Sept. 6, 1955 E. H. NELSON 2,717,065

HANDLE AND METHOD OF CONSTRUCTION THEREOF

Filed July 22, 1952 2 Sheets-Sheet 1

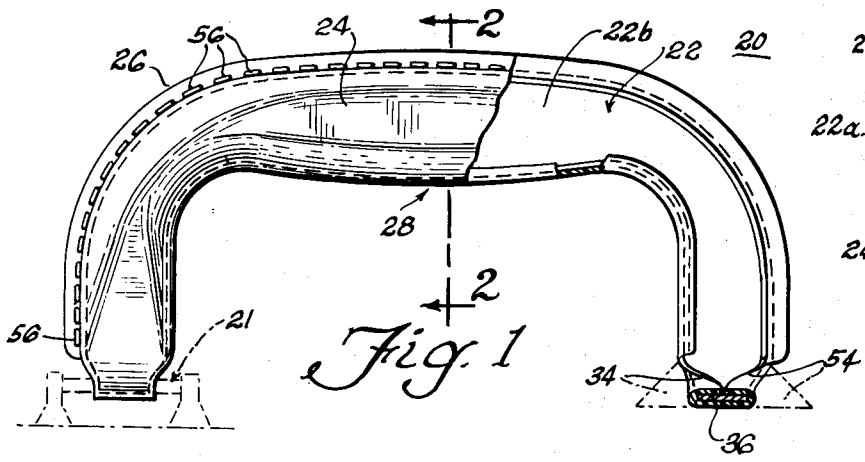


Fig. 1

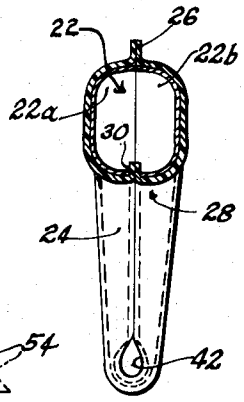


Fig. 2

Fig. 3

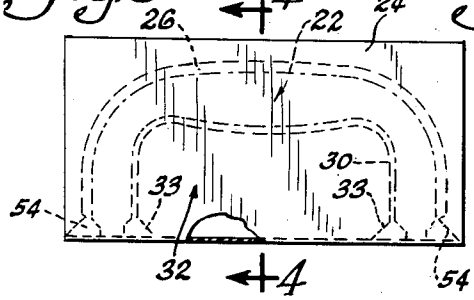


Fig. 4



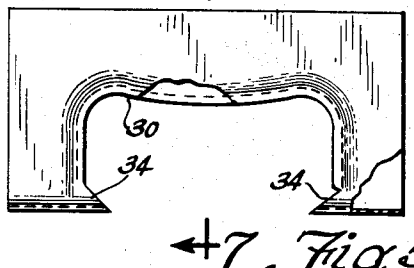


Fig. 5

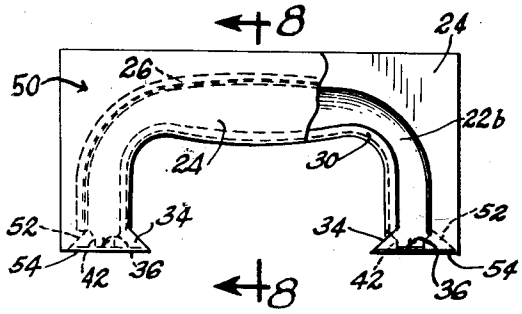


Fig. 6

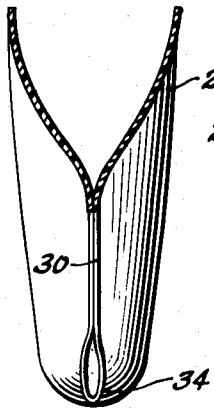


Fig. 7

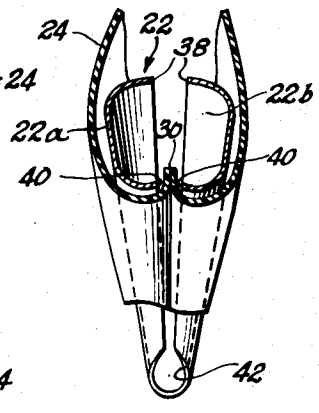


Fig 8

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HANDLE AND METHOD OF CONSTRUCTION THEREOF

Filed July 22, 1952 2 Sheets-Sheet 2

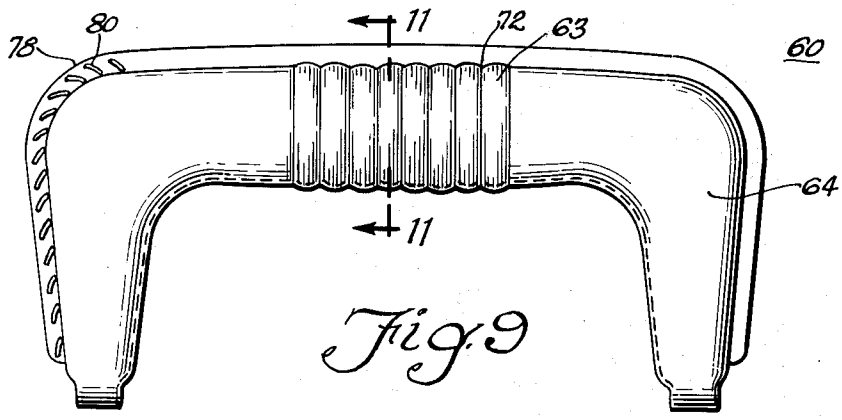


Fig. 9

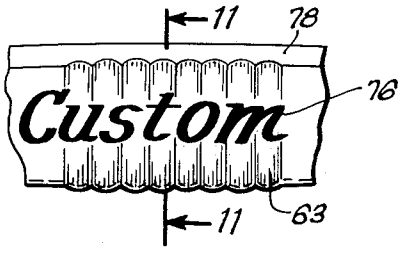


Fig. 10

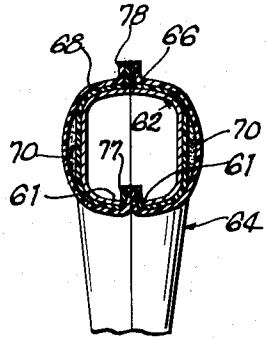


Fig. 11

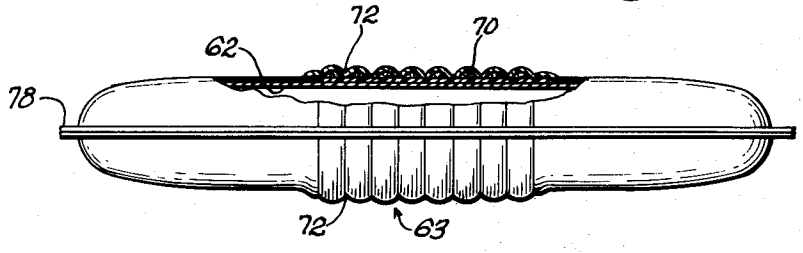


Fig. 12

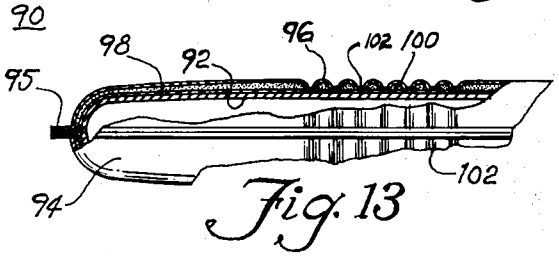


Fig. 13

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HANDLE AND METHOD OF CONSTRUCTION THEREOF

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Application July 22, 1952, Serial No. 300,289

14 Claims. (Cl. 190—57)

This invention relates to a handle and a method for fabrication thereof, and, more particularly, to a plastic covered handle produced by electronic seaming.

Prior handles, utilizing a laminated construction having a shell member covered by flexible materials such as leather or various types of fabric, were produced by manual folding and stitching operations which were not only time consuming and expensive but also subject to many inherent defects resulting in the rejection of a large number of the completed handles. These stitching operations utilize conventional sewing mechines which are incapable of producing seams around sharp corners or in recessed portions so that these prior handles must be formed with curves of relatively large radii. Also, the manual operations utilized prevented production of handles having a uniform and pleasing appearance.

Accordingly, one object of this invention is to provide a handle of a new and improved construction and pleasing appearance.

