



(51) International Patent Classification:

A22C 29/02 (2006.01) A23L 17/40 (2016.01)  
A47G 21/06 (2006.01)

(21) International Application Number:

PCT/AU2019/050696

(22) International Filing Date:

28 June 2019 (28.06.2019)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2018902311 27 June 2018 (27.06.2018) AU

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,

(54) Title: FLESH ACCESSING TOOL AND METHOD OF USE

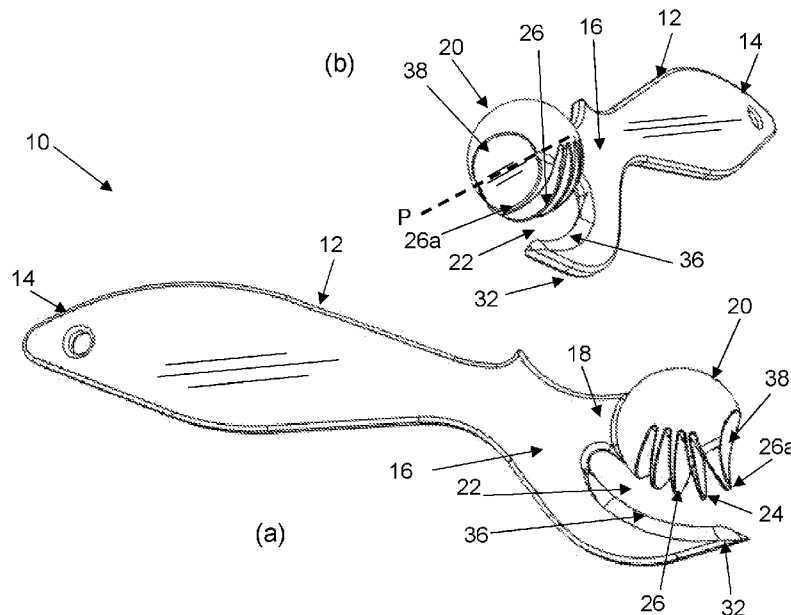


FIGURE 1

(57) Abstract: This invention relates to the accessing of edible flesh covered with hard shells or shell-like structures, such as crustaceans, and a tool for use in this activity. Accordingly, there is provided a flesh accessing tool for accessing flesh at least partially encased in a hard cover comprising an elongate body having, at a first end, a formation for gripping and, at a second end, a cover rupturing means and a ripping means comprising fixed opposed first and second fixed jaw members defining between them a gap within which a portion of a covered flesh is receivable for ripping off the covering.



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- *of inventorship (Rule 4.17(iv))*

**Published:**

- *with international search report (Art. 21(3))*
- *the filing date of the international application is within two months from the date of expiration of the priority period (Rule 26bis.3)*

## FLESH ACCESSING TOOL AND METHOD OF USE

### Field of invention

[01] This invention relates to the accessing of edible flesh covered with hard shells or shell-like structures, such as crustaceans, and a tool for use in this activity.

### Background to the invention

[02] There are many foods with edible flesh that is encased or at least partially encased in a hard shell or shell-like structure that must be cracked or ripped open to access the edible flesh. For example, a shell or hard pod is referred to as a "shuck" and, for example, the activity of opening the shell-encased parts of crabs for accessing the edible meat within is commonly referred to as "shucking". Various tools for accessing the edible flesh encased in a shuck or a hard structure have been used and proposed. However, most of these tools are simple devices that facilitate the cracking or crushing of the shuck or shell, after which forks or picks or a person's hands must be used to extract the flesh. In general, these methods are messy and time-consuming, and result in damage of the flesh or contamination with shards of the shuck or shell. They can also be dangerous to the user, as there is often the potential for the tool to lose engagement with the shell or shuck, and possibly injuring the user.

[03] For example, US patent no. 5,403,230 shows a shucking tool that could conceivably be used for striking a shell for cracking it open, and relies on a serrated, pointed end being inserted into a shell for cutting from the inside using a levering action. Similarly, US patent no. 5,586,931 discloses a crab leg opener having a bulbous part for striking and cracking or crushing a shell, with upper and lower jaws between which a shelled portion of the crab such as a claw is received, and a single ripping tooth.

[04] A disadvantage of the above tools is that the single tooth is found to be ineffectual in retaining the shell while being ripped. Another disadvantage is that the shell needs to be cracked or crushed to obtain access to the contents.

