United States Patent [19]

Cruden

[11] **3,725,959**

[45] **Apr. 10, 1973**

[54] **PIPED OPENING FOR USE IN GARMENTS AND METHOD OF MAKING SAME**

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[22] Filed: **Oct. 29, 1970**

[21] Appl. No.: **85,025**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 747,632, July 25, 1968, abandoned.

[52] **U.S. Cl.** **2/247,** 2/266, 112/264

[51] **Int. Cl.**.....**A41d 27/20,** A41f 1/02

[58] **Field of Search**.....2/247, 266, 243; 112/264, 65, 68, 405–408, 417, 418, 419, 422, 423, 424, 425, 426, 428, 431, 434, 437

[56] **References Cited**

UNITED STATES PATENTS

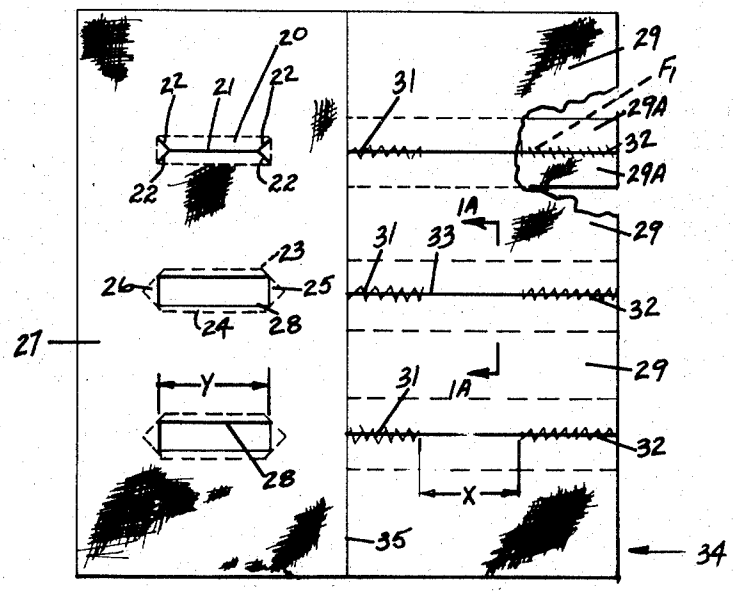
370,903	10/1887	Stone	2/266
415,424	11/1889	Stone	2/266
2,042,282	5/1936	Tworoger	2/247
2,263,546	11/1941	Goldsmith et al.	2/247 X
2,671,903	3/1954	Breul	112/264

Primary Examiner—H. Hampton Hunter
Attorney—Arthur T. Fattibene

[57] **ABSTRACT**

This disclosure is directed to the piped or bound garment opening and a method of making the opening; and to a welt construction for use in making such openings. The disclosure describes the forming of an opening in a portion of a garment substantially free of raw edges, and backing such opening with an improved welt construction. The welt construction comprises essentially of a pair of complementary reversely folded welt strips suitably secured to the back side of the opening so that the reverse folds of the welt strips are contiguously disposed and extend along a medial portion of the formed opening.

