

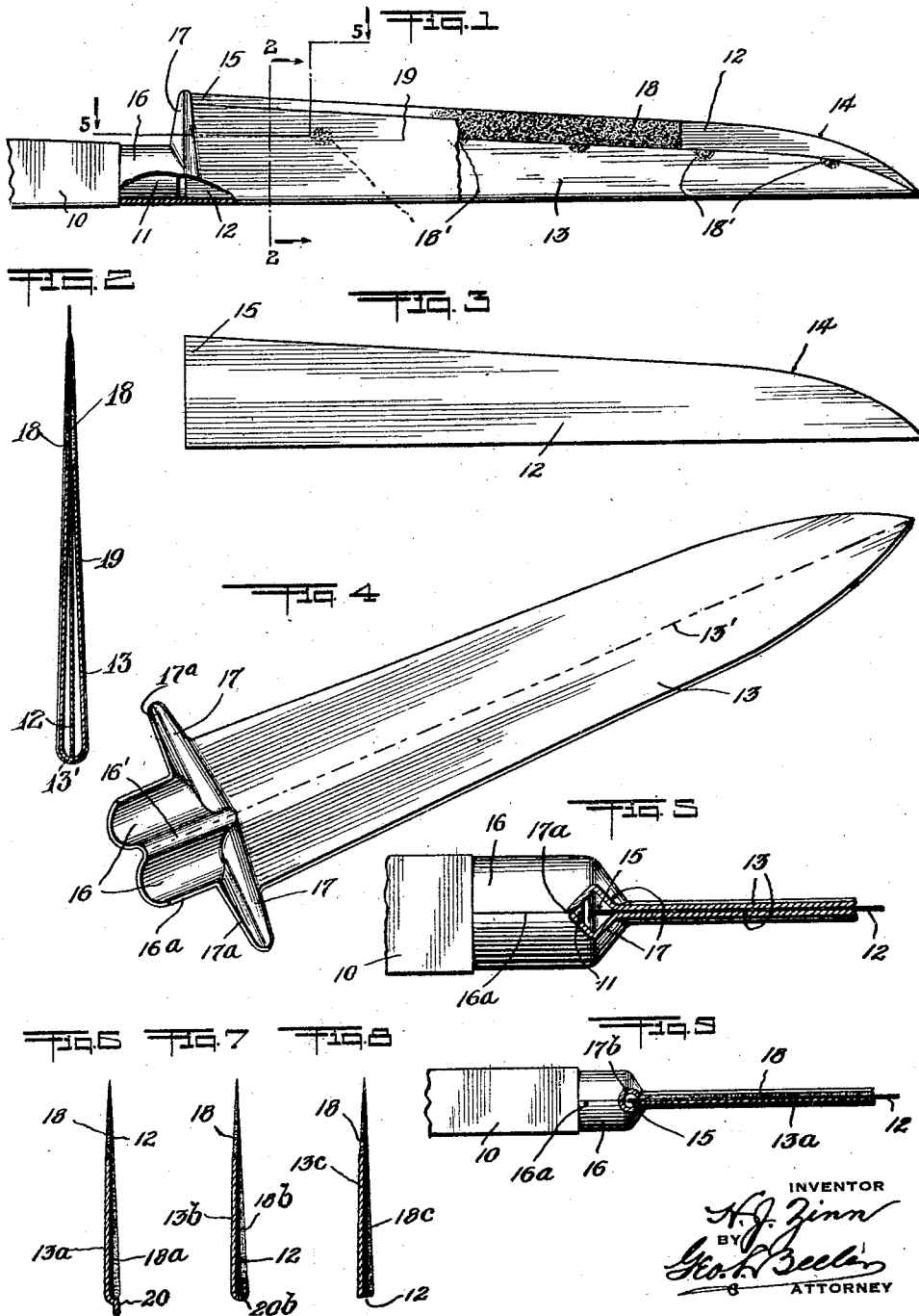
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KNIFE CONSTRUCTION

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KNIFE CONSTRUCTION.

