United States Patent [19]

Van Zyl

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[54] **ARTICLES OF CUTLERY, PAINT SCRAPER AND THE LIKE**

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[30] **Foreign Application Priority Data**

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[52] **U.S. Cl.** **30/140**
[51] **Int. Cl.** **B26b 9/02**
[58] **Field of Search** 30/140, 348

[56] **References Cited**

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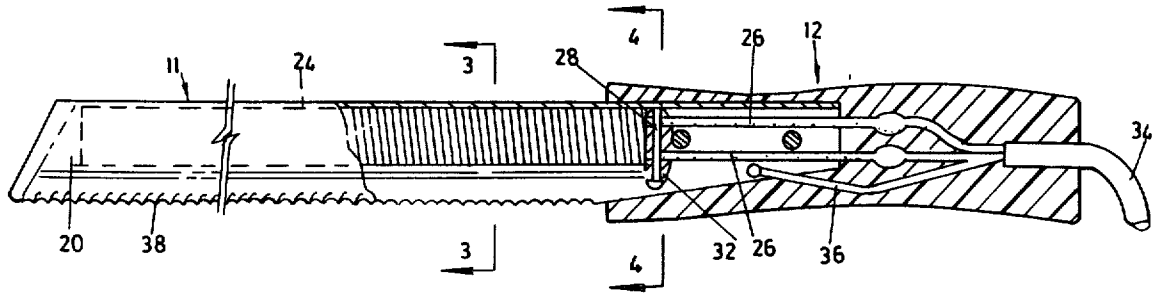
[57] **ABSTRACT**

This invention provides a knife, paint scraper or the like having a hollow blade within which is contained an electrical element. The element heats the blade in use so that the blade can more easily cut through for example frozen foods or can more easily remove paint from a painted surface as the case may be.