17 Claims, 21 Drawing Figures



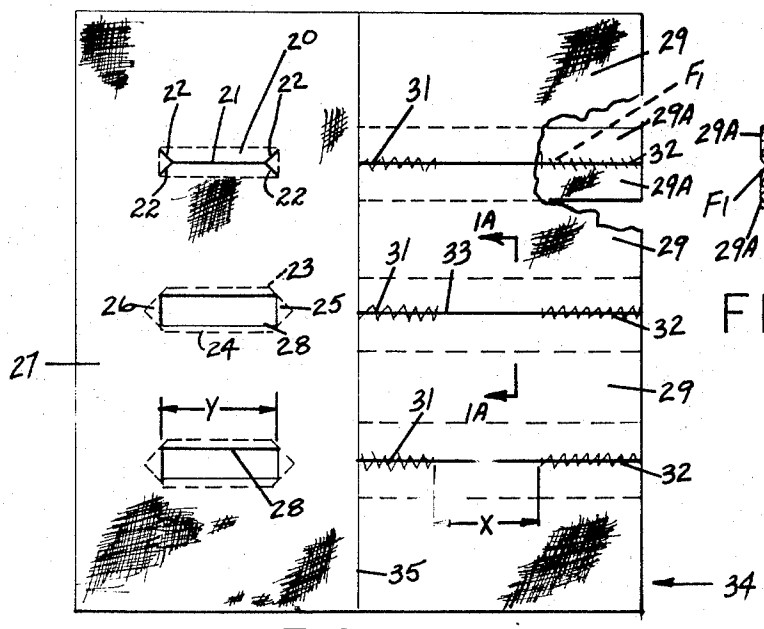


FIG. 1

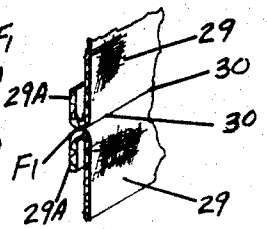


FIG. 1A

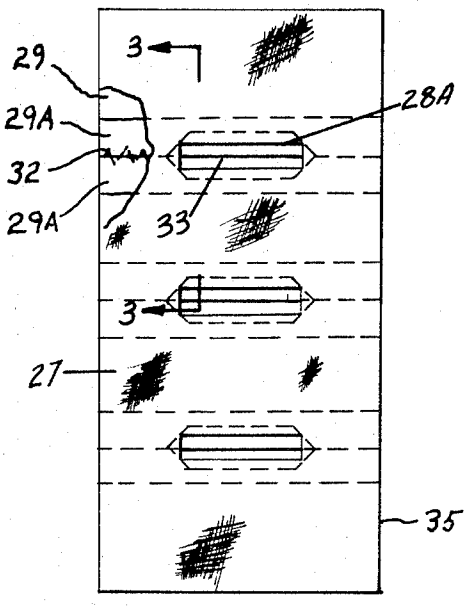


FIG. 2

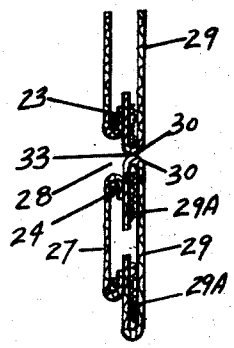


FIG. 3

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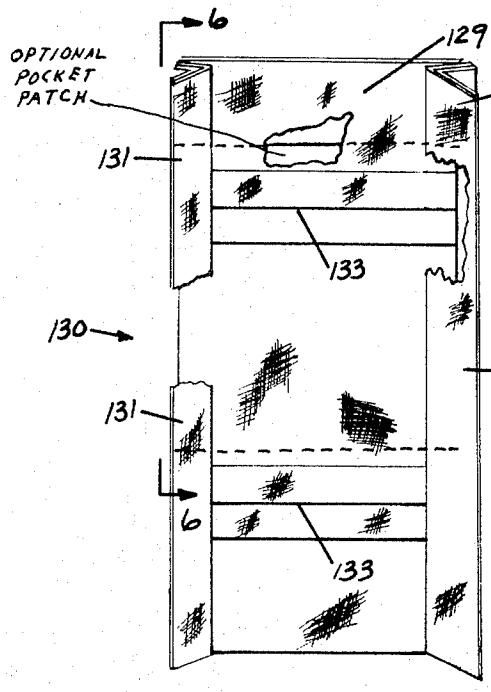


