Aug. 25, 1959 D. A. BAUER 2,900,642

VINYL MITTEN

Filed April 8, 1958

Fig. 1

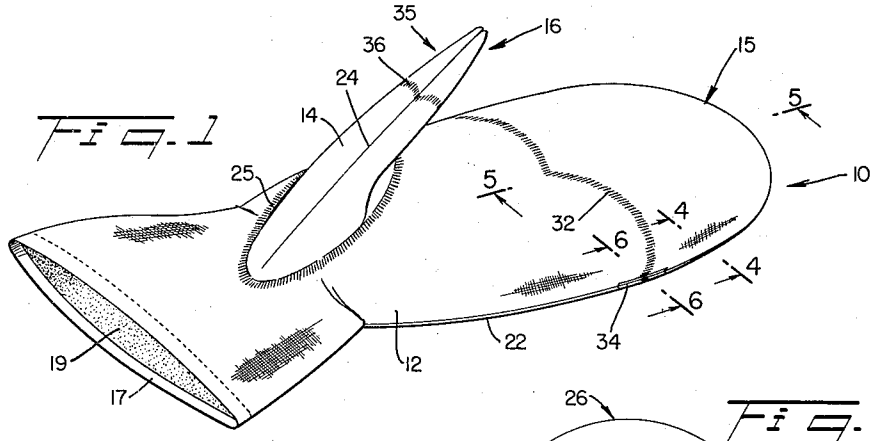


Fig. 3

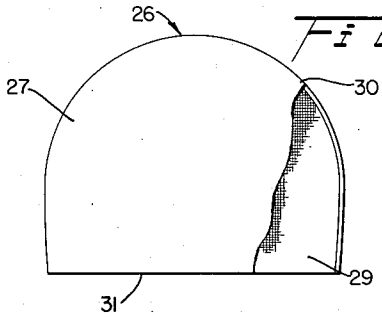


Fig. 2

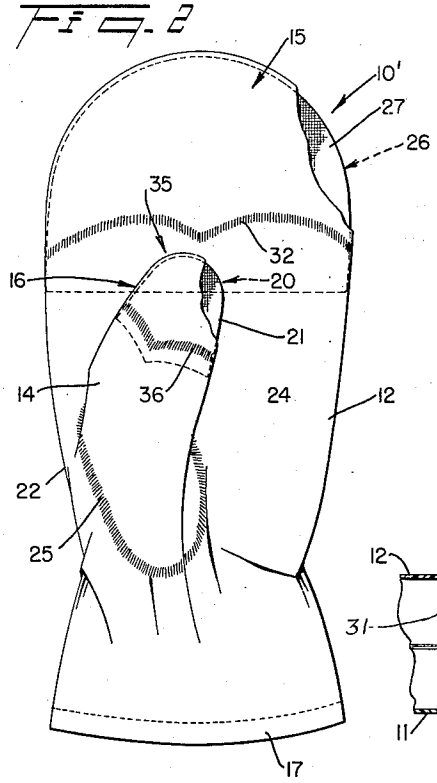


Fig. 4

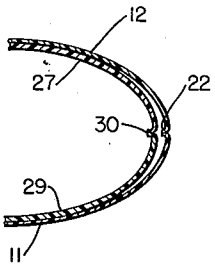


Fig. 5

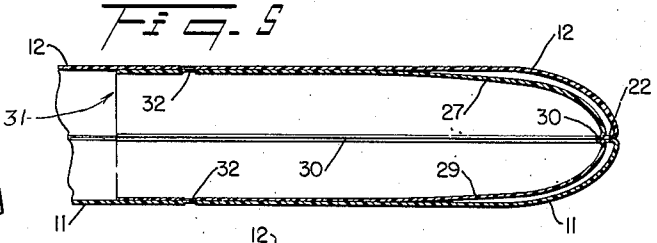


Fig. 6

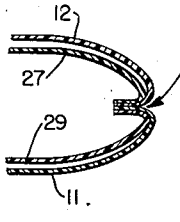
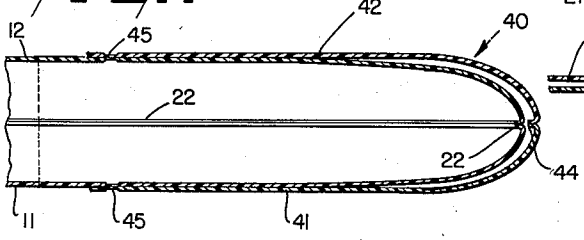


Fig. 7



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VINYL MITTEN

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Application April 8, 1958, Serial No. 727,168

6 Claims. (Cl. 2—158)

This invention relates to a hand covering, and more particularly to a waterproof mitten.

