Feb. 23, 1954 A. GELLMAN 2,669,955

PLEAT FORMING DEVICE

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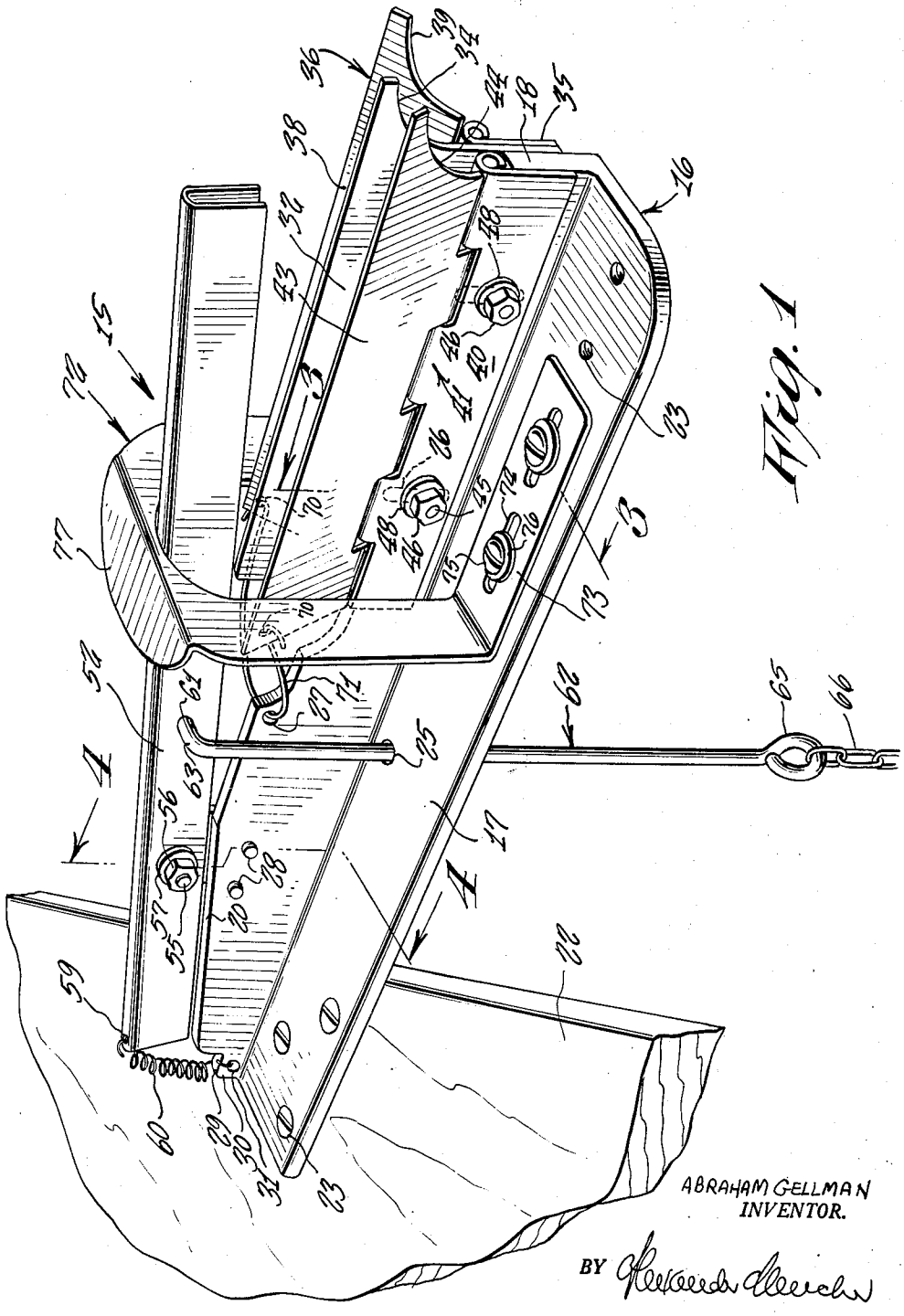


