction of the two arms, and has an inch scale attached to one arm; and the object is to take the dimensions of the various portions of the human body above the waist, by actual measurement, for the production of a pattern for use in the cutting out of clothes. Another object of my invention is to facilitate the cutting of cloth "on the bias" or diagonally.

Referring to the drawing, Figure 1 represents one side of my square. Fig. 2 represents the other side. Fig. 3 shows the square set to cut bias. Figs. 3 and 4 are diagrams hereinafter referred to. Fig. 5 is a view of scale-pattern O.

The main feature of my invention is the taking the actual measurement, by means of a measuring-tape marked with inch spaces and their usual subdivisions, of the dimensions of the human body round the breast, and the furnishing upon my square of scales whose spaces are equally but arbitrarily subdivided, and marked with figures answering to the figures in inches of the measuring-tape. Two other features are also added, being lines drawn in certain directions in certain locations upon the square. By the use of these devices divers points and lines are marked upon a sheet of paper, and the points being then connected by lines, a diagram appears, which, being cut out with scissors, forms a pattern by which to cut out from the whole cloth the various portions of the outer clothing for the upper part of the human body.

In the use of this square, another device,

which I call "Scale-pattern O," (being a pattern bounded by peculiar curves, and marked and perforated in a peculiar manner,) is also used for a part of the garment. This scale-pattern O is not described herein, for the reason that it is already described in another application.

Another feature of my invention is a device for the purpose of fitting the square to cut cloth on the bias, to use as ruffles, folds, &c.

The different scales described hereinafter have no direct relation to the hinging of the two arms of the square, except the scale which I call the "Bias-scale," and that, when used as a gage for straight-cut strips, as hereinafter described, is used independently of the hinging arrangement.

In the drawings, in Fig. 1, on the long side of the square, the "Front-neck scale" is seen, marked "Front-neck scale," and consists of thirty-four lines, at right angles to the square side, (as are all the scale-lines,) half of these being short lines. The longer lines are marked with figures from 17 to 49, inclusive, omitting the alternate numbers, and the spaces between the lines are one-eighth inch wide. The measurements by this scale commence at the corner end of the square. The use of this scale is to indicate the height of the neck in front by the breast-measure.

The back neck is used similarly to indicate one-half the diameter of the neck. This scale is seen, and so lettered, on the short arm of the square, near the corner, and consists of seventeen lines, half of them long and half short, which are marked with figures from 17 to 49, inclusive, omitting the alternate numbers. The spaces between the lines are one-eighth inch wide. The measurements by this scale commence at the corner end of the square.

The "Front-arm-size" scale is also seen, and so lettered, on the short side of the square. Its use is to determine the outer and inner points of the two apertures at the sides of the garment for the sleeves. This scale is double, and consists of two scales placed equidistantly, one inch or thereabout, each side of a line drawn across the face of the square, beyond this distance seventeen lines being drawn, and marked, respectively, 17 to 49, inclusive, (omit-

ting the alternate numbers,) half the lines being short and half long. The measurements by this scale commence at the center line, one inch or thereabout, respectively, from the lowest number on each scale.

The "Line-of-back" line is also seen, and so lettered, on this side of the square. This is a line drawn diagonally across both the long and the short arms of the square, and marked on the short arm of the square "Line," and on the long arm "of back." The use of this line (for which I sometimes substitute dots or other characters) consists in placing it over a line of the pattern defining the back seam of the garment, and using the short side or arm of the square as a guide to draw the line defining the center of the back.

The other markings, with one exception, (hereinafter noted,) are on the other side of the square, and are seen in Fig. 2.

The "Button-space scale" is located near the long end of the square, and is so lettered. It is composed of seventeen lines, of which one-half are long and one-half short, marked from 17 to 49, inclusive, the alternate numbers being omitted. The measurements by this scale are begun at the nearest end of the long arm of the scale. The use of it is to determine the distance between the front edge, at the center of the garment, and the front dart, hereinafter explained, thus showing the proper location of the buttons.

