Jan. 15, 1957 C. M. MATT 2,777,617

CALCULATOR FOR AND METHOD OF FORMING DRAPERY PLEATS

Filed June 3, 1955 2 Sheets-Sheet 1

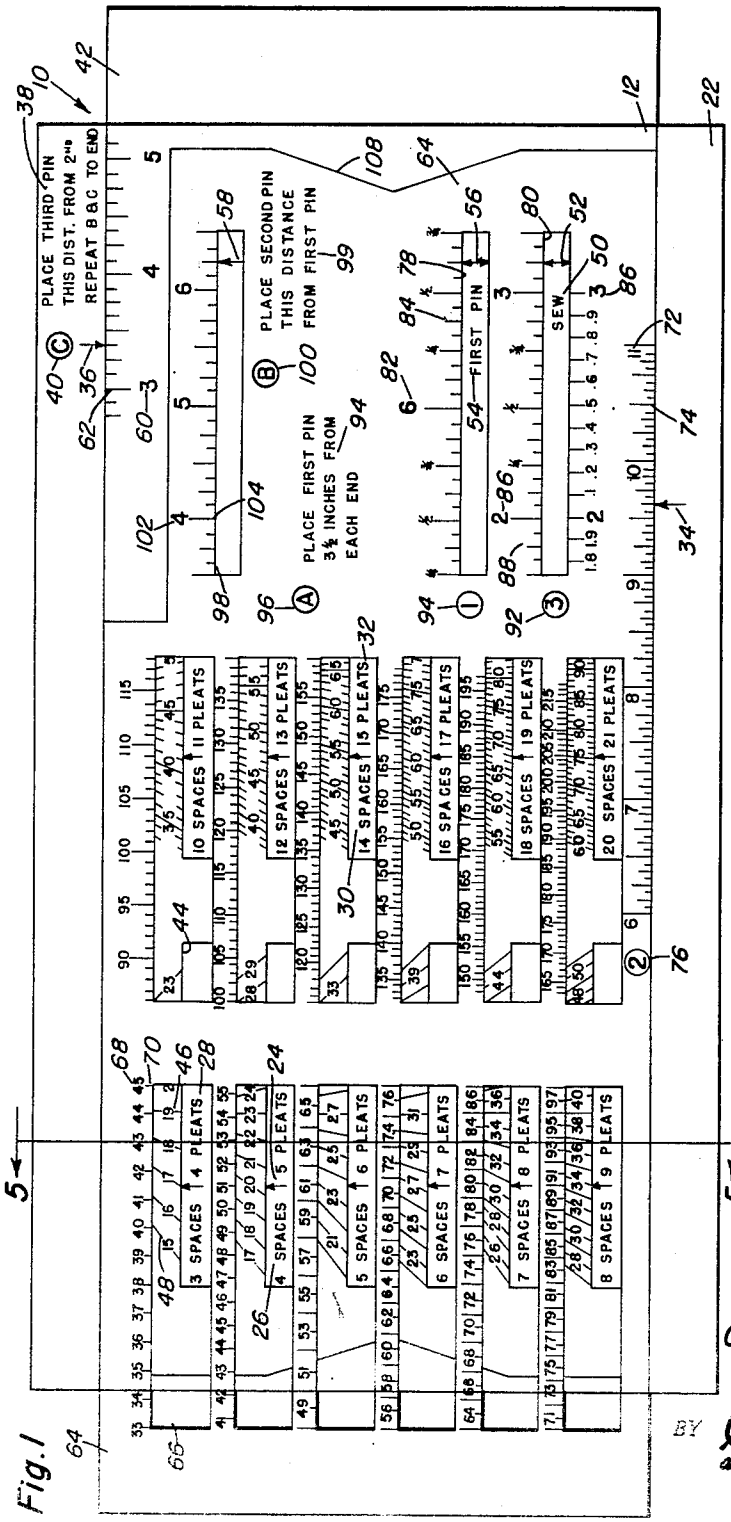

Fig. 1

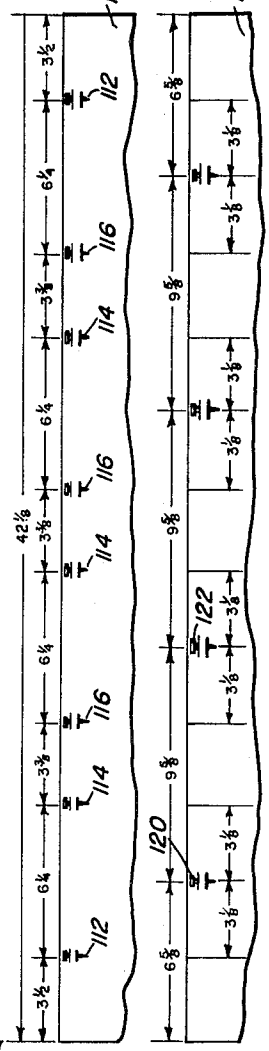

Fig. 6

Fig. 7

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CALCULATOR FOR AND METHOD OF FORMING DRAPERY PLEATS

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Fig. 2

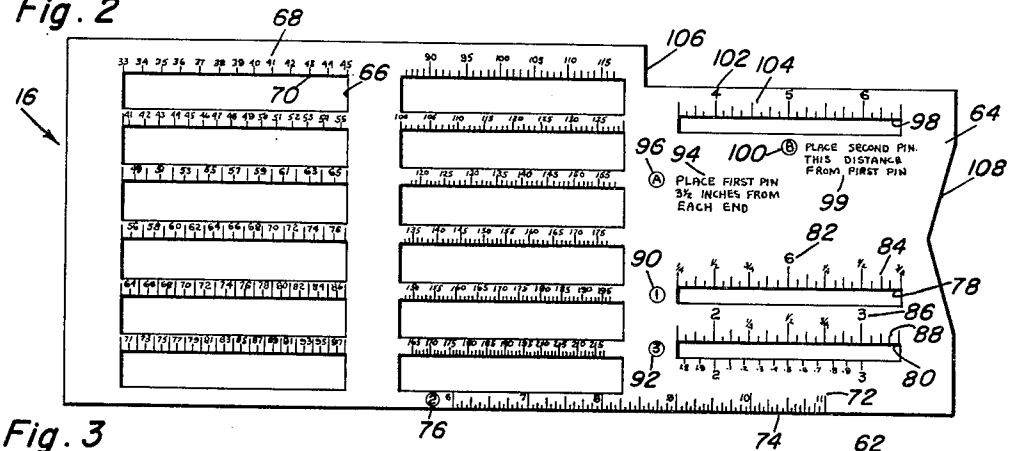


Fig. 3

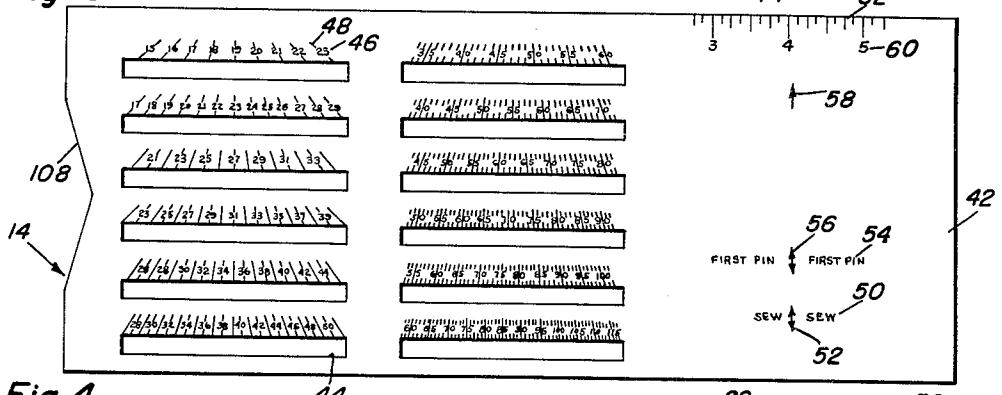


Fig. 4

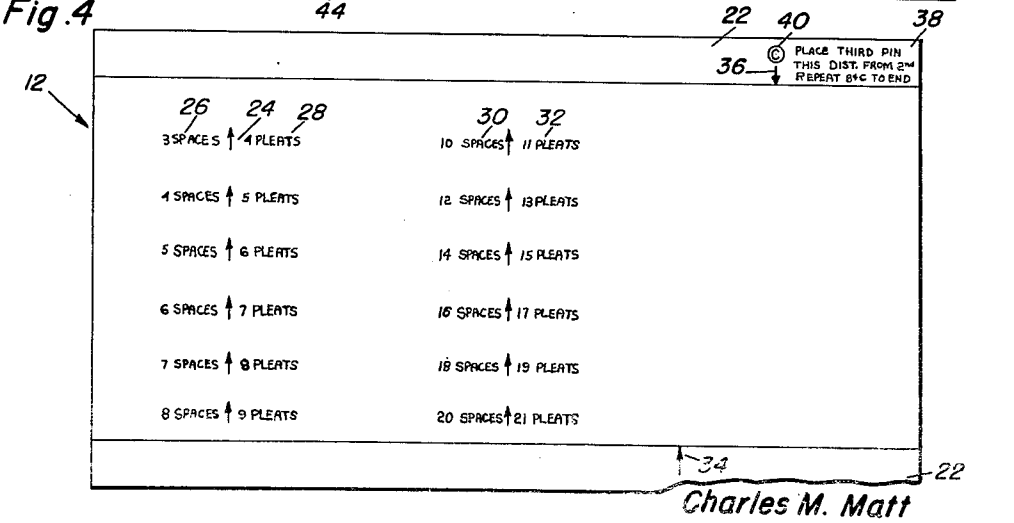
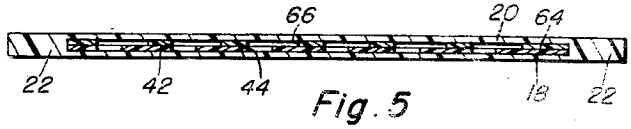


Fig. 5



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CALCULATOR FOR AND METHOD OF FORMING DRAPERY PLEATS

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7 Claims. (Cl. 223—34)

This invention generally relates to a novel calculator for and a new method of computing and forming pleats in custom-made draperies.

An object of the present invention is to provide a calculator constructed in such a manner for permitting the disposition of pleats to be computed on various widths of drapery material wherein the pleats may be computed and formed by two separate methods.

