

A SAFETY MECHANISM FOR A COCONUT SCRAPER

TECHNICAL FIELD

Present disclosure generally relates to food appliance. Particularly, but not exclusively, the present disclosure relates to a coconut scraper. Further, embodiments of the present disclosure disclose a safety mechanism for the coconut scraper.

BACKGROUND OF THE DISCLOSURE

Devices for extracting flesh from nuts such as walnuts, areca nuts, pecans and the like are known in the art. Unlike the nuts mentioned above, coconut has a large, substantially spherical shell. This shape of the coconut makes it difficult to grate or scrape flesh from the coconut shell using conventionally known instruments/contraptions. However, in the past, several sharp tools have been used to scrape flesh from the coconut shell manually by hand, and chances of such tool piercing into user's hand is very likely, causing injuries to the user.

Conventionally, there are known devices for grating or scraping flesh from the coconut shells. These devices require muscle power of the user for scraping the flesh from the coconut shell. Usually, the process includes user holding the coconut shell with flesh in a hand and turn the shaft connected to a scraper blade for rotating the scraper blade. The coconut shell is then pressed on to the rotating blade to scrape the flesh. However, such a process requires the user to manually rotate the shaft connected to the scraper blade for scraping, where a lot of muscle power to be applied from the user's end. Further, the user must give enough support for the scraper to prevent the scraper from vibrating, wobbling and the like motion during scraping operation.

With advancements in technology, powered scrapers have evolved in which the scraper blade is rotated by a driving unit such as a motor, powered by electricity. Generally, electrically powered scrapers include the scraping blade exposed outside on which the coconut shell to be scrapped is placed. In some instances, during scraping, the coconut shell pressed against the scraping blade may slip from user's hand, posing safety risk to the user as user's hand may contact the rotating scraping blade. Further, in some instances i.e., post scraping operation, unintentional switching ON the scraper may occur, which results in rotation of the scraping blade, again posing safety risk

to the user and the surroundings, since the user's hand may contact the rotating scraping blade causing injuries, which is undesired.

The present disclosure is directed to overcome one or more limitations stated above or any other limitations associated with the devices known in art.

SUMMARY OF THE DISCLOSURE

In light of the above, there exists a need and it would be advantageous to develop a coconut scraper provided with safety features to ensure safety of a user. It would also be desirable to enable powering an electric motor of the coconut scraper only upon operating the lid to a closed condition [that is, the lid enclosing the bowl] and applying load to displace the tool assembly to a second position. To better address one or more of these concerns, in a first aspect of the disclosure a dual safety mechanism for a coconut scraper is disclosed. The coconut scraper includes a tool assembly coupled to the electric motor [herein referred to as motor], where the tool assembly is configured to displace between a first position and a second position, corresponding to load applied on the tool assembly. Further, the coconut scraper includes a bowl, which receives the tool assembly and a lid, which is receivable by the bowl. The lid is configured to be operable between an open condition and a closed condition in relation to the bowl. In the closed condition, the lid is configured to enclose the tool assembly and receive load, to displace the tool assembly from the first position to the second position.

The safety mechanism employed in the coconut scraper is a dual safety mechanism which includes a first activation unit and a second activation unit. Each of the first activation unit and the second activation unit are communicatively coupled to the motor. The lid in the closed condition is configured to activate the second activation unit and the tool assembly at the second position is configured to activate the first activation unit, where the activation of first activation unit and the second activation unit are configured to power the motor of the coconut scraper. Therefore, configuration of the coconut scraper facilitates in powering the motor only upon operating the lid to the closed condition and applying load on the lid to displace the tool assembly to the second position and thus ensures safety of the user as inadvertent operation of the motor (thus, the coconut scraper) is mitigated.

In an embodiment, the lid includes a flexible enclosure defined with a contour to receive and support a coconut shell, and a flange portion extends along a periphery of the contour. Further, the lid includes a retaining element coupled to the flange portion of the flexible enclosure. The retaining element is configured to activate an activation unit in the closed condition of the lid, and aids in handling the lid.

In an embodiment, the lid is configured to be movable in the closed condition, to facilitate scraping various contours of a coconut shell, during scraping.

In an embodiment, the flexible enclosure is made of a polymeric material. This facilitates in receiving and supporting coconut shells of different sizes and shapes.

In an embodiment, the first activation unit and the second activation unit is at least one of a micro switch, a contact sensor, and a non-contact sensor.

