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Audette et al.

(54) **HANDLE LOCKING AND RELEASE MECHANISM FOR A FOOD PROCESSOR**

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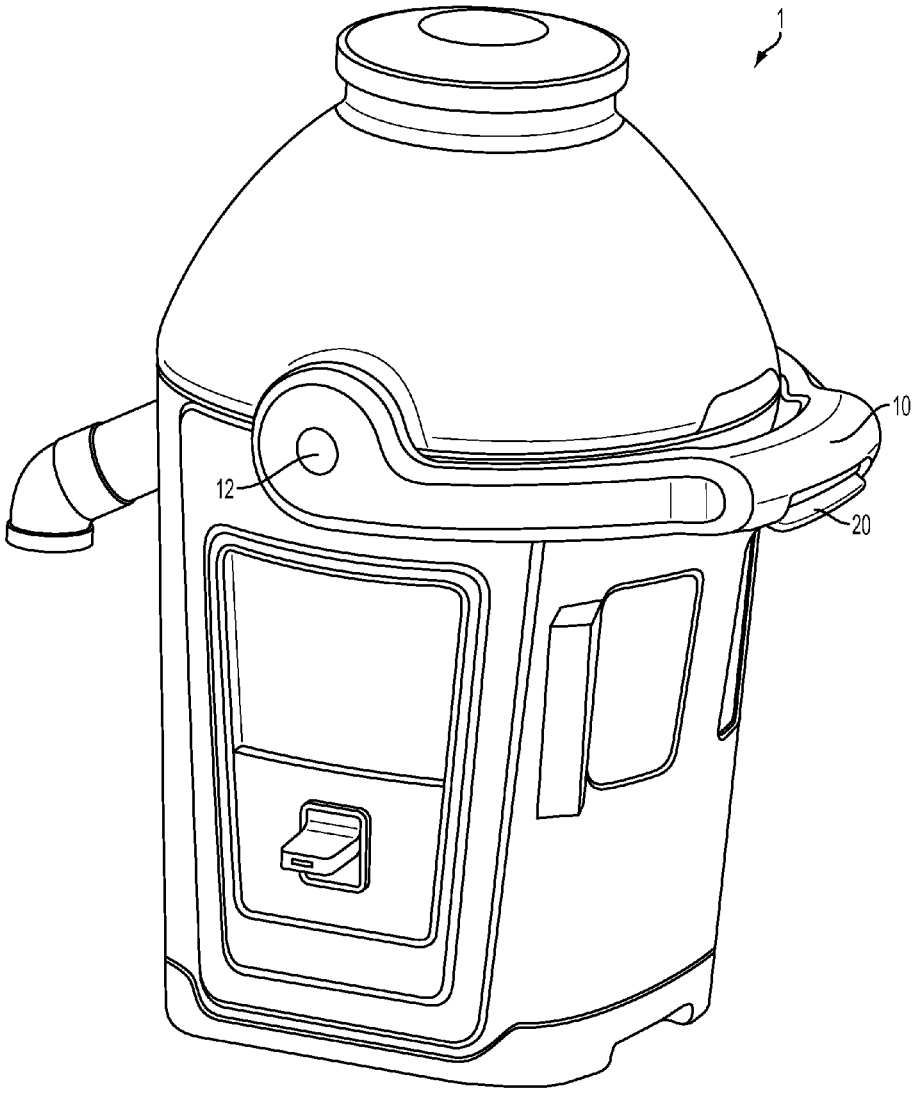
CPC . ***G05G 1/04*** (2013.01); ***G05G 11/00*** (2013.01)

USPC ..... **74/543**

(57) **ABSTRACT**

Food processing devices with attached handles are disclosed. The handle may be locked to prohibit movement of the handle relative to the food processing device and unlocked to permit movement of the handle relative to the food processing device. The mechanism for unlocking the handle may include a cam-type arrangement. The handle may function as part of a safety system which controls actuation of a motor.



