Nov. 6, 1923. 1,473,121

W. I. NELSON

PROCESS OF MAKING KNIFE HANDLES

Filed June 23, 1922

Fig. 1.

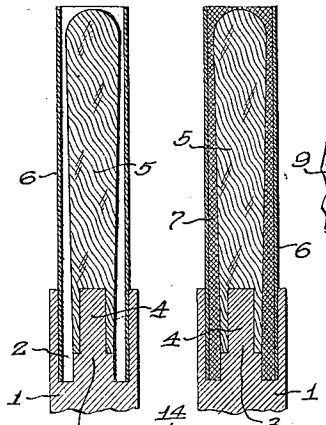


Fig. 2.

Fig. 3.

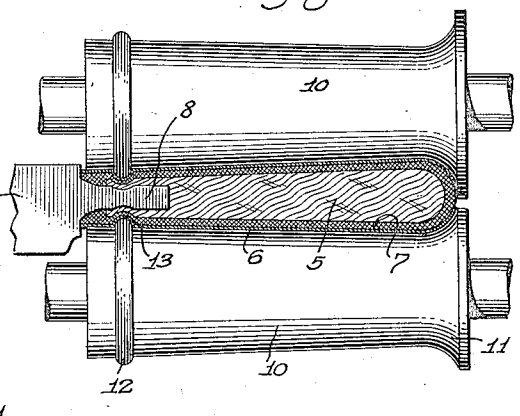


Fig. 4.

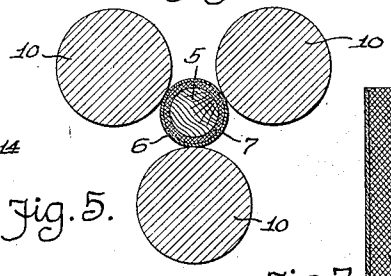


Fig. 5.

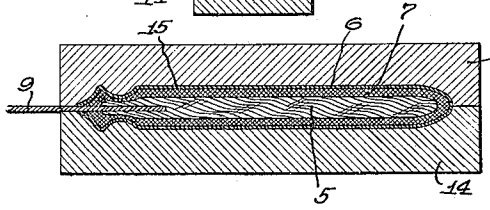


Fig. 6.

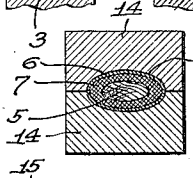


Fig. 7.

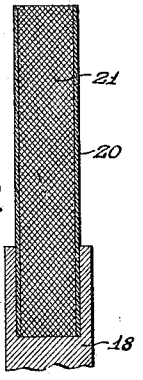
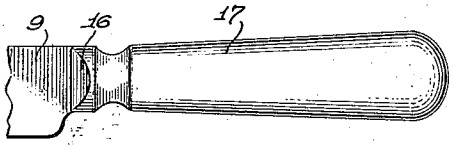


Fig. 12.



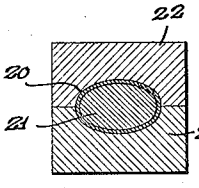


Fig. 8.

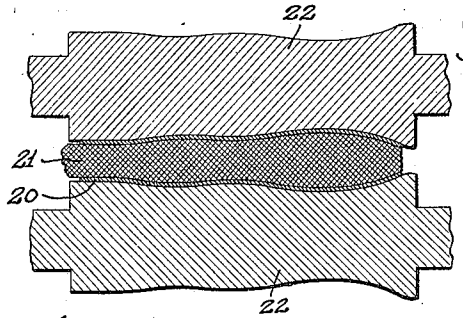


Fig. 9.

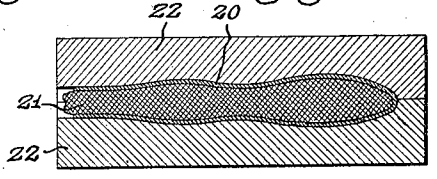


Fig. 10.

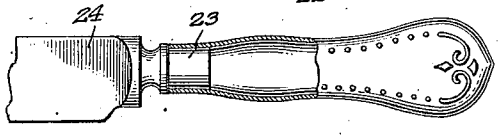


Fig. 11.

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Attorneys

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UNITED STATES PATENT OFFICE.

