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[54] **PUTTY KNIFE AND SCRAPER HANDLE**

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[51] **Int. Cl.**[6] **A47L 13/022**

[52] **U.S. Cl.** ..... **15/236.01**; 15/143.1; 16/111 R; 81/177.1

[58] **Field of Search** ..... 15/143.1, 235.4, 15/236.01; 16/110 R, 111 R; 30/169, 340; 81/77.1, 492, 900

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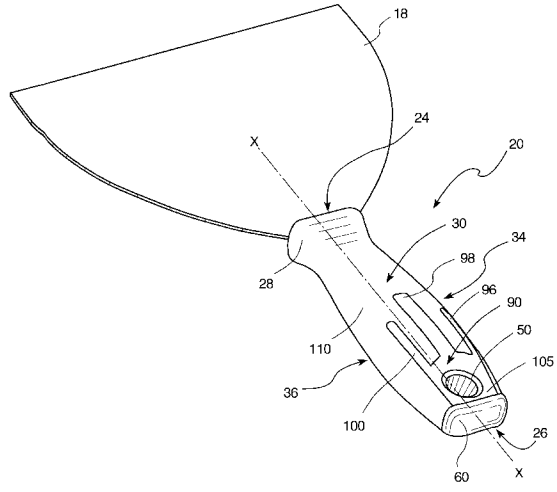
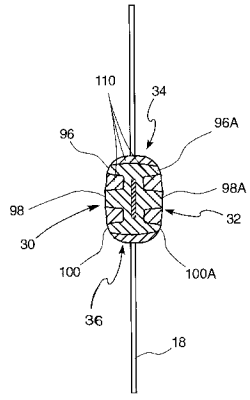
Attorney, Agent, or Firm—Ronald R. Kilponen

[57] **ABSTRACT**

An ergonomic putty knife and scraper handle manufactured from at least two different hardness injection molded polymers having a plurality of harder longitudinal ribs embedded in a softer overlay but exposed on both top and bottom surfaces in strategic locations. The longitudinal ribs providing non-binding contact with fabric surfaces to ease the insertion and removal of the handle into and from a user's pocket for temporary storage of the tool when not in use. When employing the tool for its intended purpose, however, the user enjoys the comfort, efficiency and safety of an ergonomic handle offering a "soft touch" to thumb and fingers in those locations requiring superior grippability.