[05] It is an object of the present invention to overcome or ameliorate the above discussed disadvantages of the prior art, or at least offer a useful alternative.

[06] The preceding discussion of the background to the invention is intended to facilitate an understanding of the present invention. However, it should be appreciated that the discussion is not an acknowledgement or admission that any of the material referred to was part of the common general knowledge in Australia or elsewhere as at the priority date of the present application.

[07] Further, and unless the context clearly requires otherwise, throughout the description and the claims, the words 'comprise', 'comprising', and the like are to be construed in an inclusive sense, meaning "including, but not being limited to" - as opposed to an exclusive or exhaustive sense, meaning "including this and nothing else".

### **Summary of invention**

[08] According to a first aspect of the invention, there is provided a flesh accessing tool for accessing flesh at least partially encased in a hard cover comprising an elongate body having, at a first end, a formation for gripping and, at a second end, a cover rupturing means and a ripping means comprising fixed opposed first and second fixed jaw members defining between them a gap within which a portion of covered flesh is receivable for ripping the covering.

[09] The flesh may be any edible flesh, including any meat from an animal, fruit or vegetable, that is encased or at least partially encased in a hard cover, such as a shell or shell-like structure, that must be cracked, ruptured or ripped to access the flesh. Non-limiting examples include jackfruit, durian, gourds, snake-skin fruit, cannonball fruit, molluscs such as snails, oysters, scallops and mussels, as well as crustaceans, such as, crabs, lobsters, crayfish, shrimp and prawns.

[010] The tool may be made of, or comprise, any suitable material, such a tool steel, stainless steel, cast iron, carbon steel, alloy steel, galvanized steel, aluminium, brass, bronze and/or copper, as well as hardened plastics (such as thermoplastics) or composite materials, such as, nylon-reinforced composites, glass fibre reinforced plastic or nylon. In embodiments of the invention, the tool comprises a metal core that assumes the shape of the tool, or at least a metal core

for the bulbous club head described below, and is covered in a protective material that may improve the durability, safety and/or aesthetic appeal of the tool. The cover may, for example, be a layer of hardened plastic, a nylon-reinforced composite, or a glass fibre reinforced plastic/nylon.

[011] To access flesh encased in a hard cover, the tool allows the user to rupture the hard cover via the rupturing means to allow an access point for the ripping means to then rip the cover. By rupturing is meant that the cover is sufficiently compromised such that the flesh can be accessed easily using the ripping means (i.e., the cover is weakened by cracks or is broken all the way through to the encased flesh).

[012] In the flesh accessing tool, the first jaw member preferably comprises a curved, unserrated cutting blade directed towards the gap.

[013] In preferred embodiments of the invention, the flesh is that of a crustacean and the cover is a shell or part thereof.

[014] In a preferred form of the invention, the second jaw member comprises a set of tooth members directed towards the gap. The tooth members are preferably adapted for rippingly engaging the cover.

[015] Further preferably, at least two of the tooth members extend laterally outward at an angle inclined in relation to a plane in which the gap lies.

[016] The flesh accessing tool in a further preferred form of the invention has a tooth member of the second jaw that includes a convex arcuate cutting edge.

[017] The flesh accessing tool is adapted so that ripping of the flesh covering is achieved by dragging an engaged flesh-containing covered portion out of the gap, in a direction generally coaxial with the longitudinal axis of the body and away from the gripping formation.

[018] In an embodiment, the cover rupturing means comprises a bulbous club head for striking the cover, wherein the bulbous club head is associated with the second jaw member and the tooth members protruding therefrom.

[019] The bulbous club head may be used for applying a force to the cover in a small localised area to rupture the cover without significantly damaging the flesh. In embodiments of the invention, the bulbous head may be weighted to achieve mass inertia, such that only a small force is required by the user to rupture the cover. Depending on the size of the tool, the bulbous club head may have a weight that corresponds to over 50% of the weight of the device, or may be 30g – 150g. The bulbous club head portion of the tool may comprise a material or metal that is denser than the materials used to form the rest of the tool, so that the weight may be achieved without significantly increasing the size of the tool.

[020] In some preferred embodiments of the invention, the cover rupturing means comprises a pointed spike directed to extend from the body generally at a right angle to a longitudinal axis of the body.

[021] The cover rupturing means comprises a spike extending from the bulbous club head associated with the second jaw member in preferred embodiments of the invention.