Fig. 1

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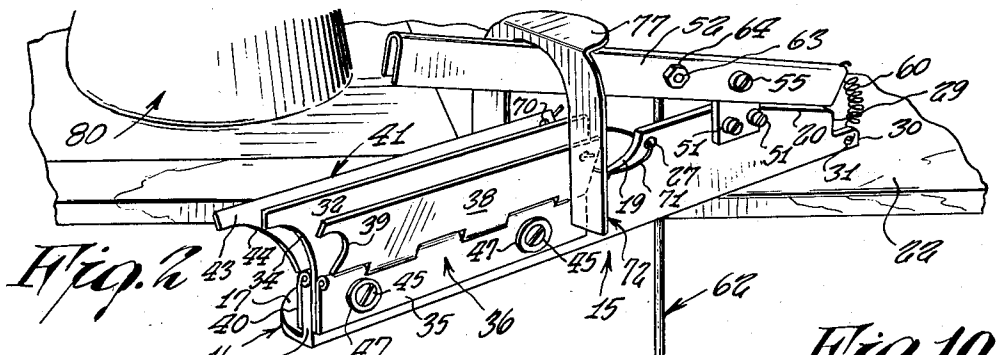


Fig. 2

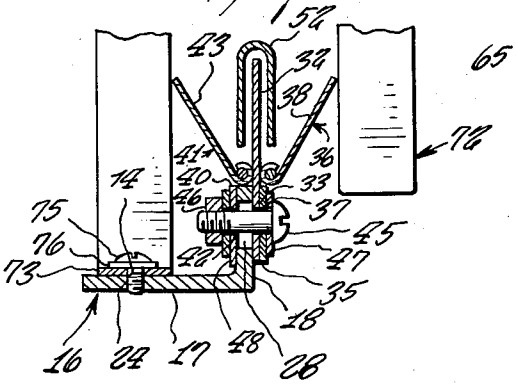


Fig. 3

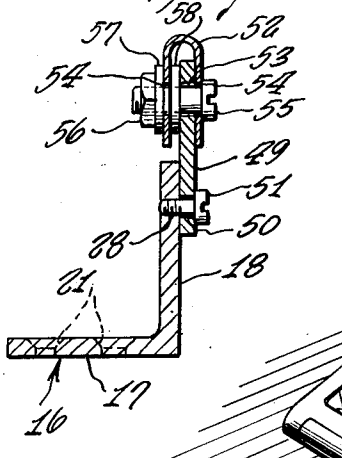


Fig. 4

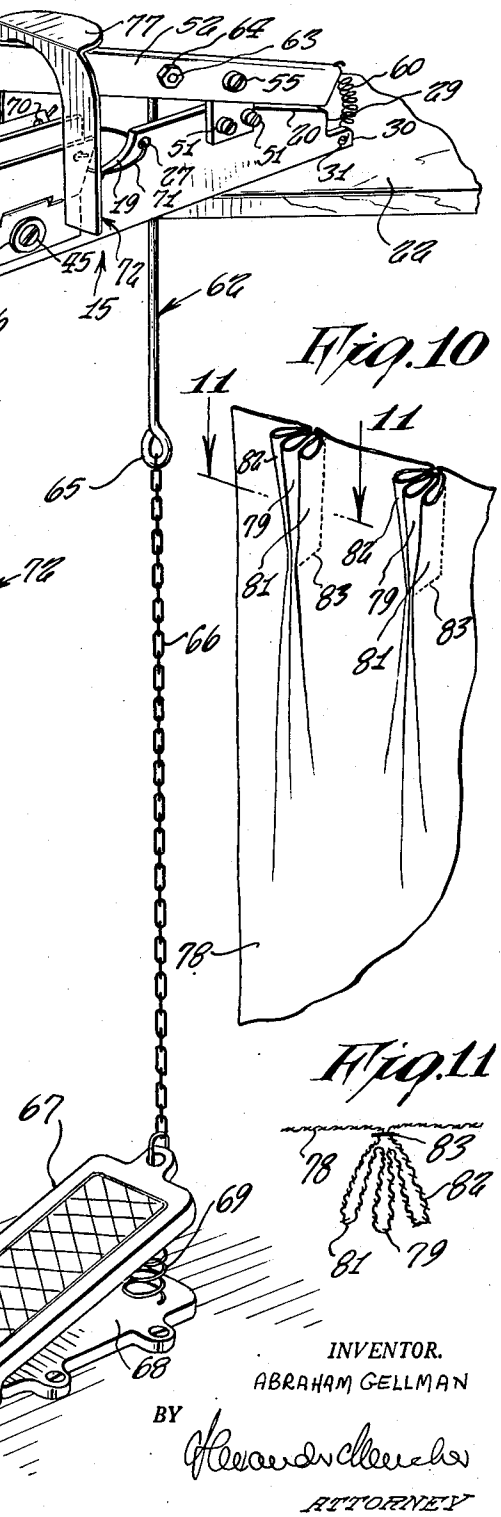


Fig. 10

Fig. 11

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Fig. 5

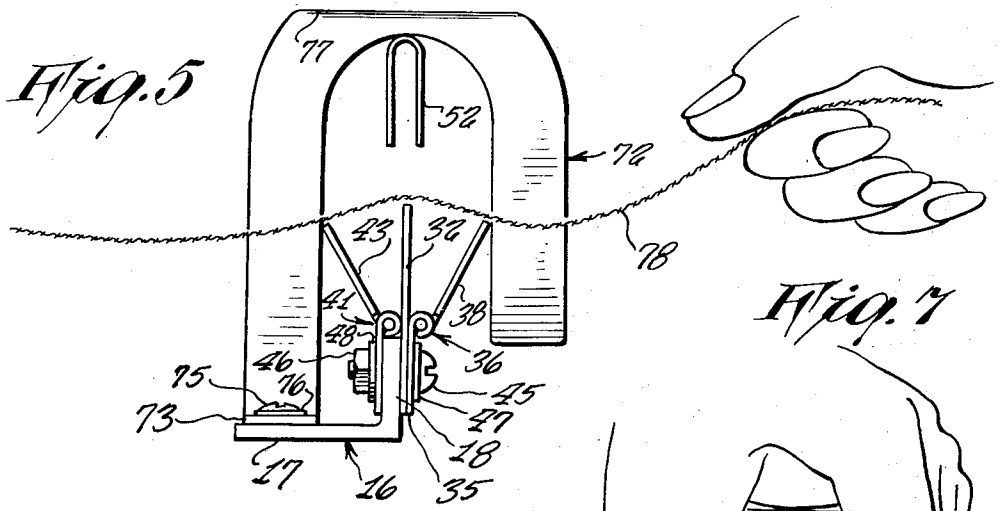


Fig. 7

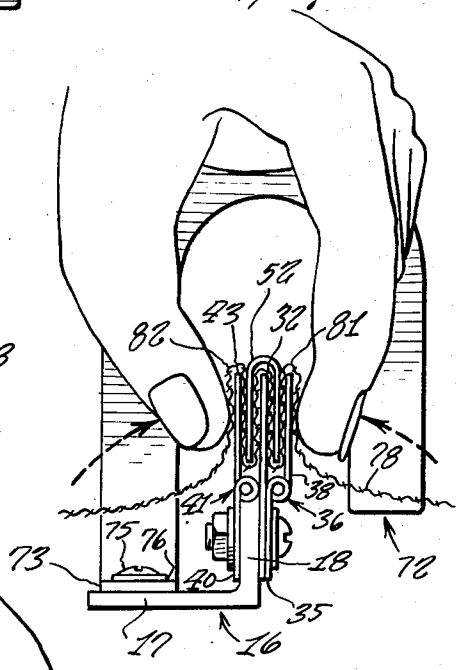


Fig. 6

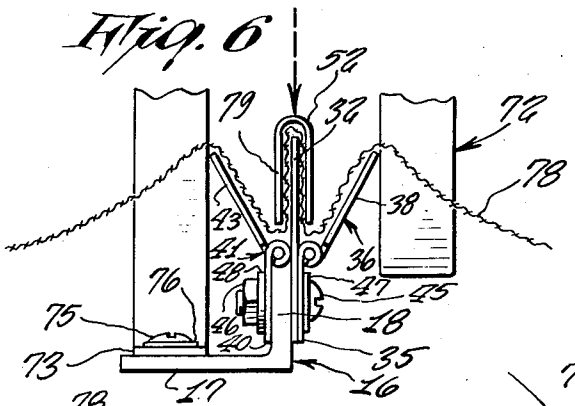


Fig. 8

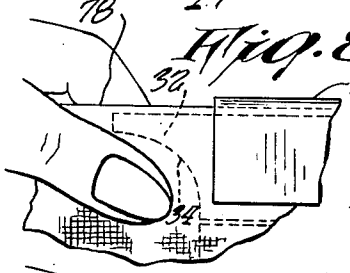


Fig. 9

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Patented Feb. 23, 1954

2,669,955

UNITED STATES PATENT OFFICE

2,669,955

PLEAT FORMING DEVICE

Abraham Gellman, New York, N. Y.

Application February 10, 1953, Serial No. 336,147

10 Claims. (Cl. 112—136)

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This invention relates to pleat-forming devices.

It is an object of the present invention to provide a pleat-forming device which will render the formation of pleats in garments entirely automatic.

It is another object of the present invention to provide a pleat-forming device of the above type which will facilitate and quicken the formation of pleats in garments prior to sewing the same.

It is still another object of the present invention to provide a pleat-forming device of the above type which will insure accuracy in the formation of the pleat.