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To all whom it may concern:

Be it known that I, HENRY J. ZINN, a citizen of the United States, residing at Forty Fort, Kingston, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Knife Constructions, of which the following is a specification.

This invention relates to cutlery and has particular reference to the construction of composite knives or the like of the general nature constituting the subject matter of Letters Patent of the United States No. 1,414,997 issued to me on the 2nd day of May, 1922, and in which the blade or main cutting element of the device is composed of a central core of thin sheet metal of high grade cutting quality, such as steel, and formed from a single sheet or the like of uniform thickness throughout and reinforced in the finished blade by suitable stiffening or reinforcing means.

Among the objects of the present improvement is to simplify and improve the composite knife blade construction with respect to cheapness of materials, facility of assembly, and also superior finish.

More specifically, my improved knife construction embodies in its blade portion a novel form of sheath stamped or otherwise formed rigidly and cheaply from sheet material such as a relatively cheap quality of steel or its equivalent and so formed as to provide a pocket or seat for the thin core or wafer above referred to and constituting the direct cutting portion of the blade. A further object of the invention is to provide a novel knife blade construction in which there is provided a thin core or wafer, constituting the widest portion of the blade, and reinforced by a stiffening member of less width than the core, the stiffening member being secured to the wafer by peculiar means and including spur or guard means to protect the heel or otherwise exposed corner of the wafer adjacent to the handle, so as not only to reinforce such corner portion, but also to serve as a guard or protector for the person using the knife.

With the foregoing and other objects in view the invention consists in the arrangement and combination of parts hereinafter described and claimed, and while the invention is not restricted to the exact details of construction disclosed or suggested herein, still for the purpose of illustrating a prac-

tical embodiment thereof reference is had to the accompanying drawings, in which like reference characters designate the same parts in the several views, and in which—

Figure 1 is a fragmentary side elevation of a preferred embodiment of the improved knife, parts being in section and different portions of the blade being shown to show the manner of construction or composition thereof.

Fig. 2 is a vertical transverse sectional detail on the line 2—2 of Fig. 1 and on a larger scale.

Fig. 3 is a plan view of the blade core or wafer.

Fig. 4 is a perspective view of the sheath, the main blade portion thereof being flat while the shank portion thereof is shown as in the first stage of formation from a flat blank.

Fig. 5 is a partial plan and partial longitudinal section of the structure of Fig. 1 and on the line 5—5 thereof, but on a larger scale.

Figs. 6, 7, and 8 are transverse sectional details of modified constructions, the views otherwise corresponding to Fig. 2 in nature.

Fig. 9 is a longitudinal section corresponding to Fig. 5 but showing the guard arrangement as pertaining to the forms of the device shown in Figs. 6, 7, and 8.

Referring now more specifically to the drawings I show my knife as comprising a handle 10 of any suitable composition or material made of any suitable design but shown as square in cross section and having a rounded or cylindrical neck 11 integral with the main portion of the handle.

As above premised the blade is of composite nature and comprises two main portions,—a core or wafer 12 and a sheath 13. Without intending to be limited unnecessarily to matters of form or design in this specification, I indicate the blade as of the straight back type and with a curved point portion 14 along its cutting edge and having a substantially right angular heel or corner portion 15 adjacent to the handle. This core is made of high grade material such as tool steel and very thin in proportion to the other parts of the construction. By way of illustration of a practical butcher knife or carving knife which I am now making successfully, the thickness of the wafer may be about .007 of an inch, or it may be more or less as desired.

The sheath 13, as shown in Fig. 4, is preferably stamped as one integral piece from flat sheet metal of heavier gage than the wafer and preferably of a cheaper grade.