20 Claims, 14 Drawing Sheets





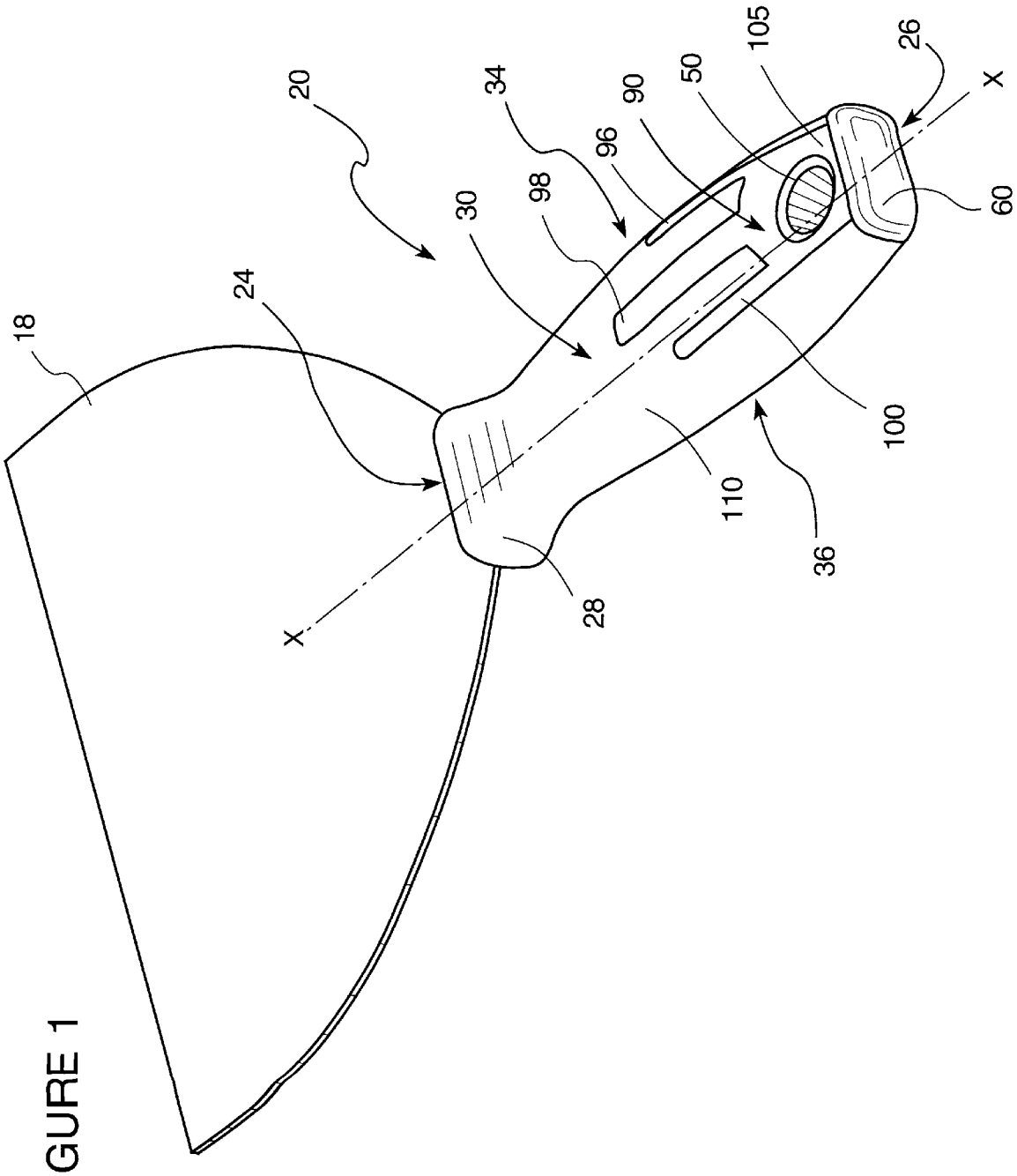


FIGURE 1

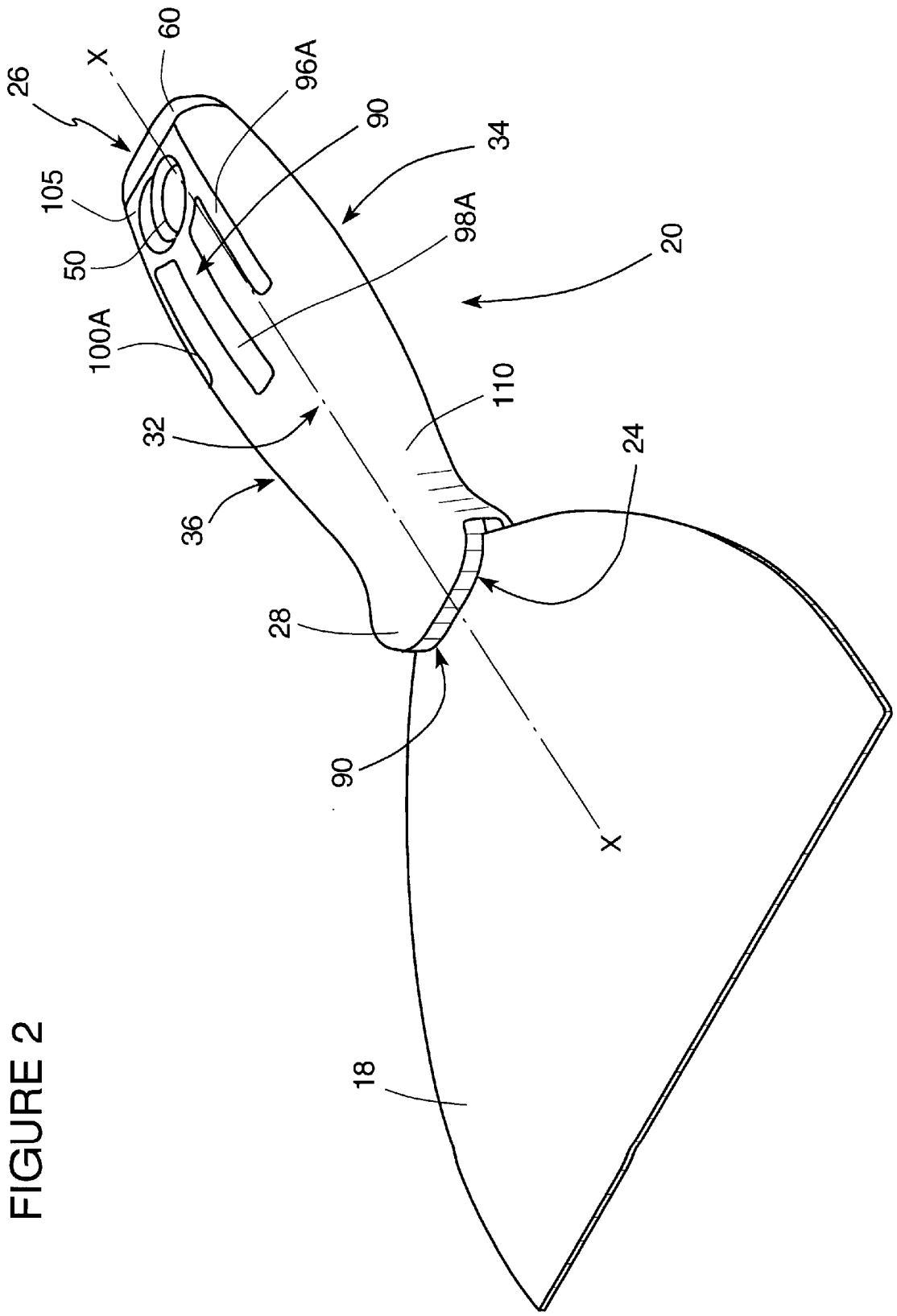


FIGURE 2

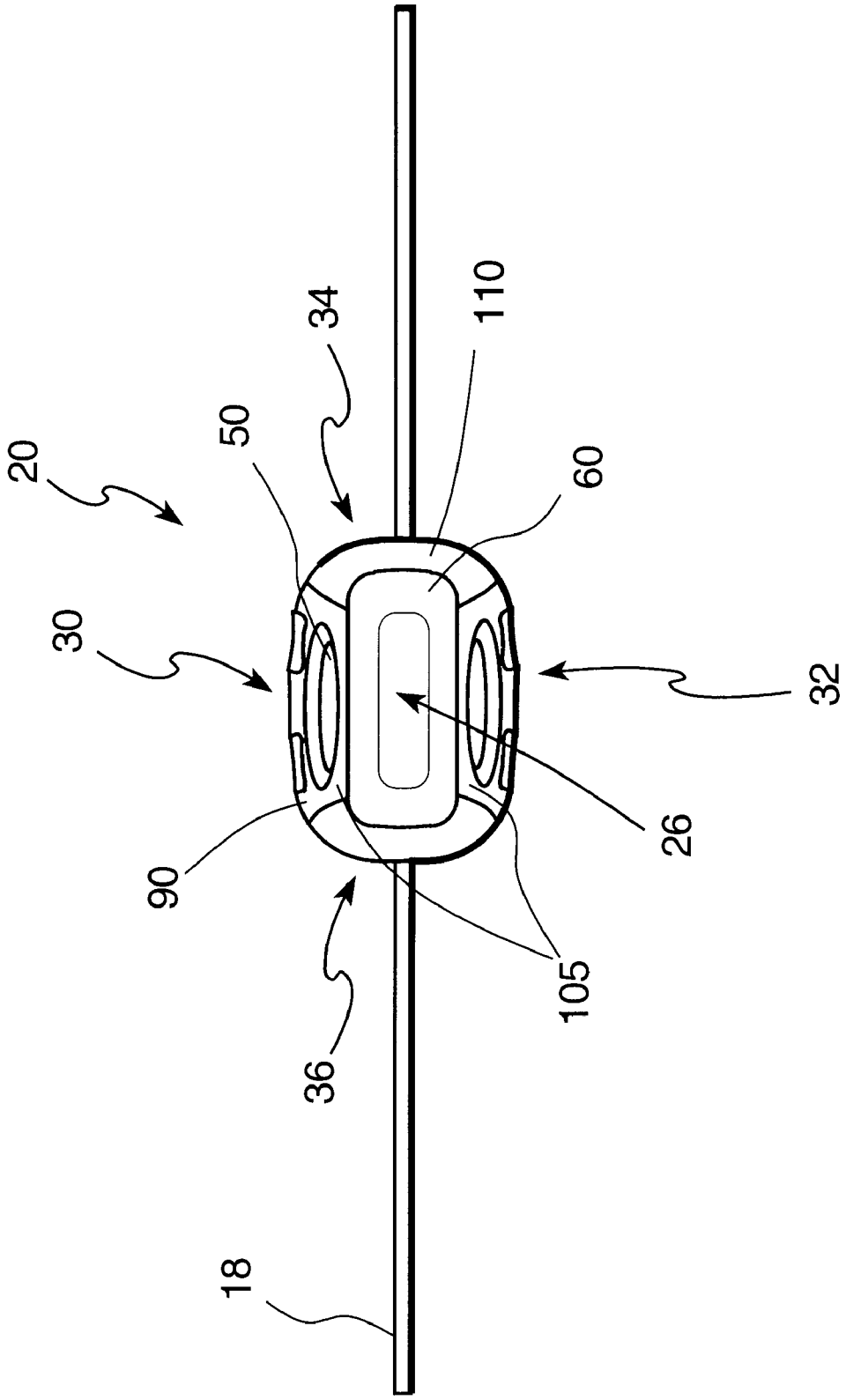


FIGURE 3

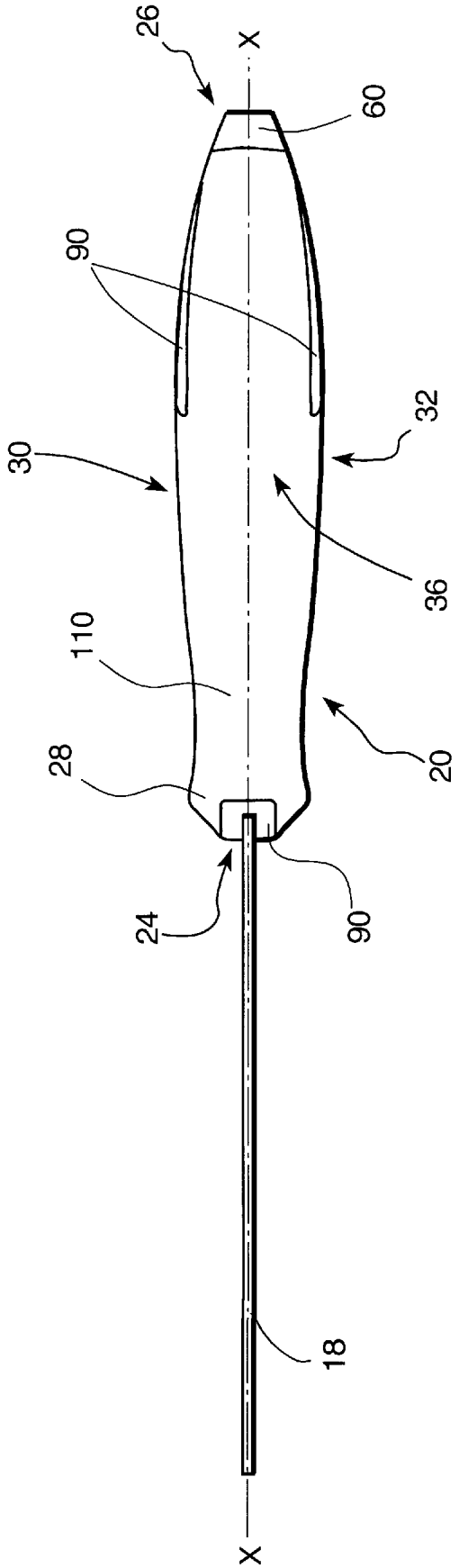


FIGURE 4

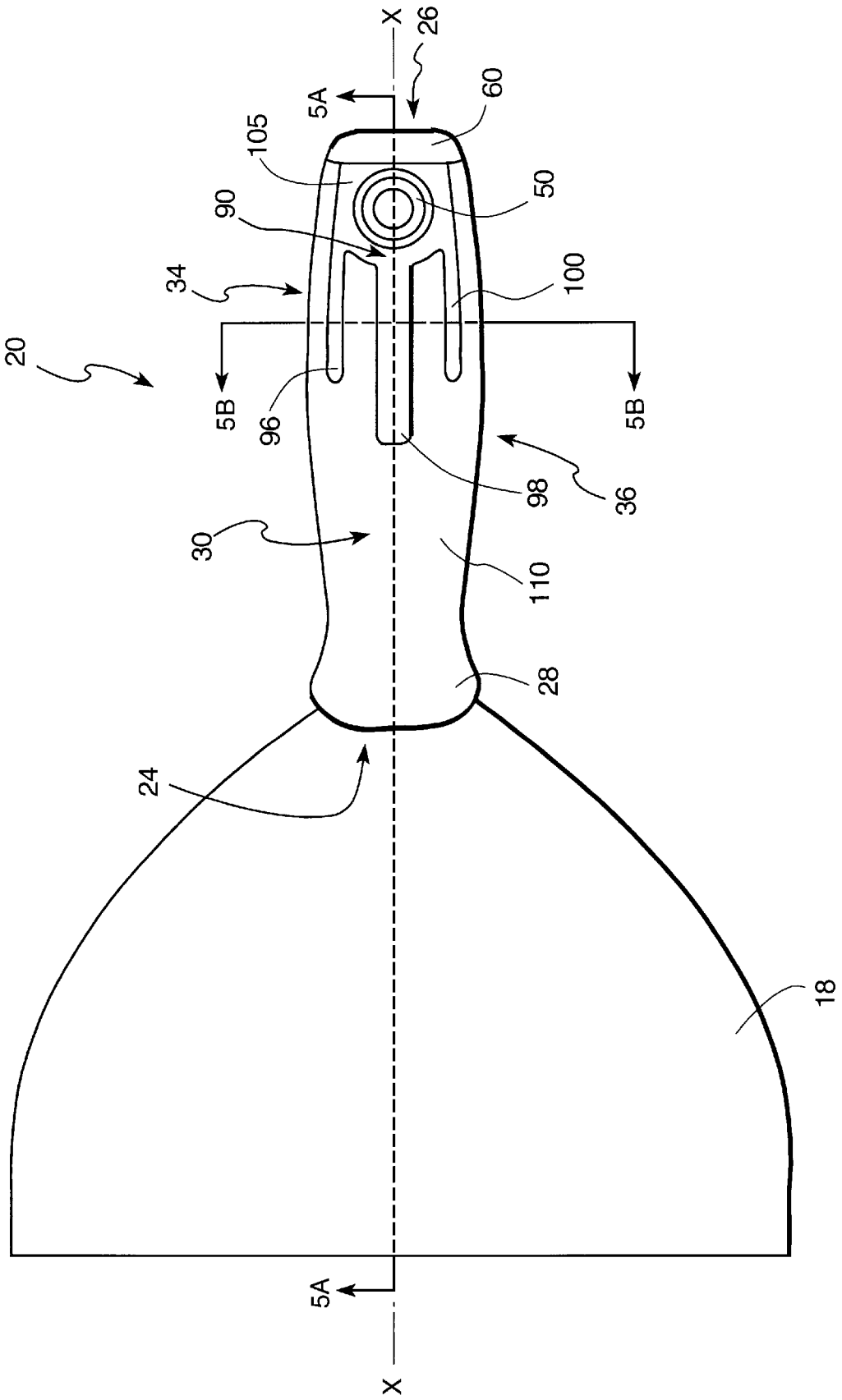


FIGURE 5

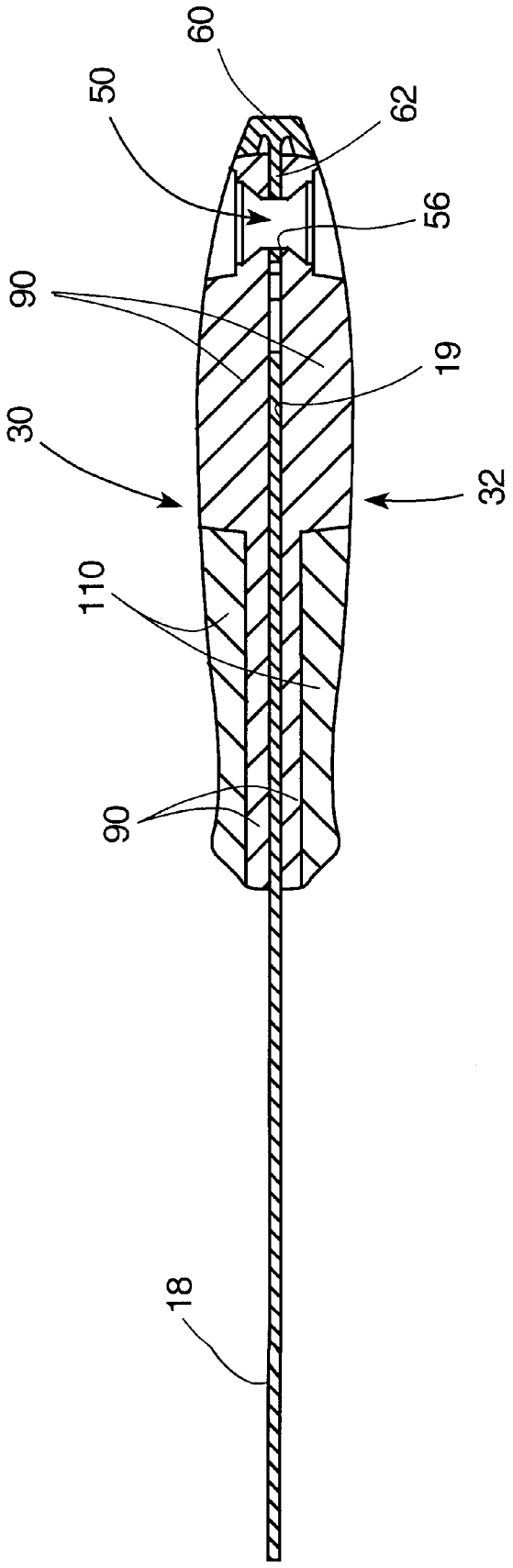


FIGURE 5A

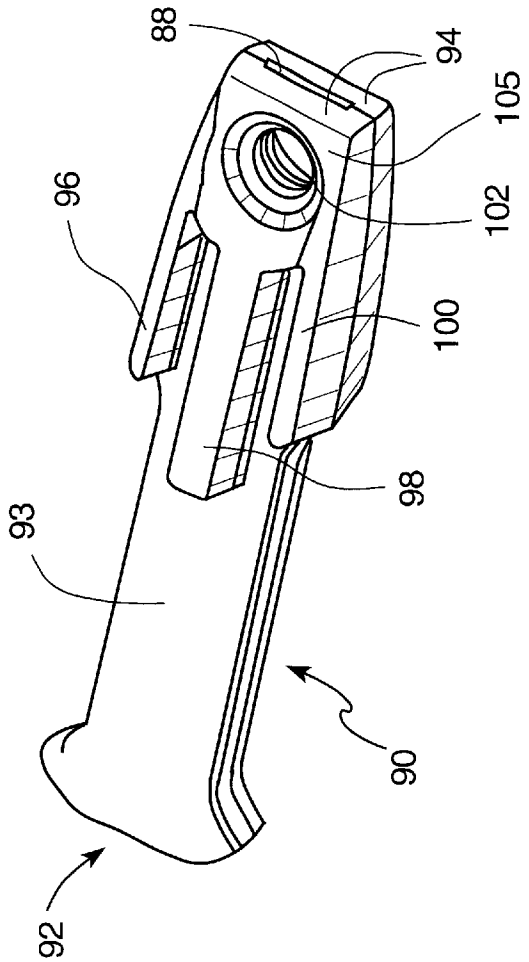


FIGURE 6

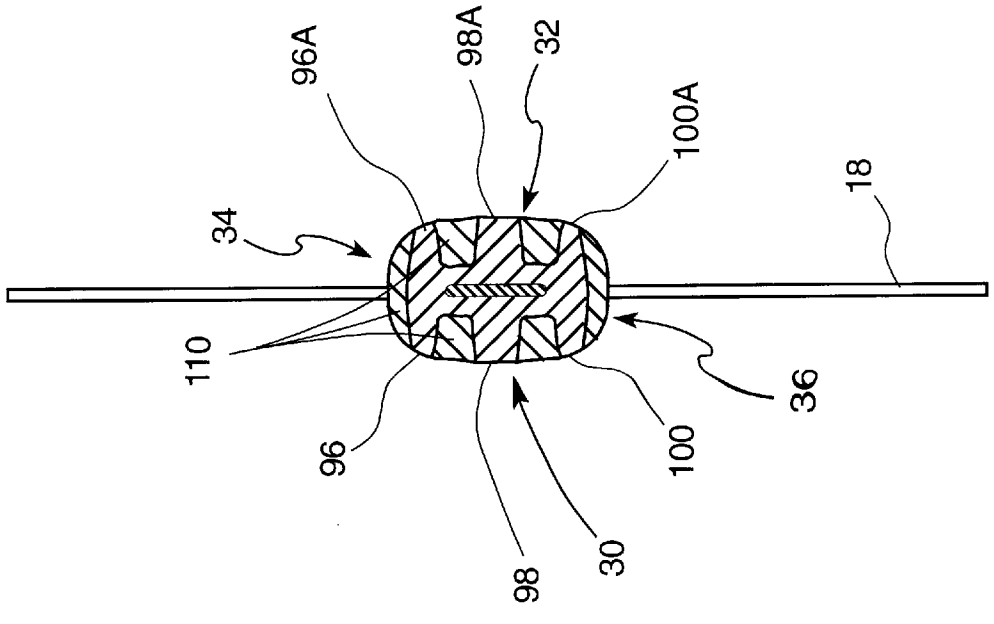


FIGURE 5B

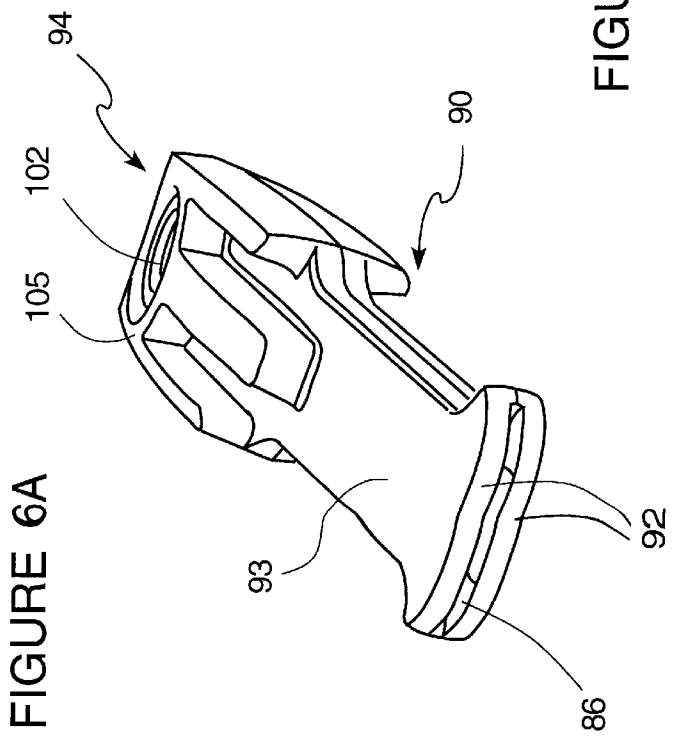


FIGURE 6A

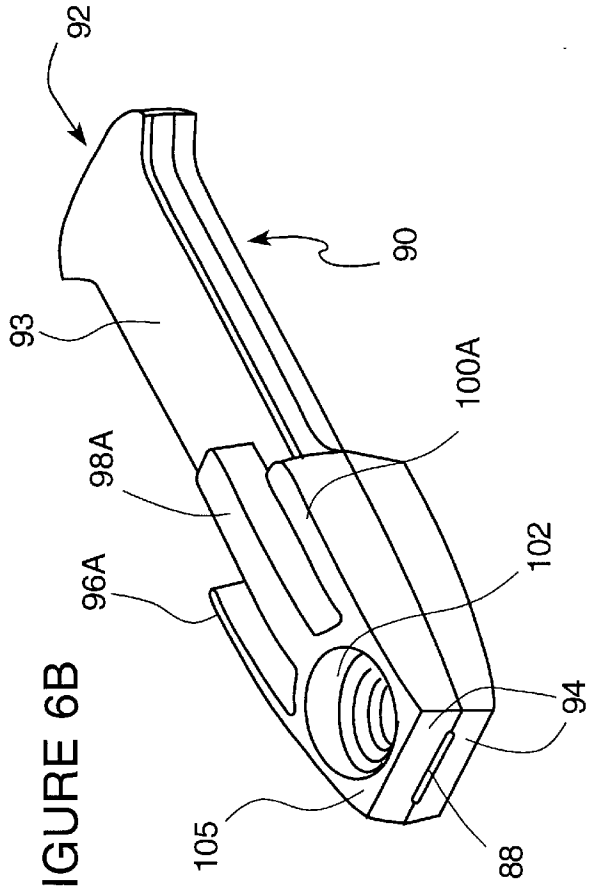


FIGURE 6B

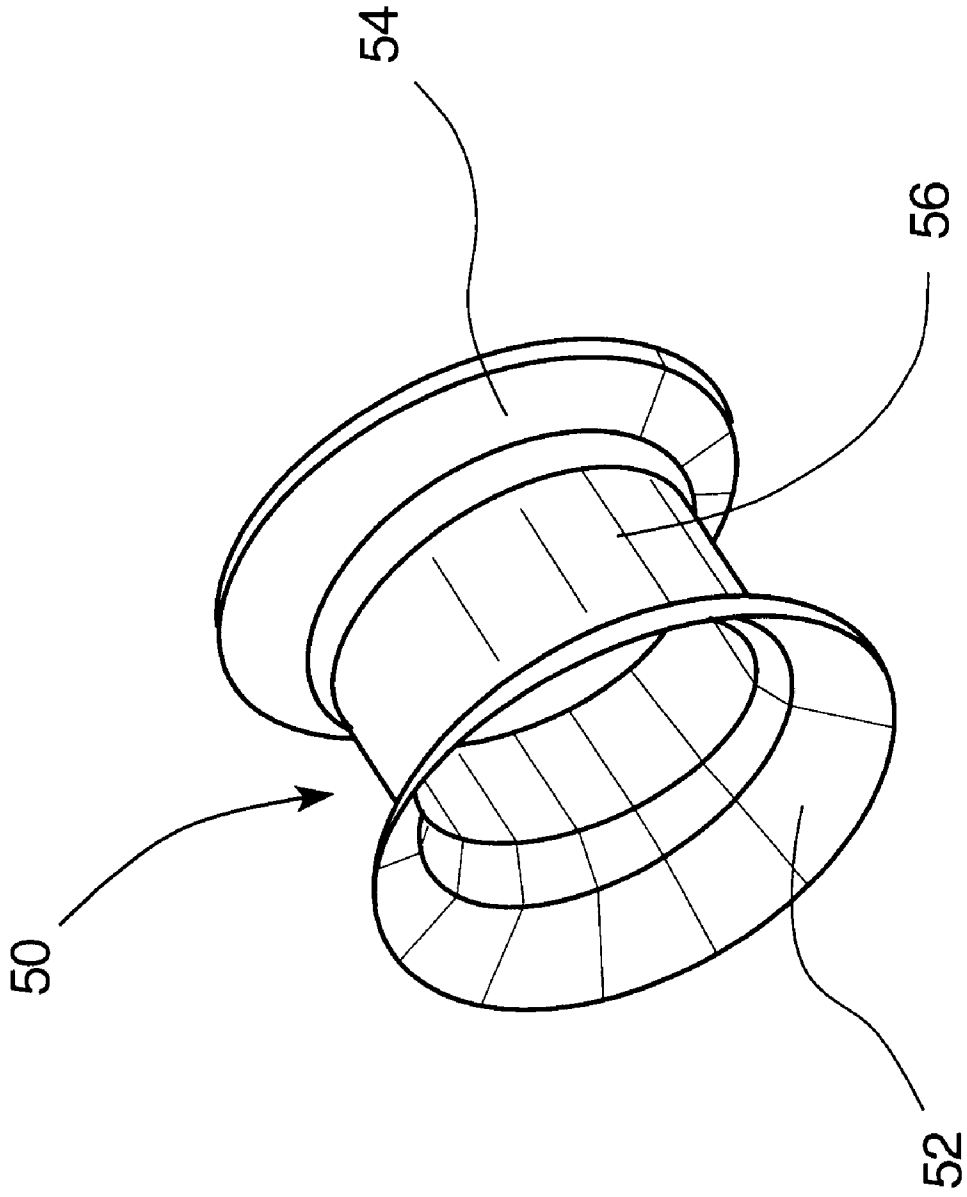


FIGURE 7

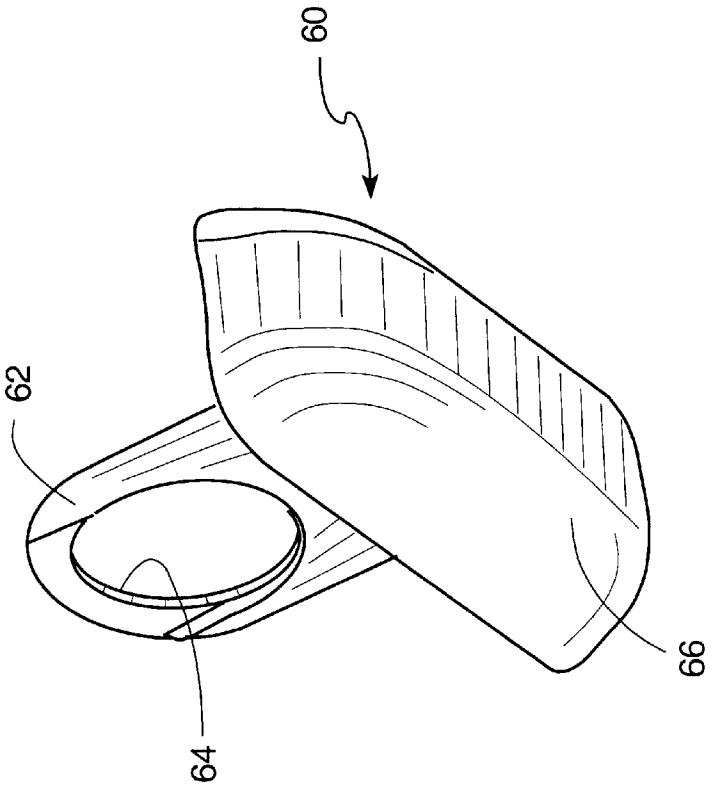


FIGURE 8A

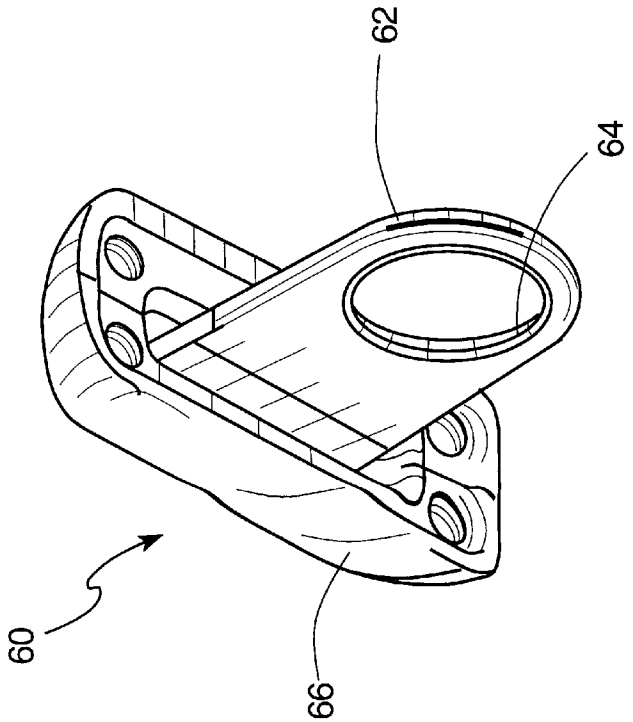


FIGURE 8

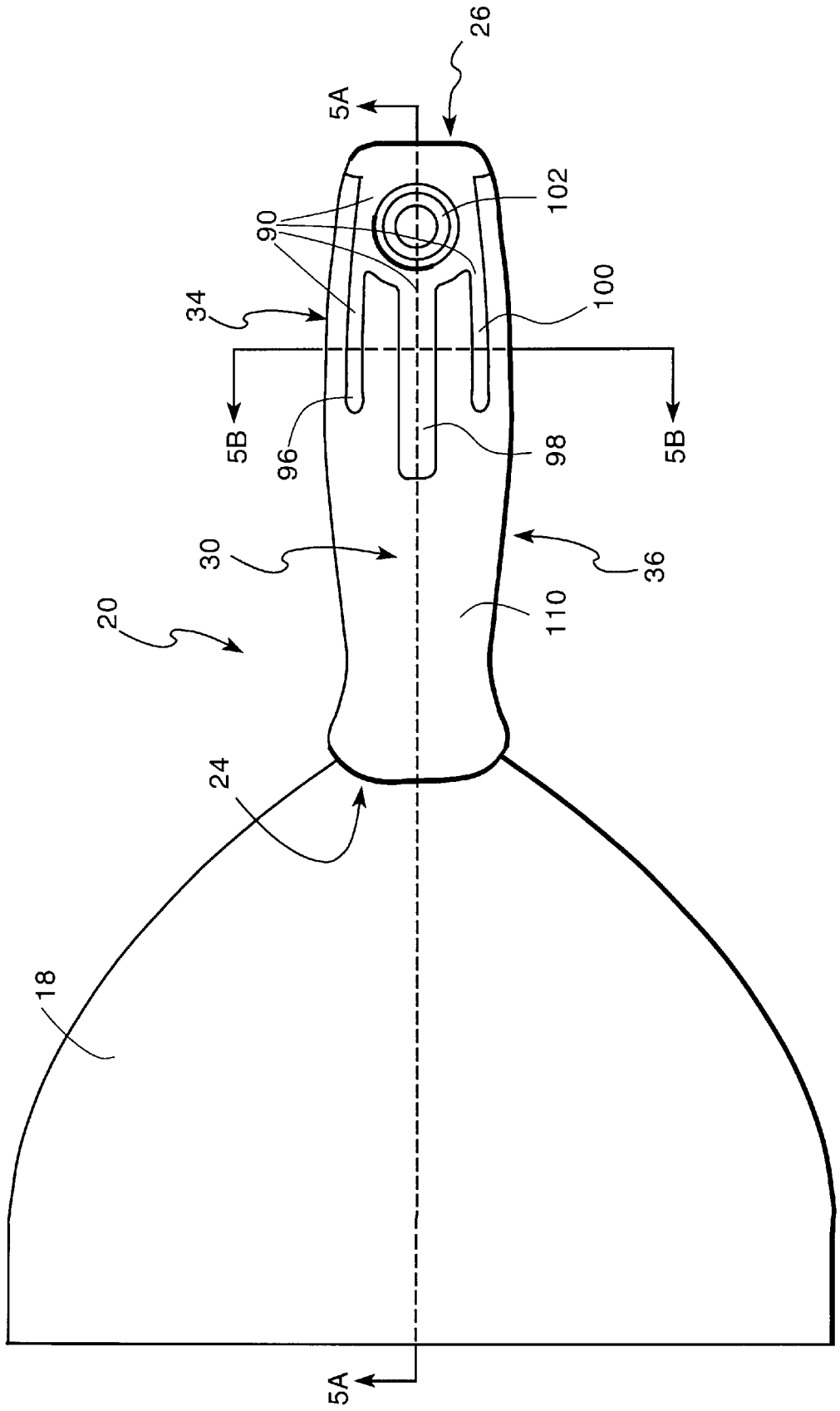


FIGURE 9

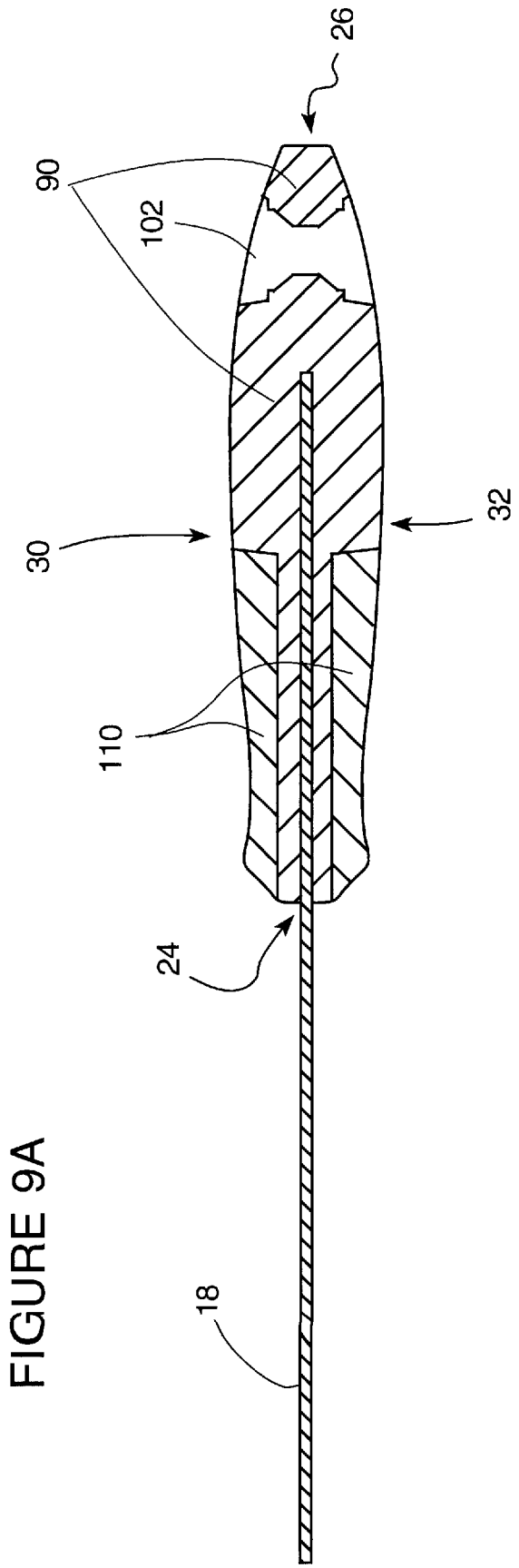


FIGURE 9A

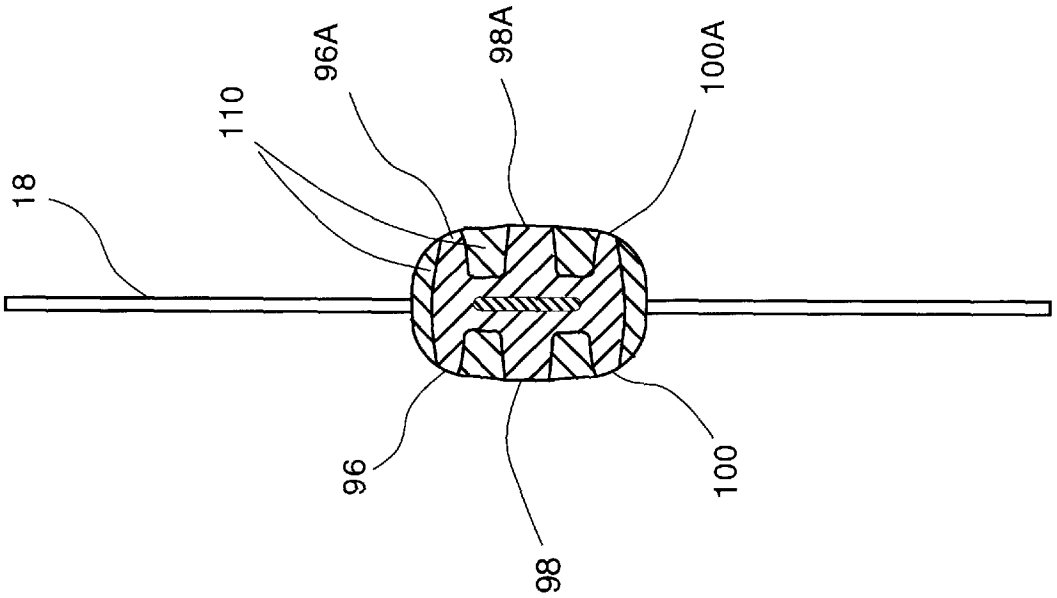


FIGURE 9B

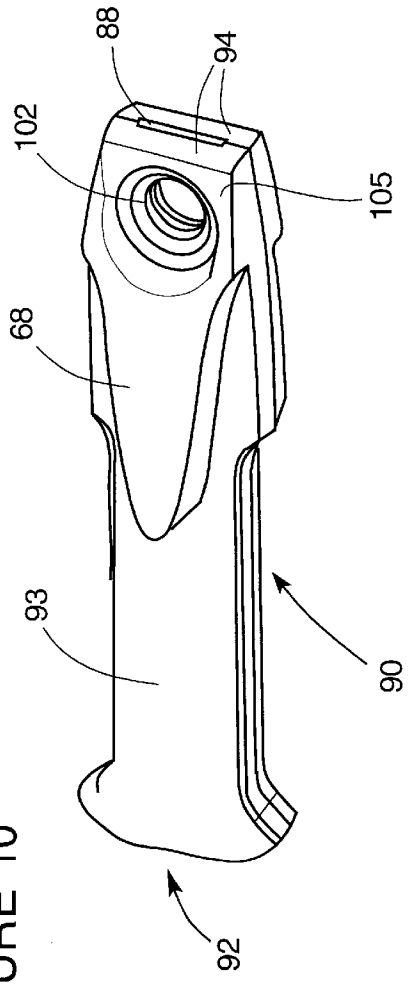


FIGURE 10

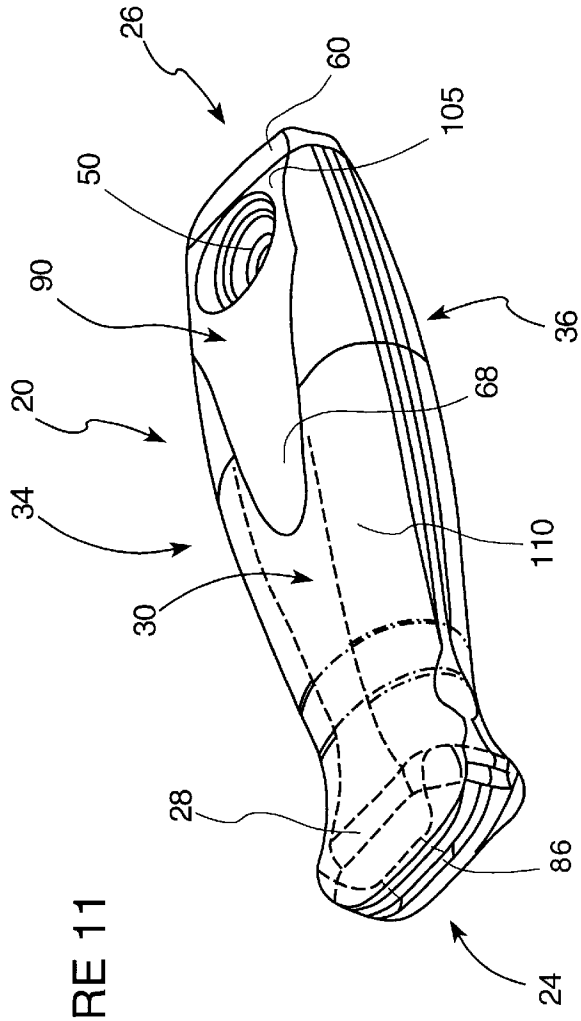


FIGURE 11

PUTTY KNIFE AND SCRAPER HANDLE

FIELD