FIG. 4

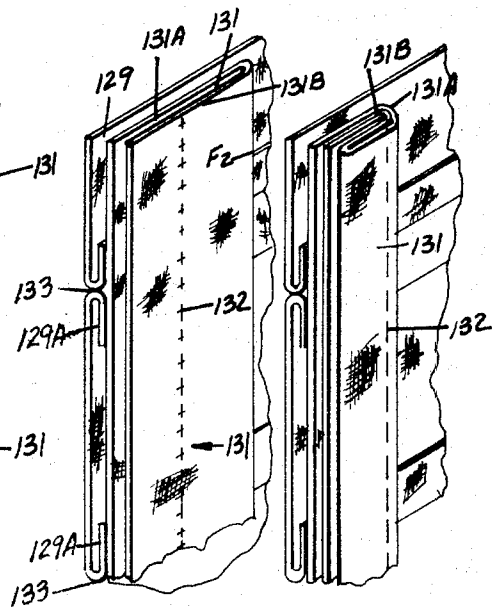


FIG. 6 FIG. 7

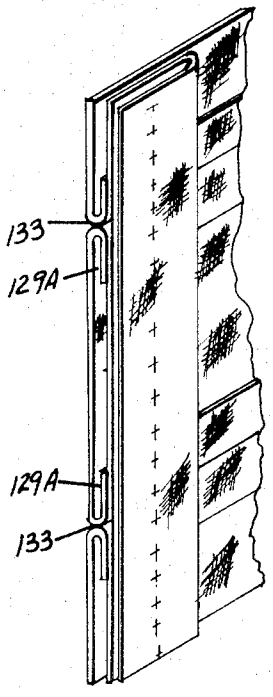


FIG. 5

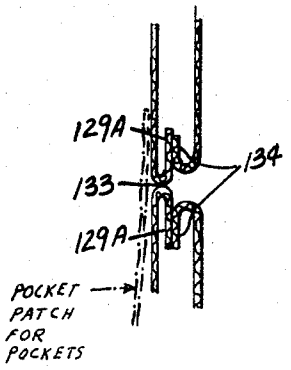


FIG. 9

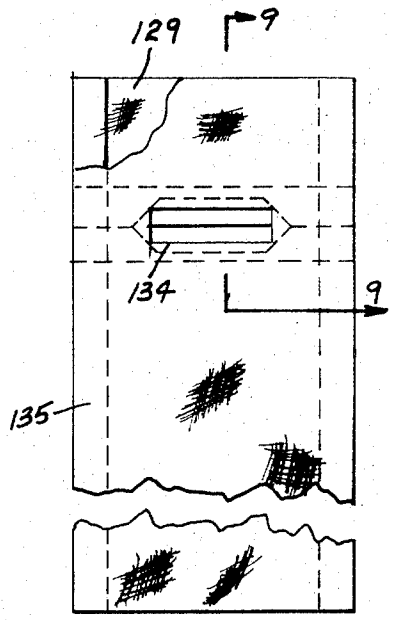


FIG. 8

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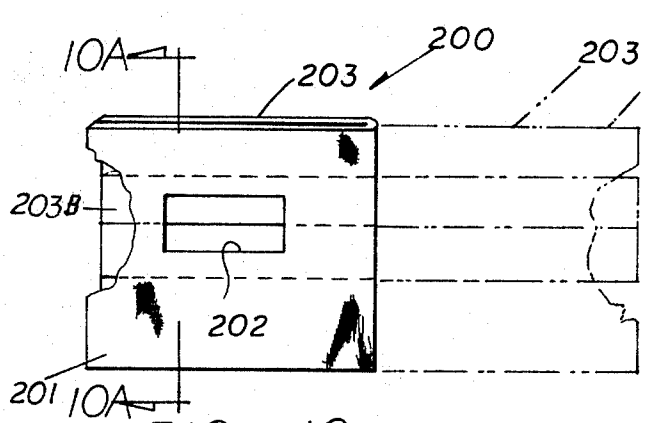


FIG 10

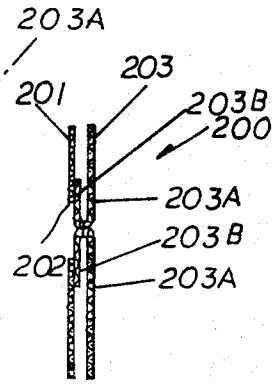


FIG 10A

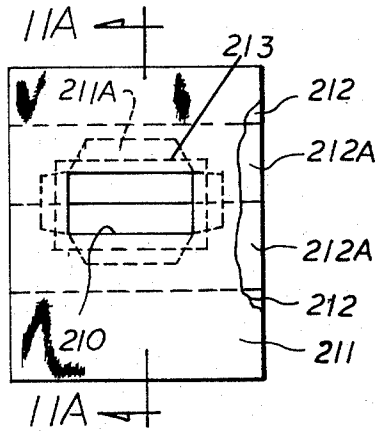


FIG. 11

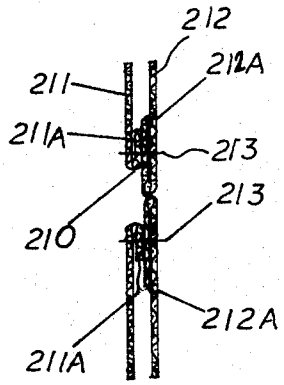


FIG 11A

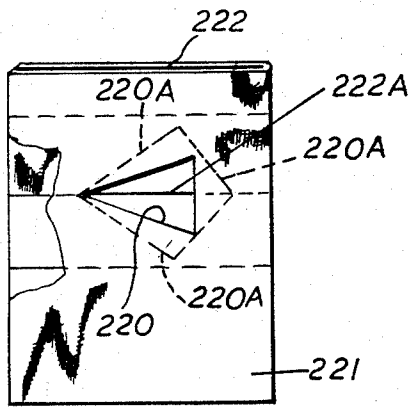


FIG. 12

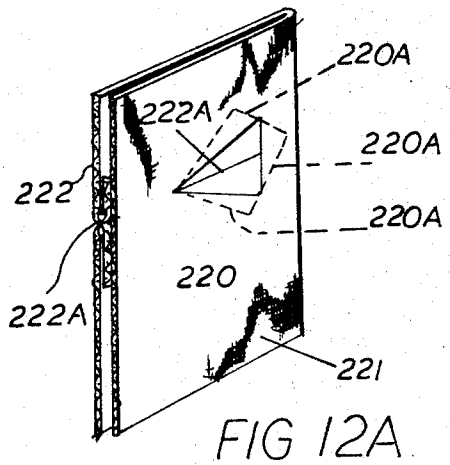


FIG 12A

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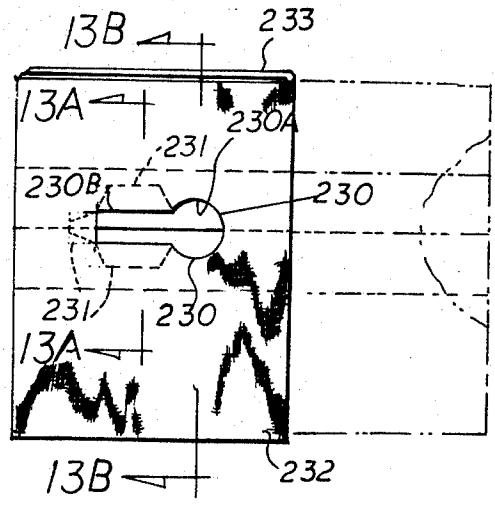


