METHOD FOR PROPORTIONALLY BALANCING GARMENTS

Henry Booth, Bronxville, N. Y., assignor to The Henry Booth Methods Corporation, New York, N. Y., a corporation of Delaware

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1. My invention relates to a method for proportionally balancing garments.

Garments such as men’s suits are now procured in two general manners, usually designated as “tailor-made” and “ready-made.” A tailor-made garment is one in which cloth is selected by the customer and the suit made to order from measurements taken by a tailor. Usually, the girth of the chest, the girth of the waist, the girth of the seat, the girth of the abdomen, the girth of the thigh, the height of the customer, the outseam of the trouser, the inseam of the trouser, the inseam of the sleeve, a measurement from the middle of the back of the neck across the shoulder to the elbow and then to the end of the sleeve, a measurement from outseam to outseam across the shoulders, a measurement from the middle of the back to the front around the front and down the front to the vest opening, and then down to the top of the waist are taken. The squarings of the shoulders is checked. All of the measurements taken are not necessarily used. From these measurements, the tailor cuts a pattern from which the cloth is cut and basted into the form of the garment. Ordinarily the basted garment is fitted to the customer and inaccuracies in the pattern are compensated for in order to get a suit of clothes which fits.

With a tailor who has a degree of skill, a fairly good fitting garment is attained in this manner. Unfortunately, however, an individual merchant tailor cannot afford to employ a stylist who commands a large salary and who has the ability to cut clothes so that they present a smart or stylish appearance. A tailor-made suit, therefore, while well fitting is apt to look old-fashioned and out of style.

Ready-made clothes are designed by a master stylist who since his style will be reproduced many times can economically employed by an establishment making ready-made clothes. The designer usually cuts a pattern for what is termed a “38 regular.” The style is usually given a name. The regular pattern is cut for a man having a 38 chest measurement and regular posture, that is a man who is not hunch-backed, round shouldered or hollow chested. It is assumed that he is of average height and has normal shoulders, equal in length and in slope. In addition to the regular size, two other 38 sizes are made, that is a 38 “short” and a 38 “long” so that for each chest measurement there will be three general sizes. In addition, the style is usually made in the three types for all chest measurements from thirty-five to fifty-two. Accordingly, it is necessary for a store selling the clothes to carry sixteen sizes of three lengths for each style. It is not unusual to have as many as five hundred different sizes and lengths in various styles for one pattern of cloth. It will be seen, therefore, that the choice of styles and fabrics must necessarily be limited in ready-made clothes.

Furthermore, it rarely happens that a stock suit of clothes will exactly fit a customer. Some alterations are always necessary. Not infrequently, in making the alterations, the style which was expensively achieved may be destroyed or altered to lose its effect.

One object of my invention is to provide a method and apparatus for proportioning garments such that a standard pattern may be altered from the customer’s measurements in such a manner that the style of the garment will be retained and that the garment will fit the customer precisely without a trial fitting.

Another object of my invention is to provide a device for proportionally balancing garments by transcribing into measurements intelligible to cutters deviations from a standard pattern required to be made to obtain a garment which will fit a given customer and retain the original style.

Another object of my invention is to provide a novel apparatus for proportioning garments from measurements whereby a standard pattern may be altered to provide a garment which will fit the customer and retain the style of the garment.

Other and further objects of my invention will appear from the following description.

In the accompanying drawings which form part of the instant specification and which are to be read in conjunction therewith and in which like reference numerals are used to indicate like parts in the various views:

Figure 1 is a top plan view of a coat showing various adjustments made between front and back panels for various changes from a regular pattern.

Figure 2 is a front elevation of the garment shown in Figure 1.
Figure 3 is a side elevation of the garment shown in Figure 1. Figure 4 is an elevation of a front panel of a coat showing the various changes made in Figures 1, 2 and 3. Figure 5 is an elevation of a back panel of a coat showing the corresponding changes made. Figure 6 is a view showing a section of a tape used in the apparatus embodying my invention. Figure 7 is a front elevation of a device for proportioning garments which may be used in carrying out my method. Figure 8 is a sectional view taken on the line 8—8 of Figure 1. Figure 9 is a fragmentary sectional view drawn on an enlarged scale taken on a line 9—9 of Figure 8.