A further object of the present invention is to provide a calculator for use in computing the disposition of drapery pleats wherein such disposition will be directly readable from the calculator, thereby permitting drapery pleats to be easily, quickly, and accurately determined.

A further object of the present invention is to provide a calculator for use in providing direct instructions for forming pleats in a drapery material in accordance with one of two methods wherein the instructions are directly readable and easily understandable.

Another important object of the present invention is to provide a calculator which is simple in construction, easy to use, efficient in operation, well adapted for its intended purposes and relatively inexpensive to manufacture that is especially employed for use in forming drapery pleats by one of two methods, as desired.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a plan view of the calculator of the present invention illustrating one problem thereon and the various indicia positioned thereon;

Figure 2 is a top plan view of a second member;

Figure 3 is a plan view of a first plate member which underlies the second plate member of Figure 2;

Figure 4 is a plan view of a rectangular sleeve member which slidably receives the first and second plate members of Figures 2 and 3;

Figure 5 is a transverse, vertical sectional view taken substantially upon a plane passing along section line 5—5 of Figure 1 illustrating the disposition of the slidable members and the tubular sleeve;

Figure 6 is a schematic plan view illustrating one method of forming drapery pleats as directed by the calculator of Figures 1–5; and

Figure 7 is a schematic plan view illustrating another method of forming drapery pleats as directed by the calculator of Figures 1–5.

Referring now specifically to the drawings, it will be seen that the numeral **10** generally designates the calculator which includes a sleeve generally designated by the numeral **12**, as illustrated in Figure 4, a first plate member generally designated by the numeral **14**, as illustrated in Figure 3, and a second plate member generally designated by the numeral **16** and illustrated in Figure 2 of the official drawings.