[022] In one embodiment of the invention, there is provided a flesh accessing tool for accessing flesh of a crustacean comprising an elongate body having, at a first end, a formation for gripping and, at a second end, a bulbous club head for rupturing the shell of the crustacean, and a ripping means comprising fixed opposed first and second fixed jaw members defining between them a gap within which a portion of a crustacean is receivable for ripping the shell, wherein the first jaw comprises a curved, unserrated cutting blade directed towards the gap.

[023] In a further embodiment of the invention, there is provided a flesh accessing tool for accessing flesh of a crustacean comprising an elongate body having, at a first end, a formation for gripping and, at a second end, a bulbous club head for rupturing the shell of the crustacean, and a ripping means comprising fixed opposed first and second fixed jaw members defining between them a gap within which a portion of a crustacean is receivable for ripping the shell, wherein the first jaw comprises a curved, unserrated cutting blade directed towards the gap, and the tool further comprises spike extending from the bulbous club head.

[024] According to a second aspect of the invention, there is provided method of accessing covered flesh comprising the steps of:

providing a flesh accessing tool for accessing flesh at least partially encased in a cover comprising an elongate body having, at a first end, a formation for gripping and, at a second end, a cover rupturing means and a ripping means comprising fixed opposed first and second fixed jaw members defining between them a gap within which a portion of a covered flesh is receivable for ripping off the covering;

gripping the tool by the gripping formation; inserting a portion of covered flesh into the gap, operatively engaging the ripping means with the flesh covering at a first side of the portion and drawing the tool along the covering to cause it to rip open.

[025] In a preferred form of the invention, the first jaw member comprises a curved cutting blade directed towards the gap for slicing an opposite second side of the cover.

[026] In a preferred form of the invention, the first jaw member comprises a curved concave cutting blade directed towards the gap for slicing an opposite second side of the cover.

[027] In a further preferred form of the invention, the second jaw member comprises a plurality of tooth members operatively directed toward the gap for engaging the flesh covering. The tooth members preferably have convex arcuate edges oriented transversely to the concave cutting blade of the first jaw member.

[028] The method may include causing two or more tooth members of the second jaw to engage with the covering.

[029] According to the method, accessing the flesh preferably includes pivotally moving the hand-gripped first end of the tool about a pivot line passing through the second jaw transversely in relation to a plane in which jaws and gap lie, to cause slicing action on the opposite second side of the carcass portion.

[030] The pivot line may pass through a bulbous club head formation of the second jaw.

[031] In a further preferred form of the invention, the body is adapted for striking a covering comprising crustaceous animal matter, the second jaw member comprising a bulbous club head for use in striking. The club head preferably constitutes a major part of the weight of the tool.

[032] Preferably, the method in an embodiment includes piercing the covering by striking it with the club head when fitted with a piercing implement.

[033] Preferably, the bulbous head comprises at least one arcuate convex cutting edge operatively directed towards the gap. In an embodiment, the cutting edge is included in an array of tooth members disposed orthogonally to the line of a blade of the first jaw member.

[034] According to a third aspect of the invention, there is provided a accessing the flesh of a crustacean comprising the steps of:

providing a flesh accessing tool for accessing flesh encased in a shell comprising an elongate body having, at a first end, a formation for gripping and, at a second end, a shell rupturing means that is a pointed spike directed to extend from the body generally at a right angle to a longitudinal axis of the body, and a ripping means comprising fixed opposed first and second fixed jaw members defining between them a gap within which a shelled portion of the crustacean is receivable for ripping off the shell;

gripping the tool by the gripping formation; striking the crustacean with the pointed spike to pierce the shell; and operatively engaging the ripping means with a portion of the pierced shell and drawing the tool along the shell to cause it to rip open.

### **Brief description of drawings**

[035] In order that the invention may be readily understood, and put into practical effect, reference will now be made to the accompanying figures. Thus:

Figure 1 shows in schematic form perspective side (a) and front (b) views of a preferred embodiment of the tool of this invention.

Figure 2 is a schematic a side view of a further embodiment of the tool of this invention.

Figure 3 is a schematic front view of the tool of Figure 2.

### **Detailed description of an embodiment of the invention**

[036] The tool of the invention may be used for opening the protective coverings of edible flesh in a number of animals and creatures, and well as fruits and vegetables. It should not be regarded as being limited to use in preparing seafoods. Referring now to the drawings, wherein like reference numbers are used herein to designate like elements throughout, various views of a preferred embodiment of the preparation tool of the invention are illustrated and described, and other possible embodiments are mentioned. The figures are not necessarily drawn to scale, and in some instances the drawings have been exaggerated and/or simplified in places for illustrative purposes only. One of ordinary skill in the art will appreciate the many possible applications and variations based on the following exemplary embodiment.