In an embodiment, the coconut scraper comprises a resilient member provided between the tool assembly and the first activation unit, the resilient member is configured to support the tool assembly in the first position until the load beyond a threshold is applied on the tool assembly, and thus mitigates motor from powering unless a threshold load is applied on the tool assembly.

In a second aspect of the disclosure, a coconut scraper is disclosed. The coconut scraper includes a base, which accommodates a motor and bowl which is supported by the base. Further, the coconut scraper includes a tool assembly detachably coupled to the motor. The tool assembly is configured to displace between a first position and a second position, corresponding to load applied on the tool assembly. Furthermore, the coconut scraper includes a lid which is receivable by the bowl. The lid is configured to be operable between an open condition and a closed condition. Additionally, the coconut scraper includes a safety mechanism, which includes a first activation unit and a second activation unit. Each of the first activation unit and the second activation unit are communicatively coupled to the motor. The lid in the closed condition is configured to activate the second activation unit and the tool assembly at the second position is configured to activate the first activation unit, where the activated first activation unit and the second activation unit are configured to power the motor of the coconut scraper. Therefore, configuration of the coconut scraper facilitates in powering the motor only upon operating the lid to the closed condition and

upon applying load on the lid to displace the tool assembly to the second position, and ensures safety of the user as inadvertent operation of the motor (thus, the coconut scraper) is mitigated.

The foregoing summary is illustrative only and is not intended to be in any way limiting. In addition to the illustrative aspects, embodiments, and features described above, further aspects, embodiments, and features will become apparent by reference to the drawings and the following detailed description.

BRIEF DESCRIPTION OF ACCOMPANYING DRAWINGS

The novel features and characteristics of the disclosure are set forth in the appended claims. The disclosure itself, however, as well as a mode of use, further objectives, and advantages thereof, will best be understood by reference to the following detailed description of the embodiments when read in conjunction with the accompanying drawings. One or more embodiments are now described, by way of example only, with reference to the accompanying drawings wherein like reference numerals represent like elements and in which:

Figure. 1 illustrates an exploded view of a coconut scraper, in accordance with an embodiment of the present disclosure.

Figure. 2 illustrates a sectional view of the coconut scraper in assembled condition with a lid in open condition, in accordance with an embodiment of the present disclosure.

Figure. 3 illustrates a perspective view of a lid of the coconut scraper of **Figure. 1**, in accordance with an embodiment of the present disclosure.

Figure. 4 illustrates a sectional view of the coconut scraper of **Figure. 1**, with the lid in open condition with a coconut shell positioned therein and a tool assembly in a first position.

Figure. 5 illustrates a sectional view of the coconut scraper of **Figure. 1**, with the lid in closed condition and the tool assembly in a second position.

Figures. 6a and 6b are schematic electric circuits of the coconut scraper, in accordance with an embodiment of the present disclosure.

The figures depict embodiments of the disclosure for purposes of illustration only. One skilled in the art will readily recognize from the following description that alternative embodiments of the mechanism and system illustrated herein may be employed without departing from the principles of the disclosure described herein.

DETAILED DESCRIPTION

While the embodiments in the disclosure are subject to various modifications and alternative forms, specific embodiments thereof have been shown by way of example in the figures and will be described below. It should be understood, however, that it is not intended to limit the disclosure to the particular forms disclosed, but on the contrary, the disclosure is to cover all modifications, equivalents, and alternative falling within the scope of the disclosure.

It is to be noted that a person skilled in the art would be motivated from the present disclosure and modify various features of providing a safety mechanism for a coconut scraper. Therefore, such modifications are considered to be part of the disclosure. Accordingly, the drawings show only those specific details that are pertinent to understand the embodiments of the present disclosure, so as not to obscure the disclosure with details that will be readily apparent to those of ordinary skilled in the art having benefit of the description herein.

The terms “comprises”, “comprising”, or any other variations thereof used in the disclosure, are intended to cover a non-exclusive inclusions, such that mechanism and system that comprises a list of components does not include only those components but may include other components not expressly listed or inherent to such mechanism, system, method, or assembly, or device or unit. In other words, one or more elements in an assembly or unit proceeded by “comprises... a” does not, without more constraints, preclude the existence of other elements or additional elements in the system or device.