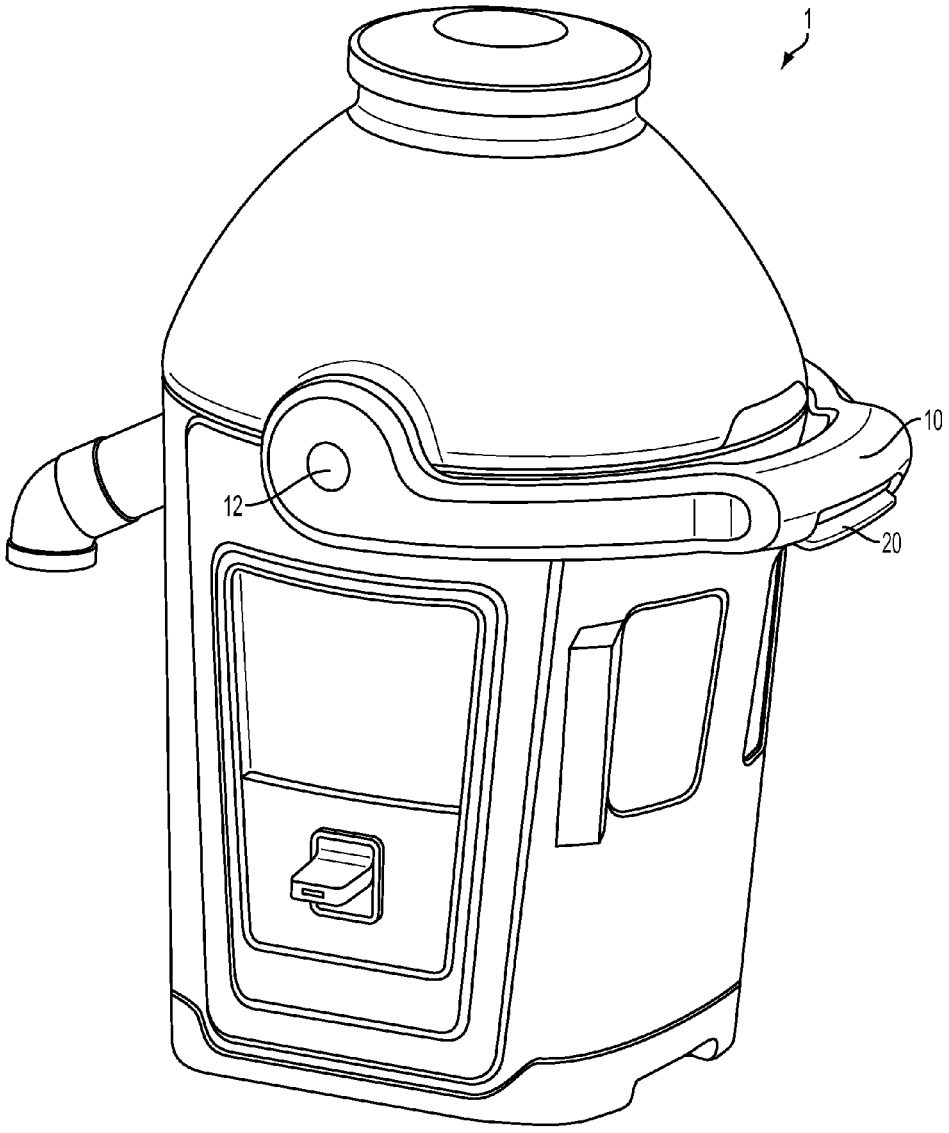



FIG. 1

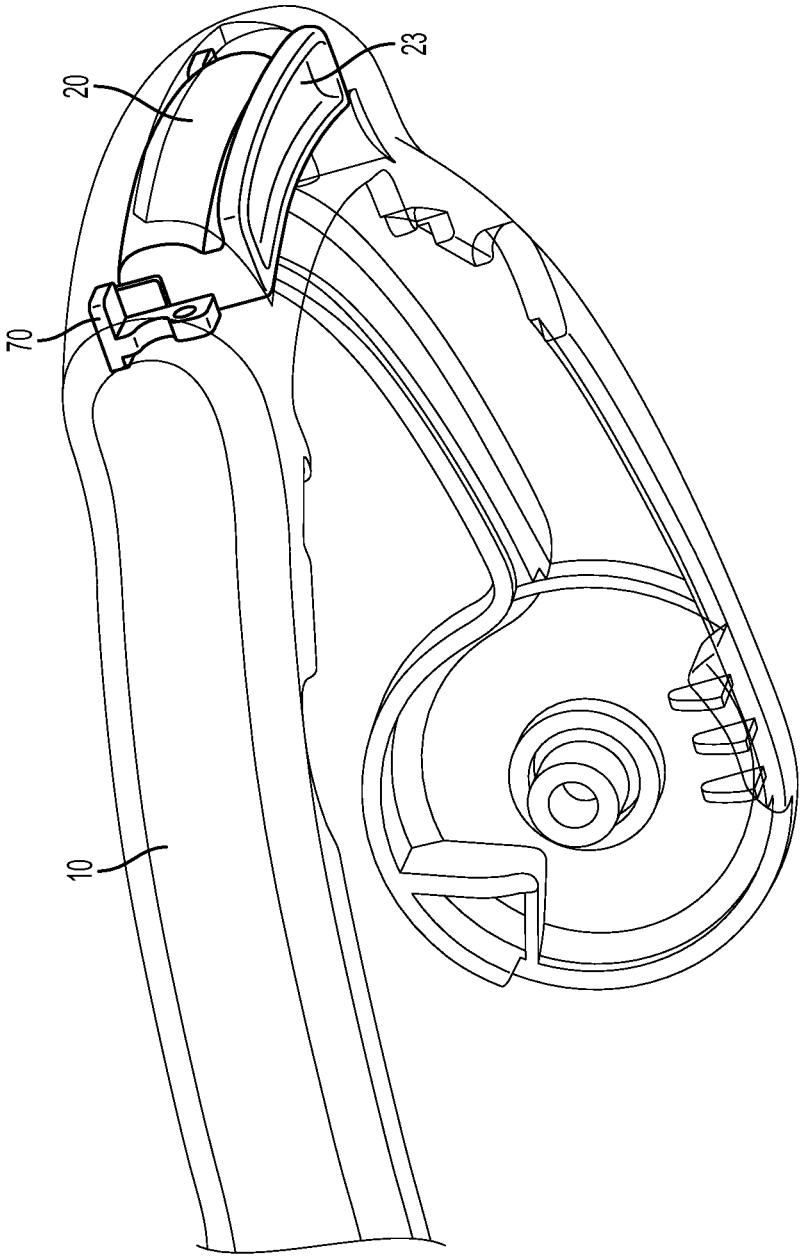



FIG. 2

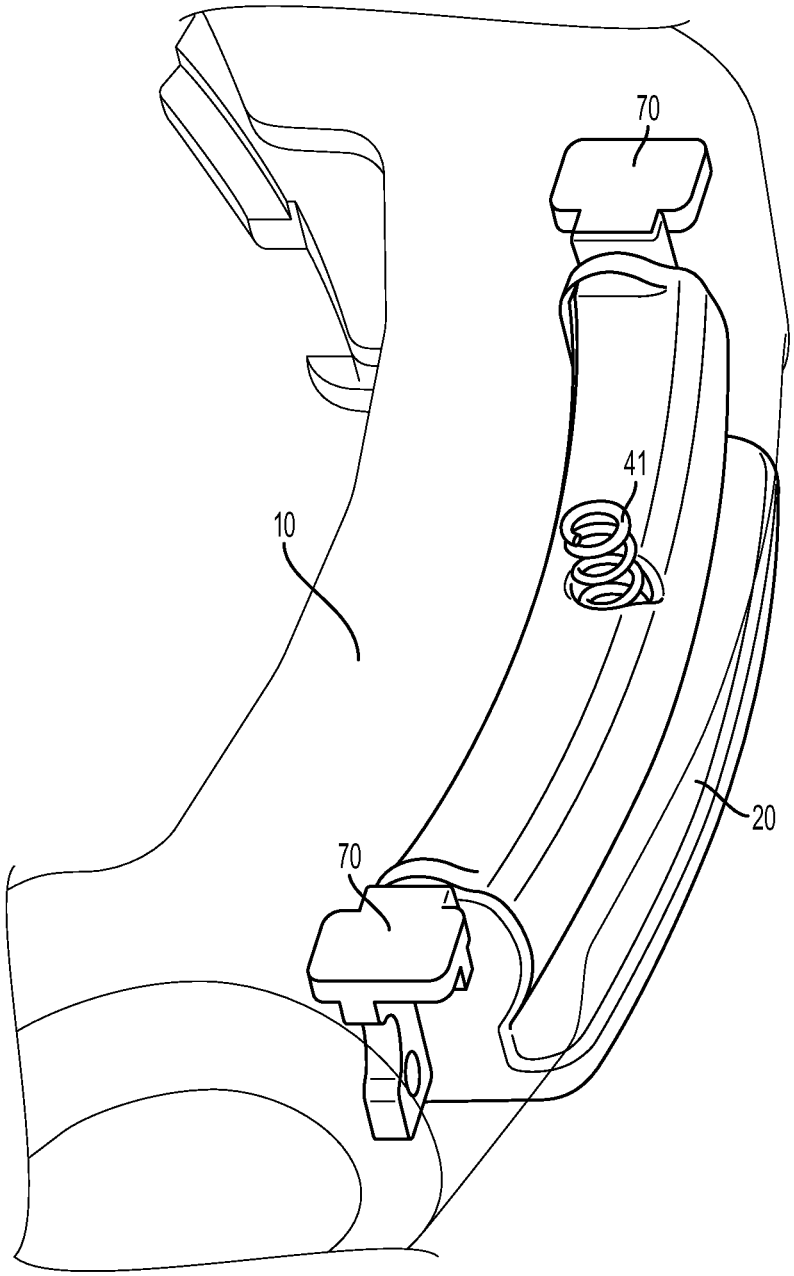



FIG. 3

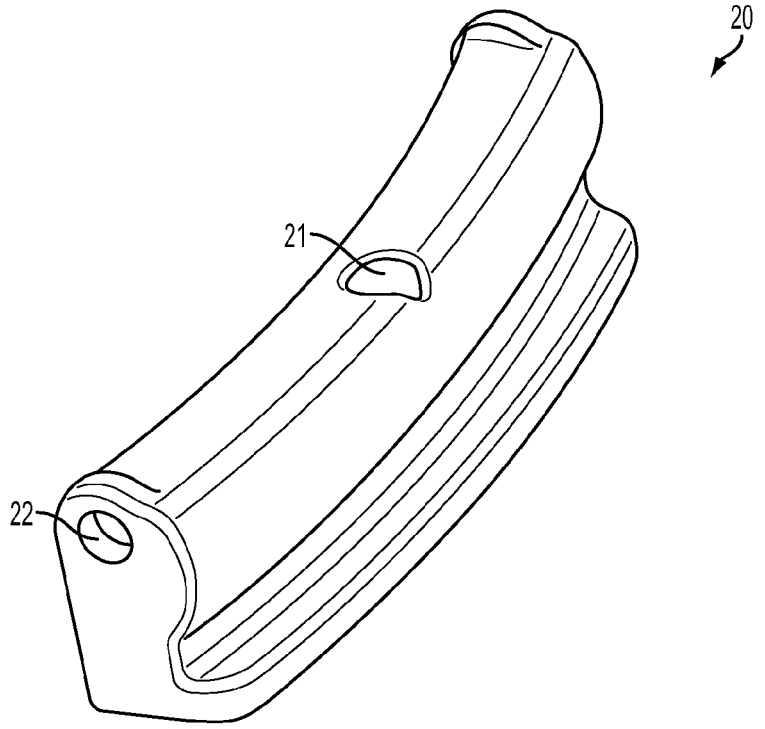



FIG. 4A

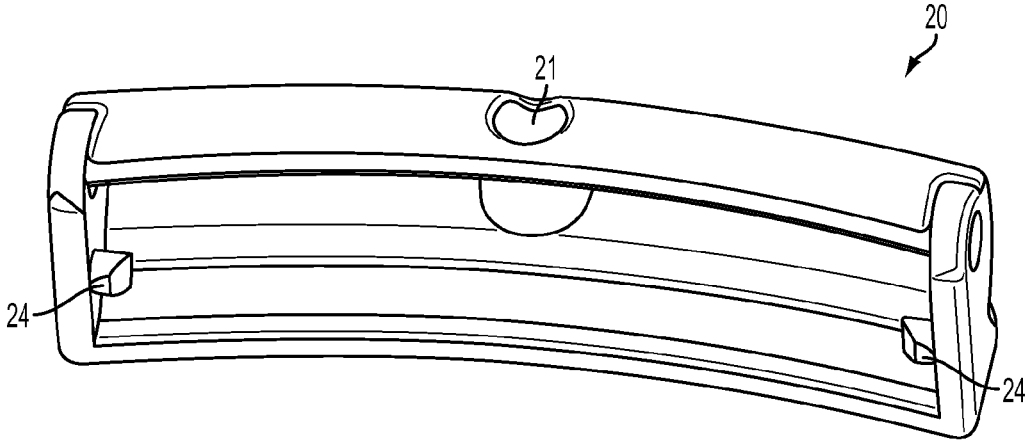



FIG. 4B

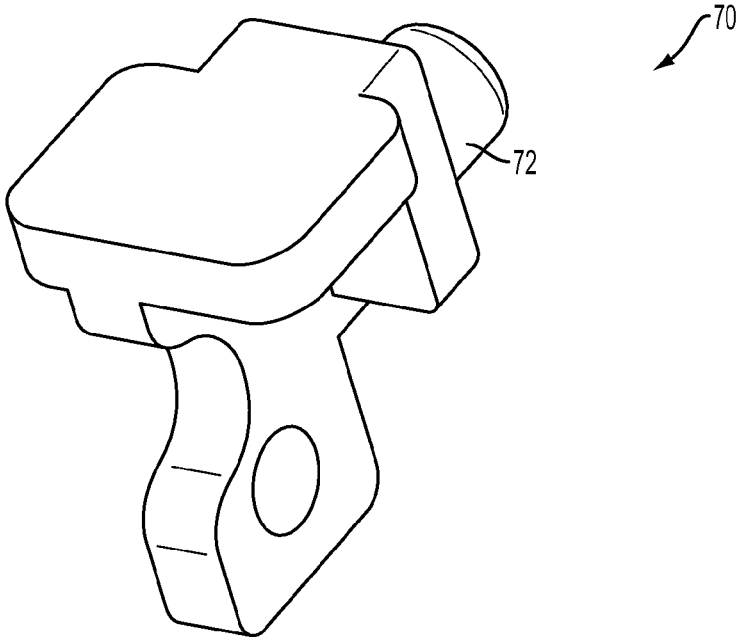



FIG. 5A

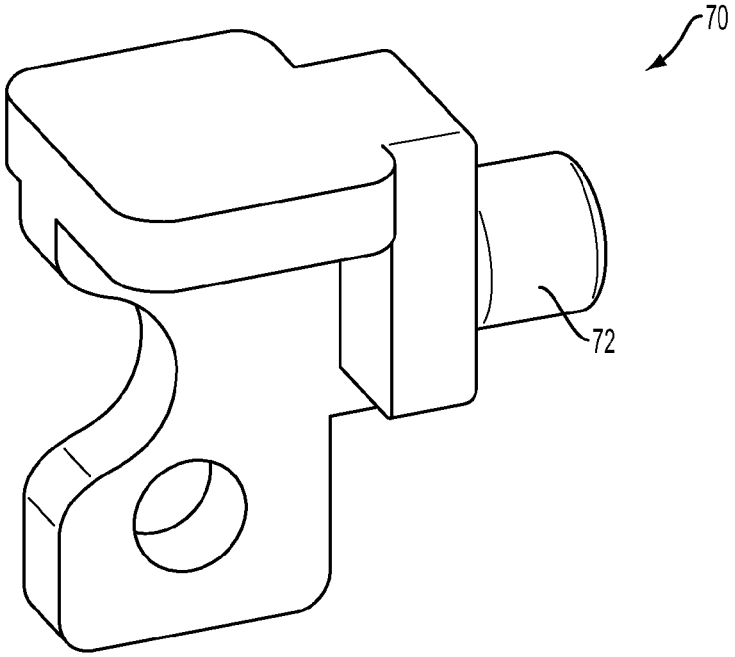



FIG. 5B

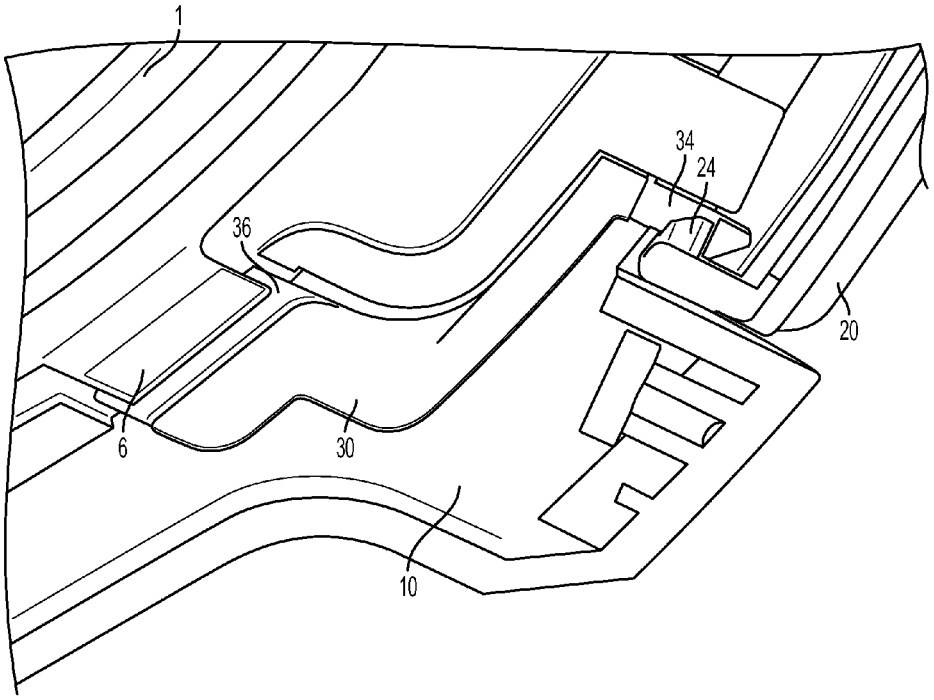



FIG. 6A

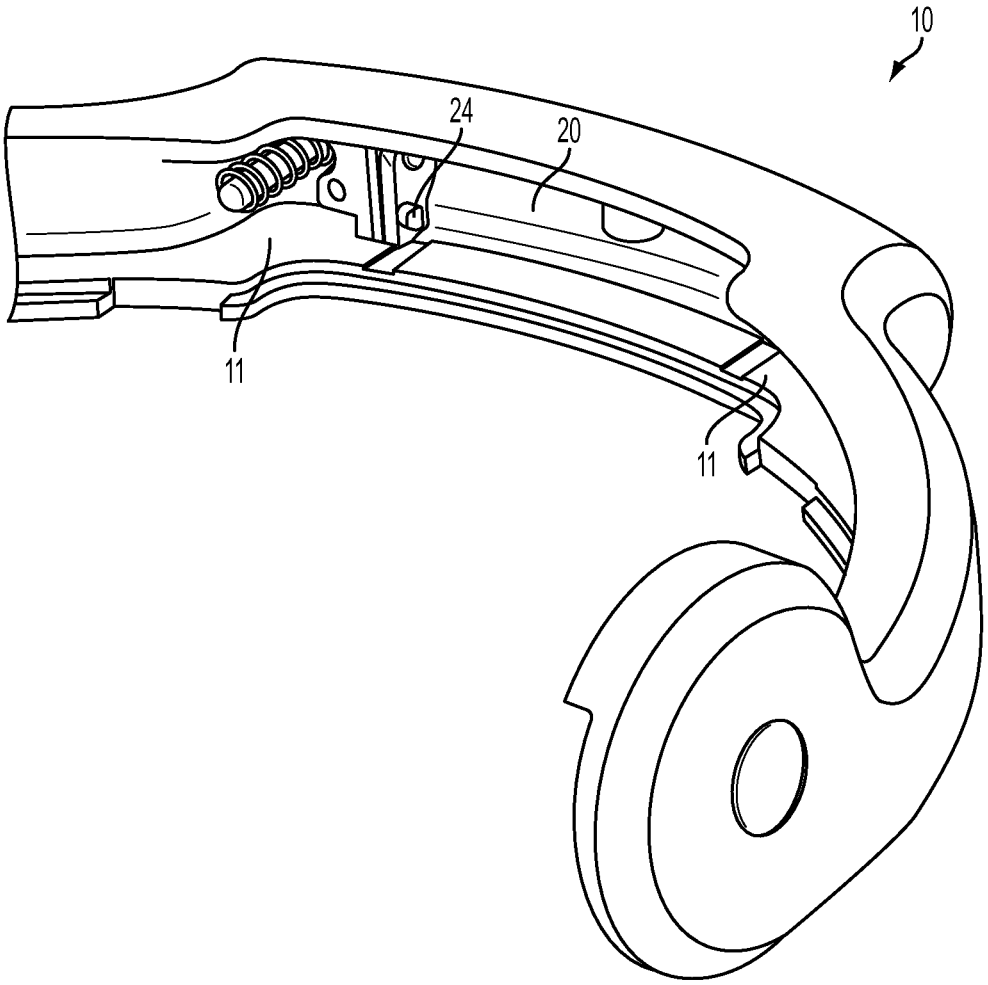



FIG. 6B

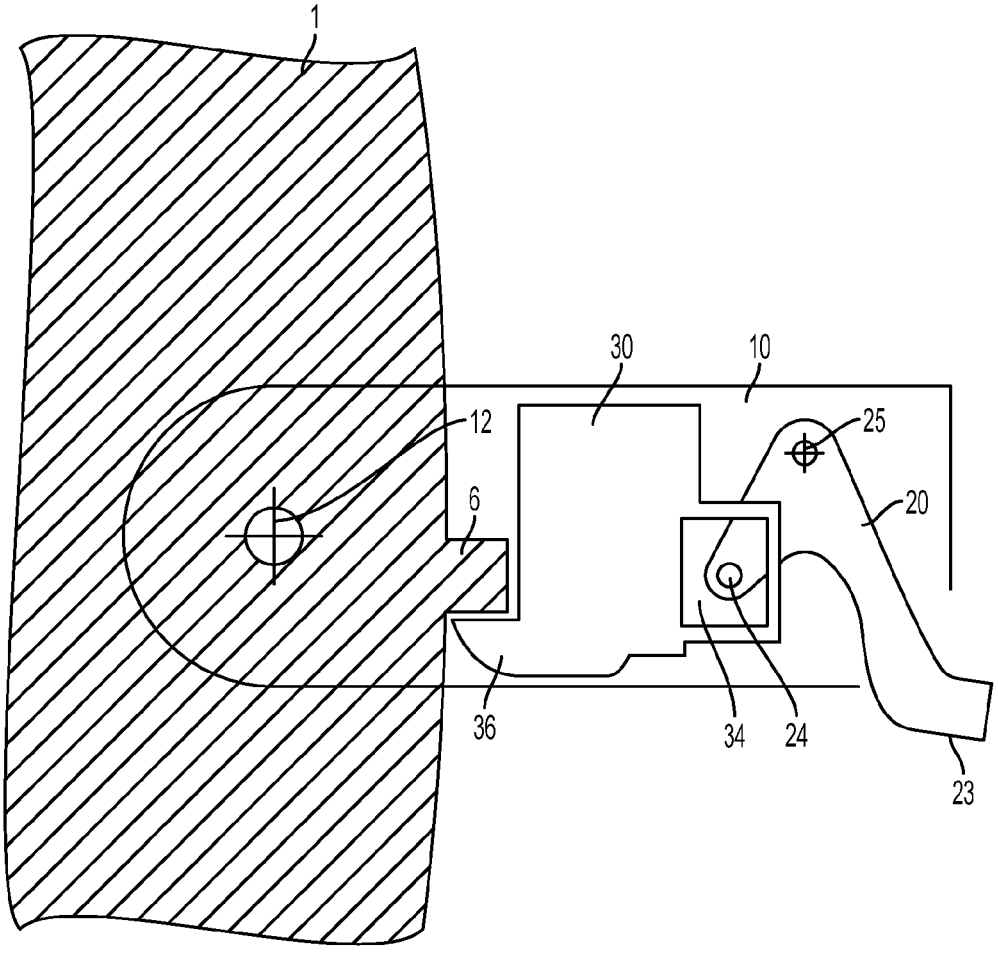



FIG. 7A

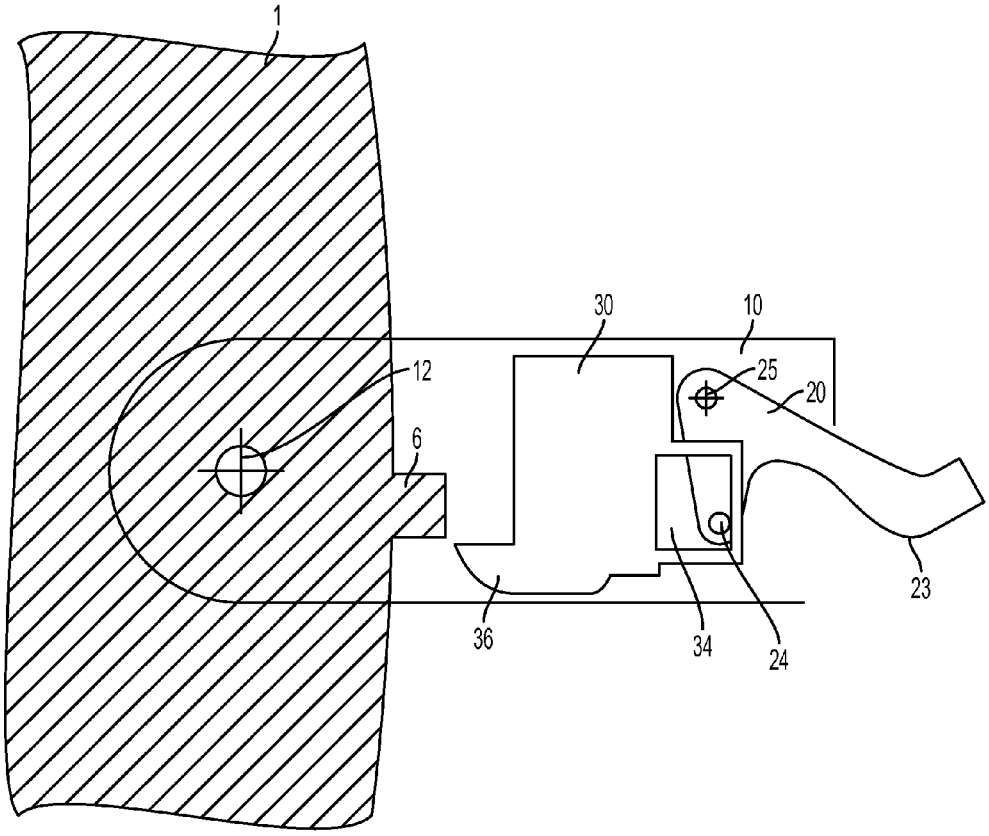



FIG. 7B

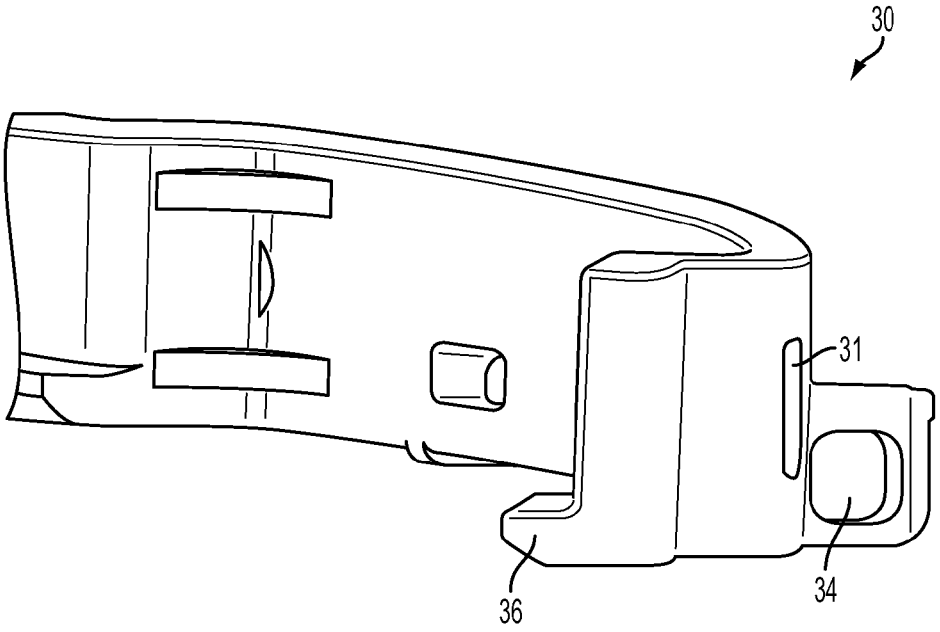



FIG. 8

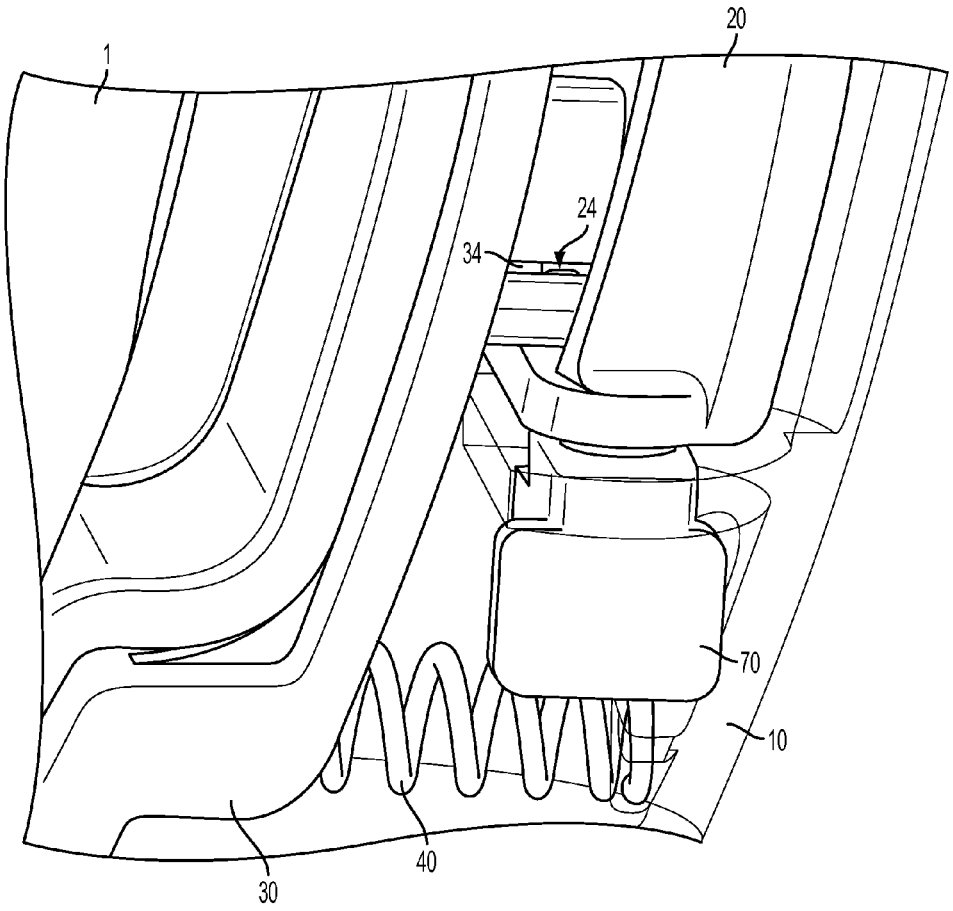



FIG. 9A

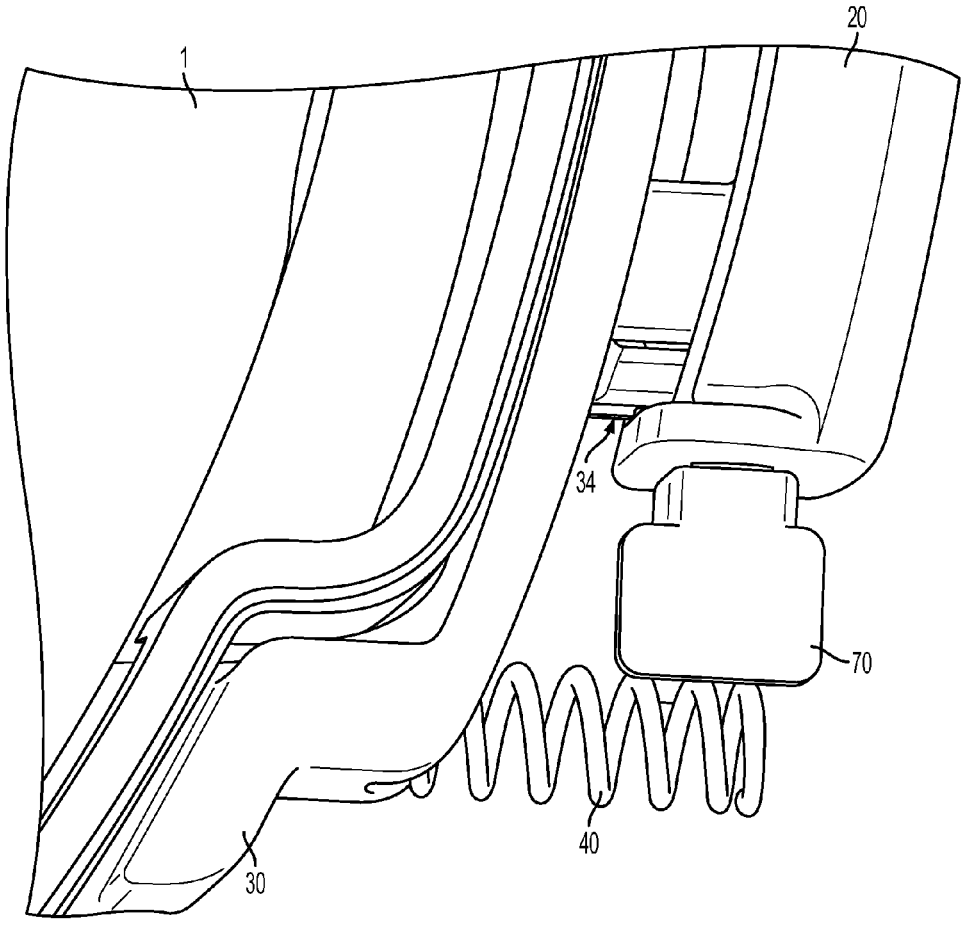



FIG. 9B

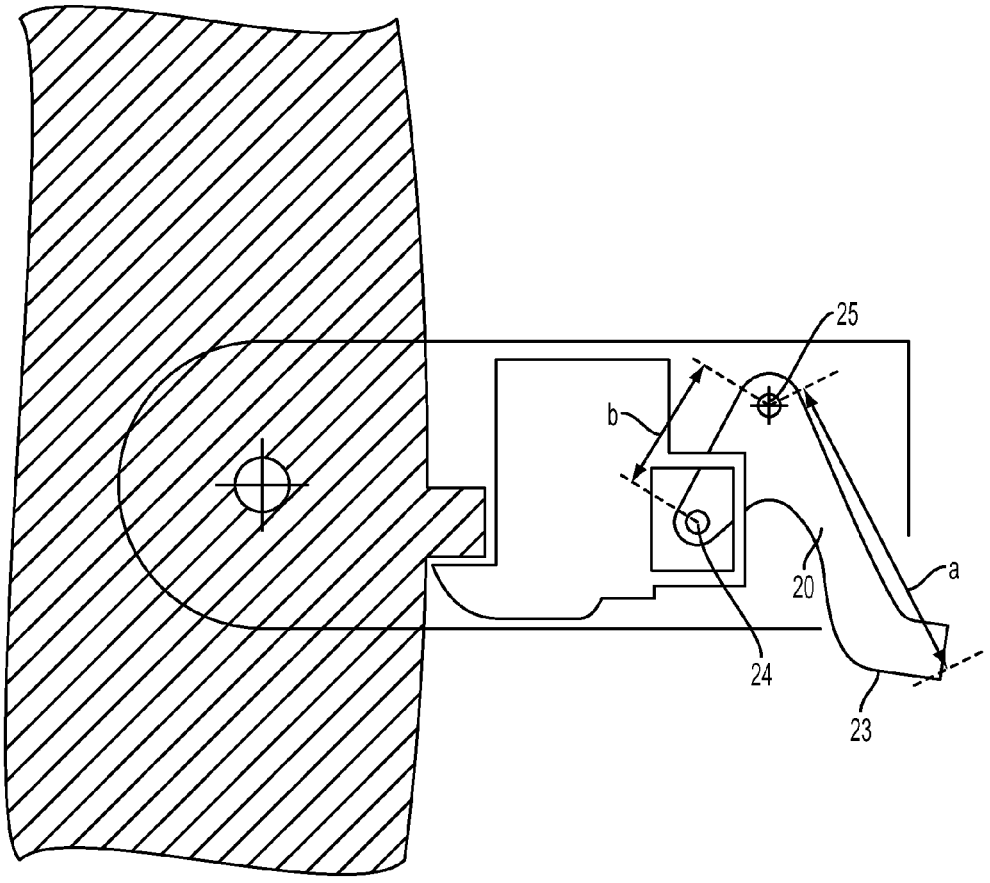