FIG. 13

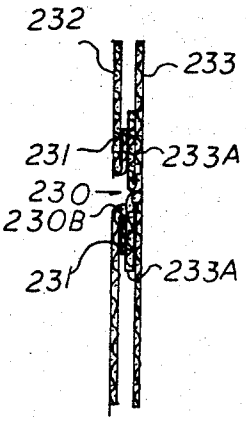


FIG. 13A

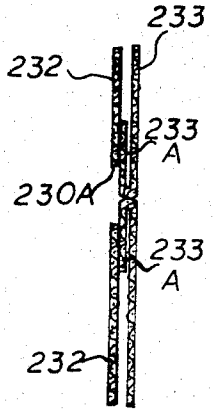


FIG. 13B

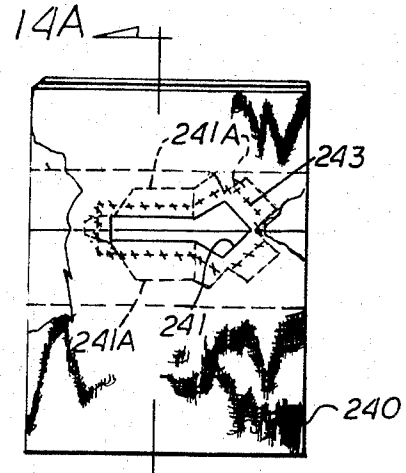


FIG. 14

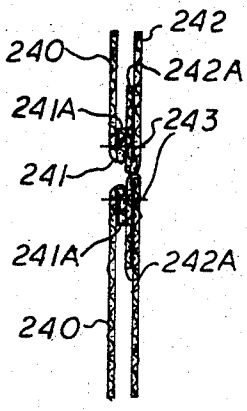


FIG. 14A

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PIPED OPENING FOR USE IN GARMENTS AND METHOD OF MAKING SAME

RELATED APPLICATIONS

This application is a continuation-in-part application of my application, Ser. No. 747,632 filed July 25, 1968 for Piped Opening for Use In Garments and Method of Making Same, and now abandoned.

PROBLEM AND PRIOR ART

Heretofore, the piped openings used in garments included relatively complex structures which required a considerable amount of skill to make. Generally such piped openings required a relatively complicated welt construction which had to be sewn to the main portion of the garment in a particular manner, and thereafter a slit formed in both the welt and the garment to define the opening. With the opening so formed the welt construction had to then be reversely folded through the slit opening. Generally this was performed by a manual operation. Thereafter additional stitching adjacent the ends of the slit or opening was required to reinforce the ends. U. S. Pat. No. 1,945,104 illustrates generally a piped opening construction of the type heretofore used or known.

Because of the complexity and cost of making such piped openings, the use thereof was generally limited to the more expensive type garments. Also the known piped openings described proved to be objectionable for the reason that the inherent construction thereof resulted in a relatively bulky piped opening. This becomes readily apparent when the number of folds required to make such piped openings is noted. The bulk of such openings becomes even more aggravated when such openings are formed in garments made of relatively heavy materials such as woolens, tweeds and/or knitted fabrics and the like.

OBJECTS

It is therefore an object of this invention to provide a piped opening and welt construction therefore; and a method of forming the same which can be readily made and performed in a relatively simple and inexpensive manner.

Another object is to provide a piped opening and method of forming the same which will substantially minimize the bulk of the finished opening.

Another object is to provide an improved piped or bound opening in a garment whereby the facing of the garment comprises a combination welt and facing.

BRIEF SUMMARY OF INVENTION

The foregoing objects and other features and advantages are attained by a piped or bound opening which is defined by an opening formed in a portion of a garment, e.g., the front. The opening is formed free, or substantially free, of raw edges. A welt construction is specifically constructed of welt strips which are reversely folded along transverse fold lines to define a finished edge, and the finished edge of adjacent welt strips are contiguously disposed along the back side of the garment in which the opening is formed so that the contiguously disposed finished edges of the adjacent welt strips extend along a medial portion of the formed opening. The welt strips so disposed relative to the formed opening are then suitably secured to the garment portion.

The welt strips may comprise individual strips which may be individually secured in pairs adjacent a given formed opening, or in a modified form of the invention may comprise a series of preconnected strips to define a continuous welt construction containing a plurality of spaced apart slit openings for use in a garment in which a plurality of spaced openings are contemplated.

This invention further contemplates that the welt strips may be formed of a material similar to that of the garment and/or of the facing material adapted for use with a given garment to define a combination welt and facing construction.

FEATURES OF INVENTION

A feature of this invention resides in the provision of a relatively simple piped opening construction comprising of an opening formed in a portion of a garment and an improved welt construction connected to the back side of the garment adjacent the opening to complete the piped opening.