Figure 10 is a fragmental view drawn of the device shown in Figure 7. Figure 11 is a fragmentary sectional view taken along the line 11—11 in Figure 10. Figure 12 is a fragmentary sectional view taken along the line 12—12 of Figure 10. Figure 13 is a perspective view of the front of a coat showing the use of the strap measurement to establish a horizontal reference plane. Figure 14 is a rear perspective view of a coat showing the use of a seye measurement to establish a horizontal reference plane.

In carrying out my method, I first establish a horizontal reference plane to which all other measurements are co-related. This reference plane is determined horizontally below the armscye of the garment and is determined by measuring around one shoulder. The manner of establishing the reference plane can be understood by reference to Figures 2 and 3. For uniformity's sake, I prefer to establish this reference plane tangent to the bottom of the armscye of the garment. The length of the measurement from reference plane around the shoulder to reference plane is designated as "shoulder." The length of the measurement from the middle of the back of the neck around the neck and downwardly to the middle of the front of the garment to the reference plane is called "strap." The length of the measurement from the middle of the back of the neck down the middle of the back to the reference plane is called "seye." My invention will be described with reference to the coat of a suit, though it is to be understood that it is applicable to vests, robes, capes, overcoats and the like. In addition to the strap, the shoulder and the seye measurements, the girth of the chest, the girth of the waist, the position of the bottom button and the length of the back are taken.

With the above measurements, a standard pattern can be readily altered in accordance with my method in a proportional manner to retain the original style and at the same time provide a perfectly fitting garment. The seye measurement of the customer is too long, a standard garment will flare in the back and there will be diagonal wrinkles in the side running from the front of the coat upwardly toward the back. If the strap measurement of the customer is too long with respect to the standard garment, the coat will flare in the front and diagonal wrinkles will extend along the sides of the coat from the front downwardly toward the back. If the seye measurement of the customer is too short with respect to the standard garment, there will be horizontal wrinkles in the back of the coat below the neck. If the strap measurement of the customer is too short with respect to the standard garment, the coat will dip in the front and flare in the back.

Referring now to Figure 2, the full shoulder line indicated by the reference numeral 14 is a line indicating the normal shoulder to which the standard pattern is cut. The shoulder line 14h comprising a line of alternately long and short dashes represents the shoulder line for a person having high shoulders. The line 14s comprising a line of one long and three short dashes shows the shoulder line of a person having sloping shoulders. The lines 14, 14s and 14h all lie along line 14 in Figure 1 and Figure 3. Whereas in Figure 2, it is assumed that the customer is neither more erect than the pattern model nor more stooped than the pattern model. The adjustment for high shoulders, it will be observed, is made by reducing both the length of the strap and the length of the seye at a point near the neck. Accordingly, a "high shoulder" correction lessens the length of the dimensions of both the front and back pattern remote from the shoulder. It will be observed, further, that in the case of a sloping shoulder the length of the strap and the length of the seye are both increased, that is, the dimension from the reference plane to the seam 14s, both in front and back, is longer than in the standard pattern. The effect of a sloping shoulder correction, therefore, is to increase the dimensions of both the seye and the strap.

Let us assume that the customer stands with his neck slightly forward of the standard position, that is, he has a slight stoop. Referring now to Figure 1, the line of dashes 15 indicates the contour of the neck and the shoulder seam. The seam 18 is obtained by increasing the measurement from the reference plane from the middle of the back to the middle of the neck, that is, increasing the length of the back as in the case of sloping shoulders and decreasing the length of the measurement from the reference plane along the strap to the shoulder seam, that is, the measurement from the middle of the front of the reference plane to the top of the front panel of the pattern. This correction is made for high shoulders in the front panel. This can be seen by reference to Figures 4 and 5. The line 14 indicates the standard pattern line forming the shoulder seam 14 in Figures 1 and 3. The dashed line 16 in Figure 4 is formed at an angle with line 14 in a manner so as to reduce the length of the front panel adjacent the neck.

The dashed line 16 in Figure 5 is formed at an angle with line 14 so as to increase the length of the panel from the reference plane to the neck line. In other words, we have made a correction in the front panel which we would make for high shoulders. We have, however, made a correction in the back panel which we would make for sloping shoulders. The correction made is the equivalent of "high shoulders" in the front and "sloping shoulders" in the back.

