Oct. 15, 1957 J. WINSON 2,809,376

MITTEN

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Fig. 1.

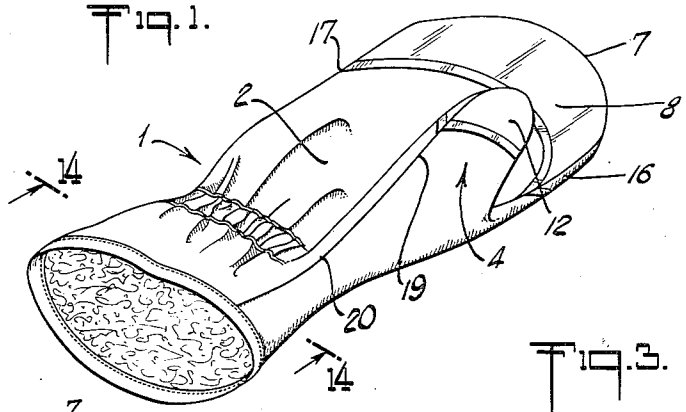


Fig. 2.

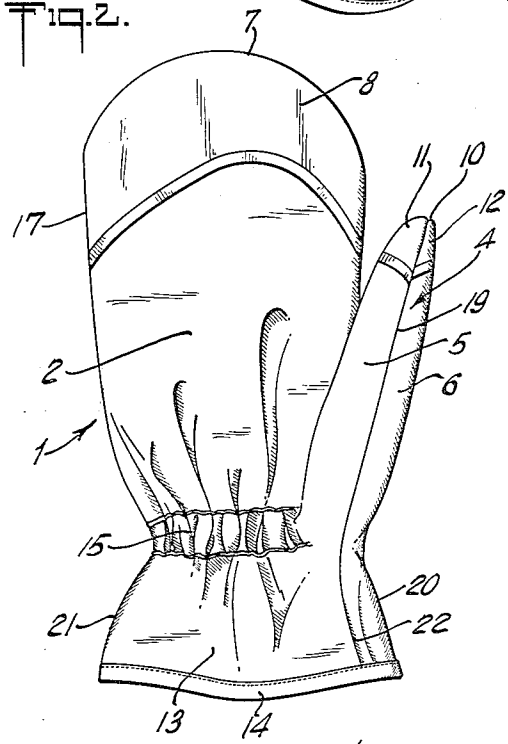
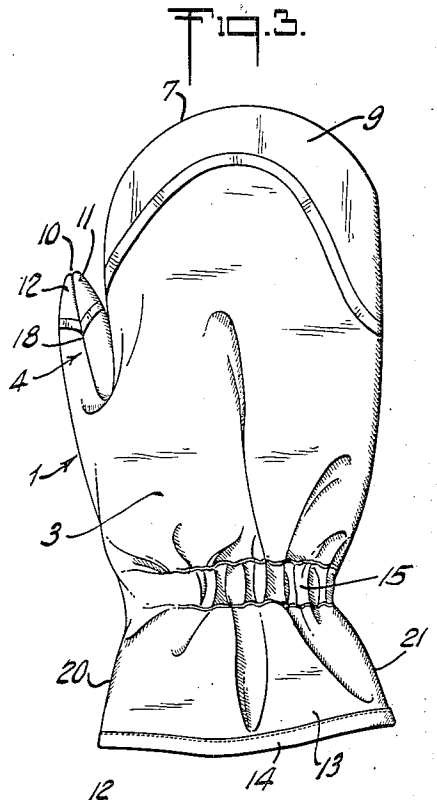


Fig. 3.



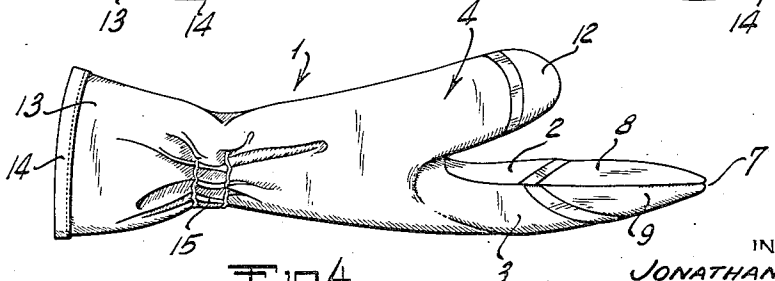


Fig. 4.