Embodiments of the present disclosure discloses a safety mechanism for a coconut scraper. In conventional scraper devices, there may be some instances where, during cleaning or any other process post scraping operation, unintentional switching ON of the scraper may result in rotation of the scraping blade, posing safety risks to a user. There are high chances that, the user's hand

may contact the rotating scraping blade causing injuries, which are undesired. Further, during operation of the coconut scraper, coconut shell is directly contacted by the user during scraping operation posing safety risks, as the coconut shell may slip during scraping operation. In some instances, the user may unintentionally switch ON the coconut scraper, again posing safety risk, which is undesired. Further, during scraping, the scraped flesh may spill out of the bowl, causing inconvenience to the user.

Accordingly, the present disclosure discloses a coconut scraper, adapted with a safety mechanism. The safety mechanism may be configured to actuate (thus, power) the electric motor of the coconut scraper only upon positioning the lid to enclose the bowl of the coconut scraper and applying load on lid to displace the tool assembly of the coconut scraper from a first position to a second position.

The coconut scraper of the present disclosure may broadly include a base configured to accommodate a motor and a bowl supported by the base. The bowl may define a scraping region and may be configured to receive scrapped coconut flesh, during operation of the coconut scraper. Further, the coconut scraper may include a tool assembly. The tool assembly may be detachably coupled to the motor and may extend into the bowl. The tool assembly may be configured to displace between a first position and a second position, corresponding to the load applied on the tool assembly. In an embodiment, the tool assembly may be supported by a resilient member, which may support the tool assembly in the first position until a load beyond a threshold is applied on the tool assembly. Furthermore, the coconut scraper may include a lid, which may be receivable by the bowl, and operable between an open condition and a closed condition, relative to the bowl. The lid may include a flexible enclosure, which may be defined with a contour to receive and support a coconut shell. The lid may further include a flange portion, which may extend along a periphery of the contour and a retaining element coupled to the flange portion. In the closed condition, the lid may be configured to enclose the tool assembly and receive the load necessary to displace the tool assembly from the first position and the second position. Additionally, the coconut scraper may include a safety mechanism. The safety mechanism may be a dual safety mechanism which may include a first activation unit and a second activation unit, each communicatively coupled to the motor. The second activation unit may be configured to activate corresponding to closed condition of the lid and the first activation unit may be configured to

activate corresponding to the second position of the tool assembly. The activated first activation unit and the second activation unit aids in powering the motor for performing scraping operation.

In an operational embodiment, i.e., to scrape the flesh of the coconut shell, the coconut shell may be placed within the flexible enclosure (thus, the contour defined in the flexible enclosure) of the lid. The flexible enclosure (thus, the lid) with the coconut shell positioned therein, may be operable to the closed condition, such that the lid encloses the bowl, and the coconut shell abuts the tool assembly (i.e., a scraping tool of the tool assembly). In an embodiment, in the closed condition of the lid, the retaining element of the lid may contact the second activation unit, thus activating the second activation unit. Once, the lid with the coconut shell held within is positioned on the tool assembly, the user may apply force on the lid such that the coconut shell is pressed down by the user against the tool assembly, to exert load on the tool assembly. Once, the applied load on the tool assembly exceeds beyond the threshold (thus, beyond resistive load of the resilient member), the tool assembly may displace from the first position to the second position. At the second position, the tool assembly may contact the first activation unit, thus activating the first activation unit. The activation of the first activation unit and the second activation unit may result closing of an electric circuit, thus powering the motor.

Further, the load beyond the threshold is maintained by the user to maintain the tool assembly in the second position to carry out scraping operation and, the lid (i.e., the lid in the closed condition) may be moved in desired direction i.e., 360 degrees within the bowl, and the flexible enclosure may be operable to change orientation of the coconut shell in relation to the scraper blade, thus scraping various contours of the coconut shell. The configuration of the coconut scraper of the present disclosure ensures safety of the user, since the lid is provided to support the coconut shell and enclose the bowl, and the motor is powered only upon positioning the lid to the closed condition and applying load to displace the tool assembly to the second position.

In the following detailed description, embodiments of the disclosure are explained with reference to accompanying figures that form a part hereof, and which are shown by way of illustration and specific embodiments in which the disclosure may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the disclosure, and it is to be understood that other embodiments may be utilized and that changes may be made without

departing from the scope of the present disclosure. The following description is, therefore, not to be taken in a limiting sense.

Figures. 1 and 2 illustrates an exploded view and a sectional view of a coconut scraper (100), which is adapted with a safety mechanism, in accordance with some embodiments of the present disclosure.