Another feature resides in the provision that the piped opening of this invention may be used to define button holes, pockets, blind openings and the like commonly used in garments of various kinds and style.

Another feature resides in the provision of an improved preformed welt construction for use in making piped garment openings.

Another feature resides in the provision of an improved preformed welt construction that has been sufficiently secured at the ends of the defined slit openings formed therein so that additional tacking or securing thereof is not necessary.

Another feature resides in the provision of a piped opening comprising of spaced preformed openings being formed in a portion of a garment and a continuous preformed welt construction attached thereto to define multiple, piped openings.

Another feature resides in the provision of a garment having preformed openings formed in a portion thereof and a preformed welt construction in which the welt construction functions to replace the traditional facing piece of the garment.

Other features and advantages will become more readily apparent when considered in view of the drawings and specifications in which:

In the Drawings:

FIG. 1 illustrates an expanded front view of a fragmentary portion of a garment illustrating an embodiment of the invention.

FIG. 1A is a perspective view of a welt construction of this invention taken along line 1A—1A on FIG. 1.

FIG. 2 illustrates a front view of the garment of FIG. 1 in a folded position.

FIG. 3 is a sectional view taken along line 3—3 on FIG. 2.

FIG. 4 illustrates a fragmentary front view of a modified welt construction.

FIG. 5 is an end view of FIG. 4.

FIG. 6 illustrated a partial prospective view of the welt construction taken along line 6-6 in a partially assembled form.

FIG. 7 is a partial perspective view of the welt construction of FIG. 4 in the finished form.

FIG. 8 is a front view of a fragmentary portion of a garment embodying the welt constructions of FIGS. 4 to 7.

FIG. 9 is a sectional view taken along line 9—9 on FIG. 8.

FIG. 10 is a front view of a fragmentary portion of a garment illustrating a modified construction wherein the phantom line showing illustrates the garment in expanded position, and the solid line showing, in the folded position. FIG. 10A is a sectional view taken along line 10A—10A on FIG. 10.

FIG. 11 is a front view of a modified construction.

FIG. 11A is a sectional view taken along line 11A—11A on FIG. 11.

FIG. 12 is a front view of another modified construction.

FIG. 12A is a perspective view of FIG. 12.

FIG. 13 is a front view of another modified construction wherein the solid line showing illustrates the folded position of the garment portion and the phantom line showing, the expanded position.

FIG. 13A and FIG. 13B are sectional views taken along lines 13A—13A and 13B—13B respectively on FIG. 13.

FIG. 14 is a front view of a garment shown in the folded position illustrating another modified construction.

FIG. 14A is a sectional view taken along line 14A—14A on FIG. 14.

DETAILED DESCRIPTION OF INVENTION

The method of forming piped or bound openings such as for use as button holes, pockets, blind openings and the like in garments comprises the step of forming an opening 28 in a portion of a garment, e.g., in the front thereof, and attaching thereto an improved welt construction 29 and 129. The opening 28 is preformed so as to be free of raw edges. This is readily attained by first forming a slit or cut 20 in the front of the garment as evidenced in FIG. 1. As illustrated the slit or cut 20 is defined as a horizontal cut 21 terminating into diverging end cuts 22—22. With a cut 20 thus formed the marginal flaps 23, 24, 25 and 26 defined thereby are reversely folded out of the plane of the fabric or front 27 to define a rectangular formed opening 28. While the described steps define the formation of a rectangular opening 28, it will be understood that the shape of the opening may be varied depending upon the configuration of the cut 20 originally formed. In any event the cut 20 is formed so that the marginal flaps defined thereby are reversely folded as indicated to form an opening free of raw edges.

A welt strip is then preformed by taking a strip of material 29 and folding a marginal portion thereof 29A along a transversely extending foldline F1, as shown in FIG. 1A. To define a given piped or bound opening 28A, a pair of welt strips 29 are formed and are contiguously disposed so that the adjacent folded edges 30 are disposed contiguous to each other as shown in FIG. 3 adjacent the formed opening. The contiguously folded edges 30 extend along a medial portion of the opening 28.

The adjacent welt strips 29 are then suitably secured to the back surface of the front 27 by any suitable means, e.g., by stitching, cementing, or fusing, as in the case of garments made of plastic fabric or material.

A continuous welt construction 34 is contemplated by securing a plurality of such strips 29 in end to end relationship as seen in FIG. 1. This is attained by tacking or securing a series of folded welt strips 29 by sewing adjacent strips 29 at opposed end portions thereof as indicated by stitchings 31–32. Thus between stitchings 31–32 there is defined a slit opening 33 bounded by the contiguous edges 30, 30 of adjacent strips 29 which can be readily parted.

It will be noted that the welt strips 29 may be made of suitable material which when connected as described defines a continuous welt construction 34 which can be suitably secured to the front 27 along a seam 35 and which when reversely folded therealong as in FIG. 2 will function as a combined welt and facing construction for the front 27.