3 Claims, 9 Drawing Figures



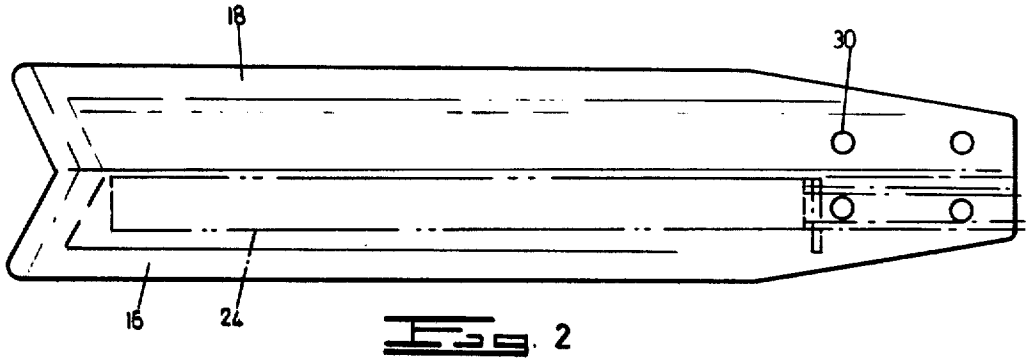


Fig. 2

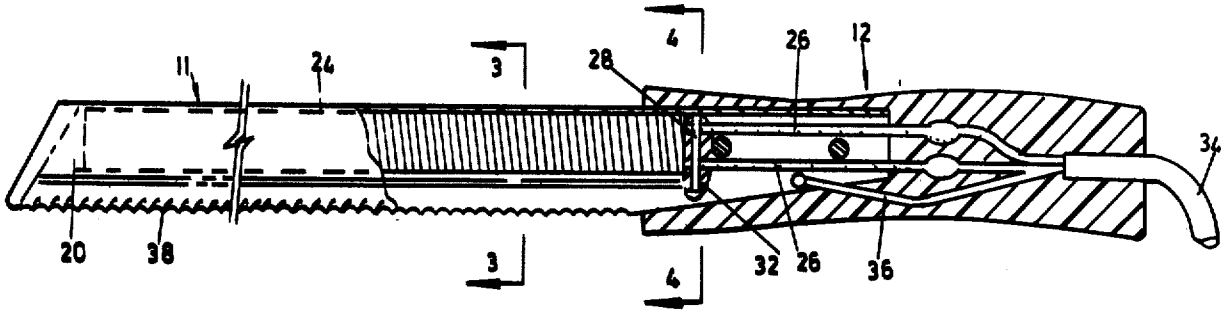


Fig. 1

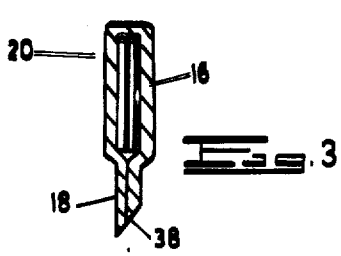


Fig. 3

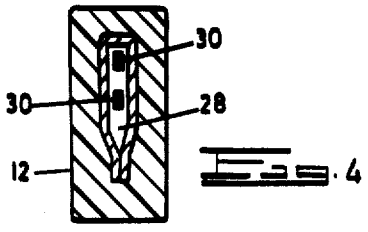


Fig. 4

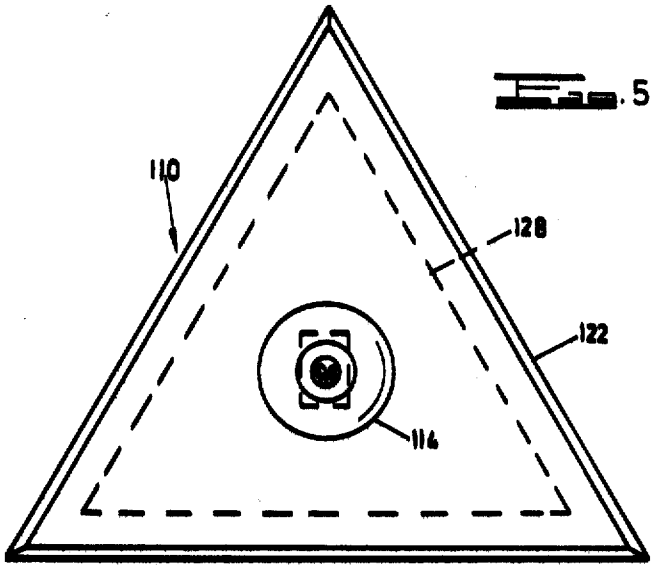


Fig. 5

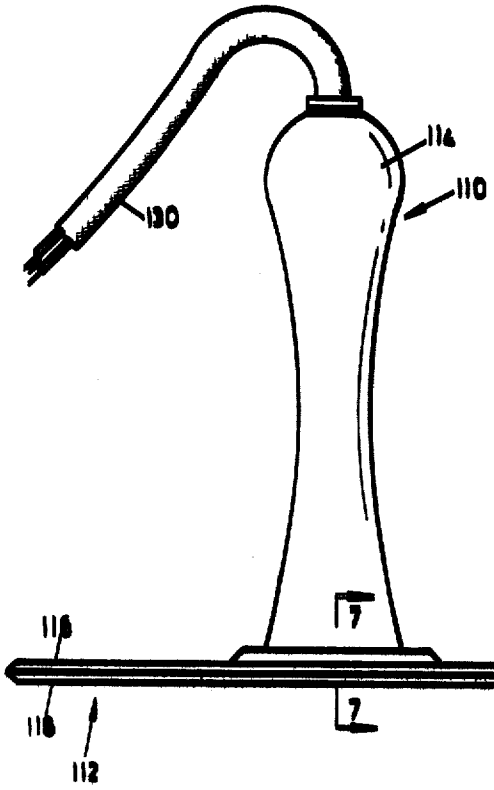


Fig. 6