As seen in **Figures. 1 and 2** the coconut scraper (100) may include a base (101), which may be configured to accommodate a drive unit such as an electric motor (106) [herein referred to as motor]. Further, the coconut scraper (100) includes a bowl (102), which may be positioned and supported on the base (101). The bowl (102) may define a scraping area and may also be configured to receive and store scrapped material (i.e., the coconut flesh) during operation of the coconut scraper (100). As apparent from **Figures. 1 and 2**, the coconut scraper (100) may include a tool assembly (103), which may be receivable by the bowl (102) and detachably connected to the motor (106). In an embodiment, the tool assembly (103) may include a scraper blade (104) and a gear box (105), which may be detachably connected to the scraper blade (104). Further, the gear box (105) may be coupled to an output shaft [not shown] of the motor (106), such that rotation of the motor (106) results in rotation of the scraper blade (104) at required speeds to perform scraping operation. In an embodiment, the scraper blade (104) may be positioned within the bowl (102), and the gear box (105) may be positioned in an intermediate section between the bowl (102) and the base (101). The scraper blade (104) may include a plurality of teeth defined on an outer periphery and are exposed to outside for contacting the material [i.e., flesh of the coconut shell (109)] to be scrapped.

In an embodiment of the disclosure, the gearbox (105) may be rigidly coupled to the shaft of the motor (106) or may be movably coupled to the shaft of the motor (106). As an example, the shaft of the motor (106) and an input gear [not shown in figures] of the gearbox (105) may be defined with a matching spline profiles to movably couple the shaft of the motor (106) and the gearbox (105). In such movably coupled configuration, only the tool assembly (103) i.e., scraper blade (104) and the gear box (105) displaces between the first position and the second position. Further, in the rigidly coupled configuration, the motor (106) may be movably supported on a rail arrangement [not shown in Figures] or a spring arrangement configured in the base (101), such

that the tool assembly (103) i.e. scraper blade (104) and the gear box (105) along with the motor (106) displace between the first position and the second position, and vice-versa.

In an embodiment of the disclosure, the motor (106) may be supported by a plurality of springs in the base (101) such that the motor (106) displaces between the first position and the second position corresponding to movement of the tool assembly (103) [i.e., the scraper blade (104) and the gear box (105)].

In an embodiment, the tool assembly (103) may displace between the first position and the second position along at least one of along a longitudinal axis A-A of the tool assembly (103) (as seen in **Figure. 5**) and at an inclined orientation with respect to the longitudinal axis A-A of the tool assembly (103), based on direction of load applied on the tool assembly (103) by the user.

Further, referring to **Figures. 1 and 2**, the coconut scraper (100) may include a lid (108), which may be receivable by the bowl (102). The lid (108) may be operable between an open condition and a closed condition relative to the bowl (102). In an embodiment, the open condition may correspond to the bowl (102) being exposed or not covered by the lid (108) and the closed condition may correspond to the lid (108) being positioned on the bowl (102) i.e., enclosing the bowl (102). As apparent from **Figure. 3**, the lid (108) may include a flexible enclosure (110). The flexible enclosure (110) may be defined with a contour, which may be configured to receive and support the coconut shell (109) of different shapes and sizes. In other words, the flexible enclosure (110) may flex or adjust according to shapes and sizes of the coconut shell (109) to receive and support the coconut shell (109). Further, the flexible enclosure (110) may include a flange portion (111), which may extend along a periphery of the contour defined in the flexible enclosure (110). In an embodiment, the flange portion (111) may extend integrally from the flexible enclosure (110), defining a U-shaped depression adjacent to the periphery of the contour. The U-shaped depression may facilitate flexing of the contour in different directions for scraping various portions of the coconut shell (109). As an example, the flexible enclosure (110) may be made of polymeric material such as but not limiting to silicone, which may facilitate in receiving and supporting coconut shells of different shapes and sizes, and further regain its original shape upon, removal of the coconut shell (109). The lid (108) may further include a retaining element (112), which may be configured to support the flexible enclosure (110) and facilitate handling of the lid

(108). Further as seen in **Figure. 3**, the retaining element (112) may include a first support member (113) and a second support member (114). The first support member (113) may be configured to abut and support a bottom surface of the flange portion (111) and the second support member (114) may be configured to abut and support a top surface of the flange portion (111), such that the flange portion (111) may be sandwiched between the first support member (113) and the second support member (114). Further, the first support member (113) and the second support member (114) may be connected to each other through fastening elements, adhesive, and the like, such that the flange portion (111) sandwiched therein, may be rigidly held between the first support member (113) and the second support member (114). In an embodiment, the retaining element (112) may be made of rigid material such as plastic, metal, fiber plastic and the like.