In a modified form of the invention, as seen in FIGS. 4 to 9, the respective welt strips 129 are constructed in the manner described with respect to FIGS. 1 and 1A. However the respective welt strips 129 are connected to define a continuous welt construction 130 by securing adjacent strips 129 by extending a tape 131 along the opposed marginal portions thereof.

In the illustrated form of the invention the tape 131 is defined as a ribbon or strip of suitable lining material, web or means which is reversely folded along a longitudinally extending foldline F2. The reversely folded tape 131, as seen in FIGS. 4 to 6 is then secured to the respective welt strips 129 by a longitudinally extending sewn seam 132 in which the stitching thereof extended through the respective folds 131A, 131B of tape 131 and the welt strips 129. As shown seam 132 is disposed intermediate the width of the reversely folded tape 131. If desired the reversely folded tape 131 thus secured to the welt strips 129 may be again reversely folded along the sewn seam 132 as seen in FIG. 7. In this manner the amount of reinforcing desired along the marginal portion of the continuous welt construction 130 can be regulated depending upon the number of folds imparted to tape 131. If desired the tape may comprise simply of a strip of unfolded tape suitably secured to the contiguously designed strips 129. Alternately the tape 131 may be secured to the welt strips 129 by suitable adhesives.

With the welt construction 130 constructed as described, there is provided at spaced intervals therealong slit openings 133 extending between tapes 131—131 which are adapted to be placed opposite the formed openings 134 formed in a garment front 135. As described the welt construction 130 may also be formed of suitable facing material so that when used in the garment, it may also function in the nature of a traditional facing.

In the form of the invention shown in FIGS. 4 to 9 the tape 131 are disposed between the front 135 and the reverse folds 129A of the welt strips in the finished construction of the piped openings.

In either form of the invention it will be noted that the finished opening as defined has the appearance of a piped or bound button hole or opening heretofore formed in a much more complicated manner and which was previously used primarily in the more expensively formed garments only. With the construction described it is to be also noted that the bulk of the finished bound or piped opening is substantially minimized and that if desired the welt strips can be utilized as a combined

welt and facing. Of course it will be understood, that if desired the welt strips **29** or **129** may be interposed between the front portion and facing portion of a conventionally made garment to define a piped opening therein. In such event, a preformed opening is formed in both the front and facing portion of such garment.

The preformed openings in the front and facing are preformed in a manner herein described, and the welt strips **29** or **129** as herein described are then interposed between the front and facing of the conventional garment in the folded position thereof, and suitably secured therebetween so that the contiguously disposed folded edges, e.g., **30**, are extended along a medial portion of the complementary formed openings in the front and facing portions of a conventionally made garment.

It will be further noted that the distance "X" defined by the slit opening between the secured ends is substantially equal to the length "Y" of the formed openings **28**. Because the preformed welt construction, as shown in FIGS. **1** and **4** are secured at the ends by seams **31**, **32** or tape **131**, the additional tacking heretofore required by the prior known bound or piped openings is eliminated.

As shown in FIG. **9**, a pocket patch may be suitably secured to the facing portion so that the piped opening described may define the pocket opening.

FIG. **10** illustrates a modified construction in which the invention is embodied. In this embodiment **200** the front portion **201** of the garment is initially formed with an enlarged opening **202** of any desired shape. The opening **202** in this embodiment is formed simply by blanking out or cutting out of the front **201**, a patch conforming to the shape of the opening **202** as desired. The illustrated opening is shown rectangular. Thus an opening **202** is formed without the reverse folding of marginal flaps as described with respect to FIG. **1**. Opening **202** is thus free of any folded flaps.

In this construction the facing portion **203** comprises a combined facing and welt portion similar to that described with respect to FIGS. **1** and **1A**. Accordingly, the combined facing and welt portion **203** includes a plurality of connected strips **203A** having reversely folded marginal portions **203B** about a transversely extending fold line as indicated. Strips **203A** are connected in a manner hereinbefore described.

To define a piped or finished opening, a pair of welt strips **203A** are contiguously disposed so that the adjacent folded edges thereof are disposed contiguous to each other, and the combined facing and welt portion **203** reversely folded relative to the front portion **201** as indicated in the solid line showing of FIG. **10**. With the facing and welt portion folded, the contiguous disposed edge portions extend along a medial line of the enlarged opening **202** formed in the facing. As previously described, the adjacent welt strips **203A** in the folded position thereof, as in FIG. **10**, are suitably secured to the front portion **201** by any suitable means as, for example, by stitching, cementing, bonding or fusing.

As shown in FIG. **10**, the combined facing and welt strips are adhesively bonded or cemented to the back surface of the front portion **201**. As an alternate construction, (not shown) the front portion **201** and the combined facing and welt portions may be secured by a sewn seam.