Let us now consider that the customer is stooped more than that indicated by line 16 to a position indicated by the line 18 formed with two dashes and a dot. By reference to Figures 1, 3, 4, and 5 it will be seen that line 18 is parallel to line 14. Not only is the strap measurement reduced and the seye measurement increased but the point of juncture of the seam with the shoulder seam 17 is moved forwardly. A correction of this type, where the new shoulder seam 18 is
parallel to the old shoulder seam 14 of the standard pattern and displaced in a forwardly direction, is called a correction for "stooop." The correction adjacent the neck in this case is one which is made in the shoulder correction in the back and a high shoulder correction in the front and leaving the seam adjacent the sleeve seam as in the original pattern; or the correction may be made by increasing the length of the scye and decreasing the length of the strap, which results in lengthening the panel in the back adjacent the sleeve seam and shortening the panel in the front adjacent the sleeve seam. If larger corrections for stool were made only by shortening the strap and lengthening the scye, the balance of the garment would be destroyed and the style which is attained at such great effort and expense would be lost. Similarly, if large corrections for stool were made only by the sloping shoulder correction in back and the high shoulder correction in front, the balance of the garment would be distorted and the style lost. I have determined that only a limited correction for stool should be made by cutting the sloping shoulders in back and high shoulders in front and that the balance of the correction for stool must be made by lengthening the scye and reducing the strap adjacent the sleeve seam. It is generally better to balance corrections so that part of the correction in stool is made by each of the type of corrections described above.

Still referring to Figures 1, 3, 4 and 5, the line 20 drawn with a dash and four dots is obtained when the customer is quite round shouldered. It will be noted that the line 20 is parallel to the line 16 and the pattern alteration is the result of two corrective increments. The first increment is to apply the correction for sloping shoulders in back and the correction of high shoulders in front as in the case of the corrections applied to obtain line 16. The second increment of the correction is to increase the length of the shoulder and shorten the strap as may readily be observed by reference to Figure 3. The result of the two increments is to provide a coat which will fit an extreme case of stool without destroying the balance of the garment.

The dotted line 23 is obtained when the customer has an erect posture and carries his neck well back. The pattern is altered by applying a sloping shoulders correction in front and a high shoulders correction in back. For an extreme erect position, the line 24, comprising a dash and two dots, is obtained by using two increments of a position. One increment is obtained by applying the correction of high shoulders in back and for sloping shoulders in front, and the other increment is obtained by increasing the strap and reducing the scye, as will be observed by reference to Figure 5.

As in the case of corrections for stool, corrections for a person of the standard position to which the pattern is drawn must be applied so as not to destroy the balance of the garment and the style of the pattern. This is achieved by dividing the correction between corrections of the two types.

In practice, I have found that a sloping shoulder and a corresponding high shoulder correction alone, without any alteration in the strap or the scye measurements adjacent the sleeve seam, should not be made in excess of one inch and that beyond this a correction for the strap and the scye measurements adjacent the sleeve seam should be introduced, which correction I have termed a correction for "stooop" or a correction for "erect." The numerical values of the "stooop" and "erect" corrections are twice the actual distance the seam is moved. If, for example, a person to be fitted has a three-quarter inch stool, this may be compensated for by providing a sloping shoulder correction in back of three-eighths of an inch and a high shoulder correction in front of three-eighths of an inch. It may be compensated for, too, by providing a "stooop" correction of one-half inch and a sloping shoulder correction in back of an eighth of an inch and a high shoulder correction in front of an eighth of an inch. In other words, as long as the sloping shoulder and high shoulder corrections are not in excess of one inch, the balance of the garment will not be destroyed. Finally, even in extreme cases, a correction of two inches in each direction is sufficient to accommodate all but the most deformed of men. Each side, of course, independently corrected in accordance with the customer's measurements.

From the foregoing, it will be clear that my method contemplates the establishment of a reference plane from which measurements are taken and the correction of a standard pattern to provide for sloping shoulder and high shoulder corrections within predetermined limits and the provision of a correction for the balance of the needed change by variations in the strap and scye measurements adjacent the sleeve seam.

In practice, the method may be carried out without any particular apparatus. The reference plane may be marked on the person by means of chalk marks defining a plane just under the arm scye of the coat. It may be established, too, by the shoulder measurement. The corrections for high shoulders or sloping shoulders may be noted. The corrections for the stooped or erect positions may be measured on the person and proper allowances made so that a sloping shoulder or high shoulder correction in the front, one more than that made in the back may be applied and the balance of the correction obtained by variations of the strap and scye measurements.