Another object is to provide such a handle which is produced by covering a shell or frame member with a plastic covering material in which the method utilizes a minimum of operational steps with a consequent decrease in production costs.

Another object is to provide a method for fabricating covered handles which utilizes electronic seaming and in which the covering material is positively secured to a frame or shell member of any configuration in a closely adhering relationship.

In accordance with one embodiment of the invention, a covered handle is produced by folding a sheet of flexible heat sealing material into a U-shaped configuration and then joining the superimposed layers of the single folded sheet together to produce a first seamed portion having a configuration generally corresponding to the inner configuration of the shell to be covered. The production of the first seamed portion severs the intercepted portion of the folded sheet from the body thereof, and this is removed to permit the remaining portion of the sheet to be reversed or inverted so that the first seamed portion extends inwardly between the two layers or folds of the sheet. This reversed blank of web material is then applied to an integral handle shell having a recess defining structure such as that provided by a pair of opposed edges so that the inwardly extending seamed portion is received within the shell with the remaining portion of the folded and seamed blank extending around the outer surface of the shell.

Then, the assembled shell and seamed sheet or web of plastic material are placed in a suitable die corresponding to the configuration of the desired handle, and a mating die member is moved into engagement with the shell and covering material to move the opposed edges into clamping engagement with the seamed portion, and to move the free ends of the blank into a continguous relationship adjacent the surface of the shell or frame member. The mating dies are provided with means for electronically seaming the covering material at a position spaced from

the first seamed portion to provide a second seamed portion joining the free ends of the plastic sheet and thus holding the covering material in intimate contact with the outer surface of the shell and holding the opposed edges in engagement with the inwardly extending first seamed portion. The die may also be provided with a pair of cooperating cutting edges to provide a plurality of tabs which are tucked into a pair of annular openings extending through the shell to provide a bearing surface for receiving handle supporting posts. The dies may also be provided with a plurality of opposed means for producing depressions in the second seamed portion to simulate the appearance of conventional stitching.

In a second modification of this invention, the handle shell or frame is covered in the manner described above and utilizes a unitary folded sheet of covering material including a pair of spaced plastic sheets having filling material interposed therebetween and secured in position by a plurality of longitudinally extending seams joining the superimposed plastic laminae. The two seamed portions produced, in addition to joining the folded layers of the covering material, also join the superimposed laminae forming the sheet of covering material along lines extending across the longitudinal seams to positively prevent longitudinal displacement of the filling material when the handle is in use. The filling material together with the longitudinal securing means therefor provide a corrugated surface which may be embossed with suitable indicia designating such information as the trade name of the manufacturer.

A third embodiment of the invention includes a handle shell or frame covered in the manner described above and in which the covering material comprises a pair of spaced sheets of heat sealing material having a filling material disposed therebetween. The two sheets or laminae of material are joined together only by the two seamed portions and by seams having the configuration of a design which is embossed on the material.

Other objects and advantages of the present invention will become apparent from the ensuing description of the illustrative embodiments thereof in the course of which, reference is had to the accompanying drawings in which:

Fig. 1 is an elevational view in partial section of the first embodiment of the invention;

Fig. 2 is a sectional view taken along line 2—2 in Fig. 1;

Fig. 3 is a plan view in partial section showing a folded sheet of the handle covering material with the relative position of a handle shell shown in dot-dash outline;

Fig. 4 is a sectional view taken along line 4—4 in Fig. 3;

Fig. 5 is a plan view of the folded sheet of covering material following a first operational step in which the first seamed portion is produced;

Fig. 6 is a plan view in partial section of the handle shell together with the covering material shown in Fig. 5 assembled in proper position thereon;

Fig. 7 is a sectional view taken along line 7—7 in Fig. 5;

Fig. 8 is a fragmentary cross sectional view taken along line 8—8 in Fig. 6;

Fig. 9 is an elevational view of a second embodiment of the invention;

Fig. 10 is a fragmentary view of the handle shown in Fig. 9 with indicia embossed thereon;

Fig. 11 is a cross sectional view taken along line 11—11 in Fig. 9;

Fig. 12 is a top view in partial section of the handle shown in Fig. 9; and

Fig. 13 is a fragmentary sectional view of a third embodiment of the invention.