The "Waist-line" is a line drawn across the long arm of the square, and is so marked thereon, and is seen at about the center of the same in the drawing. Its use is to form a point of measurement to give, from the size of the waist, the back point of the back dart. The measurements are made with the front-waist scale. This is a scale so marked on the square, and composed of thirty-four lines, numbered from 17 to 49, inclusive, omitting the alternate numbers, the spaces between being a little over three-sixteenths of an inch; and the use of this front-waist scale is to determine the size of that part of the garment which is at front at the waist portion.

The "Top-of-darts" line is a line drawn diagonally upon the long arm of the square, near the corner, and is so lettered, and its use consists in laying it over the line defining the front edge of the garment, to give, by means of the short arm of the square, the proper course of a line which defines the location of the top of the darts.

The "Back-waist scale" is seen on the short arm of the square, and is so lettered, and is composed of thirty-four lines, about one-sixth of an inch apart, or thereabout, each alternate line being marked with the numbers 17 to 48, inclusive, the alternate numbers being omitted. Its use is to determine the size of the waist of the back. The measurement by this scale is begun from the corner of the square.

The "Height-of-dart scale" is seen on the side of the square shown in Fig. 1, and is so

marked. The use of this scale is to determine the height of the darts, or the point above the waist-line to which the darts reach. The measurements of this scale begin at the corner of the square, and the measurements by it begin at a point corresponding with the slope of shoulder, as hereinafter explained. The scale consists of nine lines  $1\frac{5}{8}$  inch apart, or thereabout, and marked respectively, beginning at the end nearest the corner of the square, and numbered 4 to 12, inclusive. The  $1\frac{5}{8}$ -inch spaces are subdivided by three other lines, respectively.

I do not confine myself to lines where lines are used, using, sometimes, dots or any convenient mode of marking; nor to the number of lines in a scale; nor to marking each alternate line in the different scales with figures, as I sometimes mark each line; nor do I confine myself to any special distance between the scale-lines. The measurements made respectively from the corner of the square, or the respective ends of the same, can be readily replaced by any convenient mark upon the square, when the location of the scale upon the square is a matter of no importance; and I sometimes arrange my scales in strips of paper, or other substance, of varying lengths, connecting them together like a razor and its blade.

I now proceed to describe the arrangement for cutting the cloth on the bias. It will be noted that, in the drawings, the two arms of the square are connected together by a hinge composed of two circular plates of metal, lying one upon the other, and connected by a rivet. One of the plates is fastened, by a projection attached to it, to the long arm of the square, and the other, by a similar projection, to the short arm. These two plates have each two perforations, R R<sup>x</sup>, Fig. 2, and S S<sup>x</sup>, Fig. 1, near the peripheries, respectively, of the circular plates. These holes are so located, as seen in the drawings, as that, when the arms of the square are at right angles to each other, the hole S<sup>x</sup> (seen in Fig. 1) is opposite to the hole R<sup>x</sup> of Fig. 2. A pin or screw is then passed through both the holes, and the arms are thus held firmly at right angles to each other. When it is desired to adjust the scale for cutting bias, the shorter arm (see Fig. 3) is folded toward the longer arm (as the blade of a jack-knife relatively to its handle) until the hole S of Fig. 1 is opposite to the hole R of Fig. 2, when, the pin or screw being inserted, the shorter arm is held firmly at an angle of forty-five degrees to the long arm. In Fig. 1 is seen attached to the inside of the long arm of the square by a rivet, on which it partially rotates, a strip of metal, called the "Bias-Scale," and marked with lines indicating lengths of inches and quarter-inches, or other gradations. This bias-scale, when in use, is placed at right angles with the long arm of the square, as seen in Fig. 1, and when not in use folds up into a slot made for that purpose in the edge of the arm, as seen in dotted lines in Fig. 2.

The pin or screw referred to above, when not in use, is placed in a hole bored in the end of the short arm of the square. (See T, Figs. 1 and 2.)

The operation of the invention is best described by my "Rules" for taking measures by the dress-maker's square.

1. *Slope of shoulder.*—Pass the tape around back of neck, down front of the arm, then straight back, placing the tape in the place where you want the arm-size; then across the back, so the tape in the center of the back will be as high as the arm-size; put a pin in center of back at top of tape; measure from neck-bone to pin. This measure is used to give line D in the back, line F on front, and line H for height of darts.

2. *Length of back.*—Measure from neck-bone to bottom of waist.