In an embodiment, the first support member (113) and the second support member (114) may be defined with a profile corresponding to the profile of the bowl (102), such that in the closed condition of the lid (108), the lid (108) may fit within the bowl (102).

Further referring to Figures. 1 and 2, in an illustrating embodiment, the coconut scraper (100) may include a first activation unit (107), which may be positioned in the base (101) and a second activation unit (116) may be positioned within a bracket (120) defined on an outer surface of the bowl (102), such that a portion of the activation unit (107) may flush with an inner surface of the bowl (102). The same cannot be construed as a limitation, since the both the first activation unit (107) and the second activation unit (116) may be positioned in the base (101) of the coconut scraper (100). The first activation unit (107) and the second activation unit (116) may be communicatively coupled with the motor (106). In an exemplary embodiment, the first activation unit (107) and the second activation unit (116) may be a micro switch, and the same cannot be construed as a limitation, since in some embodiments the activation unit (107) may be sensors such as but not limiting to contact sensors, non-contact sensors and the like. As an example, the contact sensors may be one of but not limiting to pneumatic proximity sensor, optical proximity sensor and the like. The non-contact sensor may be but not limiting to Hall effect sensor and the like.

In an embodiment, the first activation unit (107) may be configured to activate, when the tool assembly (103) is displaced to the second position, and the second activation unit (116) may be configured to activate, when the lid (108) is operated to the closed condition. In an embodiment,

activating the first activation unit (107) and the second activation unit (116) may trigger to power the motor (106), for rotating the tool assembly (103) [thus, the scraper blade (104) rotates] at required speed.

Further referring to **Figure. 2**, the tool assembly (103) may be supported by a resilient member (108), which may be provided between the tool assembly (103) and the activation unit (107). In an illustrated embodiment, the tool assembly (103) (thus, the gear box (105) of the tool assembly (103)) may be defined with a projection (110) [best seen in **Figure. 1**], which may be received by the resilient member (108). In an embodiment, the resilient member (108) may be defined with a predetermined stiffness and be configured to support the tool assembly (103) in the first position [as seen in **Figure. 2**], until a load beyond a threshold is applied on the tool assembly (103). In an embodiment, the first position of the tool assembly (103) corresponds to the projection (110) being away from the first activation unit (107) i.e., the projection (110) non-contacting the first activation unit (107). Further, the resilient member (108) may be configured to deform corresponding to the load applied on the tool assembly (103), beyond the threshold, to facilitate displacement of the tool assembly (103) from the first position to the second position [as seen in **Figure.5**].

In an embodiment, the resilient member (108) may be one of a spring such as but not limiting to a helical spring and a polymeric material such as but not limiting to foam, silicone, and the like, which may regain the original shape upon releasing of load.

In an operational embodiment, to scrape the flesh of the coconut shell (109), as seen in **Figure. 4**, the coconut shell (109) may be positioned within the contour defined in the flexible enclosure (110) of the lid (108). At this instance of positioning the coconut shell (109) within the contour of the lid (108), the lid (108) may be in the open condition, and the electric circuit may be open [as seen in **Figure. 6a**]. Upon, positioning the coconut shell (109) within the lid (108) (thus, the contour), the lid (108) may be operable from the open condition to the closed condition [as seen in **Figure. 5**]. In an embodiment, in the closed condition of the lid (108), the lid (108) may be receivable within the bowl (102) and the retaining element (112) (i.e., the first support member (113) of the retaining element (112)), may contact the inner periphery of the bowl (102). Such contact of the retaining element (112) of the lid (108) with the inner periphery of the bowl (102) results in contacting the second activation unit (116), thus activating the second activation unit

(116). Further, upon positioning the lid (108) into the bowl (102) the user may apply force or load on the lid (108) such that the coconut shell (109) is pressed against the tool assembly (103), to exert load on the tool assembly (103). Once, the load applied on the tool assembly (103) exceeds beyond a threshold (i.e., more than resistive load of the resilient member (108)), the resilient member (108) may deform i.e., the resilient member (108) may undergo compression. Such a deformation (thus, compression) of the resilient member (108) may result in the tool assembly (103) to displace from the first position to the second position. At the second position, the projection (110) defined in the tool assembly (103) may contact the activation unit (107), thus activating the activation unit (107). In an embodiment, activation of the first activation unit (107) and the second activation unit (116) may result in forming a closed electric circuit (as seen in **Figure. 6b**), thus powering the motor (106). Powering the motor (106), results in rotation of the scraper blade (104) to scrape the flesh from the coconut shell (109), where the scraped flesh may be received and stored in bowl (102).