[037] In this description, the terms first and second or lower and upper, respectively, are used when referring to the jaw members of the tool of the invention. These terms are not to be considered as limiting the tool to use in a particular orientation, but are for convenience, especially when interpreting the drawings. It will be evident that the tool is able to be used in almost any orientation in which a portion containing inaccessible flesh is presented for opening.

[038] Referring to Figure 1, in a preferred embodiment of this invention, a flesh accessing tool is generally denoted by the number 10 and shown in side view.

[039] In this embodiment, the flesh accessing tool is shown to comprise an elongate body 12 shaped to define a handle 14 at a first end and a pair of jaws 16 at an opposite, distal end. The jaws are fixed and not capable of relative movement. An upper jaw 18 (or "second jaw member") ends in a bulbous club head 20. The club head contributes from 50% to 90% of the weight of the tool as a whole. It would be understood that by concentrating the weight of the tool in the bulbous

club head, this will assist in the bulbous club head effectively rupturing the flesh covering in a localised fashion, and minimising the force required by the user to rupture the cover. Preferably, the weight of the club head alone is in the range 30 g to 300g and further preferably in the range 30g to 150g. The tool may be made of any suitable material, such as metal, plastic, glass and/or nylon and/or combinations thereof. In some examples, the tool may be made with a metal or steel inner, with a composite material outer, such as a glass/nylon composite material.

[040] Extending from the head towards and generally into the gap 22 between the jaws are the upper teeth 24. The teeth extend outwardly radially from head 20, as suggested in the end view of Figure 1(b). Each tooth defines a convex, arcuate cutting edge 26. The shape can be thought to resemble a mini-version of a plough shear. The edges are located substantially concentrically to splay out in a forward direction from a mid-zone of the head to be inclined toward the open end of gap 22, which separates the respective jaws. The splay angle forward assists in engaging the outer surface of the covering concealing the flesh below. At the front of the head is a recessed convex surface 38 for seating against a larger part of the covered flesh, providing the opportunity of adding to the stability of the tool. When the handle of the tool is pivoted about a pivot point on broken line P in Figure 1(b), surface 38 may abut the covered flesh as well as provide clearance for the foremost upper arcuate blade 26a to cleave the flesh covering.

[041] The arcuate convex edges to assist in retaining grip on a piece of covered flesh while the piece is oscillated from side to side and helps slice open the membrane or protective structure that may be covering the flesh.

[042] In this embodiment, the lower jaw (or "first jaw member") is in the shape of a concave arc defining a curved blade the cutting edge of which is directed towards or into the gap, to face the upper jaw and its protruding bladed teeth. The convex upper tooth edges of the upper jaw are generally inclined orthogonally to the plane occupied by the concave arcuate edge of the lower jaw blade.

[043] It is found that the combination of the orthogonally oriented blades of continuous edges is particularly advantageous in allowing lower jaw blade 36 to slice into a covered flesh portion while edges 26 of teeth 24 of upper jaw 18 assist in stabilising and inhibiting withdrawal from gap 22 of the portion.

[044] In using the tool, the user places the covered portion of flesh between the jaws and engages the portion with teeth members 24 of club head 20 of the upper jaw. Then, by pivoting the hand grip end of the tool upward using the centre of the head as pivot point, the user brings blade 36 of the lower jaw into slicing contact with the portion in a severing action. This may also be suitable for flesh not enclosed in a shell, such as that of a crustacean shellfish, but also flesh enclosed in a hard cover, such as some fruits and vegetables. By virtue of the arcuately edged teeth thereon, the club head of the upper jaw promotes a cutting action by the lower jaw, without losing upper jaw grip even when rocked side to side, despite the lack of relative movement between the two jaws. Grip retention is enhanced by the teeth having cutting edges arranged in a curved array, subtended by the ball-like shape of the bulbous club head.

[045] An alternative embodiment of the tool is illustrated in Figure 2, where like numbering is used for like parts. In this embodiment, the blade of the lower jaw 32 is replaced by a line of tooth members 44 that are generally pyramid-shaped and protrude into the gap between the jaws. The tooth members may be arranged in more than a single line, with their edges not being coplanar, as is evident in the front view of Figure 3. When paired to cooperate with the functionality of the arcuate transversely arranged array of bladed teeth 24 of upper jaw 18, it is found that cutting edges 26 of the upper jaw are particularly suitable for gripping, for example, the shell of a crustacean, leaving lower teeth 44 to perform a ripping function instead of slicing. The ripping action creates a line of rupture through the shell, generally separating it into detachable sections on either side of the plane in which lower jaw 32 lies.