3. *Width of back.*—Measure from armpit to armpit.

4. *Size of breast.*—Draw the tape tight across the breast, close up under the arms, and across the back. This measure gives height of neck in front, size of back neck, and front-arm-size points.

5. *Width of shoulder.*—Carry tape even with top of dress on the shoulder-seam to the tip of shoulder. Note this measure, and, if you wish it longer, add to the length what you choose, for the tip of the shoulder and line C must give the measure to the tip.

6. *Size of waist.*—As you wish it to be.

7. *Size of chest.*—Measure around the largest part, up under the arms, and across the back, as you wish the dress. For large, corpulent, and fleshy ladies, cast off one inch; and for cloaks and all outside garments, take chest-measure one inch smaller than a dress.

8. *Size of neck.*—Take one-half of neck, measuring from neck-bone to center of throat.

9. *Height of darts.*—See height of darts on the square, and use the slope-of-shoulder measure. If seven and a half inches, dot  $7\frac{1}{2}$  in dart-scale on the square.

10. *Length of point.*—From neck-bone to bottom of waist.

For example, we take the measure of a lady: First, slope of shoulder,  $7\frac{1}{2}$ ; second, length of back-waist, 16; third, width of back-waist,  $13\frac{1}{2}$ ; fourth, size of breast, 33; fifth, width of shoulder,  $6\frac{1}{2}$ ; sixth, size of waist, 25; seventh, side seam, 9; eighth, size of chest, 36; ninth, size of neck,  $6\frac{3}{4}$ ; tenth, height of darts, 14; eleventh, length of point, 20.

Directions for drafting back with dress-maker's square: With long end of square draw line A; with short arm of square draw line B. Dot in back-neck scale 33, which is size of breast. This gives size of back neck. Then on long arm of square dot for line C, which is half the slope of shoulder; then dot  $7\frac{1}{2}$  inches for line D from line B, which is the slope of shoulder, or lower point of back-arm size, on which dot for width of back, one-half of which is  $6\frac{3}{4}$ . Dot for line E 16 inches from line B, which gives length of back. Turn the

square over with long arm on line A and short arm on bottom of waist. Dot in back-waist scale number of the waist, 25, which gives lower point of side seam. Draw line F from size of neck on line B  $6\frac{1}{2}$  inches to line C. With scale O draw line G from line C to line D, which forms back-arm size. Draw line H from lower point of back-arm size to line E; line I from line G to waist-line E, one inch from line A. Use back-form on scale O to form these lines; or you may use your tape one and three-quarters the width of back. Line I commences at the crossing of lines D and I, and goes to waist-line, one inch back of line I. This is a  $\nabla$  to be taken off the side body. The  $\nabla$  is sometimes taken out at the center of the back, one inch at the bottom, and then straight to corner of lines A and B. Then carry out width of back on line D, and carry out line G to width of back.

To draft front waist with dress-maker's square, place the square on paper, with short end to the left hand and from you. Draw line A on long side of square. Dot in front-neck scale 33, breast-measure, which gives the height of front neck. Dot in height of dart-scale  $7\frac{1}{2}$  inches, the same as slope of shoulder. Draw line B on short end of square, which we call "Chest-line." Find line on the square marked "Line of back," which is the center of back. Place the line on short end of square at corner of lines A and B, with line on long end of square over line A, and draw line C. Take scale-pattern O, put the point where the inch commences on the dot for front neck; whirl the scale O so that  $6\frac{3}{4}$  inches will come onto line C; draw line D from line C to line A.

To get the shoulder of the front, take the back, place line A of back on line C on the front, with corner of lines B and F of the back on line D of the front. Then place lower point of back-arm size of back on line B of the front, and dot at each end of the shoulder of back. For the front, draw line from dot to dot for line E, taking off one-eighth inch at each end of line E. For spring of shoulder, take out a  $\nabla$  from line D half the length of line E. Draw line F by the slope of shoulder,  $7\frac{1}{2}$  inches, measuring from the top of neck of the front to line F, on which you get size of chest. The chest-measure is 36 inches. Take width of back,  $13\frac{1}{2}$  inches, from 36, and you have  $22\frac{1}{2}$ . One-half of this we take for size of chest on line F,  $11\frac{1}{4}$  inches. Take short arm of square, place front-arm-size scale on line F, with long side toward you; place nine inches on dot for size of chest, and dot each side of 9 in 33, breast-measure, which gives outer and inner points of front-arm size; line G from line E to line J. To strike this line of front-arm size, place scale-pattern O on at end of line E, with hole in scale-pattern O over dot at line F; inner point of arm-size, draw from line E to line F; turn scale-pattern O so as to form the rest of arm-size to line J. Place line on square marked "Tops of darts" over line A, with corner of square on dot on line A for height of darts,