In an embodiment, the user may constantly apply the load onto the lid (108) (i.e., contour of the lid (108)) to press the coconut shell (109) against the tool assembly (103) to maintain power supply to the motor (106) for performing the scraping operation.

During, the scraping operation, the user may support the coconut shell (109) over the scraper blade (104) by holding the contour defined in the flexible enclosure (110) of the lid (108). In an embodiment, during scraping operation, the contour may be moved in required directions with respect to a central axis A-A of the scraper blade (104), and the lid (108) may be rotated in required direction i.e., 360 degrees, relative to the bowl (102), in order to contact different contours of the coconut shell (109) with the scraper blade (104), such that various contours of the coconut shell (109) are effectively scraped. Further, upon completion of scraping of flesh from the coconut shell (109), the user may operate the lid (108) from the closed condition to the open condition (as seen in **Figure. 4**), to remove the coconut shell (109). In the open condition, the lid (108) (thus, the retaining element (112)) may move away from the activation unit (107), thus deactivating the second activation unit (116). Simultaneously, during operation of the lid (108) from the closed condition to the open condition, load applied on the tool assembly (103) is released, causing the tool assembly (103) to displace from the second position to the first position, thus deactivating the first activation unit (107). In an embodiment, deactivation of one of the first activation unit (107)

and the second activation unit (116), the electric circuit may open (as seen in **Figure. 6a**), thus interrupting electric supply to the motor (106). Thus, the configuration of the coconut scraper (100) ensures safety of the user, since the motor (106) is not powered/activated unless the lid (108) is positioned in a closed condition, within the bowl (102).

In an embodiment, the coconut scraper (100) may include a motor controller, which may be associated with the motor (106). The motor controller may be communicatively coupled with the first activation unit (107) and the second activation unit (116), such that activation of the first activation unit (107) and the second activation unit (116) may trigger the motor controller to power the motor (106).

In an embodiment, the projection (110) may extend integrally from the tool assembly (103) forming an integral part of the tool assembly (103) or the projection (110) may be an external member which may be joined to the tool assembly (103). As one example, the projection (110) may include a plurality of threads defined on an outer surface of the projection (110), which may facilitate joining of the projection (110) to the tool assembly (103).

In an embodiment, two projections defined in the tool assembly (103) are for the purpose of illustration only and the same cannot be construed as a limitation since, the coconut scraper (100) may include one projection (110) or a plurality of projections defined in the tool assembly (103).

In an embodiment, the coconut scraper (100) may include a brake assembly associated with the tool assembly (103). The brake assembly may be configured to reduce rotational speed of the tool assembly (103) (thus, the scraper blade (104)) instantly, upon release of load on tool assembly (103).

In an embodiment, an outer surface of the contour defined in the flexible enclosure (110) may be defined with a texture or a pattern, to facilitate gripping of the coconut shell (109) during operation of the lid (108) between the open condition and the closed condition and during performing scraping operation.

In an embodiment, the flexible enclosure (110) may be transparent to facilitate visibility to the user to determine the amount of flesh scrapped from the coconut shell (109).

In an embodiment, the retaining element (112) of the lid (108) may be integrally molded with the flexible enclosure (110).

In an embodiment, the lid (108) may be hinged to the bowl (102) and may be configured to be operable between the closed condition and the open condition.

In an embodiment, one or more magnets may be positioned in the lid (108) and corresponding reed switches may be positioned in the bowl (102) or base (101) of the coconut scraper (100). Upon, operation of the lid (108) to the closed condition, the reed switches may be activated by the magnets positioned in the lid (108).

In an embodiment, two second activation units (116) positioned in the brackets (120) defined on the outer surface of the bowl (102) and two first activation units (107) positioned in the base (101) are for the purpose of illustration only and the same cannot be construed as a limitation since, the coconut scraper (100) may include one first activation unit (107) and one second activation unit (116) or a plurality of first and second activation units (107, 116) without deviating from the scope of the present disclosure.

In an illustrative embodiment, a vertical configuration of the coconut scraper (100) adapted with the safety mechanism is illustrated, and the same cannot be construed as a limitation since the safety mechanism of the present disclosure may be adapted in the coconut scraper (100) having horizontal configuration without substantive modification.