INVENTOR
JONATHAN WINSON
BY Edward V. Connors
ATTORNEY

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Fig. 5.

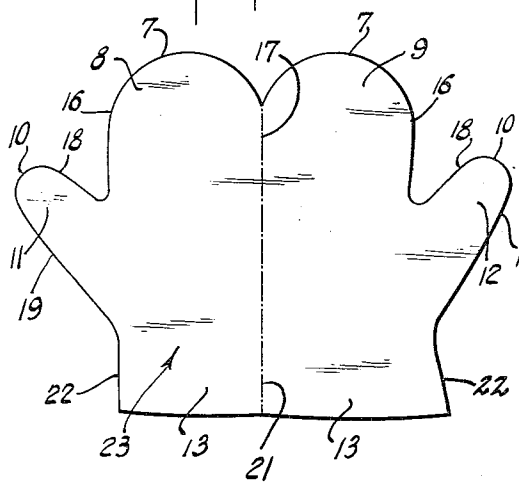


Fig. 6.

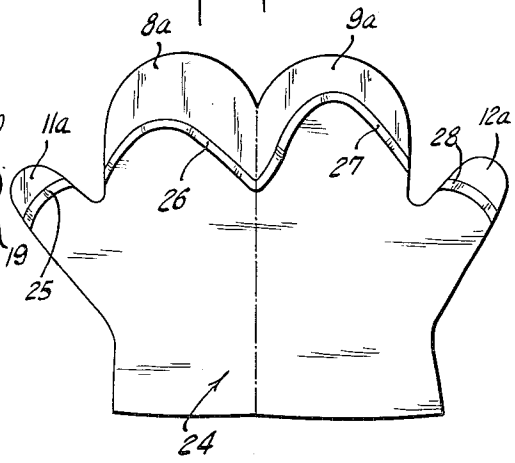


Fig. 7.

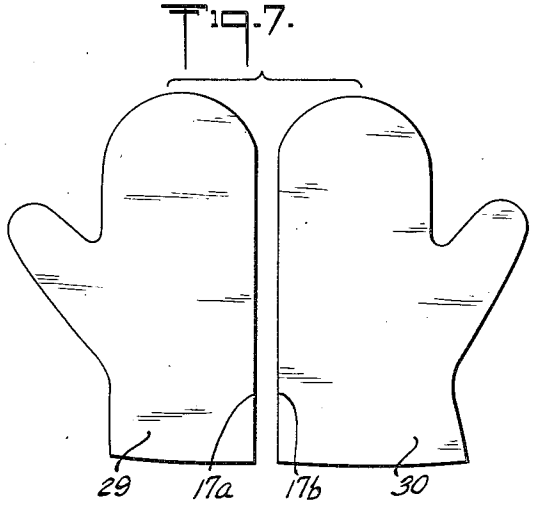
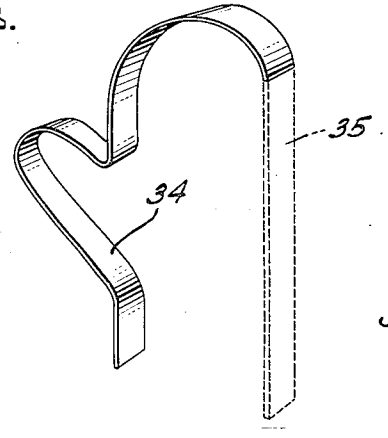


Fig. 8.



INVENTOR
JONATHAN WINSON
BY Edward Connors
ATTORNEY

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Fig. 9.