It is still another object of the present invention to provide a pleat-forming device which may be conveniently mounted adjacent a sewing machine and which will materially increase the production of pleated garments by the operator.

Other objects of the present invention are to provide a pleat-forming device of the above type which is of simple construction, inexpensive to manufacture, has a minimum number of parts, is easy to use and efficient in operation.

For other objects and for a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is a perspective view of a pleat-forming device embodying the features of the present invention and shown mounted in operative position on a sewing machine table;

Fig. 2 is a perspective view of the other side of the device and showing the foot-actuable means for operating the same;

Fig. 3 is a vertical sectional view taken along line 3—3 of Fig. 1;

Fig. 4 is a vertical sectional view taken along line 4—4 of Fig. 1;

Fig. 5 is an end elevational view of the device showing the insertion of the garment therein prior to formation of the pleat;

Fig. 6 is a view similar to Fig. 5 but with one of the parts of the device lowered and the pleat partially formed;

Fig. 7 is a view similar to Fig. 5 but with two more of the parts rotated to operative position and showing the pleat completely formed;

Fig. 8 is a fragmentary side elevational view showing the manner of grasping the pleated garment prior to removal from the device;

Fig. 9 is a perspective view showing the manner of grasping the pleated garment with both hands prior to removal from the device;

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Fig. 10 is a perspective view of the pleats formed from the present invention and sewn permanently into the garment and

Fig. 11 is a transverse sectional view taken along the line 11—11 of Fig. 10.

Referring more in detail to the drawing, in which similar reference numerals identify corresponding parts through the several views, there is shown a pleat-forming device, referred to collectively as 15, and including a bracket 16 of L-shaped cross section, substantially as illustrated.

The bracket 16 consists of a horizontal base portion 17 and a vertical portion 18, the latter having a longitudinal cut-out portion 19 extending to one end thereof and a tapered portion 20 at the other end.

The base portion 17 adjacent the tapered portion 20 is provided with a plurality of countersunk openings 21 permitting the bracket 16 to be secured to the top of sewing machine table 22 or other tables by means of wood screws 23, substantially as illustrated in Figs. 1 and 2. It will be noted that the major portion of bracket 16 extends outwardly from table 22 at an angle thereto, for a purpose which will hereinafter become clear.