FIG. 10

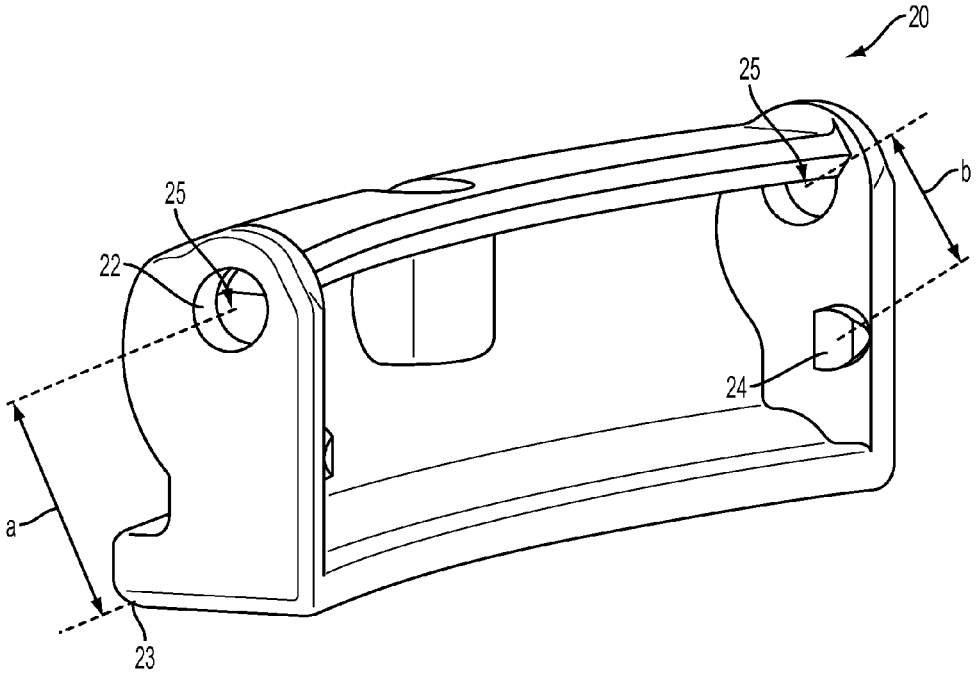



FIG. 11

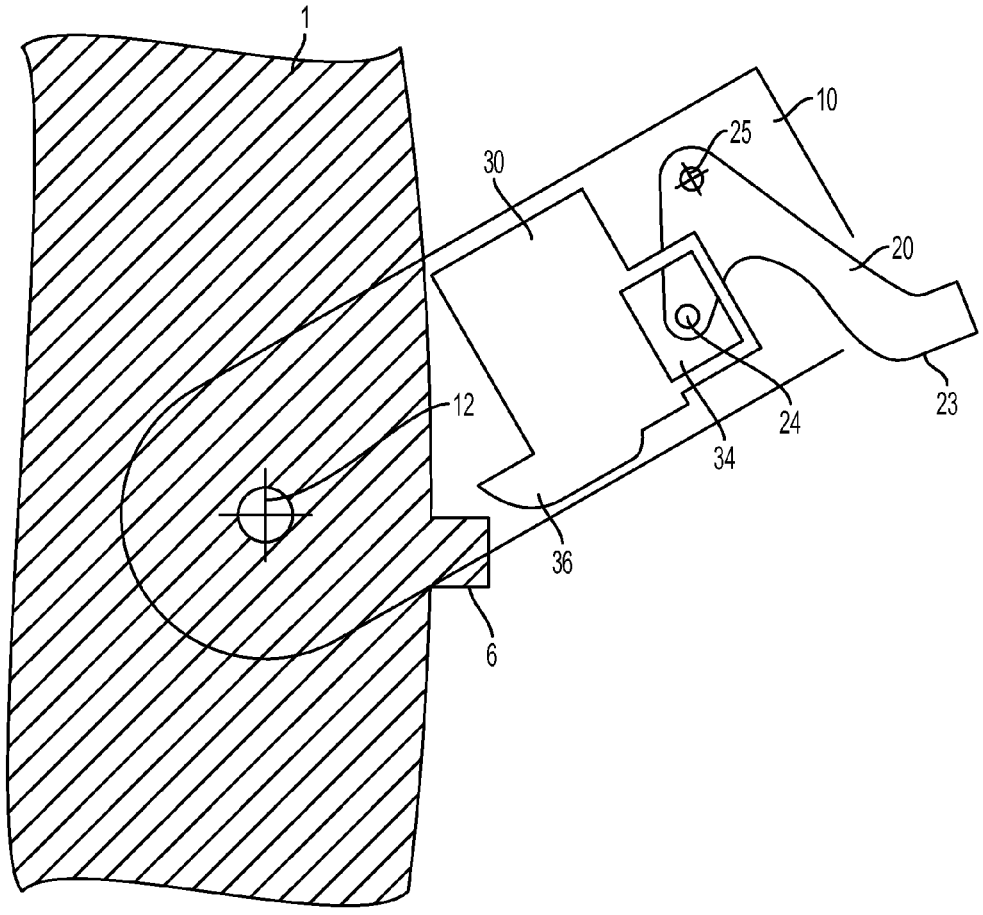



FIG. 12A

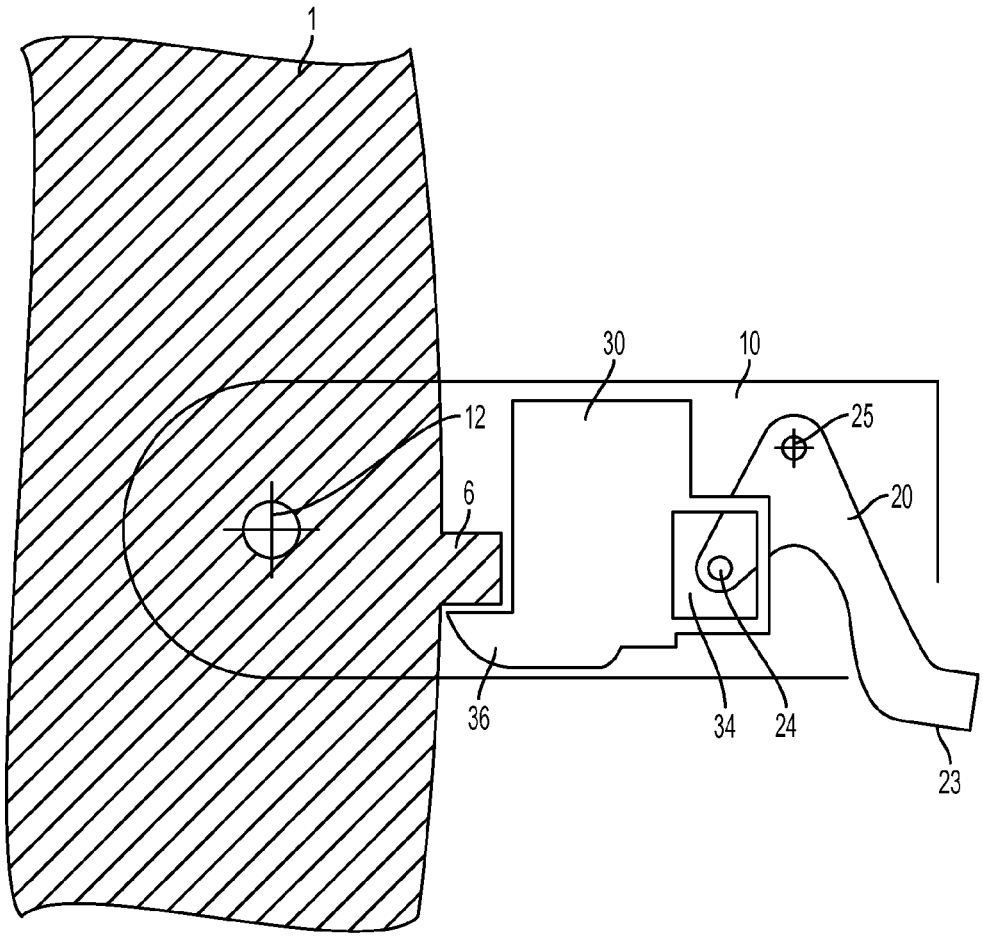



FIG. 12B

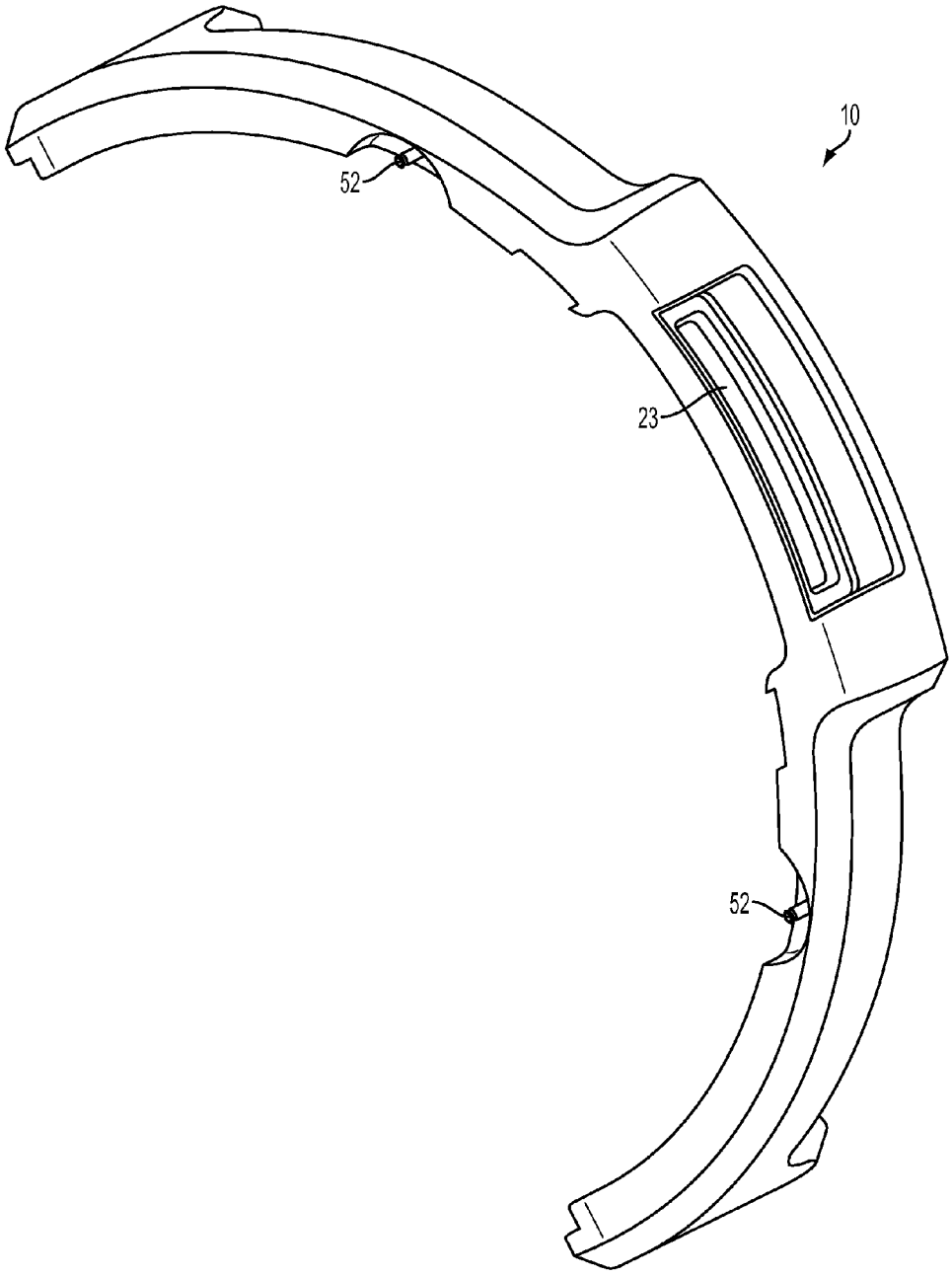



FIG. 13

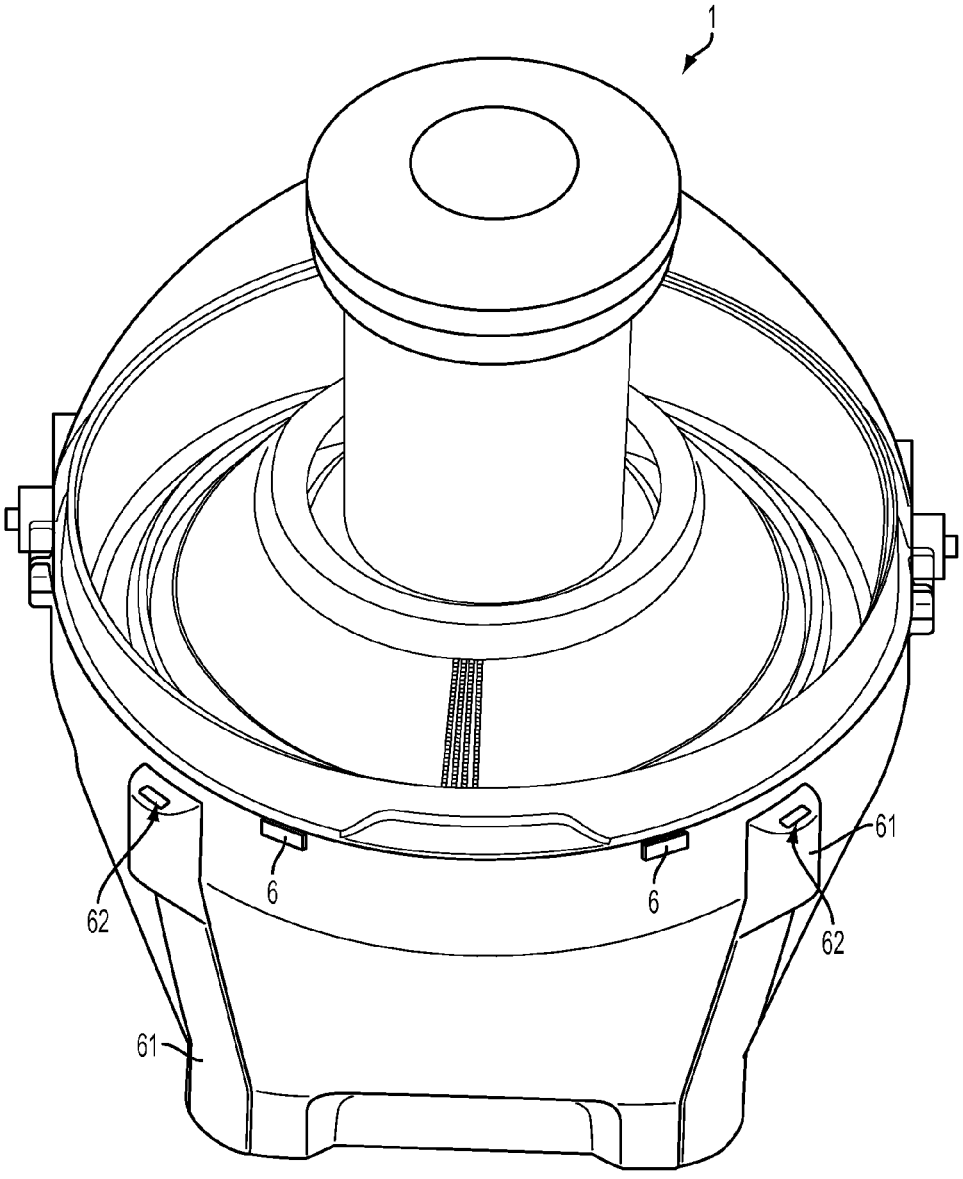



FIG. 14

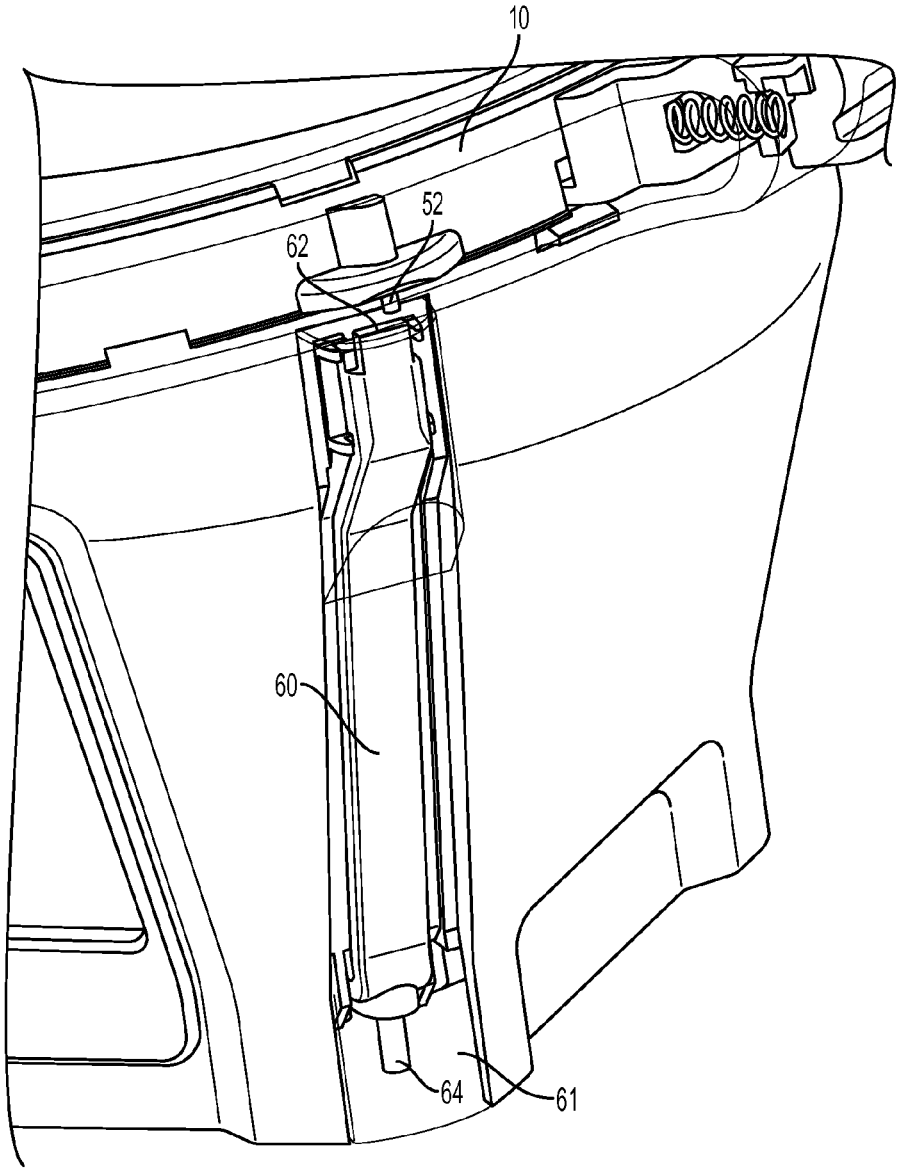



FIG. 15

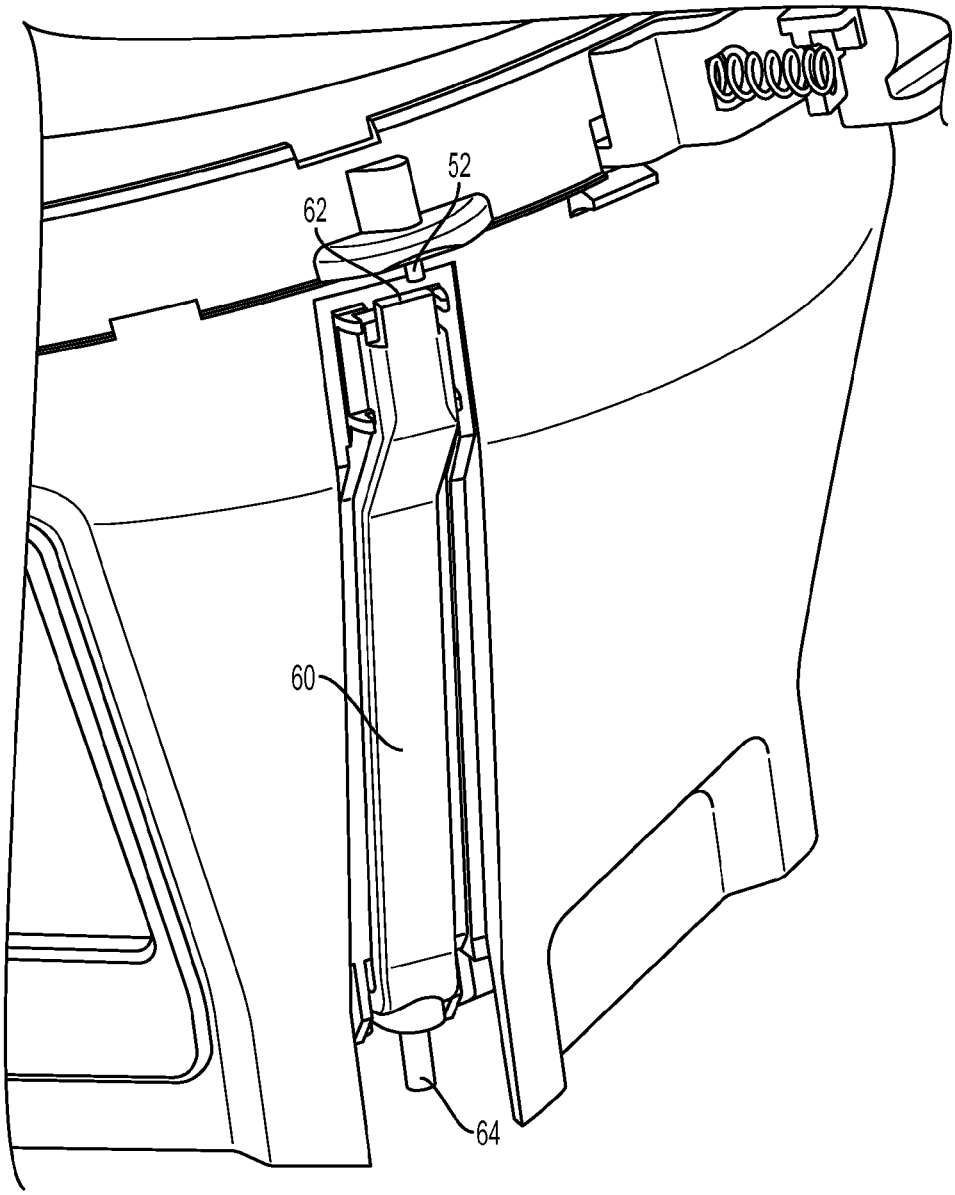



FIG. 16A

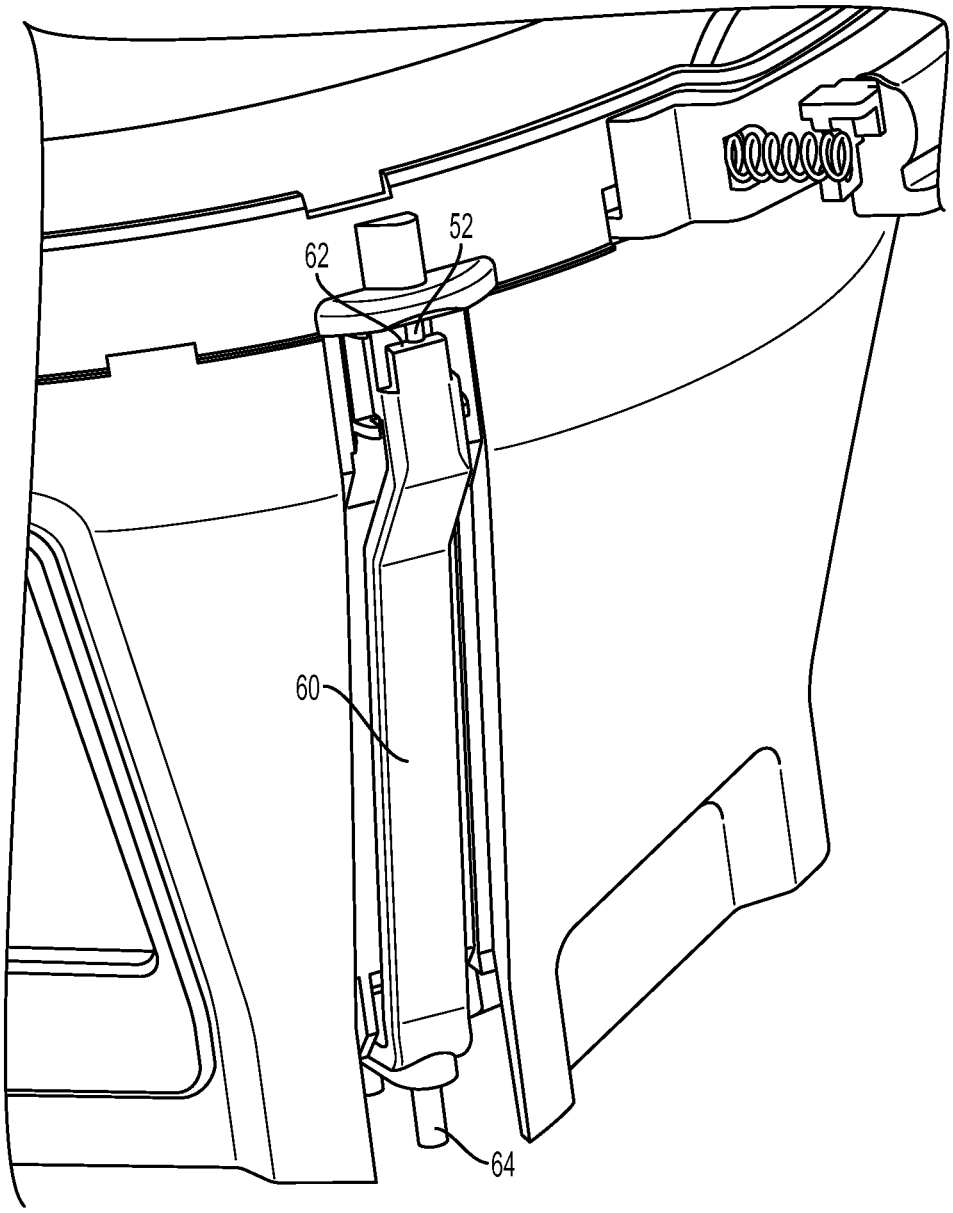



FIG. 16B

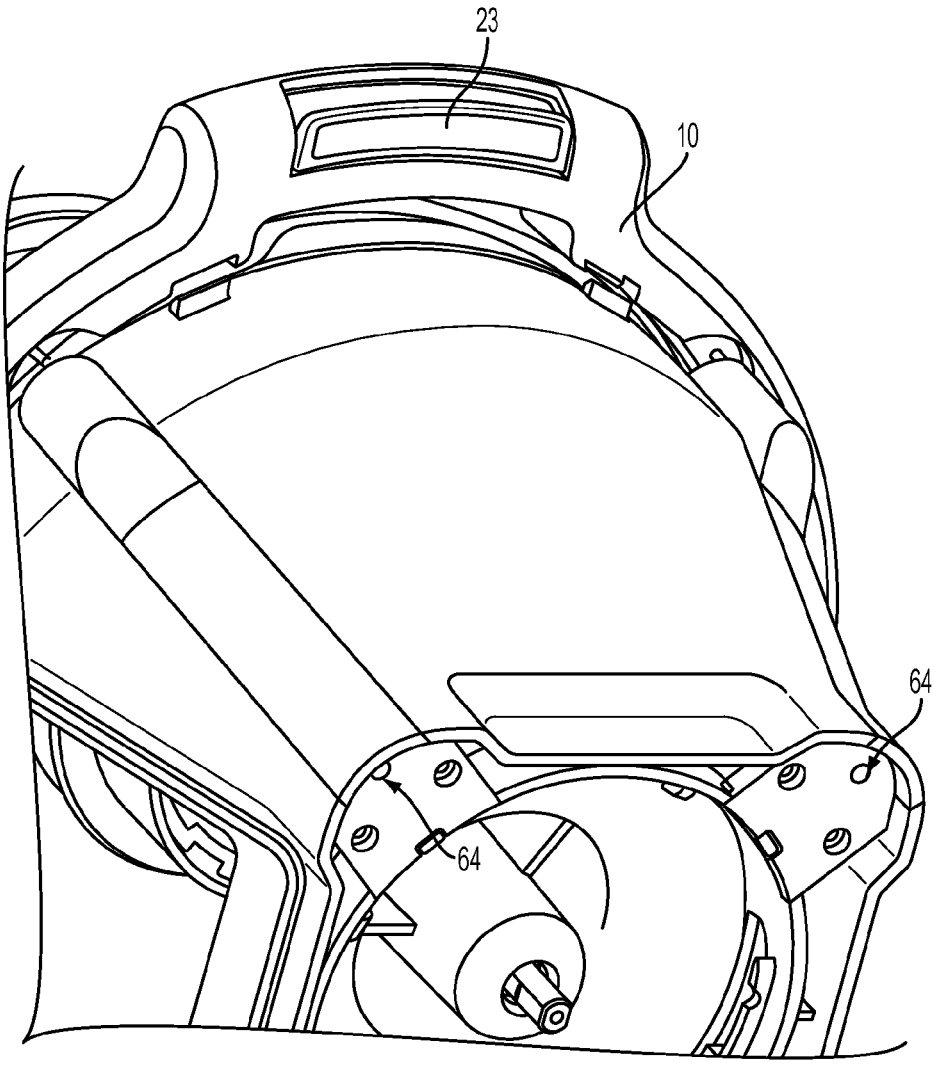



FIG. 17A

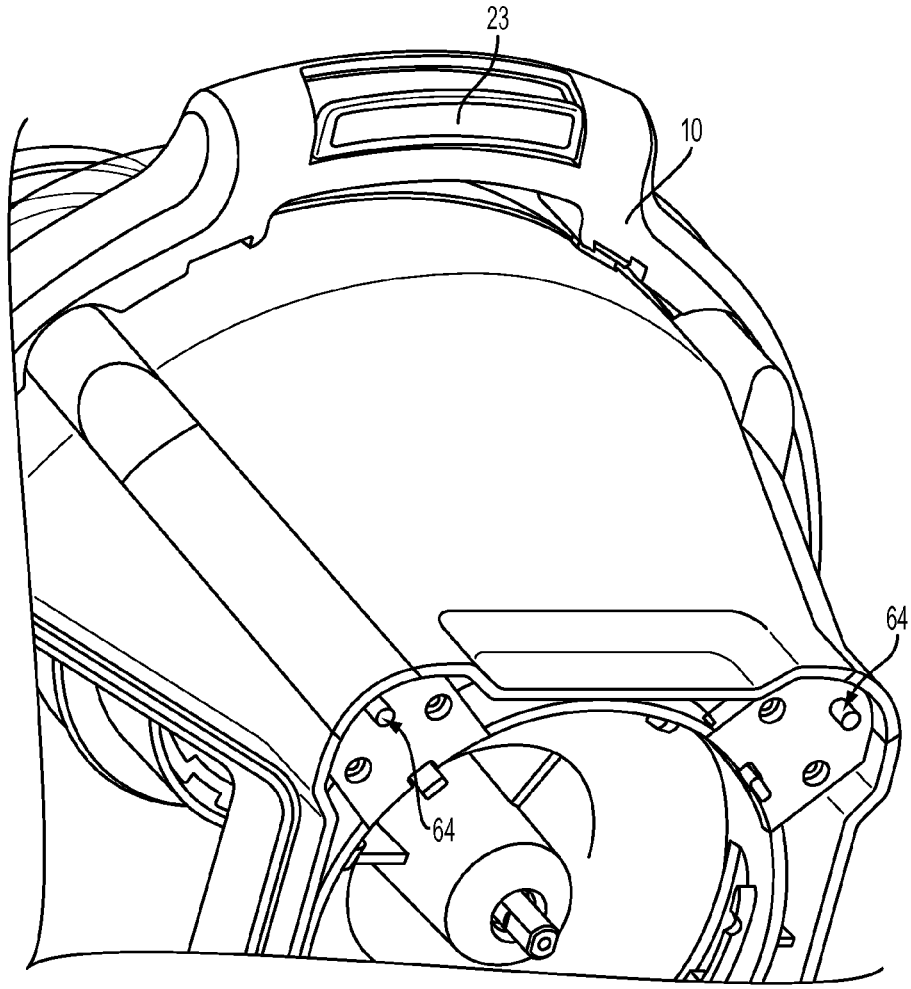



FIG. 17B

# HANDLE LOCKING AND RELEASE MECHANISM FOR A FOOD PROCESSOR

## FIELD

**[0001]** Aspects herein generally relate to a handle locking and release mechanism for an apparatus and methods of using a handle locking and release