FIGS. **11** and **11** A illustrate still another modified form of the invention. This form of the invention is similar to that described with respect to FIGS. **1** and **1A** wherein the enlarged opening **210** formed in the facing portion **211** is similar to that described in FIG. **1**. The combined facing and welt portion **212** is similar to that of FIGS. **10A** so that in the folded position, the contiguous disposed edge of the welts flap **212A** extend along the medial line of opening **210**. The reverse folds **212A** of the welt are contiguous the reverse fold or flaps **211A** defining opening **210**. The respective front portion **211** and combined facing and welt portion **212** are suitably secured together by a row of stitching **213** extending through the front **211**, its flap **211A**, and the combined facing and welt **212**, **212A** and circumscribing the periphery of the enlarged opening **210**. Accordingly, as seen in FIGS. **11** and **11A**, the row of stitching **213** circumscribing the piped opening **210** forms the means for securing the reversely folded marginal flaps **211A** of the enlarged opening **210** and the reverse folds **212A** of the welt in contiguous position between the front **211** and facing **212**.

FIGS. **12** and **12A** illustrate another modified form of the invention. In this form the opening **220** in the front portion **221** of the garment may assume a shape other than rectangular. As shown, a triangular shaped enlarged opening **20** is formed in the front portion **221** of the garment. Such opening may be defined by cutting the front portion of the garment with a Y-shaped slit. With a Y-slit so formed, marginal flaps **220A** thus defined are reversely folded out of the plane in the front portion along respective fold lines that define the sides of the enlarged opening **220** to overly the back side of the front portion **221**. By folding the marginal flaps **220A**, defined by the Y-slit, a substantially triangular shaped enlarged opening **220** is formed in the front **221** of the garment.

The combined facing and welt portion **222** is similar to that described with respect to FIGS. **1** and **1A**. Accordingly, the arrangement is such that when the combined facing and welt portion **222** of the garment is reversely folded the contiguous edges **222A** of the welt strips are disposed along the medial portion of the triangularly shaped enlarged opening **220** to form the finished opening. It will be understood that the combined facing and welt portion **222** of the garment is suitably secured to the back side of the front portion **221** by any of the means hereinbefore described, as for example, by stitching around the periphery of the enlarged opening **220**, or by suitably securing the reversely folded marginal flaps **220A** and the reverse folds of the welt portion together by suitable adhesive and/or bonding or by fusing method if plastic materials are employed. Thus with the structure described with respect to FIGS. **12** and **12A**, it will be understood that various shaped piped openings may thus be formed in a garment.

FIGS. **13**, **13A** and **13B** illustrate still another modified form of the invention. In this form of the invention a finished opening **230** having an enlarged eye portion **230A** may be formed in a garment. It will be understood that such shaped opening may be desired for some garments. Accordingly, the narrow, elongated portion **230B** of the opening **230** is formed by a slit or cut formed in the front portion **232** to define marginal

flaps **231** which are reversely folded out of the plane of the front portion to the rear thereof to define the elongated opening portion **230B**. The enlarged portion, or the eye **230A** of the opening **230** is defined simply by blanking out the portion of the front to the shape of the eye **230A**. Consequently the eye portion **230A** of the opening **230** is free of marginal flaps.

The facing **233** is formed as a combined facing and welt of connected reversely folded strips similar to that hereinbefore described. In the folded position the reversely folded welts **233A** are disposed contiguous the back of the front portion as indicated in FIG. **13**. The arrangement is such that the contiguously disposed edges of the reverse folds of the welts **333A** extend along the medial line of the opening **230** formed in the front portion. Again the combined facing and welt portion **233** is suitably secured to the front portion **232** as hereinbefore described to define the finished opening.

FIGS **14** and **14A** illustrate still another form of the invention. In this form of the invention the front **240** is formed with a modified eye opening **241** in which the outline of the opening **241** is angular, with each edge being defined by the fold line of a reversely folded marginal flap **241A** as to define an enlarged opening completely free of any raw edges. The facing portion **242**, as hereinbefore described is formed by connected strips of material reversely folded to define a combined facing and welt portion. Accordingly, the arrangement is such that the reverse folds of the welt **242A** are disposed contiguous to the folded marginal flaps **241A**, which define the enlarged opening, in the folded position as indicated in FIG. **14**. The front **240** and combined facing and welt portions, **242** in the folded position, are thus suitably secured together by ornamental stitching **243** as indicated.

Thus the finished openings described, and the method by which they are formed, renders the finished openings suitable for use in various types of garments, made of various types of material. The bound or finished opening is such that it can be formed in various shapes to satisfy various style requirements. Also the arrangement is such that the bound or finished opening can be readily made with a minimum of effort with attendant minimum of cost in both labor and material.

While the instant invention has been described with respect to various embodiments thereof it will be readily understood and appreciated that variations and modifications may be made without departing from the spirit or scope of the invention.