This application is a continuation-in-part of application Serial No. 672,708, filed July 18, 1957, now abandoned.

Among the objects of the invention is the provision of a hand covering such as a mitten wherein the fingertip portions thereof are reinforced in a novel manner so that the mitten has a long useful life.

Another object resides in the provision of a mitten wherein the fingertip portions thereof readily conform to the shape of an object being grasped by the hand.

Yet another object of the invention is the provision of a mitten of the type indicated in which the stresses in the layers of material at the fingertip portions during the wearing and use of the glove are markedly decreased.

Still further objects lie in the provision of a mitten which is easily and economically made, wherein the tendency of the material at the fingertip portions to tear is minimized, and wherein the manner of attachment of the reinforcements at the fingertip portions to the body of the mitten are such that if the reinforcement should become torn, the tear does not tend to continue into the main body of the mitten.

The above and further objects and novel features of the invention will more fully appear from the following detailed description when the same is read in connection with the accompanying drawings. It is to be expressly understood, however, that the drawings are for the purpose of illustration only and are not intended as a definition of the limits of the invention.

In the drawings—

Fig. 1 is a perspective view of one embodiment of mitten made in accordance with the present invention;

Fig. 2 is a plan view of a further embodiment of mitten made in accordance with the invention, the view being taken from the palm side of the mitten, a part of the reinforcement at the thumb of the mitten being broken away for clarity of illustration;

Fig. 3 is a plan view of a main fingertip reinforcement for the mitten of Figs. 1 and 2, a part of the layer of the reinforcement facing the reader being broken away;

Fig. 4 is a fragmentary view in section through the finished mitten at the fingertip region, the section being taken along the line 4—4 of Fig. 1;

Fig. 5 is a fragmentary view in longitudinal section through the mitten of Fig. 1, the section being taken along line 5—5 of Fig. 1;

Fig. 6 is a fragmentary view in section through the finished mitten of Fig. 1 at the zone of the side seal thereof, the section being taken along line 6—6 of Fig. 1; and

Fig. 7 is a fragmentary view in longitudinal section through a third embodiment of mitten made in accordance with the invention, the view generally corresponding to that of Fig. 5 which illustrates the first and second embodiments of the invention.

Three embodiments of mitten made in accordance with the present invention are shown; two such embodiments, shown in Figs. 1 and 2, are designated **10** and **10'**, respectively. The third embodiment of mitten is shown in Fig. 7. Since the mittens of Figs. 1 and 2 are identical in all respects except for the omission in the embodiment of Fig. 2 of the short side seals, one of which is shown at **34** in Fig. 1, the same reference characters are employed to designate like parts throughout Figs. 1–6, inclusive, of the drawings.

Each of the mittens shown in Figs. 1–6, inclusive, has a body formed of a back panel member **11** (Fig. 4) and a palm panel member **12**, the back and palm members being edge-sealed together at a seam or joint **22**. The members **11** and **12** are essentially similar except for the fact that palm member **12** has an appropriately located opening therethrough at which the thumb member **14** is attached. Member **14** may likewise be formed of front and back panel members which are joined by an edge seam **24**. Thumb member **14** is secured to palm member **12** by a seam **25**, as shown.

Preferably the back and palm members **11** and **12** of the mitten body, as well as the two panels making up the thumb member **14**, are formed of thin flexible heat-sealable plastic sheet material such as vinyl chloride polymer plasticized sheeting. Such material is not only waterproof, but it is readily heat-sealable, so that the seams **22** between the panel members of the mitten body, the seam **24** joining the panels of thumb member **14**, and the seam **25** between the thumb member and the palm member may readily be formed by pressing the respective layers of plastic material together while subjecting them to heat. In production, such sealing is conveniently performed by high frequency electronic heating means. Usually the body and thumb portions of the mittens will have been formed while, in effect, in inside out condition, following which the body and thumb portions will have been turned right-side. The mitten preferably has a reinforcing seam **17** at its gauntlet end. The gauntlet of the mitten may have elastic means (not shown) incorporated in the back panel thereof to maintain the gauntlet in snug contact with the wrist of the wearer. The mitten may have an absorbent lining **19** therein. Such lining may, if desired, be applied to the mitten following the formation of the body of the mitten and the assembly thereon of the fingertip reinforcements, to be described.

The present invention is concerned with the provision of reinforcements or reinforcing members for one or both of the main fingertip portion of the mitten and the thumb tip portion **16** thereof. At times hereinafter in the specification and in the claims both the fingers and the thumb will be referred to broadly as "fingers," the main fingertip portion **15** and the thumb tip portion **16** of the mitten will both be referred to as "fingertip portions," and the reinforcements **26** and **35** for such portions, respectively, will both be called "fingertip reinforcements."