[046] Further retentive capability arises from lower teeth 44 not only being generally linearly disposed on lower jaw 32, but also being of different sizes and raked away from the open, receiving end of the jaw gap.

[047] In either of the above embodiments, club head 20 is of generally spherical shape above the lower portion from which teeth 24 splay. However, in still further embodiments, it may take on other shapes, including ovals and regular faceted shapes, for example cubic, tetrahedral and the like. The extending teeth are integrally formed with the head. However, it is contemplated that the teeth may be separately formed with base protrusions that allow for interlocking connection with complementally threaded sockets provided in the head. The base of the teeth may in other embodiments include insertable formations of other shapes and fastening mechanisms for securing them in place.

[048] Extending optionally from club head 20 at a location that is generally opposite that of teeth 24 is a spike 28. It may be made of a metal alloy, for example a salt-resistant grade of stainless steel and is screw threaded at its proximate end that is received into a complementally threaded socket in the surface of the head. In other embodiments of the invention, the spike may be made of a hardened plastic, nylon-reinforced composites, or a glass fibre reinforced plastic or nylon, or may be a metal spike covered in a thin layer of these materials. The spike is further adapted for rupturing by penetrating the hard, outer shell of a shellfish, such as a crab and its pincer, by having a pointed distal end 30. The diameter of the pin shaft is 4mm before it tapers to a point, but may be of another diameter in an alternative embodiment.

[049] The bulbous club head is preferably made from a metal of density the like of cast iron or stainless steel. The invention makes use of both the mass of the ball portion for supporting the pin in its driving force in penetrating the shell and provides a shape from which the divergent teeth diverge, thereby allowing for a more secure cut at multiple angles. The piecing spike may be optionally added to the tool of Figure 1 to provide it with a further functional dimension.

[050] The combination of the penetrating pin or spike with the weight of the ball results in a penetration being limited to a small, generally rounded hole. This can be the result of a single, relatively light action causing impact to the shell. Advantageously, the outcome is that there is practically no uncontrolled liberation of shell fragments and of contents. Because of the existence of the hole, when the

shell portion is inserted into the gap, it can be located so that one of the teeth from either the upper or the lower jaw engages with the hole, facilitating ripping. With the tooth being raked backward, when the pointed end is driven into the puncture hole, ripping ensues when the tool and the shell portion are pulled away from each other in directions generally parallel with the longitudinal axis of the tool body. The plurality of teeth on both jaws advantageously improves the ease of engagement for ripping. The fan-shaped nature of the teeth extending from bulbous head 20, resembling a partially sliced-open fruit, provides further opportunities for engagement, ripping and slicing, as well as for stabilising the shell portion undergoing ripping motion and for retaining it in position for ripping in relation to the jaws.

[051] These embodiments merely illustrate particular examples of the method, kit and apparatus of the invention providing means for accessing edible but covered flesh in a carcass. It will be appreciated by those skilled in the art having the benefit of this disclosure that the drawings and detailed description herein are to be regarded in an illustrative rather than a restrictive manner and are not intended to be limiting to the particular forms and examples disclosed. On the contrary, included are any further modifications, changes, rearrangements, substitutions, alternatives, design choices, and embodiments apparent to or discernible by those of ordinary skill in the art, without departing from the spirit and scope hereof, as defined by the following claims. Thus, it is intended that the following claims be interpreted to embrace all such further modifications, changes, rearrangements, substitutions, alternatives, design choices, and embodiments.