and draw line H. Length of point from lines C and D,  $19\frac{1}{2}$  inches; for line I, which draw at right angles with line A; draw line J at right angles with line I to outer point of front-arm size. To get the darts, turn the square over; on long side find front-waist scale; place 25, which is the size of waist, of the scale on side seam, and dot at waist-line. This gives back point of back dart. Place button-space end of square on line A; dot in 25, size of waist. This gives inner point of front dart. Dot the center of these points for back dart; take space out of front dart, and the balance for front dart; take the center of each dart for lines K; where they touch line H gives tops of darts. Take scale-pattern O, draw lines L from I to H; get length of side seam for the front by the side seam of the back, one-eighth inch shorter; draw curved line with scale-pattern O from back dart to bottom of side seam or line J. This reversed gives V over the hip.

For cloaks: In measuring for these garments we do the same as for a dress. When you make your draft, add three-fourths of one inch to the slope of shoulder and one-half inch to the length of shoulder; take the V out of the center of back one inch to line K, and carry out line D from line K and line G to the width of back.

In the operations just described the bias-scale has been shut up and the arms at right angles to each other. To cut bias, the desired width of the ruffle or fold is measured on the cloth and marked, and the bias-scale is opened out at right angles with the long arm, which bears it. The shorter arm of the square is then placed, by means of the hinge, at an angle of forty-five degrees, and is then fastened by means of the pin or screw T. The outer edge of the long arm of the square is then placed on the cloth, in a line parallel either with the warp or the weft of the cloth, and the side of the short arm is used as guide by which to mark the bias cut. The graduated lines on the bias-scale afford the exact gage of the desired width of the ruffle. The bias-scale forms also a most convenient gage of width of any straight strips of cloth which it may be desirable to cut when the arms of the square are put at right angles with each other. I sometimes add a sliding arm, attached to the long arm of the square, and bearing one or more supplementary bias-scales, for use in cutting bias when the cloth is unusually wide or the strip very long.

I claim in dress-makers' measures—

1. The square provided with the "Front-neck

scale" shown, when marked with figures or other characters answering to the inches and proportionate parts of inches in the breast-measure, and when constructed and arranged to operate substantially as shown and described.

2. The square provided with the "Back-neck scale" shown, when constructed and arranged to operate substantially as shown and described.

3. The square provided with the "Front-arm-size scale," when constructed and arranged to operate substantially as shown and described.

4. The line "Line of back," in combination with a square, when drawn, located, and arranged to operate substantially as shown and described.

5. The square provided with the "Button-space scale," when marked with figures or other characters answering to the inches and proportionate parts of inches of the breast-measure, and when constructed and arranged to operate substantially as shown and described.

6. The square provided with the "Front-waist scale," when constructed and arranged to operate substantially as shown and described.

7. The line "Top of dart," in combination with a square, when drawn, located, and arranged to operate substantially as shown and described.

8. The square provided with the "Back-waist scale," when marked with figures or other characters answering to the inches and proportionate parts of inches in the breast-measure, and when constructed and arranged to operate substantially as shown and described.

9. The square provided with the "Height-of-darts scale," when marked with figures or other characters answering to the inches and proportionate parts of inches in the measure for slopes of shoulder, all when constructed and arranged to operate substantially as shown and described.

10. The square provided with the several scales named and the two lines described, all when constructed and fitted for use substantially as described and shown.

11. The jointed square, marked substantially as described, in combination with one or more bias-scales, all when constructed and fitted for use substantially as shown and described.

CALEB HENRY GRIFFIN.

Witnesses:

JEROME DAVIS,  
LEMUEL P. JENKS.