The base portion 17 at the end remote from the openings 21 is provided with a plurality of longitudinally spaced, internally threaded openings 24, and intermediate the openings 24 and 21 is provided with an opening 25.

The vertical portion 18 intermediate the cut-out portion 19 and the base portion 17 is provided with a pair of longitudinally spaced, vertically elongated openings 26 and adjacent the inner end of cut-out portion 19 with an opening 27. The vertical portion 18 below the inner end of tapered portion 20 is also provided with a pair of longitudinally spaced, internally threaded openings 28. The outer end of tapered portion 20 is cut-out, as at 29, providing an ear 30 having an opening 31.

An elongated plate 32 is disposed alongside vertical portion 18 and is provided with openings 33 adapted to be aligned with the openings 26 in vertical portion 18 (see Fig. 3), the plate 32 extending the length of cut-out portion 19 and extending upwardly therefrom, substantially as illustrated.

The plate 32 at its outer end is provided with a cut-out portion 34, for a purpose which will hereinafter become clear.

One plate 35 of a hinge 36 is disposed along-

side the bottom of plate 32 and is provided with openings 37 aligned with the openings 33 and 26 in the plate 32 and vertical portion 18, respectively (see Fig. 3), the plate 35 extending the length of plate 32 in coincided relationship therewith, permitting the other plate 38 of hinge 36 to be rotated upwardly into parallel relation with plate 32, as shown in Fig. 7.

The plate 38 at its outer end is provided with a cut-out portion 39 adapted to be aligned with the cut-out portion 34 of plate 32.

One plate 40 of a second hinge 41 is disposed alongside the other side of vertical portion 18 and is provided with openings 42 aligned with the openings 33, 26 and 37 in plate 32, vertical portion 18 and plate 35, respectively (see Fig. 3), the plate 40 extending the length of cut-out portion 19 in coincided relationship with vertical portion 18, permitting the other plate 43 of hinge 41 to be rotated upwardly into parallel relation with vertical portion 18, as shown in Fig. 7.

The plate 43 at its outer end is provided with a cut-out portion 44 adapted to be aligned with the cut-out portions 34 and 39 of plates 32 and 38, respectively.

Bolts 45 are located in aligned openings 42, 33, 26 and 37 and are secured therewithin by means of nuts 46, washers 47 being provided intermediate the heads of bolts 45 and plate 35, while washers 48 are provided intermediate the nuts 46 and plate 40.

A bearing member 49 is provided with openings 50 aligned with the openings 28 in vertical portion 18, and is secured to the latter by means of screws 51 passing through the openings 50 and 28, as shown in Fig. 4.

An elongated member 52 of U-shaped cross section is provided, and is adapted to receive the top edge of plate 32 therebetween in freely spaced relationship, as shown in Fig. 3.

The top of bearing member 49 is provided with an opening 53, and is received within the member 52, substantially as illustrated in Fig. 4, the member 52 being provided with openings 54 on each side aligned with the opening 53. A screw 55 passes through the aligned openings 53, 54 and is secured therewithin by means of a nut 56, a washer 57 being provided intermediate the nut 56 and the outer side of member 52 while a washer 58 is provided intermediate the bearing member 49 and the inner side of member 52, as shown in Fig. 4.

Thus the member 52 may be rotated down onto plate 32, as shown in Figs. 3 and 6–9, or rotated to the raised position of Figs. 1, 2 and 5, in which latter case the bottom edges of the member 52 near the rear end thereof will abut the tapered portion 20.

The member 52 at the inner end of its central or back portion is provided with an opening 59 which receives one end of a contraction spring 60, the other end of spring 60 being received in the opening 31 at the inner end of vertical portion 18 whereby to normally retain the member 52 in a raised position.