## CLAIMS

1. A flesh accessing tool for accessing flesh at least partially encased in a hard cover comprising an elongate body having, at a first end, a formation for gripping and, at a second end, a cover rupturing means and a ripping means comprising fixed opposed first and second fixed jaw members defining between them a gap within which a portion of a covered flesh is receivable for ripping off the covering.
2. The flesh accessing tool of claim 1, wherein the flesh is that of a crustacean and the cover is a shell or part thereof.
3. The flesh accessing tool of claim 1 wherein the first jaw member comprises a curved, unserrated cutting blade directed towards the gap for engaging said cover.
4. The flesh accessing tool of claim 1 wherein the first jaw member comprises a plurality of teeth operatively directed into the gap for engaging said cover.
5. The flesh accessing tool of any one of the preceding claims wherein the second jaw member comprises a set of tooth members directed towards the gap, wherein the tooth members are adapted for rippingly engaging said cover.
6. The flesh accessing tool of claim 5 wherein at least two of the tooth members of the second jaw member are splayed out at an angle inclined in relation to a plane in which the gap lies.
7. The flesh accessing tool of claim 5 wherein a tooth member of the second jaw includes a fan-shaped cutting edge.
8. The flesh accessing tool of any one of claims 5 to 7 wherein ripping of the cover is achieved by dragging an engaged portion of covered flesh out of the gap, in a direction generally coaxial with the longitudinal axis of the body and away from the gripping formation.
9. The flesh accessing tool of claim 9 wherein the cover rupturing means comprises a bulbous club head for striking, wherein the bulbous club head is associated with the second jaw member and the tooth members protruding therefrom.

10. The flesh accessing tool of claim 9, wherein the bulbous club head weighs between 30g – 150g and constitutes at least 50% (w/w) of the tool.
11. The flesh accessing tool of any one of the preceding claims wherein the cover rupturing means comprises a pointed spike directed to extend from the body generally at a right angle to a longitudinal axis of the body.
12. The flesh accessing tool of claim 11 wherein the cover rupturing means comprises a spike extending from the bulbous club head associated with the second jaw member.
13. A method of accessing covered flesh comprising the steps of:
  - a. providing a flesh accessing tool for accessing flesh at least partially encased in a cover comprising an elongate body having, at a first end, a formation for gripping and, at a second end, a cover rupturing means and a ripping means comprising fixed opposed first and second fixed jaw members defining between them a gap within which a portion of a covered flesh is receivable for ripping off the covering;
  - b. gripping the tool by the gripping formation;
  - c. inserting a portion of covered flesh into the gap,
  - d. operatively engaging the ripping means with the flesh covering at a first side of the portion and drawing the tool along the covering to cause it to rip open.
14. A method according to claim 13, wherein the first jaw member comprises a curved cutting blade directed towards the gap for slicing an opposite second side of the portion of covered flesh.
15. A method according to claim 14 comprising the step of striking the portion of covered flesh with the cover rupturing means that is a bulbous club head associated with the second jaw member, to rupture the flesh covering.

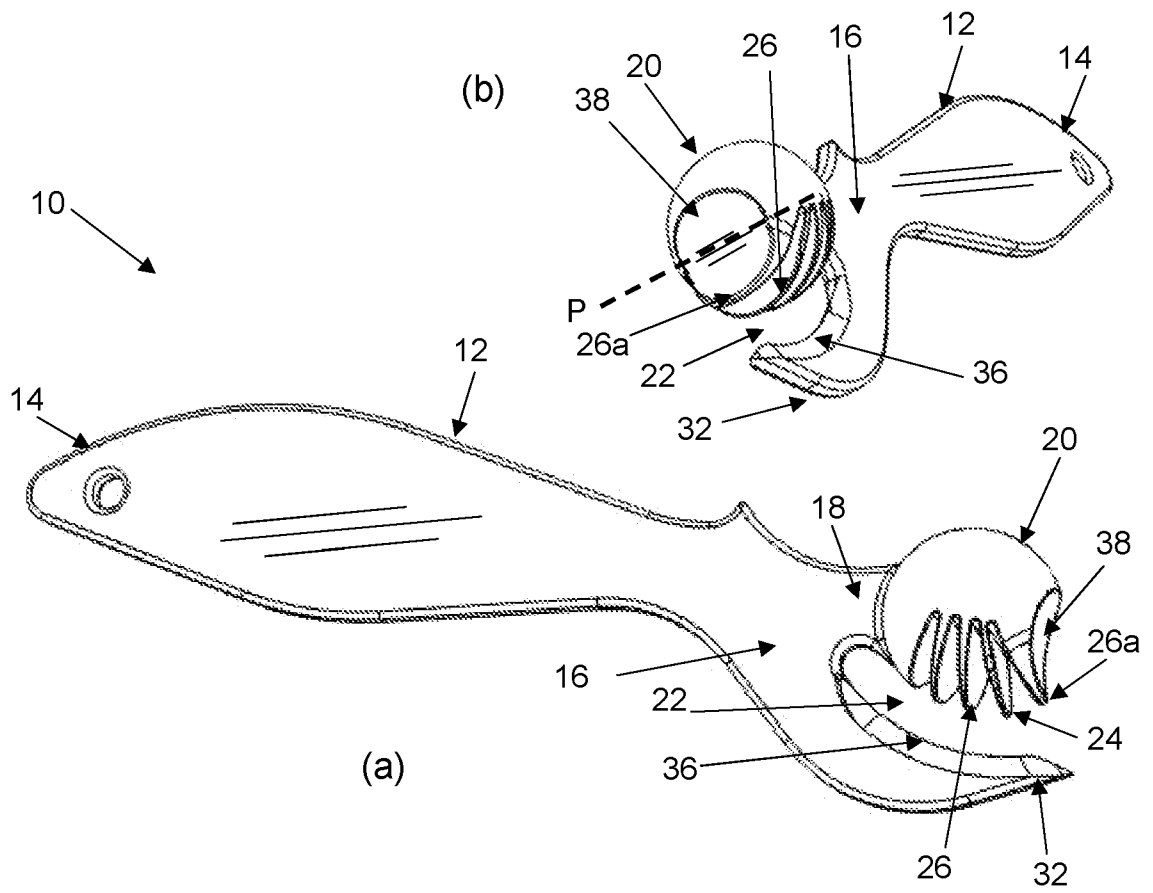
16. The method of claim 14 comprising the step of striking the portion of covered flesh with the cover rupturing means that is a pointed spike directed to extend from the body generally at a right angle to a longitudinal axis of the body.