WILMER I. NELSON, OF WARREN, MICHIGAN.

PROCESS OF MAKING KNIFE HANDLES.

Application filed June 23, 1922. Serial No. 570,451.

To all whom it may concern:

Be it known that I, WILMER I. NELSON, a citizen of the United States of America, residing at Warren, in the county of Macomb and State of Michigan, have invented certain new and useful Improvements in Processes of Making Knife Handles, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to the manufacture of knife handles, especially metallic handles as applied to the blades of case knives.

My invention involves a process of providing the tangs of knife blades with handles that may be expeditiously and economically produced, the handles being susceptible to any desired weight and ornamentation during their manufacture so that a perfectly balanced and properly finished handle may be firmly anchored on the tang of the knife blade.

The process involves, in one instance, the use of a permanent core about which is placed a shell containing malleable metal which anchors the shell relative to the core. This composite structure is then subjected to the action of rolls and then to the action of dies, the result being a compressed composite handle of desired contour. In another instance, a shell may be provided with a temporary core, subjected to the action of rolls and then to the action of dies, and finally the temporary core removed, leaving a hollow handle in which the shank or tang of a blade may be mounted. In either instance, the process involved permits of the handles being formed with bolsters of desired size and configuration which cooperate with the handles in positively anchoring and bracing knife blades.

The process of manufacture permits of various kinds of materials entering into a handle construction and it is possible to finish the handles to eliminate seams and have the same appear as though integral with a knife blade, yet made of a different and less expensive material.

The apparatus necessary for carrying my process into practice will be hereinafter described, together with the various steps of the process, and reference will now be had to the drawing, wherein

Figure 1 is a vertical sectional view of a mold provided with a core and shell prepared for filling;

Fig. 2 is a smiliar view showing a filler having been placed in the shell about the core of the mold;

Fig. 3 is a front elevation of rolls subjecting the filled shell to a rolling action which anchors the core and filler relative to a blade tang or shank;

Fig. 4 is a cross sectional view of the same;

Fig. 5 is a longitudinal sectional view of dies subjecting the rolled handle to pressure for a final configuration;

Fig. 6 is a cross sectional view of the same;

Fig. 7 is a vertical sectional view of a mold having a shell provided with a filler, illustrating a modification of my invention;

Fig. 8 is a longitudinal sectional view of rolls subjecting the filled shell, shown in Fig. 7, for rolling action;

Fig. 9 is a cross sectional view of dies reshaping the filled rolled shell;

Fig. 10 is a longitudinal sectional view of the same;

Fig. 11 is a side elevation of a knife handle, partly broken away and partly in section, as produced by this modification of my invention, and

Fig. 12 is a side elevation of a knife handle as produced by the preferred form of my process illustrated in Figs. 1 to 6 inclusive.

In the drawing the reference numeral 1 denotes a mold provided with an annular cavity 2 leaving a center member 3 which has a stem 4 over which may be fitted the inner end of a core 5, while a cylindrical or tubular shell 6 may be placed in the cavity 2 against the mold 1.

The core 5 may be conveniently made of any soft or compressible material, for instance wood, and said core is substantially cylindrical, preferably tapered inwardly from its outer end to its inner end, the outer end being rounded and terminating slightly below the plane of the outer edges of the shell 6. The shell 6 may be made of any malleable metal, and I may use soft brass, German silver, thin aluminum or an alloy that may be finished to approach the finish of silver or nickel plate.

The shell 6 about the core 5 provides a cavity into which the filler 7 may be poured

or otherwise placed and this filler is practically made of soft metal, as lead which will form a lining for the shell 6 and permit of the desired contour or configuration being imparted to the shell 6 for a complete article.

When the mold 1 is removed the stem 4 of the mold has left a cavity or recess in the inner end of the core 5 in which the flat or irregularly shaped tang or shank 8 of a knife blade 9 may be placed. The embryo handle is now ready to be shaped towards its final finish and the first operation on the embryo handle takes place between a plurality of driven rolls 10 having bell ends 11 and peripheral beads or collars 12. When the embryo handle is placed between these rolls and subjected to the pressure or rolling action of said rolls, the inner ends of the core 5, filler 7 and shell 6 are compressed by the peripheral bead or collar 12 of the rolls 10, causing the core, filler and shell to be provided with an annular indentation, generally designated 13, which engages the tang 8 and anchors said tang relative to the core. The inner end of the filler 7, which protrudes beyond the inner end of the core 5, is shaped about the tang 8 to form an embryo bolster.