I have found that it will be a convenience, however, in practicing my method to employ apparatus which will facilitate the practice of the method. Referring now to Figure 6, I have shown a segment of an endless tape 31 carrying columns of indicia placed in a predetermined position. The columns of figures, indicated generally by the reference numeral 30, represents the strap measurements, the line 32 running through those of central position the standard pattern. The columns of numerals indicated generally by the reference numeral 34 indicates the scye measurements, the standard measurements being indicated by the line 36. The column of figures indicated generally by the reference numeral 38 is the standard shoulder measurements which locate the reference plane. The column of figures indicated generally by the reference numeral 42 is the waist measurements of the standard models. The column of figures indicated generally by the reference numeral 44 represents the seat measurements of the standard models. The column of figures indicated general-
ly by the reference numeral 46 indicates the chest measurements for the vest in the standard model. The column of figures indicated generally by the reference numeral 48 indicates the waist measurements for the vest on the standard model. The column of figures indicated generally by the reference numeral 50 indicates the length along the strap to the bottom button of the vest. The column of figures indicated generally by the reference numeral 52 indicates the length of the measurement along the seye to the bottom of the back of the vest.

The column indicated generally by the reference numeral 54 contains the name of the model, that is, its style, the size, and the length of the model—whether it is a regular, a long or a short.

Referring now to Figures 3 and 9, the tape 31 is borne by a plurality of rollers 59, 60, 61, 62, 63, 64, 65, 66, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, and 86. Each of the rollers comprises members 68 covered by rubber members 68. The shafts 76 are journaled in suitable bearings. The shafts of the bottom rollers 60, 61, and 62 are lodged in slots 70 so that the width of the rollers serves to keep the tape taut. Sprocket wheels 72 are secured to the shafts of the upper rollers 63, 64, 65. A sprocket chain 74 passes around the edge of the sprocket wheel 72 so that movement of one of the rollers 63, 64 or 65 will result in the movement of all three. Secured to the shaft 56 of the roller 63 outboard of the sprocket wheel 72, I provide a second sprocket wheel 76. A shaft 78 is journaled in the housing 80 and carries a sprocket wheel 62. A sprocket chain 64 extends around sprocket wheel 70 and sprocket wheel 82. A sprocket wheel 86 is secured to the shaft 78 for rotation therewith. A horizontal casing 89 is secured to the casing 80. A sprocket wheel 90 provided with a handle 92 for rotating it is journaled in the casing 89. A sprocket chain 96 extends between sprocket wheel 90 and sprocket wheel 86.

The tape 31 passes adjacent the front wall 95 of the casing 80 over rollers 67 and 68, thence around rollers 59, 60, 61, 64, 66, 68, 69, 70, and 86 as can readily be seen by reference to Figure 8. The weight of the rollers 60, 61 and 62 will serve to keep the tape taut. The ratio of the diameter of the sprocket wheels is such that sprocket wheel 90 is larger than sprocket wheel 66. Sprocket wheel 62 is larger in diameter than sprocket wheel 76. In this manner, a speed increase is obtained so that rotation of the crank 92 will move the tape 31 rapidly. The front face 96 of the housing 80 is provided with a plurality of windows 99, 103, 102, 104, and 105, as well as a large window 100. The position of the windows 99, 102, 104 and 105 is indicated in Figure 6. There is visible through window 99 that portion of the tape showing column 36. There is visible through window 100 that portion of the tape showing columns 36, 40, 42, and 44. Columns 45, 46, 50, and 52 of the tape are viewed through window 102. The tape measurements are seen through window 104, while the seye measurements are seen through window 106. The large window 105 provides a translucent writing surface.

In the casing 80, I provide illuminating means such as fluorescent tube 110 and reflector 112 for illuminating window 105. The tape itself may be transparent or translucent and the window 99, 100, 102, 104 and 105 are illuminated by illuminating means such as fluorescent tube 114 and reflector 116. Horizontal casing 88 will be provided with a pair of drawers 118 and 120, the upper surface of the extension being illuminated by lighting means such as fluorescent tube 122 and reflector 124.