As a means of moving the member 52 downwardly onto plate 32 for a purpose which will hereinafter become clear, the member 52 is provided on each side with transversely aligned openings 61 which are also aligned vertically with the opening 25 in base portion 17. An elongated eye-bolt 62 passes upwardly through opening 25 and is bent at right angles to itself, as at 63, the portion 63 passing through the openings 61 and being externally threaded whereby to receive

thereon a nut 64. The eye 65 of eye-bolt 62 extends downwardly below the base portion 17, where it receives the end link of a chain 66. The other end of chain 66 is connected to a foot-pedal 67 hingeably mounted on a base plate 68, as shown in Fig. 2. The pedal 67 is normally retained in the raised position of Fig. 2 by means of an expansion spring 69 intermediate the former and the base plate 68, preventing tensioning of chain 66 until the pedal 67 is actually pressed down with the foot.

Thus, when the pedal 67 is pressed downwardly against the action of spring 69 by one foot of the operator seated at sewing machine table 22, the member 52 will be moved downwardly onto plate 32 against the action of spring 60, as will be obvious.

The inner ends of hinge plates 38 and 43 near their top edges are provided with openings 70 which receive the ends of a spring wire 71, the latter passing through the opening 27 in vertical portion 18. Thus, the spring wire 71 will retain the plates 38 and 43 in normally spaced rotation from plate 32, as shown in Figs. 1–3 and 5 and 6, for a purpose which will hereinafter become clear.

As a means of limiting the upward displacement of member 52 to a point just before the lower edges of the member come into contact with tapered portion 20, an inverted U-shaped guard 72 is provided, the latter at one end being integrally formed with a base portion 73 bent at right angles thereto, as shown in Fig. 1. This base portion 73 is provided with a pair of longitudinally spaced, elongated openings 74 adapted to be aligned with the openings 24 in base portion 17. Screws 75 pass downwardly through the aligned openings 74 and 24 and are secured therein by an internal thread provided on the latter, thus mounting the guard 72 on base portion 17. Washers 76 are provided intermediate the heads of screws 75 and base portion 73. By loosening the screws 75, the guard 72 may be adjusted longitudinally by means of the elongated openings 74, permitting the limitation of the upward movement of member 52 to be adjusted, as will be obvious. If it is desired to adjust the guard 72 longitudinally beyond the limits of openings 74, the screws 75 may be removed and inserted through the openings 74 into the adjacent pair of openings 24, as shown in Fig. 1.

It will be noted that the vertical sides of guard 72 also serve to limit the outward rotation of hinge plates 38 and 43 under the action of spring wire 71.

The upper, central portion of guard 72 is bent at right angles to itself, as at 77, providing a palm rest for a hand and avoiding the presence of a sharp upper edge for the guard, as will hereinafter become clear.

In operation, the garment to be pleated 78 is passed intermediate the member 52 and plate 32, in front of guard 72, as shown in Fig. 5. The member 52 is downwardly moved as shown in Fig. 6 by pressing the pedal 67 with one foot, providing a U-shaped pleat 79 in the material. If only one pleat is desired, the material is grasped on both sides of cut-out portion 34 of vertical plate 32, as shown in Fig. 8 and slid longitudinally out from plate 32 without raising the member 52 or pedal 67.

The manner of removing the material is also illustrated in Fig. 9.

The pleat 78 thus formed is sewn in place by a sewing machine 80 located on table 22.

If instead of only one pleat 79, it is desired

to add another pleat 81, before removal of the material 78 from the device and while the member 52 is still retained in the down position by pedal 67, hinge plate 38 is rotated upwardly manually against the action of spring wire 71 through the material, as shown in Fig. 7. The material and more particularly pleats 79 and 81 are grasped then on both sides of aligned cut-out portions 34 and 39 of plates 32 and 38, respectively, and slid off the plate 32 longitudinally without releasing plate 38 or member 52, as shown in Fig. 9. The pleats 79 and 81 thus formed are then sewn in place on machine 80.