5 The first operation following or including the stamping out action produces the form shown in Fig. 4 in which the blade portion of the sheath is flat and is provided with symmetrical curvatures on opposite sides of the longitudinal center line 13' around which the two parts are bent or folded during the next operation. The handle or shank portion of the sheath comprises two semi-cylindrical thimble members. 16 integral with each other along the center line 16' which coincides with the aforesaid bending line 13', which center or bending lines constitute the back line of the finished blade. The sheath includes also as integral parts with the web portions of the sheath and the thimble portions 16, a pair of horns or guards 17 which in the blank extend at right angles from the web portions and in opposite directions from the center line 16' and which when the sheath is folded into finished position or form coincide with each other forming a tubular guard, plainly shown in Figs. 1 and 5 within which the handle end of the wafer and the angular heel corner 15 are housed and guarded. While these horn members so coincide with each other the two faces of the thimble 16 are brought together and are joined along the line 16^a opposite the bending or center line 16'. The joints at 16^a and 17^a of the guards 17 may be soldered, welded, or otherwise rigidly united if desired to stiffen the construction. The length of the web or flat portion of the sheath coincides with the length of the wafer 12, the point portions of both of these members registering at the point of the knife, and the heel end lying substantially in the center guard structure 17. The width of the two web or flat portions of the sheath are bent close toward each other and with their free edges registering throughout the entire length of the sheath. The rib or back central portion of the sheath may be of any suitable radius desired according to the finished thickness of the entire blade. Usually I form this rib portion 13' of sufficient diameter to afford greater thickness than there is observed between the remote or edge portions of the web members. Since the sheath material is of uniform thickness for simplicity and cheapness of construction, there may therefore be observed a hollow center for the back of the knife blade and across which the wafer projects. The wafer and sheath may be secured together as a substantially integral construction by any suitable means such, for instance, as spot welding at 18' at various intervals along the length of the blade. This insures strength and rigidity

in the direction of the plane of the wafer while the sheath itself insures ample strength and rigidity in directions transverse to said plane even though a substantial portion of the cutting edge of the wafer projects beyond and free from the sheath. The length of the guards 17 with respect to the bending line 16' corresponds substantially to the width of the wafer where it is embraced by the guards, thus preventing the exposure of this portion of the blade wafer, making it impossible for it to be bent or broken or for it to endanger the operator's hands while the knife is being manipulated.

For some purposes, the sheath and wafer formed and assembled as above described may constitute a suitable knife blade, but for the usual purposes as for domestic use or the like, it is preferred that the shoulders or offsets incident to the free edges of the sheath webs as they lie against the opposite sides of the wafer should be filled flush, making a smooth and substantially flat side or face for each side of the blade. This filling indicated at 18 may be of any suitable material such as solder, electroplating, or other relatively rigid and reinforcing material but which is of a softer quality than the wafer itself so that even though the filler is carried out close to the cutting edge of the blade it will wear away readily when the cutting edge is applied to a steel, carborundum stick, or other implement of a like nature usually employed for keening a knife edge. Beyond this keening action this knife construction never requires grinding, primarily because of the extreme thinness of the wafer and the softness of the finishing and stiffening material on the side faces thereof.

For the finer grades of my knife output I finish preferably each knife blade with a coating indicated at 19 in a part of Fig. 1, such coating consisting of a plating of gold, silver, or in some instances cheaper materials such as enamel of any suitable tint, color, or composition. This coating may cover substantially the entire back and side surfaces of the blade flush with or closely remote from the extreme cutting edge of the wafer. In all cases the plating itself is sufficiently weaker or softer than the wafer material as to insure that it will be abraded by the sharpening implement coincident with the whetting action already mentioned. The horns or guards 17, in addition to stiffening and reinforcing the heel portion of the blade, serve as a hilt to limit the forward stroke of the blade during the cutting action.

In the form shown the handle neck 11 is inserted into the thimble portion 16 of the sheath where it is fitted snugly and it may be secured in such position by cementing, brazing, soldering, welding, or any other

suitable means, making in any event a strong rigid connection.