The reinforcement **26** for the main fingertip portion **15** of the mitten is shown in Fig. 3 prior to its assembly within and/or attachment to the body of the mitten. Reinforcement **26** is made of heat-sealable plastic sheet material, and preferably is made from the same material as that forming the body of the mitten. Reinforcement **26** is made of two similar layers or panels **27** and **29** which are edge-sealed to each other by a seam **30** which extends above their peripheries with the exception of the inner edge **31** of the reinforcement, which is to lie adjacent the palm portion of the mitten. Preferably the portion **26** is formed with the panels **27** and **29** positioned inside out, so that the edge seal **30** may readily be formed.

Following this, the reinforcement is telescoped over the fingertip portion 15 of the body of the mitten with the mitten turned in inside-out position. The reinforcement is now integrally connected to the panels 11 and 12 of the body of the mitten by sealing zones 32 and 34, in the embodiment of Fig. 1, and by sealing zone 32 alone in the embodiment of Fig. 2. Seal 32 may be made by positioning the mitten on a suitable form and applying a suitable tool along edge 31 of the reinforcement so as to seal such edge to the body of the mitten. Such heating and pressing of the confronting layers to form the seam may either be carried out by the use of a hand tool heated as by electric resistance heating or by a die engaging the edge 31 of the reinforcement and connected to a source of high frequency current to heat the layers of plastic material electronically.

In the embodiment shown in Fig. 1, further short side seals 34 (one shown) are employed between the body of the mitten and the reinforcement 26. Seals 34 may be formed by running a heated hand tool a short distance along each of panels 11 and 12 from the end of seal 32 toward the closed end of the mitten so that the panels 27 and 29 of the reinforcement are each bonded to the body-forming panel of the mitten at such zone. Side seals 34, however, are not necessary; as shown in Fig. 2 the reinforcement may be attached to the mitten body by seams 32 alone. The reinforcement 35 for the thumb tip portion 16 may be formed in the same manner as above described in connection with reinforcement 26 in the embodiment of either Fig. 1 or Fig. 2.

Following the above described assembly of reinforcement 26 upon the mitten body, the mitten is turned right-side-out, so that reinforcement 26 now lies inside the mitten, and the outer panels 11 and 12 of the mitten lie wholly on the outside of the mitten. Such relationship of body panels 11 and 12 and the panels 27 and 29 of reinforcement 26 is shown more particularly in Fig. 4, Fig. 5, and (for the construction of Fig. 2) Fig. 6. The thumb reinforcement 20 is similarly assembled within the thumb portion 14 of the mitten. Such thumb portion, preferably before its attachment to the body of the mitten, is turned inside out, and the thumb reinforcement 20 (Fig. 2) likewise in inside out condition, is applied thereover. After the reinforcement has been heat-sealed to thumb portion 14, the thumb portion is turned right side out and is sealed to the bottom portion of the mitten when the latter is in right side out condition. One panel 21 of reinforcement 20 is shown lying within the outer main body of thumb portion 14 in Fig. 2.

The mitten of the present invention has been found to have a long useful life, and not to be prone to tearing at the fingertip portions. The reinforcements at such fingertip portions are free from attachment to the panels forming the body of the mitten throughout their extents with the exception of the cross seams 32 located remote from the closed ends of the mitten and, in Fig. 1, the short side seals 34. As a result, the layers of the reinforcements and the body and thumb members of the mitten at the fingertip portions are free to shift relative to each other as required by the configuration of the particular object to be grasped. No shearing or tearing forces are thus imposed on the body or reinforcements of the mitten because of any resulting interaction between the reinforcement and the body. Further, since the reinforcement is unattached to the body throughout the main extent of the reinforcement, including the main part if not all of the edge-sealed portion thereof, an inadvertently produced tear or puncture in an outer body panel in the mitten of Figs. 1–6, inclusive, does not tend to extend into the body-forming layers of the mitten. Consequently, the mitten remains waterproof and useful even though the reinforcement should be punctured, torn, or worn through. The mitten of Figs. 1–6, inclusive, has continuous outer body panels, and thus in some instances is to be preferred by reason of its appearance.