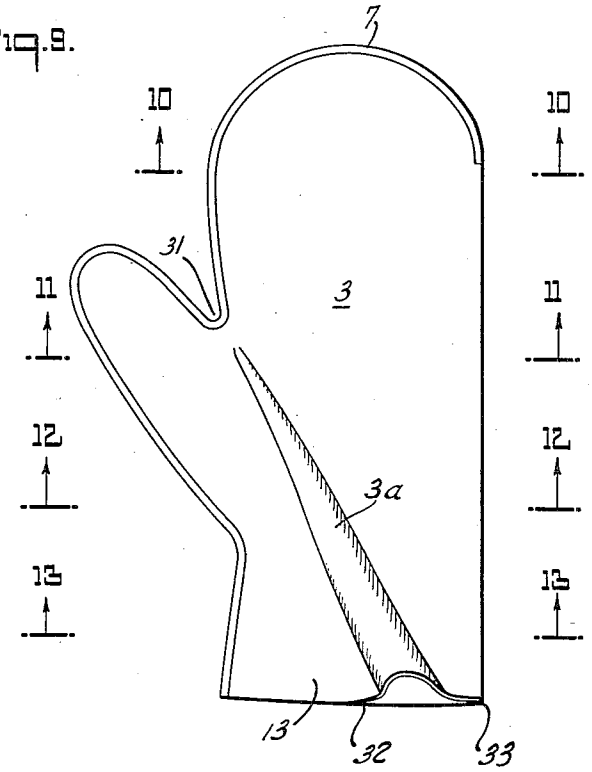


Fig. 10.

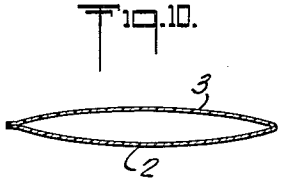


Fig. 11.

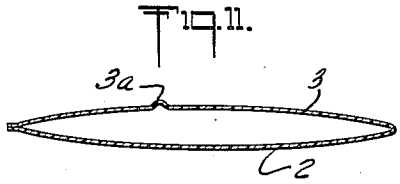


Fig. 12.

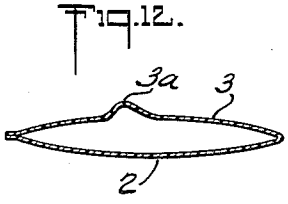


Fig. 13.

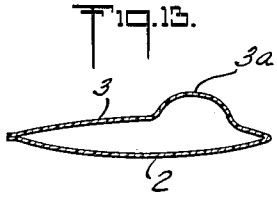
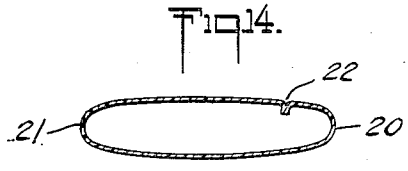


Fig. 14.



INVENTOR
JONATHAN WINSON
BY Edward V. Connors
ATTORNEY

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MITTEN

Jonathan Winson, Bronx, N. Y., assignor to Air Baby, Inc., New York, N. Y., a corporation of New York

Application February 1, 1957, Serial No. 637,646

5 Claims. (Cl. 2—158)

The present invention relates to a waterproof mitten and particularly to an improved construction thereof. The present application is a continuation-in-part of my application Serial No. 606,417, filed August 27, 1956, for Mitten, now United States Patent No. 2,782,421, issued February 26, 1957.

The mitten is of the type fabricated from flexible waterproof plastic material and heat sealed rendering the mitten waterproof and less expensive in manufacture, which is an important factor, as the mitten is intended primarily for use by children.

It is important that such a mitten be not only low in cost but it must be rugged to withstand the rough wear given by children. In my prior patent application a construction was disclosed which overcame a difficulty found in an earlier construction made under my United States Patent No. 2,732,662, issued March 13, 1956. The earlier construction, while made of plastic sheeting of ample wear resistance, was found to develop holes in the fingertip region with much less wear of the mitten than normally would have been expected. In my said patent application Serial No. 606,417, now Patent No. 2,782,421, I disclosed the cause of the trouble as being from the formation of "points" which were formed as the wearer of the mitten cupped his hands and moved the "points" over a rough surface. The construction avoiding the difficulty was disclosed as making the fingertip region sufficiently thick so that the "points" are not formed, or if they are formed, the radius of curvature thereof is sufficient to withstand the contact with the surface. While the construction shown was satisfactory from the standpoint of wear, the thumb fabrication required several steps which added to the cost of the mitten.

The present invention aims to provide an improved mitten fabricated in a new construction which avoids several steps in the fabrication of prior mittens.