In an embodiment, the safety mechanism adapted in the coconut scraper (100) includes reduced number of components, thereby making the coconut scraper (100) simple and economical.

Equivalents:

With respect to the use of substantially any plural and/or singular terms herein, those having skill in the art can translate from the plural to the singular and/or from the singular to the plural as is appropriate to the context and/or application. The various singular/plural permutations may be expressly set forth herein for sake of clarity.

It will be understood by those within the art that, in general, terms used herein, and especially in the appended claims (e.g., bodies of the appended claims) are generally intended as “open” terms (e.g., the term “including” should be interpreted as “including but not limited to,” the term “having” should be interpreted as “having at least,” the term “includes” should be interpreted as “includes but is not limited to,” etc.). It will be further understood by those within the art that if a specific number of an introduced claim recitation is intended, such an intent will be explicitly recited in the claim, and in the absence of such recitation no such intent is present. For example, as an aid to understanding, the following appended claims may contain usage of the introductory phrases “at least one” and “one or more” to introduce claim recitations. However, the use of such phrases should not be construed to imply that the introduction of a claim recitation by the indefinite articles “a” or “an” limits any particular claim containing such introduced claim recitation to inventions containing only one such recitation, even when the same claim includes the introductory phrases “one or more” or “at least one” and indefinite articles such as “a” or “an” (e.g., “a” and/or “an” should typically be interpreted to mean “at least one” or “one or more”); the same holds true for the use of definite articles used to introduce claim recitations. In addition, even if a specific number of an introduced claim recitation is explicitly recited, those skilled in the art will recognize that such recitation should typically be interpreted to mean *at least* the recited number (e.g., the bare recitation of “two recitations,” without other modifiers, typically means *at least* two recitations, or *two or more* recitations). Furthermore, in those instances where a convention analogous to “at least one of A, B, and C, etc.” is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (e.g., “a system having at least one of A, B, and C” would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). In those instances, where a convention analogous to “at least one of A, B, or C, etc.” is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (e.g., “a system having at least one of A, B, or C” would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). It will be further understood by those within the art that virtually any disjunctive word and/or phrase presenting two or more alternative terms, whether in the description, claims, or drawings, should be understood to contemplate the possibilities of including one of the terms, either of the terms, or both terms. For example, the phrase “A or B”

will be understood to include the possibilities of “A” or “B” or “A and B.” While various aspects and embodiments have been disclosed herein, other aspects and embodiments will be apparent to those skilled in the art. The various aspects and embodiments disclosed herein are for purposes of illustration and are not intended to be limiting, with the true scope and spirit being indicated by the following claims.

Referral Numerals:

Reference Number	Description
100	Coconut scraper
101	Base
102	Bowl
103	Tool assembly
104	Scraper blade
105	Gear box
106	Motor
107	First activation unit
108	Lid
109	Coconut shell
110	Flexible enclosure
111	Flange portion
112	Retaining element
113	First support member
114	Second support member
116	Second activation unit
118	Resilient member
119	Projection
120	Bracket

Claims:

1. A safety mechanism for a coconut scraper (100) having a base (101), a tool assembly (103) detachably coupled to a motor (106) and configured to displace between a first position and a second position corresponding to load applied to the tool assembly (103), a bowl (102) positioned on the base (101) and receiving the tool assembly (103) and a lid (108) receivable by the bowl (102), and operable between an open condition and a closed condition, wherein the lid (108) in the closed condition is configured to enclose the tool assembly (103) and receive load, to displace the tool assembly (103) from the first position to the second position, the safety mechanism comprising:

a first activation unit (107) and a second activation unit (116), wherein each of the first activation unit (107) and the second activation unit (116) is communicatively coupled to the motor (106);

wherein, the lid (108) in the closed condition, is configured to activate the second activation unit (116) and the tool assembly (103) in the second position, is configured to activate the first activation unit (107), wherein activation of the first activation unit (107) and the second activation unit (116) power the motor (106) of the coconut scraper (100).

2. The safety mechanism as claimed in claim 1, wherein the tool assembly (103) comprises a scraper blade (104) and a gear box (105) detachably connected to the scraper blade (104).
3. The safety mechanism as claimed in claim 1, comprises a resilient member (108) provided between the tool assembly (103) and the first activation unit (107), the resilient member (108) is configured to support the tool assembly (103) in the first position until the load beyond a threshold is applied to the tool assembly (103).
4. The safety mechanism as claimed in claim 3, wherein the resilient member (108) is configured to deform corresponding to the load applied on the tool assembly (103) beyond the threshold, to facilitate displacement of the tool assembly (103) between the first position and the second position.