If, however, it is desired to provide three equal pleats 79, 81 and 82, both hinge plates 43 and 38 are rotated upwardly through the material, as shown in Fig. 7, retaining the member 52 in the down position by pedal 67. The pleats 79, 81 and 82 are then grasped between the thumb and index finger of the other hand within the aligned cut-out portions 34, 39 and 44, and the material slid off the device, as shown in Fig. 9, while the member 52 and plates 38 and 43 are retained in engagement with vertical plate 32. The pleats 79, 81 and 82 thus formed are then secured in place by stitching 83 (see Figs. 10 and 11).

Thus, it is only necessary to pass the material 78 intermediate the member 52 and plate 32, step on pedal 67, rotate the hinge plates 38 and 43 together with the fingers and then grasp the pleats thus formed within the cut-out portions 34, 39 and 44, and slide the material off and stitch the pleats.

It will be noted that not only are the pleats accurately and quickly formed, but that any number of pleats may be formed from one to three without adjusting or changing the construction of the device in any way.

It should now be apparent that there has been provided a pleat-forming device which may be conveniently mounted adjacent a sewing machine and which will materially increase the accuracy and production of pleated garments by the operator.

While various changes may be made in the detailed construction, it shall be understood that such changes shall be within the spirit and scope of the invention as defined by the appended claims.

I claim:

1. A pleat-forming device comprising an elongated fixed plate having a longitudinal working edge adapted to receive the fabric thereon, an elongated member of substantially U-shaped cross section positioned with its open side facing said edge and operatively associated with said plate and movable into engagement with said plate with the longitudinal edge of said plate being received within said member with the fabric therebetween and a pair of second elongated plates, each of said second plates being hingedly mounted on opposite sides of said first plate and movable against one side of said member when the latter is in operative engagement with said first plate with the fabric interposed between said sides of said member and the second plates, said first plate extending beyond said member when the latter receives the former therebetween and having a cut-out portion at the end thereof, said cut-out portion extending inwardly below said longitudinal working edge toward said member, said second pair of plates each having cut-out portions adapted to be aligned with said cut-out portion in said first plate when said second pair of plates are rotated against the sides of said member whereby the pleated fabric may be grasped on opposite sides and removed from between said plates and member longitudinally without raising said member or rotating said second pair of plates out of operative position.

2. A pleat-forming device comprising an elongated plate having a longitudinal working edge adapted to receive the fabric thereon, an elongated member of substantially U-shaped cross section pivotally mounted adjacent one end of said plate and adapted to be rotated against said plate receiving said longitudinal edge and fabric therebetween whereby to form a first U-shaped pleat in the fabric, spring means connected to said member for normally retaining said member out of engagement with said plate, foot-actuable means connected to the member for moving said member about its pivot against the urgement of said spring means into engagement with said plate, a pair of second plates rotatably mounted on opposite sides of said first plate near the other longitudinal edge thereof and adapted to be rotated against opposite sides of said member when the latter is in engagement with said first plate whereby to form second and third pleats in the fabric alongside the first pleat and spring means for normally retaining said second pair of plates in spaced rotation to said first plate and said member.

3. A pleat-forming device according to claim 2, said first plate extending beyond said member when the latter receives the former therewithin, said first plate having a cut-out portion at the extended end thereof extending inwardly below the longitudinal working edge of said first plate, said second pair of plates having cut-out portions adapted to be aligned with said cut-out portion in said first plate when said second pair of plates are rotated against the sides of said member whereby the pleated fabric may be grasped on opposite sides of the pleated portion thereof and slid out longitudinally from between said plates and member without raising said member or rotating said second pair of plates out of operative position.