In accordance with the invention this is accomplished by cutting the mitten blanks with one side of the thumb integral with the palm side of the mitten and with the other side of the thumb integral with the back of he mitten. By reason of the shape of the blanks a fabrication is had which may be heat sealed in one operation to form the mitten. This construction also embodies the point-resistance construction disclosed in my prior application.

While two piece mittens have been provided heretofore, the construction has been such that the palm and back sides have been of the same shape. When such mittens were assembled and worn, they were uncomfortable and had poor fitting qualities. The construction in accordance with the invention is advantageous because the fit of the mitten is remarkable, thus providing increased comfort and wear resistance.

Another object of the invention is to provide a mitten which is rugged in use.

Other objects and advantages of the invention will be apparent from the following description and from the

accompanying drawings which show, by way of example, embodiments of the invention.

In the drawings:

Figure 1 is a perspective view of a mitten in accordance with the invention.

Figure 2 is a front view of the mitten shown in Figure 1.

Figure 3 is a back view of the mitten shown in Figure 1.

Figure 4 is a side view of the mitten looking at the thumb side.

Figure 5 is a single blank from which both sides of the mitten shown in Figure 1 may be fabricated.

Figure 6 is a blank corresponding to that shown in Figure 5, but with the thumb and fingertip regions reinforced.

Figure 7 shows a pair of separated blanks corresponding to hte unitary blank shown in Figure 5.

Figure 8 is a perspective view of the electrode sealing element for sealing the blank shown in Figure 5.

Figure 9 shows the blanks of Figure 5 or 6 heat-sealed, and illustrating fullness in the back of the mitten extending approximately from the crotch towards the rear edge of the wrist portion of the mitten.

Figure 10 is a view taken along the line **10—10** of Figure 9.

Figure 11 is taken along the line **11—11** of Figure 9.

Figure 12 is a view taken along the line **12—12** of Figure 9.

Figure 13 is a view taken along the line **13—13** of Figure 9.

Figure 14 is a view taken along the line **14—14** of Figure 1.

Referring to the drawings, there is shown in Figures 1–4 a mitten **1** in accordance with the invention and including a palm side **2**, a back side **3** and a thumb **4** having a thumb palm side **5** and a thumb back side **6**. The fingertip edge of the mitten is designated by the numeral **7**, the finger region of the palm side by the numeral **8**, and the finger region of the back by the numeral **9**. The thumb tip edge is designated by the numeral **10**, its palm side being indicated as **11** and its back as **12**. The hand portion of the mitten below the finger region terminates in a wrist portion **13** which is finished with a wrist edging **14**. The mitten may be gathered in the wrist portion by the elastic means **15** which provides a better fit. The forefinger edge of the mitten is designated as **16**, the back edge as **17**, the inside edge of the thumb as **18**, and the outside edge of the thumb as **19**. The palm edge of the wrist is designated as **20**, the back edge **21**, while the seam at the wrist edge is designated as **22**. The mitten **1** may be made from a one-piece blank **23** as shown in Figure 5. The various parts of the finished mitten are indicated by corresponding numerals on the blank **23**.

The blanks for the mitten may be made of any plastic material which may be heat sealed, a vinyl chloride plasticized sheeting properly formulated for low temperature flexibility is particularly suitable for the purpose. Other materials which may be used are polyethylene sheeting, rubber or impregnations of plastic material in fabric. For simplicity of explanation, the term "plastic" has been used throughout the specification and claims to generically indicate any suitable material which may be heat sealed.

As disclosed in my application Serial No. 606,417, the gauge of the sheeting used must be thin enough to provide the desired pliability for the completed mitten. In the event the mittens are made for small children, the gauge of the material need not be too heavy and a material from .004 to .015 may be used for the body of the mitten. However, it is preferable to use a gauge

between .008 and .011 or about .009 as the heavier materials may be too stiff and so uncomfortable.