mechanism. More specifically, aspects disclosed herein relate to a food processing device having a handle and a handle locking and release mechanism, where the handle can be locked to prohibit movement of the handle relative to the food processing device and unlocked to permit movement of the handle relative to the food processing device.

## DISCUSSION OF RELATED ART

**[0002]** Some food processing devices such as juicers and blenders include handles that are permanently fixed to the food processing device. Other food processing devices include moveable handles which can be locked and released. For example, some blender containers include a pivotable handle on a container lid, where the handle is lockable and releasable.

## SUMMARY

**[0003]** According to one embodiment of the invention, an apparatus includes a food processing device with a first engagement member, a handle that is rotatably attached to the food processing device, a release actuator that is rotatably attached to the handle, and a locking member with a second engagement member that cooperates with the first engagement member. The locking member has a locked configuration where the handle is prohibited from moving relative to the food processing device due to interaction between the first and second engagement members. The locking member also has an unlocked configuration where the handle is permitted to move relative to the food processing device. Rotation of the release actuator relative to the handle causes linear translation of the locking member from the locked configuration to the unlocked configuration.

**[0004]** According to another embodiment of the invention, a handle arrangement for a food processing device includes a handle that is rotatably attachable to a food processing device. The food processing device has a first engagement member. The handle arrangement also includes a release actuator that is rotatably attached to the handle and a locking member with a second engagement member that cooperates with the first engagement member. The locking member has a locked configuration where the handle is prohibited from moving relative to the food processing device due to interaction between the first and second engagement members. The locking member also has an unlocked configuration where the handle is permitted to move relative to the food processing device. Rotation of the release actuator relative to the handle causes linear translation of the locking member from the locked configuration to the unlocked configuration.

**[0005]** According to a further embodiment of the invention, a method includes rotating a release actuator relative to a handle, where the release actuator is rotatably attached to the handle, and the handle is rotatably attached to a food processing device. Rotating the release actuator causes linear translation of a locking member from a locked configuration where the handle is prohibited from moving relative to the food processing device to an unlocked configuration where the handle is permitted to move relative to the food processing device.