The sleeve **12** generally includes a lower flat portion **18**

and an upper flat portion **20** interconnected by solid edge portions **22**. As illustrated, the entire sleeve **12** is constructed of plastic transparent material. However, it will be understood that only the upper portion **20** is necessarily constructed of transparent material, and it may be desirable for the bottom member to be constructed of opaque material, and it is not necessarily constructed of plastic since other materials may be employed. The upper surface of the bottom member **18** is provided with a plurality of vertically spaced and aligned arrows **24** together with vertically spaced and aligned rows of indicia **26**, **28**, **30** and **32**. The indicia **26** and **30** indicate the spaces between the pleats, and the indicia **28** and **32** indicate the number of pleats. It will be noted that in each instance, the number of pleats is one more than the number of spaces and the rows of vertically spaced arrows **24** are positioned beetween the indicia **26** and **28**, respectively, and the indicia **30** and **32**. Adjacent the lower edge **22** of the sleeve **12** is provided an index arrow **34** for a purpose described hereinafter. Adjacent the upper edge **22** of the sleeve **12** is an indicating arrow **36** pointing inwardly together with directive indicia **38** and an alphabetical letter designated by the numeral **40**. It will be understood that the indicia **24**, **26**, **28**, **30** and **32** may be viewed through the transparent upper portion **20** of the sleeve **12** and the arrow **24** together with the indicia **36**, **38** and **40** may be viewed from the top of the sleeve **12**.

Referring now specifically to Figure 3, it will be seen that the first plate member **14** includes a generally rectangular plate member **42** having a plurality of vertically spaced and aligned and horizontally spaced and aligned rows of relatively narrow slots **44** disposed at one end portion and in the center of the plate **42** for overlying the indicia **24**—**32** of the sleeve **12** wherein such indicia may be viewed through the narrow slots **44**. Disposed above each of the slots **44** are numerical indicia **46** and angulated index lines **48** wherein the numerical indicia gets progressively larger and this numerical indicia is utilized to indicate the finished width of the drapery panel which is that width of the drapery panel after the pleats have been formed therein. As the numerical indicia **46** increases in value, the spaces covered by a slot **44** increase accordingly. Disposed in spaced relation to the innermost slots **44** are word indicia **50** and arrow indicator **52** disposed in spaced relation to the bottom edge of the plate **42**. Spaced above the indicia **50** are indicia **54** together with another double headed arrow **56** which is in alignment with the double headed arrow **52**. Disposed adjacent the upper edge of the plate **42** is an indicating arrow **58** of the single headed type and along the upper edge of the plate **42** are numerical indicia **60** together with indicating lines **62** which terminate at the upper edge of the plate **42**. The first plate member **14** is disposed within the sleeve **12** and slidable therein wherein the slots **44** overlie the indicia **24**—**32** and the indicating lines **62** and indicia **60** cooperate with the indicating arrow **36** on the upper edge **22** of the sleeve **12** in a manner described hereinafter.

The second plate member **16**, as illustrated in Figure 2, includes substantially a rectangular plate member **64** having a plurality of horizotally disposed slots **66** which are disposed in spaced vertical rows which are in alignment with and which overlie the narrow slots **44** in the first plate member **14** and the indicia **24**—**32** on the sleeve **12**. The wide slots **66** permit the indicia **46** and index lines **48** on the first plate member **14** to be viewed and also permits the indicia **24**—**32** on the sleeve **12** to be viewed. Above the upper edge of each of the slots **66** are numerical indicia **68** and index lines **70** which are straight and which indicate the unfinished width of a drapery panel that is the width of the panel before the pleats are formed therein.

Disposed along the lower edge of the plate 64 are numerical indicia 72 and indicating lines 74 for coacting engagement with the indicating arrow 34 on the sleeve 12 for a purpose described hereinafter. The indicating lines 74 and the indicia 72 are provided with a designating numeral 76.