Blank **24**, shown in Figure 6, corresponds to blank **23** excepting that in blank **24** the thumb tip portions **11** and **12** and the fingertip portions **8** and **9** are reinforced by heat sealing thereto heavier portions, indicated as **11***a*, **12***a*, **8***a* and **9***a*, the seam formed by the heat seal being indicated at **25**, **26**, **27** and **28**. In some cases it may be preferable to extend the palm and back sides **2** and **3** under the reinforced fingertip portions, while in other cases it may be preferable to provide the palm and back sides **2** and **3** only of a length to provide for the seams **25–28** inclusive, and to have a single thickness for the fingertip regions **8**, **9**, **11** and **12**. In the construction shown in Figure 6 the thumb tip reinforced portions **11***a* and **12***a* are individual pieces while the fingertip portions **8***a* and **9***a* may be of a single strip of material. In Figure 7 there is shown another form of blank made of separate pieces of material **29** and **30**. The blanks **29** and **30** may likewise correspond to the blank **24**, in that the thumb and fingertip portions may be made of material of increased thickness as compared to the thickness of the body of the mitten.

The thumb and fingertip portions **8***a*, **9***a*, **11***a*, and **12***a* may be made of the same thickness of material as the palm side **2** and back side **3**. However, it is preferred that the thumb and fingertip portions be made of material of a gauge between .010 and .030, preferably about .0145. This material should be selected with characteristics so as to be pliable under low temperature conditions such as may be experienced by children in the use of the mittens during winter weather.

In fabricating the mitten **1** from the blank **23** shown in Figure 5, the blank is doubled over so that the edges **22**, **19**, **10**, **18**, **16** and **7** are in alignment. By reason of the predetermined shape of the blank **23** as shown in Figure 5, a certain fullness is provided in the back **9**. The blank **23** may be considered as being of two parts, palm and back parts, of which fingertip region **8** of the palm side conforms in curvature to fingertip region **9** of the back.

The division of the blank **23** into two parts is along an imaginary line **17—21** (shown dash-dotted) perpendicular to the edge of the wrist portion **13** and running up to the cusp at the intersection of the outer edges of the parts **8** and **9**. It is to be noted that the line **17—21** divides the edge of the wrist portion **13** into the palm and back parts and that the edge of the wrist portion of the back side is substantially longer than the corresponding portion of the palm part. The blank **23** is so shaped that without appreciably stretching the material, the edges **22**, **19**, **10**, **18**, **16** and **7** of the back can be placed into coincidence with the corresponding edges **22**, **19**, **10**, **18**, **16** and **7** of the palm part. With these edges in coincidence, the extra width of the back part of the blank appears as added fullness. The fullness may be made to appear as a single or plurality of folds running substantially lengthwise on the mitten, the manner in which the fullness appears depending upon the way in which the sheeting is draped. The plurality of folds may be positioned anywhere from outside edge **19** of the thumb to the back edge **17** of the finger portion. The folds may start anywhere along the thumb, the crotch, or the fingertip seams, or short thereof, and run to the wrist portion **13** of the mitten terminating at any position on the edge of the wrist portion **13**. The fullness may also be draped into a single fold running diagonally from crotch **31** to a position between the middle of the mitten indicated generally by the numeral **32** and the rear edge of the mitten indicated by the numeral **33**, the line being generally designated as **3***a* as shown on Figure 9. Draping the material this way is sometimes convenient in the process of fabrication.

The edges of the blank **23** may be heat-sealed in a single operation using electrode **34** shown in Figure 8. The electrode **34** is a part of conventional heat-sealing apparatus well known in the art which need not be described here. The electrode **34** is usually a brass strip about an inch in width and somewhat less than one-quarter of an inch in thickness and mounted on a suitable plate as one of the two electrodes of a conventional electronic heat-sealing machine. In heat-sealing the blank **23**, it is arranged on a flat plate electrode so that the edge to be sealed by the electrode **34** is in contact with the plate; the remainder of the blank **23** is allowed to take its normal three-dimensional shape. The blank **24**, having the same peripheral shape as the blank **23**, may likewise be heat-sealed by the electrode **34**. In describing or claiming the mitten as heat-sealed along its entire edge, it is meant that the mitten edges, excepting for the wrist opening, is so heat-sealed.

Blanks **29** and **30** shown in Figure 7 by reason of their separation along the back edge **17***a* and **17***b* require the use of an electrode having a rear edge **35** as indicated in dotted lines in Figure 8.