17. A method of accessing the flesh of a crustacean comprising the steps of:

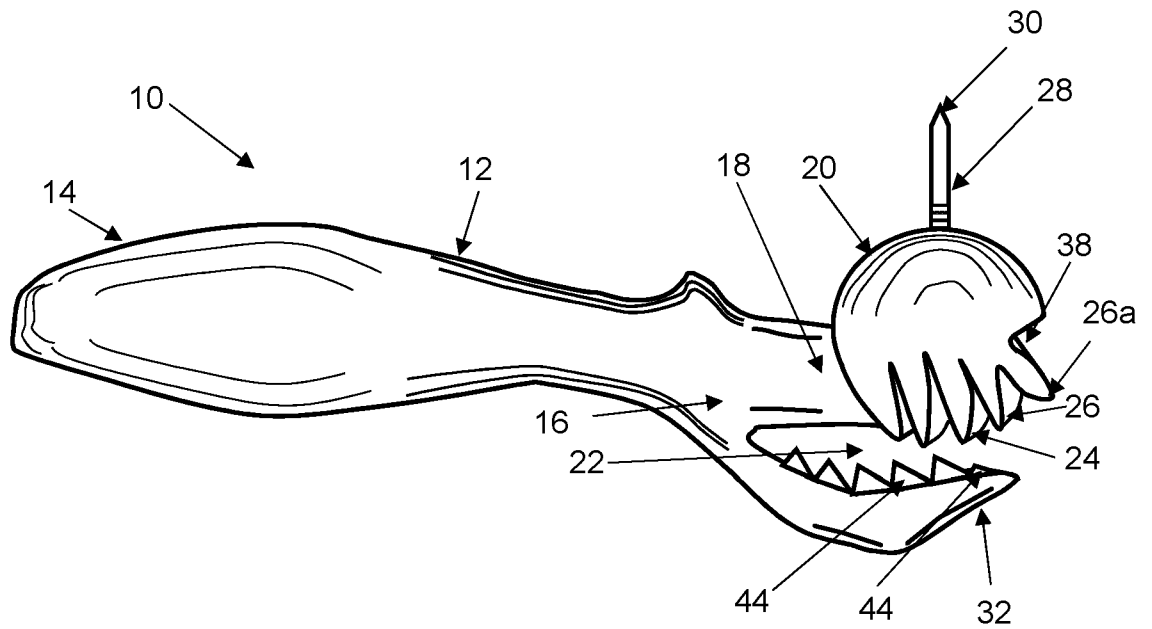
- a. providing a flesh accessing tool for accessing flesh encased in a shell comprising an elongate body having, at a first end, a formation for gripping and, at a second end, a shell rupturing means that is a pointed spike directed to extend from the body generally at a right angle to a longitudinal axis of the body, and a ripping means comprising fixed opposed first and second fixed jaw members defining between them a gap within which a shelled portion of the crustacean is receivable for ripping off the shell;
- b. gripping the tool by the gripping formation;
- c. striking the crustacean with the pointed spike to pierce the shell; and
- d. operatively engaging the ripping means with a portion of the pierced shell and drawing the tool along the shell to cause it to rip open.