Referring to Figs. 1 to 8, inclusive, of the drawings, there is provided a covered handle, indicated generally as **20**, including a shell member, indicated generally as **22**, covered by a sheet of heat sealing material, indicated generally as **24**. The handle **20** is substantially U-shaped in configuration and is adapted to be movably mounted on a pair of handle posts **21**, one of which is shown in dashed outline in Fig. 1. The handle **20** is provided with an external seamed portion **26** having markings thereon representative of conventional stitching and an inner or lower surface **28** which is smooth and free from outwardly extending projections so as to prevent undesirable abrasion of the hand of the user.

The shell or frame **22** of the handle **20** is formed of an integral metal construction by folding a pair of identical but oppositely positioned trough or U-shaped members **22***a* and **22***b* (Figs. 2 and 8) together to form a single shell **22** of a closed U-shaped configuration. The shell **22** includes a pair of bight portions **36** (Fig. 6) and two pairs of opposed edges **38** and **40** (Fig. 8). The edges **40** are so formed on the shell **22** that when the edges **38** are moved into engagement, the edges **40** are spaced slightly apart to define a recess or opening. The portion of the shell **22** adjacent the bights **36** is provided with apertures **42** (Figs. 6 and 8). Since the shell **22** is of integral construction, there is no possibility of displacing the supporting posts **21** from within the apertures **42** within which these posts are received, and also provides a handle which is strong in physical construction and relatively light.

In order to provide a covering for the shell **22** which is integral in construction and easily fabricated, the unitary sheet **24** of any heat sealing material, such as vinyl, acetate, or butyrate, is folded along an axis extending across the sheet approximately midway along the length thereof to form a folded blank as shown in Figs. 3 and 4 of the drawings. This folded blank is then placed in a suitable electronic heating or seaming die and a second mating die is moved into engagement with the interposed folded sheet of material **24** to produce a first seamed or joined portion **30**, as shown in Fig. 5 of the drawings, or, as indicated in dashed lines in Fig. 3 of the drawings. Although it is preferred to utilize electronic seaming produced by dies designed to operate in the 40 megacycle range, other frequencies and other means of joining the covering material may be used.

This first seamed portion **30** not only integrally joins the two superimposed folds of the sheet **24** but also scores or severs the sheet **24** along a line coinciding with the edge of the seamed portion **30** to define an intercepted portion of the sheet, indicated generally as **32**. This intercepted portion is severed from the remainder of the sheet **24** along a pair of diagonal lines **33** to produce a pair of tabs **34** either by a manual cutting operation, or by the provision of mating cutting edges on the cooperating dies which produce the first seamed portion **30**. The intercepted portion **32** is removed by tearing along the scored portion adjacent the seam **30** to produce the blank shown in Fig. 5. If desired, the portion **32** of the sheet could be cut out prior to forming the seamed portion **30**.

A first step in which the sheet of heat sealing material **24** is rigidly secured to the metal shell **22** in a closely adhering manner comprises inverting or reversing the blank formed from the sheet **24**, as shown in Figs. 5 and 7 of the drawings, so that the seamed portion **30** extends upwardly between the two folds of the sheet **24** (Fig. 8). This first seamed portion **30** is then positioned in a recessed portion of the shell as by inserting this seamed portion between the pair of edges **40** so that the two folds of the sheet **24** extend upwardly around the outer surface of the shell.

To seal the sheet **24** in position on the shell **22**, the assembled shell **22** and seamed sheet **24** are positioned in an electronic seaming or heating die (not shown) and a cooperating die member is moved into engagement with the sheet covering material **24** in the positions shown in Fig. 6 to produce the second seamed portion **26**.

The movement of the dies into engagement with the interposed and folded sheet of material **24** also moves the two halves **22***a* and **22***b* of the shell **22** into intimate and gripping engagement with the inwardly extending seamed portion **30** and thereby positively locks the cover material **24** in a desired position relative to the shell. Since this downward movement which grips the first seamed portion **30** also forms the second seamed portion **26**, the material **24** is held in intimate engagement with the shell portions **22***a* and **22***b* to urge these members into continuing engagement with the first seamed portion **30** following the release of the die members. These shell portions are urged into engagement with the seamed portion **30** since the covering material **24** is placed under tension by the formation of the seamed portion **26**, and this tension is applied to both folds of the covering material **24** through the seamed portion **30**. Since the material **24** is sealed in intimate engagement with the outer surface of the shell **22** and since the inwardly extending seamed portion **30** is positively grasped between the cooperating edges **40** of this shell, the covering material **24** is positively held in a predetermined position relative to the shell and produces a completed handle **20** of pleasing appearance and durable construction.