Disposed above the scale formed by the indicating line 74 is a pair of relatively narrow and vertically spaced slots 78 and 80 each of which overlies and permits viewing of the indicia 52—56 respectively. The slot 78 is provided with numerical indicia thereabove, as indicated by the numeral 82 together with index lines 84. The slot 80 is provided with numerical indicia 86 and index lines 88 both above and below the slot 80 wherein the upper indicia 86 read in fractions of inches while the lower indicia 86 read in tenths of inches. The slot 78 is provided with a numerical designating indicia 90 and the slot 80 is provided with numerical designated indicia 92.

Positioned centrally above the slot 78 are indicia 94 having a designating letter 96 associated therewith. Positioned above the indicia 94 is a slot 98 having indicia 99 associated therewith which is designated by a designating letter 100. Positioned above the slot 98 are numerical indicia 102 together with indicating lines 104 which are associated with the designating letter 100 and the indicia 99 associated therewith. The upper edge of the plate 64 is provided with a recessed portion 106 which overlies the indicia 60 and index lines 62 positioned on the upper edge of the plate 42, thereby permitting the indicating arrow 36 to cooperate therewith, whereby the indicia 38 on the sleeve 12 may be heeded.

Each of the plates 42 and 64 may be provided with an inwardly extending notch 108 to permit gripping thereof for relative sliding movement of the plates 64 and 42 within the sleeve 12, thereby permitting adjustment and alignment of the various indicia and indicating means as set forth hereinafter.

In the operation of the calculator 10, an exemplary problem has been set up in Figure 1 in order to illustrate the positioning of the sleeve 12, plate 42 and plate 64 and in order to illustrated the relative positions of the slots 44 and 56 as well as the other slots and indicia on the calculator. In this particular example, the length of the unfinished panel of drapery material is 42⅛" long, and the length of the finished panel is 17" long, and four pleats are to be formed with three spaces therebetween. In setting up this problem, the index line 48 passing through the numerical indicia 46 which is given a value of 17" is positioned under the numerical indicia 68, given a value of 42⅛" with the indicating arrow 24 in alignment therewith substantially as illustrated in the upper left hand corner of Figure 1. It will be noted that the arrow 24 is aligned with the bottom end of the inclined index line 48 running through the 17" numeral wherein the upper end of the index line 48 is disposed slightly to the right of the index line 70 having the 42" numeral thereover. After this condition has been set up, two methods may be employed for computing the positioning of pleats in the drapery panel.

The first method is known as the "ABC" method employing the indicia designated by the numerals 94, 96, 99, 100, 58, 104, 102, 60, 62, 36, 40 and 38. Referring now specifically to Figure 6, it will be noted that the numeral 110 indicates a panel of unfinished drapery fabric material, and observing the indicia 94, a marking pin 112 is provided and positioned 3½" from each end of the panel 110 in accordance with the directions of indicia 94. Now, reading the directions of indicia 99 and the position of the arrow 58, it will be seen that a second pin is positioned 6¼" from the first pin, and this second pin is indicated by the numeral 114. Now referring to the indicia 38 and the indicating arrow 36, it will be seen that a third indicating or marking pin 116 is positioned 3⅜" from the second marking pin 114 and the distances between 112 and 114 and between 114 and 116 are repeated successively as indicated until the pins are positioned completely across the panel 110. It will be noted in Figure 6 that these spacings of the pins total 42⅛", and in order to form the pleats, pins 112 and 114 are brought together and stitched and then, the third pin 116 and the next pin 114 are brought together and stitched wherein 3⅜" will be the distance between adjacent pleats with 3½" forming the end panels of the finished pleated drape. The 3½" space on each end of the panel 110 is to accommodate the curvature at the ends of the usual support rods so that the edges of the drape will abut the window frame or be positioned adjacent the end of the supporting rod.

The second mehod that may be directly read from the calculator 10 will be known as the "1-2-3" method, and employs the indicia designated by the numerals 82, 84, 56, 54, 90, 92, 88, 86, 52, 50, 72, 74, 76 and 34. This also is a direct reading, and reference is made specifically to Figure 7 wherein another unfinished panel of drapery material is designated by the numeral 118 and is also 42⅛" long. Reading directly over the indicating arrow 56, for the first step in this method, it is seen that the first pin designated by the numeral 120 should be disposed 6⅝" from the edge of the panel 118. Now skipping down to the directional numeral 76 which is the second step in this method, the second pin 122 is spaced from the first pin 120 a distance of 9⅝" as designated by the indicating arrow 34 which coacts with the indicia 72 and indicating lines 74.