5. The safety mechanism as claimed in claim 1, wherein the tool assembly (103) is defined with a projection (110), receivable by the resilient member (108) for supporting the tool assembly (103).
6. The safety mechanism as claimed in claim 5, wherein the projection (110) is configured to contact the first activation unit (107), in the second position of the tool assembly (103).
7. The safety mechanism as claimed in claim 1, wherein the tool assembly (103) is configured to displace between the first position and the second position along at least one of a longitudinal axis A-A of the tool assembly (103) and at an inclined axis with respect to the longitudinal axis A-A of the tool assembly (103).
8. The safety mechanism as claimed in claim 1, wherein the first activation unit (107) and the second activation unit (116) are at least one of a micro switch, a contact sensor and a non-contact sensor.
9. The safety mechanism as claimed in claim 1, wherein the lid (108) comprises:
 - a flexible enclosure (110) defined with a contour to receive a coconut shell (109), and a flange portion (111) extending along a periphery of the contour; and
 - a retaining element (112) coupled to the flange portion (111) of the flexible enclosure (110), wherein the retaining element (112) is receivable by the bowl (102) of the coconut scraper (100) in the closed condition of the lid (108).
10. The safety mechanism as claimed in claim 9, wherein the retaining element (112) comprises a first support member (113) and a second support member (114), wherein the first support member (113) and the second support member (114) are configured to abut either side of the flange portion (111) for supporting the flange portion (111).
11. The safety mechanism as claimed in claim 10, wherein the first support member (113) is defined with a profile corresponding to the profile of the bowl (102) of the coconut scraper (100), such that the first support member (113) is receivable by the bowl (102) and configured to activate the second activation unit (116).

12. The safety mechanism as claimed in claim 9, wherein the lid (108) is movable in the closed condition, to facilitate scraping various contours of the coconut shell (109).
13. A coconut scraper (100), comprising:
- a base (101), accommodating a motor (106);
 - a bowl (102) supported by the base (101);
 - a tool assembly (103) receivable by the bowl (102) and detachably coupled to the motor (106), wherein the tool assembly (103) is configured to displace between a first position and a second position corresponding to load applied on the tool assembly (103);
 - a lid (108) receivable by the bowl (102), wherein the lid (108) is operable between an open condition and a closed condition, wherein the lid (108) in the closed condition is configured to enclose the tool assembly (103) and receive the load to displace the tool assembly (103) from the first position to the second position; and
 - a safety mechanism, comprising:
 - a first activation unit (107) and a second activation unit (116), wherein each of the first activation unit (107) and the second activation unit (116) is communicatively coupled to the motor (106);
 - wherein, the lid (108) in the closed condition, is configured to activate the second activation unit (116) and the tool assembly (103) in the second position, is configured to activate the first activation unit (107) and, wherein the first activation unit (107) and the second activation unit (116), powers the motor (106) of the coconut scraper (100).
14. The coconut scraper (100) as claimed in claim 13, wherein the first activation unit (107) is positioned in the base (101) and the second activation unit (116) is positioned in a bracket (120) defined on an outer surface of the bowl (102).
15. The coconut scraper (100) as claimed in claim 13, wherein the tool assembly (103) comprises a scraper blade (104) and a gear box (105) detachably connected to the scraper blade (104).

16. The coconut scraper (100) as claimed in claim 13, comprises a resilient member (108) provided between the tool assembly (103) and the first activation unit (107), the resilient member (108) is configured to support the tool assembly (103) in the first position until the load beyond a threshold is applied on the tool assembly (103).
17. The coconut scraper (100) as claimed in claim 13, wherein the lid (108) comprises:
- a flexible enclosure (110) defined with a contour to receive and support a coconut shell (109), and a flange portion (111) extending along a periphery of the contour; and
 - a retaining element (112), coupled to the flange portion (111) of the flexible enclosure (110), wherein the retaining element (112) is receivable by the bowl (102) of the coconut scraper (100) in the closed condition of the lid (108).
18. The coconut scraper (100) as claimed in claim 17, wherein the retaining element (112) comprises a first support member (113) and a second support member (114), wherein the first support member (113) and the second support member (114) are configured to abut the flange portion (111) for supporting the flange portion (111).