These two dies, in addition to forming the second seam **26** also sever or score the sheet **24** along the edge of the seam **26** to provide a second scrap segment, indicated generally as **50** (Fig. 6). This scrap material **50** is removed from the completed handle **20** by severing the material along a pair of lines **52** (Fig. 6), either manually or by using mating cuting edges on the dies, to provide a second pair of tabs **54**. In addition to producing the externally extending seam **26** (Fig. 1) the dies also provide a series of depressions **56** to simulate the appearance of conventional stitching along the periphery of the seam **26**.

Since the seamed portions **26** and **30** are formed by the use of electronic heating dies, it is possible to produce these seamed portions with any desired configuration, including those having acute angles, because electronic heating dies are easily fabricated in any configuration. Since it is possible rapidly to produce seams of any desired configuration, the handle **20** and shell **22** therefor may be varied to provide any pleasing appearance, and the choice thereof is not limited to those shapes having curves of large radii in order to accommodate the production of seams by conventional stitching equipment.

In order to provide a bearing surface to be engaged by the supporting posts **21**, the two pairs of tabs **34** and **54** are tucked or folded inwardly into the openings **42** from the positions shown in Fig. 6 of the drawings. As shown in Fig. 1 of the drawings, the inwardly folded tabs **34** and **54** cover the entire surface of the bights **36** so that when the handle **20** is manipulated in use, the surface of the posts **21** bear against the inwardly folded tabs **34** and **54** and not against the bight portions **36** of the shell. The tabs **34** may be folded into the apertures **42** either before or after the production of the seamed portion **26**.

Another feature of the improved handle **20** arising from the use of an integral sheet of the covering material **24** is the provision of a smooth outer covering for the bight portions **36** of the shell **22**. As shown in Figs. 1 and 2 of the drawings, the bight portions **36** are covered by an integral web portion of the sheet **24** and are free from the conventional stitching normally utilized to join two separate pieces of covering material at this particular location. In addition to providing a handle **20** of an improved appearance, the use of an integral web of material covering the bight portions **36** prevents displacement of this material during use.

Referring now to Figs. 9 to 12, inclusive, of the drawings, there is provided a covered handle, indicated generally as **60**, having a shell or frame member **62**, similar

to the shell **22**, which is covered with a sheet **64** of heat sealing material provided with corrugations, indicated generally as **63**, over a portion of the surface thereof. The shell **62** is covered with the sheet **64** in the same manner as that described in connection with the fabrication of the handle **20** to provide a pair of seamed portions **77** and **78**.

The seamed portion **77** is received within the recess or depression in the shell **62** provided by a pair of opposed edges **61** to be held in place thereby, and the second seamed portion **78** secures the free edges of the sheet **64** together to maintain the edges **61** in engagement with the first seamed portion **77** and to hold the sheet of plastic material **64** in engagement with the outer surface of the shell **62**.

The sheet **64** is composed of a pair of superimposed laminae **66** and **68** of heat sealing material which are joined together by suitable means such as adhesive or pressure lamination. The corrugations **63** in the sheet **64** are produced by inserting a filling material **70** such as kapok or cotton between the two laminae **66** and **68** and then providing a plurality of longitudinally extending seams **72** which secure the superimposed laminae **66** and **68** together and also divide the filling material **70** into a plurality of parallel masses to provide the corrugations **63**.

The production of the seams **77** and **78**, in accordance with the method for fabricating the handle **20**, provides a pair of seams extending laterally or transversely across the longitudinally extending seams **72** so as to prevent longitudinal displacement of the filling material **70** after the handle **60** has been completely fabricated, and, accordingly, prevents unsightly bunching of the material **70** to distort the pleasing appearance provided by the corrugations **63**.