In some cases, however, it may be desired that the reinforcement shall be disposed outwardly of the main body panels of the finished mitten. Such construction is shown in Fig. 7, wherein a reinforcement 40 is shown assembled over the fingertip portion of a fragmentarily shown mitten. The reinforcement 40 may be made in the same manner as reinforcement 26 shown in Fig. 3. The panels 41 and 42 of reinforcement 40 are edge-sealed at 44; reinforcement 40 is secured to the panels of the body of the mitten by seals 45, which may be the same as seals 32. The reinforcement 40 may be otherwise unsecured to the body of the mitten, as in the embodiment of Fig. 2, or it may be further secured to the body of the mitten by further side seals similar to seals 34 in Fig. 1.

The construction of Fig. 7 has the same advantages, insofar as flexibility and durability are concerned, as the mittens of Figs. 1–6, inclusive. In addition, it allows the mitten conveniently to be made with attractively contrasting colors in its lower body portion and its overlying reinforcement portion.

Although only a limited number of embodiments of the invention have been illustrated in the accompanying drawings and described in the foregoing specification, it is to be expressly understood that various changes, such as in the relative dimensions of the parts, the materials used, and the like, as well as the suggested manner of making the mitten body, the reinforcements therefor, and the particular manner of attaching the reinforcements to the body, may be made therein without departing from the spirit and scope of the invention as will now be apparent to those skilled in the art.

What is claimed is:

1. A heat-sealed waterproof mitten made from flat heat-sealable plastic sheet material, the finished mitten having a body having palm and back panels each having fingertip, finger, and hand regions, the palm and back panels being heat-sealed together along an edge seam at their fingertip marginal edges, and a reinforcement for the fingertip region of the mitten in the form of an envelope made of heat-sealable plastic sheet material, said envelope generally conforming in shape to the fingertip region of the mitten and lying in telescoped relationship therewith, the envelope having front and back panels, the envelope panels being heat-sealed to the respective panels of the body along a zone adjacent the inner, palm-confronting edge of the envelope, substantially all of the remainder of the envelope, including that which confronts the central part of the peripheral edge of the fingertip portion of the body, being free from attachement to the body.

2. A mitten as defined in claim 1 wherein the edge seam of the mitten body is inwardly turned, and wherein the reinforcement envelope has an inwardly turned edge seam connecting the peripheral edges of its front and back panels.

3. A heat-sealed waterproof mitten made from flat heat-sealable plastic sheet material, the finished mitten having a body having palm and back panels each having fingertip, finger, and hand regions, the palm and back panels being heat-sealed together along an edge seam at their fingertip marginal edge, and a reinforcement for the fingertip region of the mitten in the form of an envelope made of heat-sealable plastic sheet material, said envelope generally conforming in shape to the fingertip region of the mitten and lying in telescoped relationship therewith, the envelope having front and back panels, the envelope panels being heat-sealed to the respective panels of the body along a zone adjacent the inner, palm-confronting edge of the envelope and along side seams extending a short distance from the palm-confronting edge of the envelope toward the closed end of the body, substantially all of the remainder of the envelope, including that which confronts the central part of the

peripheral edge of the fingertip portion of the body, being free from attachment to the body.

4. A mitten as defined in claim 3 wherein the edge seam of the mitten body is inwardly turned, and wherein the reinforcement envelope has an inwardly turned edge seam connecting the peripheral edges of its front and back panels.

5. A hand covering comprising a body made of connected front and back panel members to receive at least a part of the hand therewithin, said body having a closed end portion, the outer surface of said closed end portion being made of heat-sealable material, and a reinforcement for the closed end portion in the form of an envelope generally conforming in shape to the closed end portion of the body and telescoped thereover so that the inner edge of the reinforcement lies an appreciable distance inwardly of the closed end of the body, the envelope having its inner surface made of heat-sealable material, the envelope being heat-sealed to the body along the inner edge of the envelope, substantially all of the remainder of the envelope, including that which confronts the central part of the peripheral edge of the closed end portion of the body, being free from attachment to the body.

6. A hand covering comprising a body made of connected front and back panel members to receive at least a part of the hand therewithin, said body having a closed end portion, the inner surface of said closed end portion being made of heat-sealable material, and a reinforcement for the closed end portion in the form of an envelope generally conforming in shape to the closed end portion of the body and telescoped therewithin so that the inner edge of the reinforcement lies an appreciable distance inwardly of the closed end of the body, the envelope having its outer surface made of heat-sealable material, the envelope being heat-sealed to the body along a zone adjacent the inner edge of the envelope, substantially all of the remainder of the envelope, including that which confronts the central part of the peripheral edge of the closed end portion of the body, being free from attachment to the body.

References Cited in the file of this patent

UNITED STATES PATENTS

782,517	Niebuhr	Feb. 14, 1905
2,782,421	Winson	Feb. 26, 1957
2,809,376	Winson	Oct. 15, 1957
2,809,377	Winson	Oct. 15, 1957