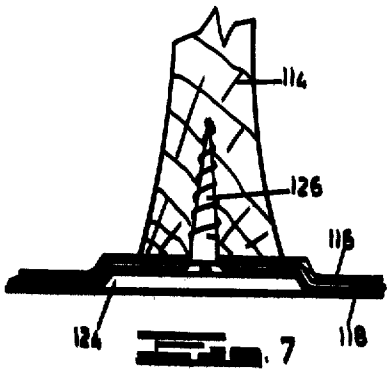


Fig. 7

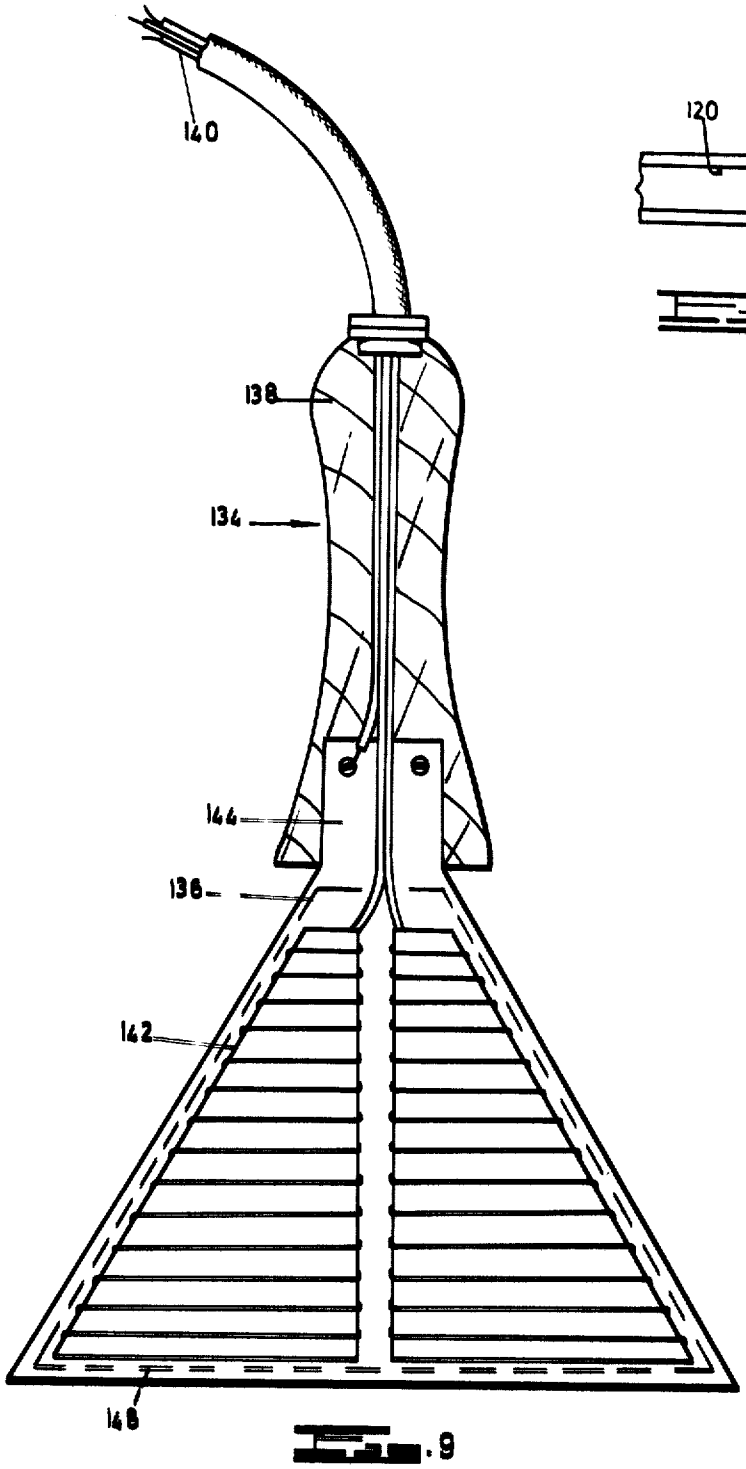


Fig. 9

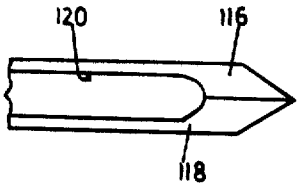


Fig. 8

ARTICLES OF CUTLERY, PAINT SCRAPER AND THE LIKE

This invention relates to articles of cutlery, paint scrapers and the like, all known herein as articles of the kind set forth.