The bell ends 11 of the rolls 10 inturn or inwardly ream the outer ends of the filler 7 and the shell 6, and with the bell end of one of said rolls larger than the other bell ends the ends of the filler and the shell may be turned inwardly on the rounded end of the core 5 without the formation of a flash or pronounced seam.

After receiving the rolling illustrated in Figs. 3 and 4 the next step is subjecting the partially formed handle to the action of dies 14 having the confronting faces thereof provided with molding recesses 15 adapted to impart a cross sectional oval shape to the handle and form the bolster therefor at the juncture of the blade 9 and its tang 8. With the handle placed between the dies 14 sufficient pressure is brought to bear on one or both of the dies to compress the core 5, the filler 7 and shape the shell 6, as best shown in Figs. 5 and 6, and as a result of this operation, a bolster 16 and the handle 17 are formed. By reference to Fig. 5 it will be noted that the inner end of the filler 7 is crowded about the inner end of the core 5 and on to the inner end of the blade 9 and the bolster shell engages said blade and completes the juncture of the handle with the blade.

As set forth in the beginning, I may resort to a modification of this process, which consists in providing a mold 18 with a cavity 19 to receive a shell 20 and a filler 21. In this instance, the core is dispensed with and the filler completely fills the shell 20. After the mold 18 is removed the cylindrical embryo handle is subjected to the action of rolls 22 which partly shape the filler and its shell. From the rolls the partially formed handle is placed between dies 22 which closes the outer end of the shell about the outer end of the filler. This filler being of soft metal may be removed by subjecting the handle to heat, the filler being melted, flowing out of the shell and leaving a hollow handle, in the inner end of which may be fitted and secured the tang 23 of a blade 24.

In either instance, the mold recesses of the dies may have a contour or configuration that will impart a desired finish to the handle shell, for instance ornamentation as shown in Fig. 11, and it is obvious that the handles produced in accordance with my invention may be mounted on or attached to forks, tools, instruments, various hand articles, and that handles may be finished according to the grade of the article to be produced.

I do not care to confine my invention to the specific form of rolls and dies, to the manner of operating such instrumentalities, to the materials that may enter into the handle, and such other changes as are permissible by the appended claims may be resorted to without departing from the spirit of the invention.

What I claim is:—

1. A process of making a knife handle and attaching it to a knife blade, consisting of forming an embryo handle from a permanent core, filler and shell; inserting a blade tang in one end of the core; subjecting the core, filler and shell to the action of rolls to close the filler and shell about the permanent core and form an embryo bolster contiguous to the blade tang; and then subjecting the rolled core, filler and shell to the action of dies to mold and set the handle relative to the knife blade.

2. A process of making a knife handle and attaching it to a knife blade, as set forth in claim 1, wherein the dies impart a cross sectional oval shape to the handle and complete the formation of the bolster.

3. A process of making a knife handle and attaching it to a knife blade, consisting of placing a core in a shell, placing a filler between the core and shell with the filler inclosing the outer end of the core; mounting a knife tang in the inner end of the core; and then subjecting the core, filler and shell to pressure to form a bolster about the knife tang.

4. The process set forth in claim 3, wherein the pressure first forms an embryo handle and bolster with a permanent core and then completes the handle and bolster.

5. A process of making a knife handle and attaching it to a knife blade, consisting of mounting a shell about a permanent core, the shell being greater in length

than the core; mounting the inner end of the core on a blade tang; and then applying pressure to the shell to compress the core on the blade tang and the shell about the blade to form a bolster.

6. A process of making a knife handle and attaching it to a knife blade, as set forth in claim 5, wherein a compressible material is interposed between said core and shell and forms the greater part of the bolster.

In testimony whereof I affix my signature in presence of two witnesses.

WILMER I. NELSON.

Witnesses:
KARL H. BUTLER,
G. E. MCGRANN.