As shown in Fig. 10 of the drawings, the corrugated portion of the handle covering may be provided with embossed characters **76** for indicating desired information. The presence of the corrugations **63** insures the production of embossed characters **76** of sufficient depth as to be easily visible. Although the covering material for the handle **20** can be embossed, the characters produced therein would not have sufficient depth as to be readily visible.

The outwardly extending seamed portion **78** is provided with a plurality of outwardly extending depressions **80** to simulate conventional stitching which are similar to the depressions **56** (Fig. 1) but which produce a different visual impression so as to simulate a different type of stitching. These depressions **80** are produced by the electronic seaming dies in the same manner as the depressions **56**.

A third embodiment of the invention comprises a padded handle **90** (Fig. 13) which is formed by covering a shell **92** with a web of covering material **94** in accordance with the method for fabricating the handles **20** and **60** to provide a first seamed portion (not shown) and a second seamed portion **95**. The shell **92** is similar to the shells **22** and **62**, and is formed in any desired shape.

The covering material **94** includes a pair of spaced laminae **96** and **98** of heat sealing material between which is disposed a mass of filling material **100** such as cotton or kapok. These two laminae are joined together by the two seamed portions joining the two folds of the covering material **94** and by a plurality of seams **102** which are embossed in the material **94** to provide a decorative design for the handle **90**. These seams serve to prevent displacement of the filling material **100** during use of the handle **90**.

The appearance of the handle **90** is that of a smooth outer surface broken only by recesses therein formed by the seams **102**. Obviously, the seams **102** may be formed in the covering material **94** either before or after application thereof to the shell **92**, and, further, may be formed to provide any desired configuration of design.

While the present invention has been described in connection with the details of only three illustrative embodiments, it should be understood that the details are not intended to be limitative of the invention except insofar as set forth in the accompanying claims.

What is claimed and desired to be secured by Letters Patent of the United States is:

1. A handle comprising a folded hollow shell having a pair of opposed edges, a covering positioned on the outer surface of said shell and including a seamed portion engaged by the edges, and means joining the covering at a location remote from the seamed portion to apply tensional forces to the covering to force the edges toward the seamed portion.

2. The handle defined by claim 1 in which the covering comprises a pair of superimposed sheets of flexible material having a filling material disposed therebetween and secured in place by a plurality of longitudinally extending seams joining the superimposed sheets, and further in which the seamed portion of the covering joins the superimposed sheets along a line extending across the longitudinally extending seams to secure the filling material in a desired longitudinal position.

3. A handle comprising a folded hollow shell having a pair of opposed edges and a pair of openings extending therethrough, a covering for said handle, said covering including a first seamed portion extending into the hollow shell and engaged by the opposed edges, said covering also including a second seamed portion for holding the covering in engagement with the shell and the edges in engagement with the first seamed portion, and tabs formed integral with the covering adjacent both ends of the seamed portions and extending into the hollow shell through the openings.

4. A handle adapted to be movably mounted on supporting posts comprising a hollow shell having a pair of openings extending therethrough and a pair of opposed edges, a covering for said shell including a seamed portion received between the opposed edges, and tabs formed integral with the covering and extending into the openings to provide bearing surfaces to receive the supporting posts.

5. A handle adapted to be movably mounted on supporting posts comprising an integral folded hollow shell having a pair of opposed edges and a pair of bight portions, said shell also having a pair of openings therethrough adjacent the bight portions, an integral folded covering for said shell including a pair of bight portions superimposed upon the bight portions of the shell, said covering also having a seamed portion received between the edges and extending around the shell from one opening to the other, and tabs formed integral with the covering and extending into the openings to provide bearing surfaces for the supporting posts.

6. A handle adapted to be movably mounted on supporting posts comprising an integral folded hollow shell having a pair of spaced bight portions and openings extending through the shell adjacent the bights, said shell also having spaced first and second pairs of opposed edges, an integral folded covering for said shell including a pair of bight portions superimposed on the bight portions of the shell, said covering having a first seamed portion projecting into the hollow shell between the first pair of opposed edges and extending around the edge of the shell from one opening to the other, said covering also having a second seamed portion positioned adjacent the second pair of opposed edges and extending from one opening to the other for holding the first pair of edges in gripping emgagement with the first seamed portion, and tabs formed integral with the covering adjacent the openings and positioned therein to provide bearing surfaces for the supporting posts.