Referring now to Figure 10, which is an enlarged view of a section of the front 99 of the housing 80 showing the windows 99, 100, 102, 104 and 106, together with the tape 31 therebehind, it will be observed that I have provided a sliding member 123 provided with a handle 125 carrying a knob 130. The member 126 is provided an extension 122 passing through a slot formed in the face 99 of the casing 80. A plate 124 is secured to the extension 122 by means of screws 125 so that the member 126 is adapted to slide from side to side. The face 99 of the casing is provided with a plurality of reentrant portions 138 in which the end of a spring press pin 140 carried by the pointer 125 is adapted to seat. The pin 146, furthermore, is adapted to limit the right-hand motion of the member 126 by contact with a stop member 142. The left-hand motion of the slide 126 is adapted to be limited by a stop member 144 carried by the casing. A series of scribe marks or like indicia is provided on the face 99 of the casing just above the slide in the region of the pointer 125. The marks to the left of the zero point indicate "stop." The marks to the right of the zero point indicate "maximum." The scale of the scribe marks 146 is drawn one-half the actual scale, that is, in the scale one-half inch equals one inch. The reason for this will become apparent as this description proceeds.

Slidable positioned within the left-hand side of slide 126, I provide a member 148 having a knob 150 by which it may be moved to the right and to the left. The slide 148 carries a pointer 152 normally pointing to a zero scribe mark 154. A stop member 156 prevents the slide 148 from moving any further to the right. Similarly, a stop member 158 limits the leftward movement of the slide 146, which slide may be made of transparent material. The upper portion 127 of the slide 126 may be made of transparent material so that the numerals on the tape 31 seen through the windows 104 and 105 may be readily visible.

A third slide 160 is slidable carried on the right-hand side of the slide 126 and is provided with a knob 162 for moving the slide 160 easily, which slide may be made of transparent material. The slide 160 carries a pointer 164 which is adapted to cooperate with a stop member 166 carried by the slide 125 for limiting the right-hand movement of the slide 160. A stop member 168 co-acts with the pointer 164 to limit the left-hand movement of the slide 160. The scribe mark 165 indicates zero. It will be observed that the small scale carried by the right-hand side of the slide 126 extends one inch in each direction and that the right-hand side of the scale carries the legend "HS" which represents "high shoulders." That portion of the scale to the left of the zero mark 165 is designated by the legend "SS" which stands for "slowing shoulders."

The scale cooperating with the slide 148 carried by the left-hand side of the large slide 126 likewise extends one inch in each direction. Its left-most portion is marked with the legend "HS" standing for high shoulders, while the right-hand portion of the left sub-panel is associated with the legend "SS" standing for slowing shoulders. In the practice of my method and in the use of my apparatus, let us say that a customer enters a merchant tailor employing my invention and selects the style known as Dunn.
He chooses a fabric of which he would like to have the suit from the samples of the fabric which may be displayed in any suitable manner. Let us assume, too, that has chest, measured with a tape, that his height is about 5 feet 10 inches, so that he would take a 42 regular. The tailor then cranks the handle 22 until the legend "Dunn 42 Reg." appears in window 98. What is then seen can be viewed in Figures 6 and 10. It will be observed that the reference plane on the standard pattern is established by a "sloping shoulder" measurement of 19¾". The girth of the chest of the coat is 56". The girth of the chest of the vest is 43¾". In other words, in the standard style, an allowance of 1¾" is made for the vest while an allowance of 13½" is made for the coat. The waist of the standard model around the coat is 40½". The waist for the vest is made at 40½". The seat on the standard model is 53¼". The length along the strap to the bottom button is 23½". The length of the back of the vest is 20½". The length of the strap is 16¾". The length of the arm is 16¾".

In taking the measurements of the customer, the tailor first locates the reference plane. This is done very simply by measuring 19¾" around the shoulder or by drawing a horizontal line just below the armscye. The strap measurement is then taken and the scye measurement is then taken. By means of a square, it is noted whether the shoulders are normal and equal in height.

The bottom button measurement of the vest is used to determine whether the vest pattern should be lengthened or shortened and to what amount.