4. A pleat-forming device comprising an elongated bracket having a substantially horizontal base portion and a substantially vertical portion, said base portion at one end being secured to the top of a table and extending outwardly therefrom, said vertical portion along its top edge having a longitudinal cut-out portion extending outwardly to its end remote from the table, the other end of said vertical portion along its top edge being downwardly tapered toward said other end, an elongated, substantially vertical plate secured to one side of said vertical portion below said cut-out portion, said vertical plate having an upper longitudinal edge substantially parallel to said base portion and extending upwardly above the top edge of said vertical portion, a pair of hinges including upper and lower hinge plates, the lower hinge plate of one of said hinges being aligned longitudinally and secured to one side of said vertical portion below said cut-out portion and permitting the upper hinge plate thereof to be swung upwardly substantially parallel to said vertical plate, the lower hinge plate of said other hinge being aligned longitudinally and secured to one side of said vertical plate below said cut-out portion in said vertical portion and permitting the upper hinge plate thereof to be swung upwardly substantially parallel to said vertical plate, said upper and lower hinge plates,

respectively, of said hinges being aligned transversely with each other and said upper hinge plates having longitudinal edges adapted to be aligned substantially with the longitudinal edge of said vertical plate, an elongated member of substantially U-shaped cross section, said member being pivotally mounted above said tapered portion of said vertical portion with the open end thereof aligned longitudinally and adapted to receive therewithin the longitudinal edge of said vertical plate upon downward rotation of said member, spring means for retaining said member in a raised position, means for lowering said member onto said vertical plate when fabric is disposed intermediate said longitudinal upper edge of said vertical plate and said member whereby to form a first U-shaped pleat in the fabric, and second and third pleats when said upper hinge plates are rotated against the sides of said member, spring means for normally retaining said upper hinge plates in spaced rotation from said member and vertical plate and means limiting the upward displacement of said member and the outward rotation of said hinge plates.

5. A pleat-forming device according to claim 4, said vertical portion below said cut out portion having longitudinally spaced, vertically elongated openings, said lower hinge plates and the bottom of said vertical plate having openings aligned with said vertically elongated openings and nuts and bolts located in said aligned openings securing said vertical plate and lower hinge plates to said vertical portion in vertically adjustable positions within the limits of said elongated openings whereby to vary the width of the pleats.

6. A pleat-forming device according to claim 4, said vertical plate extending beyond said vertical portion and member, said vertical plate having a cut-out portion at the extended end thereof extending inwardly below the longitudinal upper edge thereof, said upper hinge plates having cut-outs aligned with said cut-out in said vertical plate when said upper hinge plates are rotated against the sides of said member whereby the pleated fabric may be grasped on opposite sides and slid out longitudinally from between said plates and member without raising said member or rotating said upper hinge plates away from the sides of said member.

7. A pleat-forming device according to claim 4, said spring means for normally retaining said member in a raised position comprising a contraction spring connected at one end to the inner

end of said member and at the other end to the inner end of said vertical portion adjacent said tapered portion.

8. A pleat-forming device according to claim 4, said means for lowering said member comprising said base portion having an opening adjacent said vertical portion intermediate its ends, said member in each side having transversely aligned openings aligned vertically with said opening in said base portion, an elongated bolt passing downwardly through said opening in said base portion, said bolt at its upper end being bent at right angles to itself and passing through said openings in said member, means for securing said bent portion therewithin, a foot-pedal, spring means normally retaining said pedal in a raised position and flexible means interconnecting the bottom of said bolt and said pedal whereby downward movement of said pedal will pull said member downwardly onto said vertical plate.

9. A pleat-forming device according to claim 4, said means for normally retaining said upper hinge plates in spaced rotation from said member and vertical plate comprising said upper hinge plates near their upper edges and inner ends having openings, said vertical portion adjacent said cut-out portion and near the upper edge thereof having an opening, and a spring wire passing through said opening in said vertical portion and being secured within said openings in said upper hinge plates whereby to exert an outward tension on said upper hinge plates.

10. A pleat-forming device according to claim 4, said means limiting the upward displacement of said member and the outward displacement of said upper hinge plates comprising an inverted, substantially U-shaped guard straddling said vertical plate and member with the upper portion of said member abutting the top of said guard and the upper longitudinal edges of said upper hinge plates abutting the sides of said guard, and means for securing said guard in said position in longitudinally adjustable positions whereby to vary the upward limit of displacement of said member.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
556,495	Dumville et al.	Mar. 17, 1896
2,065,754	Schramm	Dec. 29, 1936