This invention relates generally to the field of ergonomic handles for putty knives and scrapers incorporating a feature that enhances the insertion and removal of the handle into and from a user's pocket when temporarily storing the tool between usages.

BACKGROUND

Putty knives and scrapers have had a variety of handle types and shapes made from wood, metal or plastic. Some prior art handles have utilized a relatively soft material such as rubber, or a low durometer plastic, overlaid on a hard core (for strength) in order to provide greater hand comfort and gripability. It is also known in the art to vary the shape of the handle for the same reasons. These types of handles can generally be referred to as ergonomic handles. While this art has eased some of the ergonomic and comfort problems inherent in using a tool for many hours, it has not addressed the consideration of inserting and removing the handle of the tool into and from one's pocket, as many user's, especially tradesmen, prefer to do between usages of the tool.

The prior art ergonomic handles have a soft exterior which tends to grip the interior of the user's pocket when being inserted or removed. This is especially a problem when working on ladders and so forth, since there is a need to store the tool when it is not in use. Difficulty in inserting or removing the tool into or from one's pocket can be inconvenient and time-consuming, at the least, or possibly dangerous if the tool handle does not readily slip into or out of one's pocket. Alternatively, the user might decline to put the tool in his/her pocket or other storage are and climb up or down a ladder or platform, and so forth, while still gripping the tool. Thus both hands would not be available to hold onto the ladder or platform.

The soft exterior and ergonomic designs of the prior art do not adequately address the insertion and removal of the tool into or from the pocket.

Applicant is unaware of any prior putty knife and/or scraper art embodying the combined design goals of user comfort, ergonomics and the ability to readily slide the handle into and out of the user's pocket for temporary storage between usages. For the foregoing reasons, there is a need for a putty knife and scraper as described herein.

SUMMARY