The blank, after being heat-sealed, is turned inside out to provide a reversed seam construction and so conceal the heat-sealed edge. While the various blanks have been described as being made from sheet material, it is obvious that the blanks may be made of composite pieces of material heat-sealed to form the flat starting blank. It may be desirable to do this to provide contrasting colors in the finished mitten, or to use up odd pieces of material.

After the mitten **1** has been heat-sealed, an insulating liner may be inserted and secured in position as described in my Patent No. 2,732,662, or in my application Serial No. 606,417. The wrist end of the liner member may be secured to the edge of wrist portion **13** simultaneously with the application of the wrist edging **14**.

When the mitten is laid on its back on a flat surface, as illustrated in Figure 1, with the edge **7**, **16** and **17** contacting the surface, the mitten assumes a position with the thumb turned towards the palm side of the mitten, the palm edge seal **20** is then towards the palm side of the mitten as may be seen in Figures 1 and 4 and the wrist portion of the mitten lies flat with the edges **20** and **21** contacting the flat surface. Likewise, if the mitten is placed on a flat surface with its palm side down, and with the edges **19**, **10**, **18**, **16**, **7**, along the thumb and fingertip portions contacting the surface, the back **3** is fuller than the palm side **2**, thereby providing material in the back of the mitten so that the thumb may be freely swung towards the palm side of the mitten, and providing a good fit in use.

The elastic member **15** may be any conventional construction or it may be of the improved waterproof construction disclosed in my copending patent application Serial No. 637,651, filed February 1, 1957, titled Method of Applying Elastic to Thermoplastic Sheeting, or, alternatively, any conventional belt wrist tightening means may be used as illustrated in my application Serial No. 606,417. However, in a low priced fabrication the wrist tightening means may be omitted.

It is thus apparent from the preceding description that an improved mitten of low fabrication cost has been provided in accordance with the invention, in that the mitten may be made from a single flat blank doubled over and heat-sealed along its open edges, yet the resulting product is comfortable to wear and pleasing in appearance.

While the invention has been described and illustrated with reference to a specific embodiment thereof, it will be understood that other embodiments may be resorted to without departing from the invention. Therefore, the form of the invention set out above should be considered as illustrative and not as limiting the scope of the following claims.

I claim:

1. A heat-sealed waterproof mitten made from flat vinyl sheeting, the finished mitten having palm and back

sides each with thumb, forefinger, fingertip and hand regions, the improvement wherein the palm and back sides each include an extension projecting therefrom forming respectively palm and back sides for the thumb, the palm and back sides having been heat-sealed together by a continuous flat seam while inside out along at least the marginal edges of the thumb, forefinger, and fingertip regions thereby forming a reversed seamed edge when the mitten is turned right side out, the proportionate dimensions of the front and back sides of the mitten being such that when the completed mitten is placed flat on a flat surface with the palm side down and its edge is contacting said surface the dimensions of both sides of the thumb correspond from the tip to the crotch thereof but the back side is fuller than the palm side at least in the hand region and solely in the transverse direction, thereby providing material in the back of the mitten so that the thumb of the completed mitten may be freely swung towards the palm side.

2. A heat-sealed waterproof mitten according to claim 1 in which the palm and back sides are made of a one-piece blank.

3. A heat-sealed waterproof mitten according to claim 1 in which the palm and back sides are each made of a separate blank.

4. A heat-sealed waterproof mitten according to claim

1 in which the palm and back sides are made of a single flat blank, and a flat fingertip blank is provided for at least one of the palm and back sides, said fingertip blank being heat-sealed to and across at least the palm side and extended into the heat-sealed fingertip marginal edge seam of the completed mitten, whereby the fingertip blank is heat-sealed substantially along its entire peripheral edge.

5. A heat-sealed waterproof mitten according to claim 1 in which the palm and back sides are each made of separate flat blanks, and a flat fingertip blank is provided for at least one of the palm and back sides, said fingertip blank being heat-sealed to and across at least the palm side and extended into the heat-sealed fingertip marginal edge seam of the completed mitten, whereby the fingertip blank is heat-sealed substantially along its entire peripheral edge.

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