18. A method according to claim 17 wherein a first of the jaws comprises a plurality of teeth operatively directed into the gap for engaging said shelled portion and the method includes causing at least one tooth to engage with a piercing made in the shell.

19. A method according to claim 17 wherein the body is further adapted for striking a shell by comprising a bulbous head from which the spike extends.



**FIGURE 1**



**FIGURE 2**

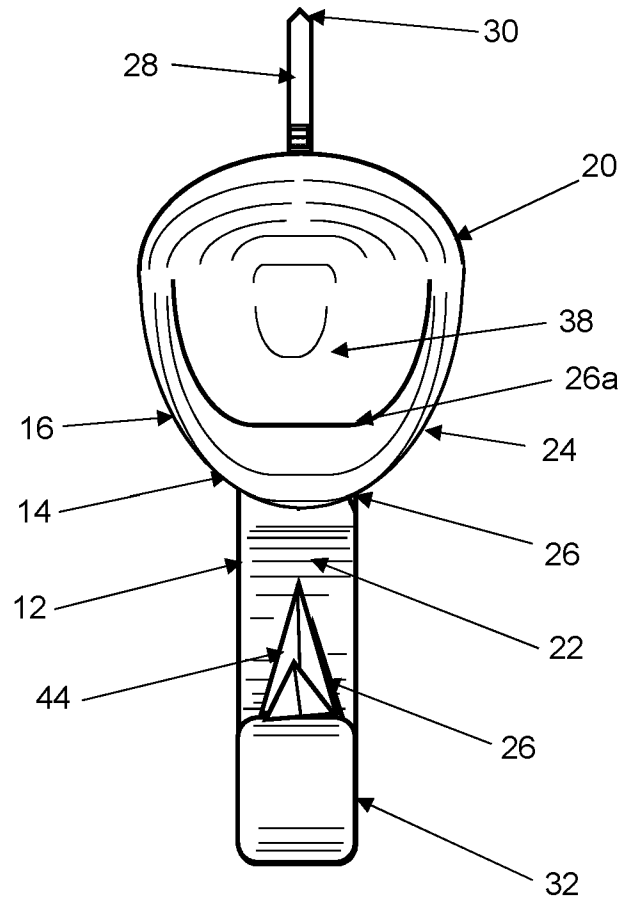


FIGURE 3

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2019/050696

## A. CLASSIFICATION OF SUBJECT MATTER

**A22C 29/02 (2006.01) A47G 21/06 (2006.01) A23L 17/40 (2016.01)**

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PATENW USING IPC/CPC MARKS (A22C29/025, A22C29/027, A47G21/061, A23L17/40, A22C29/02), US CLASSIFICATION MARKS (452/6) AND KEYWORDS (HANDLE, SPIKE, HAMMER, JAW AND OTHER SIMILAR TERMS); GOOGLE AND GOOGLE PATENTS SEARCH USING KEYWORDS (CRUSTACEAN, CRAB, SHELL, CRACK, JAW, SPIKE AND OTHER SIMILAR TERMS); APPLICANT(S)/INVENTOR(S) SEARCH IN AUSPAT, ESP@CENET AND INTERNAL DATABASES PROVIDED BY IP AUSTRALIA

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	

 Further documents are listed in the continuation of Box C See patent family annex

* Special categories of cited documents:		
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"O" document referring to an oral disclosure, use, exhibition or other means		
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Date of the actual completion of the international search  
6 September 2019

Date of mailing of the international search report  
06 September 2019

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**INTERNATIONAL SEARCH REPORT**

International application No.

C (Continuation).

DOCUMENTS CONSIDERED TO BE RELEVANT

**PCT/AU2019/050696**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 9888698 B1 (MORSELL ET AL) 13 February 2018 Figures	1-19
X	US 5613904 A (LASALLE ET AL) 25 March 1997 Figures	1-7, 9-12, 17-19
X	US 4200961 A (MUELLER) 06 May 1980 Figures	1-7

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/AU2019/050696**

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

<b>Patent Document/s Cited in Search Report</b>		<b>Patent Family Member/s</b>	
<b>Publication Number</b>	<b>Publication Date</b>	<b>Publication Number</b>	<b>Publication Date</b>
US 9888698 B1	13 February 2018	US 9888698 B1	13 Feb 2018
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