According to one aspect of the invention, there is provided an article of the kind set forth comprising a metal operative portion and within that portion an electric heating element.

The most usual article of cutlery to which the invention may be applied is a knife and in such an item the portion mentioned above as being the "operative portion" is the blade. Where the piece of cutlery is a spoon, the operative portion is the bowl of the spoon.

The operative portion is preferably hollow and the heating element is inserted into the hollow interior of this portion. The heating element is insulated from the portion of the article which is to be handled and normally the element is insulated from the operative portion of the article.

The operative portion of the article may be formed by two parts which are welded or bonded together, but preferably the operative portion is formed from a single part bent over on itself and seam welded at its edges. There is preferably a recess formed in one of the parts which constitutes the hollow interior of the article.

The "non-operative" portion of the article, which is normally the handle, is preferably formed as a moulding and may have an interior chamber in which is received a terminal box or the like by means of which external electric leads can be connected to the element. Preferably however, the external leads are connected to the element and encapsulated in the material of the handle during moulding thereof. The ground lead, where the external lead comprises a three core lead, is preferably connected to the operative portion to ground the latter.

Three embodiments of the invention will now be described by way of example with reference to the accompanying drawings.

In the drawings:

FIG. 1 is a side view partially in section of a knife of the invention,

FIG. 2 is a view of the knife blade before being formed,

FIGS. 3 and 4 are respectively sections on lines 3 — 3 and 4 — 4 of FIG. 1,

FIG. 5 is a plan view of a paint scraper of the invention,

FIG. 6 is a side view of the paint scraper,

FIGS. 7 and 8 are detail sections on lines 7 — 7 and 8 — 8 of FIG. 6, and

FIG. 9 is a view partially in section of another paint scraper of the invention.

Referring now to FIGS. 1 and 4, there is shown the blade 11 and handle 12 of a knife of the invention.

The blade 11 is formed from a single 24 gauge sheet metal member 14 having two parts 16 and 18. Each part 16 and 18 is formed with a recess. The member 14 is bent over so that the parts 16 and 18 face each other and their recesses form a chamber 20. The edges 22 of the member 14 adjacent the chamber 20 are seam welded together. Within the chamber is received an element 24 which comprises two heating coils wound on to a mica core and having mica insulating plates on either side to protect and insulate the coils. A pair of connecting cables 26 lead from the coils.

The chamber 20 extends over a major portion of the member 14. There is, however, a shank 28 provided and this shank has keying apertures 30 whereby the member 14 may be keyed to the material of the handle.

The handle 12 is formed as a high pressure moulding of a heat and electrical insulating material such as polypropylene or high density polyethylene. Means is provided at the mouth of the chamber to prevent the material of the handle entering the chamber 20 during the moulding operation. This means is preferably a fibre washer 28 of the same shape as the cross-section of the chamber 20. This washer 28 has a pair of openings 30 through which pass the cables 26. The washer is held in position by a bonding medium indicated at 32 which also plugs up any openings left by the washer. Additionally, there is inserted into the chamber 20, after the introduction of the element therein, mica powder, fire clay or similar heat resistant material in granulated form.

The cables 26 are connected to the line and neutral leads of a cable 34 by means of connecting ferrules. The earth lead 36 of the cable 34 is connected directly to the blade 11. These connections are contained within the moulded handle.

The blade is polished, plated and sharpened and preferably as shown provided with a serrated cutting edge 38. If desired, the blade may be rolled further after the insertion of the element so that the blade will be relatively narrow.

The element will be of any desirable resistance so that it may draw sufficient current to heat the blade adequately for the task which it is intended to carry out. Conveniently the element may have a wattage of between 70 and 100. The element is preferably located quite close to the cutting edge of the blade, being of the order of one half an inch therefrom.

The handle may have moulded into it a rheostat with a control button passing to the exterior of the handle so that the user may vary the heat of the blade. Also the handle may have a socket formed in it to which are connected the cables 26 and the wire connected to the blade. The external power source may be connected to a plug which may be inserted into the socket.