What is claimed is:

1. A garment with a finished opening construction comprising: a front garment defining portion having an opening therein, the edges of said opening including means defining marginal portions adapted to be reversely folded to define an enlarged opening free of raw edges,

a garment facing means connected to said front garment portion along adjacent edges thereof,

said facing means including a plurality of strips having reversely folded marginal edge portions whereby the reversed folds of adjacent strips are disposed in contiguous abutting relationship,

means for securing said adjacent strips to one another to define a slit type opening therebetween,

said facing means being reversely folded relative to said front portion along said connected edge thereof so that the facing means underlies said front garment portion and the contiguously disposed reversed folds of said strips defining said slit type opening extend along a medial portion of said enlarged opening in said front portion,

and means for securing said facing means to the undersurface of the front garment portion.

2. The invention as defined in claim **1** wherein the reverse folds defining the enlarged opening in said front garment portion and the reversely folded marginal end portions of said strips are contiguously disposed between said front portion and said facing portion.

3. The invention as defined in claim **1** wherein said means for securing said adjacent strips comprises spaced sewn connections to define therewith a slit type opening.

4. The invention as defined in claim **1** wherein said means for securing said adjacent strips comprise a tape extending transversely along the ends of the connected strips.

5. The invention as defined in claim **4** wherein said tape is reversely folded to define a double ply strip and means for securing said tape to said strips including a sewn seam.

6. The invention as defined in claim **5** wherein said sewn seam is disposed intermediate the width of said double ply tape.

7. The invention as defined in claim **6** wherein said double ply tape is reversely folded onto itself along a foldline extending along said sewn seam.

8. A method of forming a garment with a piped opening comprising the steps of:

forming a slit type opening in the front portion of a garment,

reversely folding the marginal edges of said slit to define an enlarged opening free of raw edges,

forming a combined facing and welt portion from a plurality of strips, each strip being reversely folded about a transversely extending fold line,

connecting said reversely folded strips together so as to dispose the reverse fold of adjacent strips in contiguous abutting relationship,

securing the combined facing and welt portion to the front portion along their adjacent edges,

reversely folding the combined facing and welt portions against the back surface of the front portion so that the contiguous folded edges of the combined facing and welt portion extend along a medial portion of said enlarged opening,

and securing said combined facing and welt portion to the back surface of said front portion over said enlarged opening.

9. The invention as defined in claim **8** wherein the step of securing said welt strips includes sewing said welt material directly to each other along the contiguous edges thereof at opposite ends of said slit opening defined therebetween.

10. The invention as defined in claim **8** wherein the step of securing said welt strips together includes the step extending a tape along the opposed marginal portion thereof extending normal to the reverse folds, and attaching the tape directly to said welt material.

11. A garment having a piped opening construction comprising:

a front garment portion, and
a facing garment portion connected to said front garment portion along adjacent edges thereof,
one of said portions having an opening therein,
the edges of said opening including means defining marginal portions adapted to be reversely folded to define an enlarged opening free of raw edges,
and the other of said portions including a plurality of strips having reversely folded marginal edge portions whereby the reverse folds of adjacent strips are disposed in contiguous abutting relationship,
means for securing said adjacent strips to one another to define a slit type opening therebetween,
said other of said portions being reversely folded relative to said one portion along said connected edge thereof so that said portions are contiguously disposed with the folds of said strips being sandwiched between said facing portion and front portion so that the abutting edges of said reverse folds defining said slit type opening extend along a medial portion of said opening of said one portion, and means for securing said garment portions together.

12. The invention as defined in claim **11** wherein said opening includes marginal flap portions reversely folded to define an opening free of raw edges so that in the folded position of said front portion and said facing portion said flaps are contiguous to the reverse folds of said strips sandwiched between said front portion and facing portion.

13. The invention as defined in claim **11** wherein said securing means includes adhesives.

14. The invention as defined in claim **11** wherein said securing means includes stitching.

15. The invention as defined in claim **11** wherein said opening is rectangular in shape.

16. The invention as defined in claim **11** wherein said opening is non-rectangular in shape.

17. A method of forming a finished opening in a garment comprising the steps of:
forming an opening of predetermined shape in a front portion of a garment,
forming a combined facing and welt portion from a plurality of strips, each strip being reversely folded about a transversely extending fold line, said combined facing and welt portions being connected to the front portion along their adjacent edges,
connecting said reversely folded strips together so as to dispose the reverse folds of adjacent strips in contiguous abutting relationship,
reversely folding the combined facing and welt portions against the back surface of the front portion so that the contiguous folded edges of the combined facing and welt portion extends along a medial portion of said opening,
and securing said combined facing and welt portion to the back surface of said front portion over said opening.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,725,959 Dated April 10, 1973

Inventor(s) John L. Cruden, Jr.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 9, line 5, cancel "including means"; line 6, cancel complete line; line 7, cancel "to define" and "enlarged" .

Signed and sealed this 28th day of August 1973.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

RENE D. TEGTMEYER
Acting Commissioner of Patents

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