In view of the disadvantages inherent in the previously described art, there is a need for a handle that satisfies the combined challenges of comfort, ergonomics and the ease of insertion and removal from a user's pocket.

A first object of this invention is to provide a handle that is ergonomically superior to the prior art.

A second object is to provide a comfortable handle

A third object of this invention is to provide a handle that can be easily and conveniently inserted and removed from a user's pocket.

Another object of this invention is to provide a handle that is comfortable and efficient to use for extended periods of time.

An additional object of one embodiment of this invention is to provide a handle that can be used to tap nails, boards, and so forth.

A further object of this invention is to provide a handle that can be manufactured in a cost effective manner.

These objects together along with various features of novelty which characterize this invention, are pointed out with particularity in the claims annexed thereto in forming a part of this disclosure. For a better understanding of this invention, its operating advantages and the specific objects obtained by its usages, reference should be made to the accompanying drawings and descriptive matter in which there is illustrated a preferred embodiment.

BRIEF DESCRIPTION OF DRAWINGS

FIG. **1** shows a top rear perspective view of one embodiment of the putty knife and scraper handle with a scraper blade attached.

FIG. **2** shows a bottom front perspective view of one embodiment of the putty knife and scraper handle with a scraper blade attached.

FIG. **3** shows a tail end view of one embodiment of the putty knife and scraper handle with a scraper blade attached.

FIG. **4** shows a side view of one embodiment of the putty knife and scraper handle with a scraper blade attached.

FIG. **5** shows a top view of one embodiment of the putty knife and scraper handle with a scraper blade attached with section lines A—A and B—B.

FIG. **5**A shows a sectional view along **5**A—**5**A in FIG. **5** of one embodiment of the putty knife and scraper handle with scraper blade attached.

FIG. **5**B shows a sectional view along **5**B—**5**B in FIG. **5** of one embodiment of the putty knife and scraper handle with a scraper blade attached.