Let us assume that the scye measurement actually taken on the customer was 11¾" and that the strap measurement was 16½". The right-hand edge of the slide 160 may be brought into alignment with the scye measurement actually taken from the customer. To do this, the slide 160 must be moved to the left and will indicate sloping shoulder ¾ of an inch. The left-hand slide 145 may be moved to the left to bring its left-hand edge in alignment with the strap measurement on the tape, that is 16½". When this is done, the pointer 142 will read "high shoulder back of, ¾ of an inch and sloping shoulders back ¾ of an inch." It will be observed that neither of these measurements differ from the standard pattern more than one inch and that accordingly the pointer 152 is not stopped by the stop 158, nor is the pointer 164 stopped by the stop 163. This degree of measurement may be made without seriously affecting the balance of the garment. If desired, however, since the figure of the customer is somewhat stooped, the handle 130 may be moved to the left to indicate ½" stoop. This carries the right-hand side of the slide 125 to the left to indicate a scye measurement of 11½" and a strap measurement of 16½", due to the fact that the "stoop" and "erect" scale is drawn to the scale of one-half inch equals one inch. Accordingly, the half-inch line of the pointer 125 will register only one-quarter inch on each of the scye and strap scales. The strap, however, is 16½". Accordingly, the small slide 148 must be moved to the left another half inch, thus indicating "high shoulders ½ in." The scye measurement was 11½" so that the slide 160 must be moved to the left ½ of an inch, resulting in a reading by pointer 164 of "sloping shoulders ½ in." All alterations to the strap measurements are considered "front," while all alterations to the scye measurements are considered "back." It will be observed from the foregoing that the garment will fit with substantially the same balance by one type of change in the pattern, or by a change in the pattern comprising two components, one for "stoop" and one comprising "high shoulders in front" and "sloping shoulders in back."

Let us assume further that this customer's scye measurement is 9½" and that his strap measurement is 18½". Starting with the slide 160, this slide is moved to the right in an attempt to align its right-hand edge with 9½". After 9½" is reached, the slide 160 is arrested by pointer 164, contacting the stop 165. The slide 125 then must be moved toward the right, first one notch, then, in the next step, two notches. The pointer 130 rests on the reentrant portion 138 with the pointer 125 opposite "1½ in. erect." The slide 160 cannot yet be moved to the right to reach a scye measurement of 9½" due to the fact that the movement to the right of the scale 126 only brings its right-hand edge to 10½". The operator then moves the slide 126 another notch to the right to bring it to the reading "one inch erect." The right-hand side of the scale 126 will now be in alignment with 10½" on the scye scale. The slide 160 may now be moved to the right to bring its right-hand edge in alignment with the scye measurement of the customer, namely 9½". The pointer 164 will then read "1½" high shoulders." The movement of the slide 126 to the right to the position of "one inch erect" will bring the left-hand edge of the scale 126 to 17½". The slide 148 may then be moved to the right to bring its left-hand edge in alignment with the strap measurement of the customer, namely, 18½", so that the pointer 152 will then read "sloping shoulders ¾ in."

The cutter will be instructed to change the pattern by the directions "1 in. erect, ¾ high shoulders back, ¾ incline from front." Let us say that a customer has high shoulders, that is, his shoulders are more square and not as sloping as a standard model. This will be at once understood from the strap and scye measurements. If the scye measurements, for example, were 10½" and the strap line measurement was 16½", the correction would be made by moving the scale 160 to the right one-half inch and the scale 126 to the left one-half inch. This degree of change in slope is easily verified from the square measurements taken. The cutter would then be instructed to change the pattern to provide for a correction of "high shoulders ½ in."

It will be seen that the device described enables my method to be carried out in a convenient, simple and expeditious manner. The high shoulders and sloping shoulders corrections are not made in excess of one inch in each direction. The movement of the scale in "stoop" and "erect" corrections is not made in excess of one inch in each direction. A one inch erect correction, for example, would be distributed evenly, one-half inch to the strap and one-half inch to the scye, due to the fact that the stoop and erect scale changes both the strap and the scye measure-
ment a like amount. The reason for making the stoop and erect scale one-half the actual scale will now be apparent. By moving the scale 126 one-half inch to the right a correction of one inch is obtained distributed evenly one-half inch to the strap and one-half inch to the scye.

The system of stops, the stops 142 and 144 for the scale 126 and the stops 156 and 158 for the scale 160 and the stops 156 and 158 for the scale 148, automatically prevents the application of corrections to such a degree that an unbalanced garment would be made. The pattern is automatically corrected in such a manner as to maintain the style for which the garment was designed.