In the modifications of Figs. 6 to 9 the wafer 12 is or may be just the same as that described in the first set of figures, the same being from thin high grade cutting material of uniform thickness, but the sheath may be differently formed. In Fig. 6 the sheath 13^a comprises only one web lying against one side of the wafer and having along its back a shoulder 20 of any suitable form in cross section but providing a seat for the back edge of the wafer. Said seat may be filled with a filler 18^a, making a side symmetrical with the side having the web and the latter side is provided preferably with the filler 18 similar to that above described. In Fig. 7 the sheath 13^b is provided along its back or rib with a flange 20^b bent toward the cutting edge of the plate forming a pocket for the back edge of the wafer. Fillers 18 and 18^b are provided as before. In Fig. 8 the sheath may be of simple flat stock 13^c and the wafer will be secured directly against one side thereof, the securing means in all of the forms including preferably spot welding or its equivalent. This figure shows fillers 18 and 18^c on opposite sides, and all these forms may be plated over the entire surfaces for finishing purposes. The guard means in these forms includes a guard member 17^b formed as an integral part of the sheath, and because there is a web on one side only of the cutting portion of the blade this guard member is stamped or cut from the blank sufficiently wider than either of the guard members 17 to be bent entirely around the heel end portion 15 of the wafer. The thimble portion 16 is made preferably the same as first described above.

I claim:

1. The herein described composite cutting blade comprising a thin wafer-like core of high grade material, and a sheath substantially coextensive in length with said core and constituting a reenforcement and stiffening means therefor, a portion of the side of said sheath being spaced from said core and said side contacting said core only at the edge of said side.

2. The herein described cutting blade comprising a thin wafer-like core of high grade material, and a sheath for stiffening the wafer and formed of sheet metal of suitable thickness, said sheath having a rounded back portion against which the edge of the wafer remote from the cutting edge thereof is adapted to bear, a side of said sheath having a portion spaced from said wafer and inclined from said back portion toward said cutting edge.

3. The herein described cutting blade comprising a wafer-like core of thin high grade material requiring no grinding, a sheath of sheet material bent upon itself at

the back of the blade forming a pocket into which the back edge of the core is seated, the sheath comprising a side web inclined toward the front edge of said wafer and lying in contact with one side of the wafer only at the edge of said side remote from said back, and filler means at said side of the wafer to continue the incline from said edge of said side of the sheath toward the front edge of the wafer.

4. The construction as in claim 2 wherein said sheath comprises a wafer heel guard embracing the heel end of the wafer.

5. The construction as in claim 2 wherein fastening means to secure the core and sheath together are located substantially at said edge of said side of the sheath.

6. As an article of manufacture, a knife comprising, in combination, a cutting core of high grade thin sheet material, a reinforcing and stiffening sheath of sheet material bent upon itself to form a pocket for the back edge of the core, the wafer being wider than the bent sheath and projecting therefrom said sheath including guard means embracing the heel end of the wafer and protecting the adjacent corner thereof, and a handle secured to the sheath.

7. A cutting device as set forth in claim 6 in which the sheath is formed from sheet metal having two equal symmetrically formed web members bent to coincide with each other on opposite sides of the wafer and also including integral wafer heel guard means and handle connecting means.

8. The herein described composite knife construction including a cutting blade core of thin sheet metal, a sheath of sheet metal bent upon itself into which the back portion of the core is fitted, filler means flush with the edge of the sheath, and a finishing coating for the blade covering the sheath and filler means.

9. A composite knife blade comprising a thin flat cutting core, a sheath of sheet material bent upon itself forming a tubular web and having its edges embracing the sides of the core remote from its cutting edge, the inner back edge portion of the core extending across the tubular space within the sheath and providing a tubular space between it and one side portion of the sheath, and means for firmly uniting the core and sheath as a unitary structure.

10. A composite knife blade comprising a thin flat cutting core, a sheath of sheet material bent upon itself forming a tubular web and having its edges embracing the sides of the core remote from its cutting edge, the inner back edge of the core extending across the tubular space within the sheath, and means for firmly uniting the core and sheath as a unitary structure, said sheath being bent into tubular form midway between its side edges and providing tubu-

lar spaces on both sides of the rear edge portion of the core.

11. A composite knife blade comprising a cutting core and a sheath of sheet material
5 to receive the back portion of said core and bent upon itself to form a web extending along a side of said core, a part of the in-

ner surface of which contacts said core, the outer surface of said web being inclined from the bent portion of the sheath toward
10 the front edge of said core.

In testimony whereof I affix my signature.

HENRY J. ZINN.