7. The handle defined by claim 6 in which the covering comprises a pair of superimposed sheets of flexible material having a filling material disposed therebetween and secured in place by a plurality of longitudinally

extending seams joining the superimposed sheets, and further in which the first and second seamed portions of the covering join the superimposed sheets along a line extending across the longitudinally extending seams to secure the filling material in a desired longitudinal position.

8. A method of producing a covered handle from a web of heat sealing material and a shell having a pair of opposed edges, which comprises folding the web, heating a first portion of the web to produce a first seamed portion, inverting the seamed web to position the first seamed portion between the folds of the web, placing the first seamed portion between the opposed edges of the shell with the folds superimposed on the outer surface of the shell, compressing the shell and superimposed folds of the web to move the opposed edges into gripping engagement with the first seamed portion, and heating a second portion of the web during said compression to form a second seamed portion for holding the folds in intimate contact with the outer surface of the shell and for holding the edges in gripping engagement with the first seamed portion.

9. A method of making handles from a sheet of heat sealing material and a folded metal shell having a pair of opposed edges, which comprises folding the sheet, electronically heating the sheet to form a first seamed portion having a configuration similar to one outline of the shell, removing the portion of the folded sheet intercepted by the first seamed portion, inverting the seamed sheet to position the first seamed portion between the folds of the sheet, positioning the first seamed portion between the opposed edges of the shell with the folds of the sheet adjacent the outer surface of the shell, compressing the superimposed folds of the sheet and the shell to force the edges into engagement with the first seamed portion, and electronically heating the folds of the sheet adjacent the edge of the shell to produce a second seamed portion for holding the edges in engagement with the first seamed portion and for holding the folds of the sheet in engagement with the outer surface of the shell.

10. A method of producing handles from a sheet of heat sealing material, and a shell having a pair of openings therethrough and a pair of opposed edges, which comprises folding the sheet, heating the folded sheet to form a first seamed portion having a configuration similar to one outline of the shell, cutting the folds of the sheet from the ends of the first seam to a point adjacent the folded edge thereof to form a first pair of tabs, removing the folded portion of the sheet intercepted by the first seamed portion and the first tabs, inverting the seamed portion of the sheet so that the first seamed portion is positioned between the folds of the sheet, inserting the first seamed portion between the opposed edges, folding the first pair of tabs into the pair of openings, compressing the superimposed folds and shell to move the edges into engagement with the first seamed portion, heating the folds of the sheet adjacent one edge of the shell to produce a second seamed portion, cutting the folds of the sheet from the ends of the second seamed portion to the folded edge of the sheet to form a second pair of tabs, removing the portion of the sheet defined by the second pair of tabs and the second seamed portion, and folding the second pair of tabs into the opening.

11. A method of producing a covered handle from a web of material and a shell having a recess defining structure which comprises folding the web, joining a first portion of the web to form a first seamed portion, inverting the seamed web so that the first seamed portion extends between the folds of the web, placing the first seamed portion in the recess so that the folds of the web are positioned around the outer surface of the shell, and joining a second portion of the web to produce a second seamed portion to hold the web in intimate contact with the shell.

12. A handle comprising a shell having a recess and a pair of openings therein, a covering for said handle, said covering including a first joined portion positioned in the recess, said covering also including a second joined portion spaced from the first portion for holding the covering in engagement with the shell, and tabs formed integral with the covering adjacent both ends of the joined portions and extending into the shell through said openings.

13. A method of covering a handle having a recess with web material, which comprises joining the web material to form a first seamed portion, placing the first seamed portion in the recess with the folds of the material positioned around the outer surface of the handle, and joining the material at a position spaced from the first seamed portion to form a second seamed portion for holding the first seamed portion in the recess and for securing the material in intimate contact with the outer surface of the handle.

14. A handle comprising a hollow shell having an opening therein, and a covering for said shell, said covering including a pair of superimposed sheets of flexible material having a filling material disposed therebetween and secured in place by a plurality of seams joining the superimposed sheets, said covering having a first seamed portion extending into the hollow shell through said opening and having a second seamed portion spaced from the first seamed portion for holding the first seamed portion in the opening and for holding the covering in intimate engagement with the shell, said first and second seamed portions also joining the superimposed sheets to secure the filling material.

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