The other customary measurements of the length of the coat, the actual waist of the customer, the actual seat of the customer, the actual position of the bottom button and the length of the back of the vest are all taken as in the usual case and the standard pattern altered in accordance with these actual dimensions. These dimensions are not critical and are not such as to disturb the balance of the garment. By means of my method, I have been enabled to fit customers precisely without a trial fitting. I can provide smartly styled tailored garments made from a standard pattern and can be assured that the suits will fit. In this manner, I am enabled to obtain many of the advantages of ready-made clothing in so far as smart styles are concerned and all of the advantages of tailored clothing in so far as the fitting of the clothes are concerned.

My method and apparatus removes much of the guesswork from tailoring and tends to reduce it to an art to a science whereby accurately fitting clothes are insured.

It will be seen that I have accomplished the objects of my invention.

I have provided a method and apparatus for proportioning garments such that a standard pattern may be altered from the customer's measurements in a manner to retain the style and to enable the garment to fit precisely without the necessity of the trial and error method. I have an improved method of proportioning garments in an accurate, uniform, simple and expedient manner. I have provided apparatus for proportioning garments from measurements of the customer whereby a standard pattern may be altered to provide a garment which will fit the customer in a manner to retain the style of the original pattern.

Thus far I have described the fixing of a reference plane by a standard shoulder measurement and the alteration of the pattern by strap and scye measurements in order to provide a garment of a style in accordance with a standard and obtain the necessary fit for the particular subject to be fitted with a garment. It is to be understood that the standard reference plane may be established by either the standard scye measurement or the standard strap measurement. If the reference plane is established by the standard scye measurement, the shoulder measurement and the strap measurement of the person will be used to alter the standard pattern. If the reference plane is established by a standard strap measurement, the scye measurement and the shoulder measurement of the person will be used to alter the pattern. Referring now to Figure 13, it will be seen that the horizontal reference plane has been established by the strap measurement indicated in full lines and that the scye and shoulder measurements indicated in dotted lines may be varied. It will be clear that if a "slashing shoulder" correction is to be made this can be done very readily by reducing the shoulder measurement in an amount proper to provide an increased degree of sloping of the shoulder line over the slope of the standard garment. If the subject has high shoulders the shoulder measurement is increased and the scye measurement remains the same. It is to be remembered that when the reference plane is established by the strap measurement it never changes. Let us now assume that the subject is stooped and it is desired to give the coat the configuration say of construction line 20 shown in Figure 3. To accomplish this, the scye measurement is increased by the amount of stoop and the standard shoulder measurement is increased by an amount equal to the increase in the scye measurement, assuming that it is not desired to change the slope of the shoulder. If, on the other hand, it is desired to give the coat a configuration of "erect" such as indicated by construction line 24 of Figure 3, the scye measurement is decreased and the shoulder measurement is decreased a corresponding amount, assuming that it is desired to maintain the same slope of the shoulders. Thus the balance of the coat is maintained.

Referring now to Figure 14, I have shown the case in which the scye measurement is used to establish the horizontal reference plane. In this, if it is desired to correct for sloping shoulders, the shoulder measurement is decreased. If it is desired to correct for high shoulders the shoulder measurement is increased. If it is desired to correct for the horizontal reference plane is decreased the required amount and the shoulder measurement is decreased a corresponding amount. If it is desired to correct for a more erect posture than the standard garment the strap is increased and the shoulder is increased a corresponding amount.

Thus it is seen that the essence of my method is to establish a horizontal reference plane to which the standard shoulder, strap and scye measurements are read. The reference plane is then located on the subject by one of these standard measurements which may be either the shoulder measurement, the strap measurement or the scye measurement. The actual length of each of the other two measurements of the subject is then taken to the reference plane which is thus established and each of the actual lengths is then compared with the corresponding measurement to determine the amount and direction of the difference therebetween. The standard pattern may then be readily altered in accordance with the differences thus obtained and the resulting garment will fit and maintain the proportional balance of the standard garment. In practice, I have found it most suitable to establish the reference plane by a standard shoulder measurement.

It will be understood that certain features and sub-combinations are of utility and may be employed without reference to other features and sub-combinations. This is contemplated by and is within the scope of my claims. It is further obvious that various changes may be made in details within the scope of my claims without departing from the spirit of my invention. It is, therefore, to be understood that my invention is not to be limited to the specific details shown and described.
Having thus described my invention, what I claim is:

1. A method of proportioning garments of a standard pattern to compensate for deformities of measurements of a subject to be fitted with a garment from measurements of a standard figure for which the standard pattern was designed, including the steps of establishing a horizontal reference plane on the standard pattern to which the standard shoulder, strap and seye measurements are read, locating the reference plane on the subject by one of said standard measurements, taking the actual length of the other two measurements of the subject to the reference plane thus established, comparing the actual lengths with the corresponding standard measurements to determine the amount and direction of the difference therebetween and then altering the standard pattern in accordance with the amount and direction of the differences thus obtained.