FIG. **6** shows a second end top rear perspective view of one embodiment of the core.

FIG. **6**A shows a first end top front perspective view of one embodiment of the core.

FIG. **6**B shows a second end bottom rear perspective view of one embodiment of the core.

FIG. **7** shows a perspective view of one embodiment of the grommet.

FIG. **8** shows a front perspective view of one embodiment of the tapping bumper.

FIG. **8**A shows a rear perspective view of one embodiment of the tapping bumper.

FIG. **9** shows a top view of an alternative embodiment of the putty knife and scraper handle not having the bumper or tapping end as a separate component.

FIG. **9**A shows cross section **5**A—**5**A from FIG. **9**.

FIG. **9**B shows cross section **5**B—**5**B from FIG. **9**.

FIG. **10** shows a side perspective view of another embodiment of the inner core showing one embodiment of an upright.

FIG. **11** shows a blade end perspective view of the handle with the upright exposed on the top surface.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings in detail wherein like elements are indicated by like numerals, there is shown in FIG. **1** a handle **20** having a blade end **24** and a tail end **26**.

The handle **20** varies in cross section along a longitudinal axis X—X, FIGS. **1**,**2**,**4** and **5**, from a smaller size at the tail end **26**, increasing in size near a midway point between the tail end **26** and the blade end **24** and reducing in size again near the blade end **24** terminating in an increased cross sectional area thumb rest **28**, best seen in FIGS. **1**,**2**,**4** & **5**.

The increase and decrease in the size of the handle **20** along the longitudinal axis X—X is designed to enhance grippability, comfort and efficiency when employing putty knives and scrapers for their intended purposes.

One embodiment of handle **20** is a four part assembly, having a harder plastic inner core **90**, best seen in FIGS. **6**, **6**A & **6**B; a softer plastic overlay **110**, as seen in FIGS. **1**,**2**,**3**,**4**,**5**; a grommet **50**, FIG. **7**; and a bumper **60**, FIGS. **8** & **8**A. The inner core **90**, in a preferred embodiment, is molded from polypropylene but other embodiments could utilize various other plastics or rubbers.

The inner core **90** has a first end **92** with a blade slot **86** for engagement with the blade **18** and a second end **94** incorporating slot **88** for engagement with the bumper **60**, FIG. **6**, **5**A & **6**B. The inner core **90** also includes support platform **93** that connects first end **92** to second end **94**, and from which protrude the tops and bottoms of raised first, second and third longitudinal ribs **96** & **96**A, **98** & **98**A and **100** & **100**A, respectively, as well as support structure **105** for grommet **50** and bumper **60**; the support structure **105** incorporating hang hole **102** to receive grommet **50**. The hang hole **102** can be used alone to hang-up the handle **20** in embodiments not utilizing bumper **60** and grommet **50**, FIG. **9**, **9**A.

The longitudinal ribs **96**, **96**A are arranged such that rib **96** extends from one side of the support platform **93** and rib **96**A extends from the other side of support platform **93** in a corresponding mirror position. This embodiment has three ribs **96**, **98**, & **100** extending from one side of support platform **93** and corresponding ribs **96**A, **98**A, & **100**A extending form the other side of support platform **93** in a mirror image location from ribs **96**, **98**, & **100**, FIGS. **5**, **6**–**6**B.

The exposed portions of the top and bottom longitudinal ribs **96** & **96**A, **98** & **98**A and **100** & **100**A, as well as the top and bottom surfaces of the support structure **105**, form a portion of handle **20** top and bottom surfaces **30** and **32**, respectively. The exposed portions of overlay **110** constitute the remaining, larger portion of the top and bottom surfaces **30** and **32**, as well as the entirety of right and left sides **34**, **36** of the handle **20**, as best seen in FIGS. **5**, **5**A and **5**B.

The inner core **90** is encased by the overlay **110** except for the longitudinal ribs **96**, **96**A, **98**, **98**A, **100** & **100**A, the support structure **105**, second end **94** and first end **92**, specifically an area circumscribing the blade slot **86**, FIGS. **1**,**2**,**6**,**6**A & **6**B.

The longitudinal ribs **96** & **96**A, **98** & **98**A and **100** & **100**A, preferably rise slightly above the adjoining surfaces of the overlay **110** by approximately a range of 0.010–0.030 inches and preferably 0.020 inches, best seen in FIG. **5**B. Thus establishing predominant contact with the inner surfaces of the user's pocket (not shown) whenever the user inserts the handle **20** into his or her pocket for the temporary storage of a tool incorporating handle **20**. The greater friction resulting from contact with the softer overlay **110** is, therefore, mitigated, reducing the "drag" that would have otherwise occurred if overlay **110** were flush with the exposed ribs **96** & **96**A, **98** & **98**A and **100** & **100**A of the harder, more slippery inner core **90**. The inner core **90** configuration and material properties result in a much easier and safer pocket insertion and removal of the preferred embodiment of the handle **20** than a handle **20** covered entirely with the softer overlay **110** (not shown).

FIG. **5**B shows a cross sectional view of the longitudinal ribs **96**, **96**A, **98**, **98**A, **100**, **100**A and the overlay **110** in between. The overlay **110** forms a concave surface between the ribs where the edges of the overlay **110** are at the same height as the ribs **96**, **96**A, **98**, **98**A, **100**, **100**A. This provides a smooth contact surface, or no sharp edges, for a user's hand in gripping the handle **20**.

The three exposed longitudinal ribs **96** & **96**A, **98** & **98**A and **100** & **100**A of inner core **90** originate from support structure **105** and extend toward blade end **24**; being arranged in approximate parallel alignment on both top and bottom surfaces **30** and **32**, respectively. First ribs **96** & **96**A and third ribs **100** & **100**A are positioned near right and left sides **34**, **36**, respectively; with ribs **98** & **98**A centrally located in between, as seen in FIGS. **1**,**2**,**5**.

The longitudinal ribs could number between one and five on both top and bottom surfaces **30** and **32**, respectively; three ribs **96**, **96**A, **98**, **98**A, **100**, **100**A, as shown in the preferred embodiment, being the optimal. Furthermore, various rib lengths and widths are feasible, but in a preferred embodiment the length, in aggregate, should extend between one-quarter and one-half the length of handle **20**, while the width spanning, in aggregate, between one-quarter and three-quarters of the width of handle **20**.

While the preferred embodiment discloses a range for the width in aggregate between one-quarter and three quarters, widths outside of this range may also be acceptable. Where one preferred embodiment discloses at least one rib on the top **30** and bottom **32** surfaces of the handle **20**, other configurations of exposed core **90** could be utilized such as oblong, uprights, oval, teardrop, circular and other exposed symmetric and irregular areas. These examples are meant to be descriptive and not limiting. The upright **68** could be in any of the configurations as expressed above so long as a portion of the upright **68** was exposed on the top and bottom surfaces **30**, **32** of the handle **20**, FIGS. **10** & **11**.

The areas of exposed core **90** would be longitudinally oriented and extend from near the second end **94** towards the first end **92** creating a portion of the handle **20** top surface **30** and bottom surface **32** in approximately the area of the tail end **26** half of the handle **20**. A feasible area of coverage of the top surface **30** and bottom surface **32** by the upright **68** would be between approximately 25–90% of the surface area. This could easily be accomplished by modifying the tooling used to manufacture inner core **90**.

The inner core **90** is injection molded from polypropylene having a range of approximately 75–105 Shore A Durometer hardness and preferably approximately 90 Shore A Durometer hardness.

The second part of the handle **20** is the overlay **110**, which is injection molded over and affixed to the inner core **90** without the need for adhesives or mechanical fasteners. The overlay **110** is a styrenic thermoplastic with a range of approximately 45–75 Shore A Durometer hardness and preferably approximately 60 shore A Durometer hardness, the overlay **110** covering most of the inner core **90** except the specific areas previously noted. Other embodiments of the overlay **110** could utilize a wide range of plastics or rubbers.

This embodiment of the handle **20** is also comfortable to hold in a user's hand. The fingers and thumb of a user's hand (not shown) grip predominantly the softer overlay **110** material which is compressible, enhancing grippability while minimizing fatigue in extended use. The varying contour of handle **20** along longitudinal axis X-X also contributes to the comfort, safety and efficiency of the user when employing a tool incorporating handle **20**.

The preferred embodiment of handle **20** includes a cylindrical metal grommet **50**, FIG. **8**. The grommet **50** consists of first flare **52**, cylindrical portion **56** and second flare **54**.

The grommet **50**, which may be plated, extends from near the top surface **30**, FIG. **1**,**3**,**4** & **5**A, of handle **20** to near the bottom surface **32**, FIGS. **2**,**3**,**4** & **5**A, on the opposite side. Grommet **50** can be used to hang the handle **20** from, for instance, a nail or rod, (not shown). Non-metal materials such as polymers may also be used for grommet **50**.