I have found that the knife above described when its blade is heated can be used very conveniently for cutting through frozen means, ice cream cakes, butter, margarine and the like, as well as for peeling pumpkins. In a modified form the knife may be used in industrial applications, e.g. for cutting rubber in retreading operations, cutting plastic tiles, spreading bitumen and removing cones from bee hives. Referring now to FIGS. 5 to 8, there is shown a paint scraper 110 of the invention. The paint scraper 110 comprises meats, scraper head 112 carried by a handle 114 extending at right angles to the scraper head and being shaped to facilitate manipulation of the scraper head.

The scraper head 112 is generally of triangular shape in plan and is formed from two metal sheets 116 and 118 which define between them a hollow chamber 120. The chamber 120 is of similar triangular shape to the scraper head 112. The edges 122 of the two sheets 116 and 118 are seam-welded together and are also sharpened so that the scraper head is capable of carrying out its desired mechanical function.

At its centre, the scraper head 112 has a portion 124 that is depressed on the side remote from that handle and correspondingly raised on the side adjacent the

handle. The handle **114** is secured to this raised portion **124** by means of a pair of screws **126.**

Within the recess **120,** there is received an electrical heating element **128** which includes a heating wire suitably insulated by mica strips in conventional manner. The electrical connection to this heating element **128** passes through the handle **114** and a suitable flex or cable **130** extends from the end of the handle **114** to a suitable source of electrical energy.

The scraper head **112** is made from stainless steel which has the desirable properties of being able to conduct heat, having strength at the edge and being resistant to rust. The handle **114** is preferably a moulding of plastics material which is a good heat insulator.

Referring now to FIG. **9.** there is shown another paint scraper **134** of the invention. Here again the paint scraper **134** comprises a hollow scraper head **136** formed in the same way as (but being of different shape to) the scraper head **112** and a plastic heat insulating handle **138** through which the electrical connection of a flex or cable **140** pass to a heating element **142** located within the scraper head **136.** In this arrangement, the scraper head **136** is once again of a generally triangular shape but has a lug **144** at one end to be received within a corresponding slot within the handle **138.** The shape of the scraper head **136** is such that its edge **148** remote from the lug **144** is at right angles to but lying within the same plane as the axes of the handle **136.** This remote edge **148** is usually the only edge used for scraping and consequently need be the only edge which is sharpened.

In both the paint scrapers **110** and **134,** the recesses within the scraper head extend as close as possible to the edges of the scraper head to facilitate the heating of the edges of the scraper head. The heating element preferably has a wattage of the order of half a kilowatt, the elements **128** and **142** being 450 watt elements.

In operation, the scraper head is heated by the element. It is then drawn over the surface from which paint is to be removed (in the case of the scraper **134** the edge **146** is pushed over the surface) with some downward pressure. I have found that the heat conducted by the scraper head affects the paint in such a manner that removal of the paint by the scraper head is considerably facilitated. Furthermore, it is not necessary to use an additional heater means such as a blow torch as has been required hitherto in practice and that a workman need use only one hand to carry out the paint removal operation.

This invention is not limited to the precise constructional details hereinbefore described and illustrated in the drawings. For example, the handles may be formed from two parts which are bonded together. The article of cutlery may be a spoon, spatula or the like. An additional insulating "sock" may be provided over the handle.

I claim:

1. A knife comprising: a blade formed of a single elongated sheet metal member having two portions of equal size folded one over the other in coextensive relationship, each portion having a longitudinal recess extending through one end so that a chamber is formed within the blade, said chamber being open at one end of the blade; a washer in the chamber spaced from said one end and having the same shape as the chamber so as to divide the chamber into a front chamber portion and a rear chamber portion; an electric heating element in the front chamber portion; a handle formed as a molding of heat and electrically insulating material molded onto and surrounding said one end of said blade, the washer preventing the material of the handle from entering the front chamber portion; and electric cable means connected to said heating element and passing through said washer and through the open end of the chamber.

2. A knife as in claim **1** including key means passing transversely through the handle and through the blade at the location of said rear chamber portion.

3. A knife as in claim **2** including granulated heat resistant material in said front chamber portion of said blade.

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