2. A method of proportioning garments of a standard pattern to compensate for deformities of measurements of a subject to be fitted with a garment from measurements of a standard figure for which the standard pattern was designed, including the steps of establishing a horizontal reference plane on the standard pattern to which the standard shoulder, strap and seye measurements are read, locating the reference plane on the subject by the standard shoulder measurement, taking the actual seye and strap measurements of the subject to the reference plane thus established, comparing the actual seye measurement with the standard seye measurement to determine the amount and direction of the difference therebetween, comparing the actual strap measurement with the standard strap measurement to determine the amount and direction of the difference therebetween, then altering the standard pattern in accordance with the amount and direction of the differences thus obtained.

3. A method as in claim 2 in which said standard pattern comprises a front panel and a back panel adapted to be joined along a seam running from shoulder to neck, in which a correction for sloping shoulders as evidenced by a decrease in the strap measurement of the subject over the seye measurement of the standard figure is made by a sloping shoulder correction in the front panel, said sloping shoulder and high shoulder corrections not exceeding one inch.

4. A method as in claim 2 in which said standard pattern comprises a front panel and a back panel adapted to be joined along a seam running from shoulder to neck, in which a correction for a posture of the subject more stooped than the standard figure as evidenced by an increase in the seye measurement of the subject over the seye measurement of the standard pattern and a decrease in the strap measurement of the subject from the strap measurement of the standard figure is made by a sloping shoulder correction in the front panel, said sloping shoulder and high shoulder corrections not exceeding one inch.

5. A method as in claim 2 in which said standard pattern comprises a front panel and a back panel adapted to be joined along a seam running from shoulder to neck in which a correction for a posture of the subject more stooped than the standard figure as evidenced by an increase in the seye measurement of the subject over the seye measurement of the standard pattern and a decrease in the strap measurement of the subject from the strap measurement of the standard figure is made by a sloping shoulder correction in the front panel, said sloping shoulder and high shoulder corrections not exceeding one inch.

6. A method as in claim 2 in which said standard pattern comprises a front panel and a back panel adapted to be joined along a seam running from shoulder to neck in which a correction for a posture of the subject more erect than that of the standard figure as evidenced by an increase in the strap measurement and a decrease in the seye measurement of the subject over the corresponding standard strap and seye measurements is made by a sloping shoulder correction in front and high shoulder correction in back, said corrections not exceeding one inch.

8. A method as in claim 2 in which said standard pattern comprises a front panel and a back panel adapted to be joined along a seam running from shoulder to neck in which a correction for a posture of the subject more erect than that of the standard figure as evidenced by an increase in the strap measurement and a decrease in the seye measurement of the subject over the corresponding standard strap and seye measurements is made by a sloping shoulder correction in front and high shoulder correction in back, said corrections not exceeding one inch, and the length of the front panel is increased at both the seam and the neck and the back panel is decreased at both the seam and the neck by an additional amount not exceeding one inch.

9. A method as in claim 2 in which said standard pattern comprises a front panel and a back panel adapted to be joined along a seam running from shoulder to neck in which alterations of the standard pattern are made by varying the length of the front and back panels, maintaining the shoulder measurement in accordance with the shoulder measurement of the standard pattern giving effect to the variations in the strap and seye measurements of the subject from the strap and seye measurements of the standard figure by varying the length of the front and back panels adjacent the neck more than two inches respectively and varying the length of the front and back panels adjacent the seam more than one inch respectively.

HENRY BOOTH.

(References on following page)
### REFERENCES CITED

The following references are of record in the file of this patent:

#### UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
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<td>2,624,943</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### FOREIGN PATENTS

<table>
<thead>
<tr>
<th>Number</th>
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<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>622,414</td>
<td>France</td>
<td>Feb. 26, 1927</td>
</tr>
<tr>
<td>822,244</td>
<td>France</td>
<td>Sept. 13, 1927</td>
</tr>
</tbody>
</table>

### OTHER REFERENCES