The preferred embodiment of this invention also incorporates a metal bumper **60**, FIGS. **8** & **8**A, at the tail end **26**, FIG. **4**. The bumper **60** includes a tapping head **66**, tang **62** and tang hole **64**, FIGS. **8** & **8**A. Tang **62** is inserted in slot **88** at second end **94** of inner core **90**, the tang **62** is retained by cylindrical portion **56** of grommet **50** which is installed in said tang hole **64** upon assembly, FIG. **5**A. The bumper **60** can be used for tapping-down protruding nail heads (not shown) that may be encountered on the working surface while utilizing a tool having the handle **20**, or the bumper **60** may be employed for other tapping functions. The bumper **60** in a preferred embodiment is made from cast zinc and plated. It is tapered so as not to inhibit the insertion and removal of the handle from the user's pocket. Other non-metal materials such as polymers could be used for the bumper **60**.

This embodiment of the handle **20** shows an attachment to a scraping blade **18**, FIGS. **1** & **2**. It is to be understood that this in no way limits the use of this handle to blades configured like blade **18**. This handle **20** can also be used on a wide variety of putty knife blades and various other sizes of scraping blades similar in function to the one shown.

The manufacture and assembly of handle **20** is achieved by first injection molding the polypropylene inner core **90**. Inner core **90** is then placed into another mold where the styrenic thermoplastic overlay **110** is injection molded over it.

Next, bumper **60** and grommet **50** are assembled. Tang **62** on bumper **60** is inserted into slot **88** of inner core **90**. The grommet **50**, which has one end previously flared, is inserted in hang hole **102** in inner core **90**, passing also through tang hole **64** in tang **62**. The other, previously cylindrical end of grommet **50** is then flared by a typical flaring process. This retains both grommet **50** and bumper **60** in inner core **90**, and thus, also in handle **20**.

The tang **19** of blade **18** is next heated and inserted under pressure into blade slot **86** of the inner core **90**, the blade slot **86** forms a "press-fit" with the tang **19** of blade **18**. This completes the full assembly of handle **20** and blade **18**.

While the preferred embodiment of this invention incorporates both a grommet **50** and a bumper **60**, alternative embodiments could be manufactured with just a grommet **50**, just a bumper **60** or neither of these components. Alternative embodiments of handle **20** without grommet **50** and/or bumper **60** would necessitate a mold for inner core **90** with modified design that would replace the space previously occupied by these components with the material of inner core **90**. An embodiment of handle **20**, with the bumper **60** omitted, is shown in FIGS. **9**, **9**A & **9**B. In this embodiment, the inner core **90** has been extended to occupy the space previously occupied by bumper **60**. This embodiment would be less suitable for tapping down nails, but would cost less to manufacture, thus offering the trade a lower cost alternative.

It will now be apparent to those skilled in the art that other embodiments, improvements, details and uses can be made consistent with the letter and spirit of the foregoing disclosure and within the scope of this patent, which is limited only by the following claims, construed in accordance with patent law, including the doctrine of equivalents.

We claim:

1. A putty knife and scraper handle comprising:

a molded inner core for strength and stiffness having higher hardness than a surrounding overlay, the inner core having a first end and a second end interconnected by a support platform, a blade slot in the first end for engagement with a blade tang, at least one longitudinal rib protruding from opposite sides of the support platform and exposed on a top surface and a bottom surface of the handle, the ribs extending from near the second end towards the first end, where the ribs facilitate the insertion and withdrawal of the handle into and from a users pocket; and

the overlay having lesser hardness than the inner core and molded over a portion of the inner core for primary engagement with a user's hand for the purpose of user comfort, safety and efficiency while using a tool employing the handle, the overlay completing the top and bottom surfaces of the handle, the handle having a blade end and a tail end.

2. The putty knife and scraper handle of claim **1**, in which:

the overlay located between multiple ribs on the top and bottom surfaces is concave, having a maximum depth ranging between 0.010 and 0.030 inches, further facilitating the insertion and removal of the handle into and from a user's pocket.

3. The putty knife and scraper handle of claim **1**, in which:

the inner core has a hardness in the range of approximately 80–105 Shore A Durometer.

4. The putty knife and scraper handle of claim **1**, in which:

the overlay has a hardness in the range of approximately 45–70 Shore A Durometer.

5. The putty knife and scraper handle of claim **1**, further comprising:

the inner core near its second end having a hang hole extending from the top surface to the bottom surface for hanging-up a tool incorporating the handle.

6. The putty knife and scraper handle of claim **5**, further comprising:

the inner core exposed at the tail end and having a tang slot for receiving a tang of a bumper;

the bumper having the tang containing a tang hole, the tang inserted into the tang slot; and

a grommet for insertion through both the hang hole and the tang hole for attaching the bumper to the inner core.

7. The putty knife and scraper handle of claim **1**, in which:

the longitudinal ribs are exposed on the top and bottom surfaces over an accumulative area that spans approximately 25%–75% of the width of the handle and approximately 25%–50% of the length of the handle.

8. A putty knife and scraper handle comprising:

a molded inner core for strength and stiffness having higher hardness than a surrounding overlay, the inner core having a first end and a second end interconnected by a support platform, a blade slot in the first end and a hang hole passing through the inner core near the second end, at least one longitudinal rib protruding from opposite sides of the support platform and exposed on a top surface and a bottom surface of the handle, the ribs extending from near the second end towards the first end, where the ribs facilitate the insertion and withdrawal of the handle into and from a users pocket;

the overlay of lesser hardness than the inner core and molded over a portion of the inner core forming a

contiguous handle having the top surface and the bottom surface, a left side and right side, a blade end and a tail end, the overlay engaging the inner core such that the first end and second end are exposed at the blade end and near the tail end, respectively, the overlay for primary engagement with the user's hand.

9. The putty knife and scraper handle of claim **8**, further comprising:

the tail end, having a tang slot for receiving a tang of a bumper;

the bumper having the tang containing a tang hole, the tang inserted into the tang slot; and

a grommet for insertion through both the hang hole and the tang hole for attaching the bumper to the inner core.

10. The putty knife and scraper handle of claim **8** in which:

the overlay located between multiple ribs on the top and bottom surfaces is concave, having a maximum depth ranging between 0.010 and 0.030 inches, further facilitating the insertion and withdrawal of the handle into and from a user's pocket.

11. The putty knife and scraper handle of claim **8**, in which:

the inner core has a hardness in the range of approximately 80–105 Shore A Durometer.

12. The putty knife and scraper handle of claim **8**, in which:

the overlay has a hardness in the range of approximately 45–70 Shore A Durometer.

13. The putty knife and scraper handle of claim **8**, in which:

the longitudinal ribs are exposed on the top and bottom surfaces over an accumulative area that spans approximately 25%–75% of the width of the handle and approximately 25%–50% of the length of the handle.

14. The putty knife and scraper handle of claim **8**, in which:

three longitudinal ribs are exposed on the top surface and three corresponding longitudinal ribs are exposed on the bottom surface.

15. A putty knife and scraper handle comprising:

a molded inner core for strength and stiffness having higher hardness than a surrounding overlay, the inner core having a first end and a second end interconnected by a support platform, a blade slot in the first end for engagement with a blade tang, a longitudinally oriented upright protruding from the support platform and extending from near the second end towards the first end, at least a portion of the upright exposed on a top surface of the handle, a corresponding longitudinal upright protruding from an opposite side of the support platform and extending from near the second end towards the first end and exposed on a bottom surface of the handle, the uprights to facilitate insertion and removal of the handle into and from a user's pocket;

the overlay of lesser hardness than the inner core molded over a portion of the inner core, forming a contiguous handle having the top surface and the bottom surface, a left side and a right side, a blade end and a tail end, the overlay engaging the core such that the blade end has exposed inner core for access to the blade slot, the overlay for primary engagement with a user's hand.

16. The putty knife and scraper handle of claim **15**, in which:

the inner core has a hardness in the range of approximately 80–105 Shore A Durometer.

17. The putty knife and scraper handle of claim **15**, in which:

the overlay has a hardness in the range of approximately 45–70 Shore A Durometer.

18. The putty knife and scraper handle of claim **15** in which:

the uprights exposed on the tail end half of the handle top and bottom surfaces account for approximately 25–90% of the total area of that half of the top and bottom surfaces.

19. The putty knife and scraper handle of claim **15**, further comprising:

the inner core near the second end having a hang hole extending from the top surface to the bottom surface for hanging-up a tool incorporating the handle.

20. The putty knife and scraper handle of claim **15**, further comprising:

the inner core exposed at the tail end, having a tang slot for receiving a tang of a bumper; and

the bumper having the tang containing a tang hole, the tang inserted into the tang slot; and

a grommet for insertion through both the hang hole and the tang hole for attaching the bumper to the inner core.

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