Now referring to the designating numeral 92 which is the third step in this method, the indicating arrow 52 indicates that the panel 118 should be sewed 3⅛" on each side of each pin 120 and 122 wherein these points which are equal distance from the pins are brought together and stitched, thereby forming the pleats. It is noted that the two end pins are 6⅝" from the edges of the panel 18 and all other pins are equally and mutually spaced 9⅝" apart wherein the pins 120 and 122 form the center of the pleat and the stitching lines which are 3⅜" from the pins 120 and 122 form the pleats. It will be also noted that this method leaves a distance of 3⅜" between adjacent pleats in the center of the panel and leaves a distance of 3½" at each end of the panel 118 which will form an identically pleated panel as that formed by the method employed and illustrated in Figure 6.

The calculator 10 of the present invention provides a directly readable device wherein the computation of the disposition of the pleats in forming a drapery may be quickly and easily read. The provision of the two methods of formation of the pleats permits individual persons to select the particular method most desirable. While certain sizes and arrangements of the various pleats are not fully illustrated, it will be understood that any type of pleat may be formed after the disposition of such pleats has been determined. Such pleats may be formed either by stitching in a desired manner or by utilizing some commercially available pleat forming devices. It will be understood that the device of the present invention may be constructed of relatively inexpensive material and will provide an easily and quickly adjustable calculator for use in a custom drapery shop or in the home whereby the computation and the formation of the pleats will be greatly expedited.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A device for computing the disposition of drapery pleats comprising a generally flat rectangular tubular

sleeve member having at least the upper portion formed of transparent material, indicia imprinted on said sleeve, a first plate member slidably mounted in said sleeve, a second plate member slidably mounted in said sleeve in overlying relation to the first plate member, said first plate member having a plurality of narrow slots therein, said second plate member having a plurality of wide slots therein in overlying relation to the narrow slots in the first member, numerical indicia positioned above each of the wide and narrow slots, index lines associated with the numerical indicia, said indicia on the sleeve including an arrow for selectively aligning the index lines therewith, said indicia over the narrow slot being viewed through the wide slots and said indicia on the sleeve being viewed through the narrow slots, the indicia on the second member indicating the initial size of the drapery material, the indicia on the first member indicating the size of the complete drapery panel, and means spaced from said slots for indicating the disposition of the drapery pleats.

2. The combination of claim 1 wherein the indicia on the sleeve indicates numerical indicia to use for computing the disposition of the pleats.

3. The combination of claim 1 wherein said sleeve, first and second members are provided with coacting indicia for determining the spacing of pleats.

4. The combination of claim 1 wherein said sleeve, first and second members are provided with coacting indicia for determining the spacing of pleats, said coacting indicia including directions for placing a first, second and third pin in drapery cloth and bringing the first and second pins together and stitching the cloth for forming pleats, said indicia directing repeating the

distance between pins one and two and pins two and three for forming successive pleats.

5. The combination of claim 1 wherein said sleeve, first and second members are provided with coacting indicia for determining the spacing of pleats, said coacting indicia including designating the distance from the edge of a piece of a drapery panel, the distance between successive pins, and the distance on each side of each pin to bring together and stitch for forming pleats in the panel.

6. The method of forming pleats in a drape comprising the steps of measuring the unfinished panel of drape material, setting a first pin marker in spaced relation to each end of the panel, placing second and third pin markers in spaced relation on the material thereby forming a pair, repeating the relationship of the second and third pin markers across the panel with the pairs being equally spaced, bringing adjacent pin markers together, and stitching the material at the pin markers for forming pleats.

7. The method of forming pleats in a drape comprising the steps of positioning a pin marker in spaced relation to each end of a panel of drape material, positioning adjacent intermediate pin markers in equal mutually spaced relation to the end pin markers and each other, bringing points of equal distance from each pin marker together, and stitching the points together thereby forming pleats.

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