## BRIEF DESCRIPTION OF DRAWINGS

**[0006]** The accompanying drawings are not intended to be drawn to scale. In the drawings, each identical or nearly identical component that is illustrated in various figures is represented by a like numeral. For purposes of clarity, not every component may be labeled in every drawing. Various embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

**[0007]** FIG. **1** is a perspective view of a food processing device with a rotatably attached handle in accordance with an aspect of the invention;

**[0008]** FIG. **2** is an enlarged perspective view of the handle depicted FIG. **1** with a release actuator and a pivot, where the handle is shown in phantom;

**[0009]** FIG. **3** is another enlarged perspective view of the handle depicted FIG. **1** with a release actuator and a pair of pivots, where the handle is shown in phantom;

**[0010]** FIG. **4**A is a front perspective view of the release actuator depicted in FIG. **2**;

**[0011]** FIG. **4**B is a rear perspective view of the release actuator depicted in FIG. **2**;

**[0012]** FIGS. **5**A-**5**B are perspective views of the pivot depicted in FIGS. **2**-**3**;

**[0013]** FIG. **6**A is a cross-sectional view of a cam-type mechanism in accordance with an aspect of the invention;

**[0014]** FIG. **6**B is a partially cut-away rear perspective view of the handle, with the locking member removed;

**[0015]** FIG. **7**A is a schematic depiction of the cam-type mechanism, where the locking member is shown in the locked configuration;

**[0016]** FIG. **7**B is a schematic depiction of the cam-type mechanism, where the locking member is shown in the unlocked configuration;

**[0017]** FIG. **8** is an enlarged perspective view of the locking member depicted in FIG. **6**A;

**[0018]** FIG. **9**A is an overhead view of the cam-type mechanism, with the handle shown in phantom;

**[0019]** FIG. **9**B is an overhead view of the cam-type mechanism, with the handle removed;

**[0020]** FIG. **10** is a schematic depiction that illustrates the mechanical advantage of the release actuator;

**[0021]** FIG. **11** is a perspective view of the release actuator that illustrates the mechanical advantage of the release actuator;

**[0022]** FIG. **12**A is a schematic depiction of the handle locking and release mechanism, where the handle is shown in an unlocked state;

**[0023]** FIG. **12**B is a schematic depiction of the handle locking and release mechanism, where the handle is shown in a locked state and the locking member is in the locked configuration;

**[0024]** FIG. **13** is an underside perspective view of the handle, the handle having pins in accordance with an aspect of the invention;

**[0025]** FIG. **14** is a perspective view of the food processing device with the handle removed, the food processing device having a pair of actuators;

**[0026]** FIG. **15** is an enlarged perspective view of the actuator depicted in FIG. **14**, where the actuator cover is shown in phantom;

**[0027]** FIG. **16**A is an enlarged perspective view of the actuator with the actuator cover removed, the actuator being in a first position;

**[0028]** FIG. **16**B is an enlarged perspective view of the actuator with the actuator cover removed, the actuator being in a second, extended position;

**[0029]** FIG. **17**A is an underside perspective view of the food processing device, where the actuator is in a first position; and

**[0030]** FIG. **17**B is an underside perspective view of the food processing device, where the actuator is in a second, extended position.

## DETAILED DESCRIPTION

**[0031]** Provided herein are embodiments where a handle can be locked to prohibit movement of the handle relative to the food processing device and unlocked to permit movement of the handle relative to the food processing device.

**[0032]** Applicant has appreciated that in handle locking arrangements where the food processing device has a first engagement member and the handle has a second engagement member which engages with the first engagement member to lock handle movement, translation of the second engagement member may be advantageous as compared to a rotating engagement member. Specifically, in some cases, the total distance that the second engagement member has to travel to clear the first engagement member may be less in a translating disengagement arrangement.

**[0033]** However, in some cases, a user may find a release actuator that operates via rotary motion easier to actuate. For example, where the handle itself is to be pivoted once unlocked, a handle release actuator that pivots in the same direction as the handle may allow the user to unlock and pivot the handle in one natural movement. Such an arrangement may permit a simple, one-handed unlocking and pivoting of the handle. In contrast, requiring the user to first linearly push or pull on a release actuator in a first direction and then pivot the handle in a different direction, may be awkward and difficult for the user, and, in some cases, may require the use of two hands.

**[0034]** According to one aspect, the mechanism for releasing the handle from the locked state may include a cam-type arrangement. With a cam-type arrangement, rotary motion of a release actuator may be transformed into linear motion of a locking member from a locked to an unlocked configuration.

**[0035]** In some cases, the release mechanism may be arranged to provide a mechanical advantage that reduces the amount of force required to unlock the handle.

**[0036]** As used herein, the terms "attached" and "coupled" are not limited to a direct connection, attachment, or coupling, as two components may be connected, attached, or coupled to one another via intermediate components.

**[0037]** According to one embodiment, as shown in FIG. **1**, a food processing apparatus includes a food processing device **1** and a handle **10** that is rotatably attached to the food processing device **1** via a handle pivot **12**. The handle **10** can be held in a locked state such that it is not free to pivot or rotate relative to the food processing device **1**. The handle **10** includes a release actuator **20** that can be actuated to release the handle from a locked state.

**[0038]** As shown in FIGS. **2-3**, where the handle **10** is shown in phantom, the release actuator **20** is rotatably attached to the handle **10** via pivots **70** located at each end of the release actuator **20**. The release actuator **20** includes a user-engaging portion **23** which a user contacts to apply a force to rotate the release actuator **20** relative to the handle **10**. In some embodiments, the user-engaging portion is a recess that may receive a user's finger, such as a thumb. The user may grasp the handle **10** with her entire hand and, with her thumb on the user-engaging portion **23**, rotate the user-engaging portion **23** with the thumb to unlock the handle **10**. The user may then rotate the handle **10**. Of course, it should be appreciated that various alternatives and/or additions may be used, as this aspect is not so limited. For example, the user-engaging portion may include a texture or surface roughness to facilitate user contact. The user-engaging portion may be a protrusion rather than a recess, or the user-engaging portion may be flat. The user-engaging portion may include indicia such as figures or text that direct the user to rotate the release actuator.

**[0039]** As shown in FIG. **3**, a spring **41** biases the release actuator **20** in the clockwise direction. An application of force upon the release actuator **20** to rotate the release actuator **20** in the counterclockwise direction causes the spring **41** to become compressed between the release actuator **20** and the handle **10**. The spring thus urges the release actuator **20** back toward the clockwise direction once application of force upon the release actuator **20** has ceased. The spring **41** is seated within an opening **21** of the release actuator, shown in FIGS. **4**A-**4**B.

**[0040]** FIGS. **4-5** show the release actuator **20** and the pivots **70** in greater detail. Each opening **22** on either end of the release actuator engages with the pivot surface **72** of a pivot **70**. Pivots **70** are fixed to the handle **10**. Thus, as the release actuator **20** rotates about the pivot surfaces **72**, the release actuator **20** rotates relative to the handle **10**.

**[0041]** As shown in FIG. **4**B, the release actuator **20** includes two pins **24**, which serve as the cams in a cam-type release mechanism, which will now be discussed.

**[0042]** FIG. **6**A is a cross-sectional view that shows one embodiment of the cam-type mechanism, which may include the food processing device **1**, a locking member **30**, handle **10**, and a release actuator **20**. Handle **10** may be hollow and may hold locking member **30** inside. Locking member **30** may move relative to the handle **10**, but locking member **30** may be constrained to move linearly in a horizontal direction toward and away from the food processing device **1**. As shown in FIG. **6**B, where the locking member **30** is not shown, the inside of handle **10** may include a track **11** that constrains the movement of the locking member **30**.

**[0043]** FIGS. **7**A-**7**B schematically depict the cam-type mechanism. FIG. **7**A depicts the locking member **30** in a locked configuration and FIG. **7**B depicts the locking member **30** in an unlocked configuration. The food processing device **1** may include a first engagement member **6**, which, in one embodiment, is a protruding tab. As shown in FIG. **7**A, the tab **6** of the food processing device **1** may interact with a second engagement member **36** located on the locking member **30** when the locking member **30** is in the locked configuration. As viewed in FIG. **7**A, with the locking member **30** is in the locked configuration, handle **10** is prohibited from rotating counterclockwise about handle pivot **12** due to abutment of

the second engagement member **36** of the locking member **30** against the first engagement member **6** of food processing device **1**.

**[0044]** As viewed in FIG. **7**A, rotation of the user-engaging portion **23** of the release actuator **20** counterclockwise about pivot point **25** causes pin **24** to initially rotate counterclockwise within opening **34** of the locking member **30**. As best seen in FIG. **6**A, pin **24** is positioned inside opening **34**. As viewed in FIG. **7**B, further rotation of release actuator **20** causes pin **24** to abut against the inside of opening **34** in a direction away from the device **1** (to the right as viewed in FIG. **7**B). Since locking member **30** is constrained to move linearly in a horizontal direction, the abutment of the pin **24** against the inside of opening **34** causes the entire locking member **30** to slide away from the food processing device **1** linearly and horizontally to the right until the second engagement member **36** of the locking member **30** slides past the first engagement member **6** of the device **1**. With a second engagement member **36** of the locking member **30** no longer directly beneath the first engagement member **6**, the locking member **30** is placed in the unlocked configuration. In some cases, when the locking member **30** is in the unlocked configuration, a small horizontal separation or gap may exist between the first and second engagement members **6**, **36**. When the locking member **30** is in the unlocked configuration, as shown in FIG. **7**B, the first engagement member **6** no longer obstructs movement of the handle **10** and thus the handle **10** is free to rotate upward toward the device **1** about handle pivot **12** (counterclockwise as viewed in FIG. **7**). In the cam-type mechanism described in this embodiment, the pin **24** on the release actuator **20** serves as a cam and the opening **34** on the locking member **30** serves as a cam follower. Rotary motion of the release actuator **20** is transformed into linear motion of the locking member **30** due to interaction between the cam **24** and the cam follower **34**.

**[0045]** As seen in FIG. **7**A, in some embodiments, when locking member **30** is in the locked configuration, pivot point **25** of the release actuator **20** may be positioned vertically above pin **24**. As used herein, "vertically above" does not necessarily mean directly above. For example, as shown in FIG. **7**A, pivot **25** is vertically above pin **24** but horizontally offset from pin **24** such that pivot **25** is not directly above the pin **24**. Vertical distance between the pivot **25** and the cam **24** may permit the pin **24** to start its movement in a horizontal or close-to horizontal direction sooner upon counterclockwise rotation of the release actuator **20**. For example, in contrast to the arrangement shown in FIG. **7**A, if the vertical distance between the pivot **25** and the pin **24** were reduced to zero but the same horizontal offset as that shown in FIG. **7**A were maintained, the pin **24** would initially move vertically downward upon counterclockwise rotation of the release actuator **20**. Increasing the vertical distance between the pivot **25** and pin **24** may thus cause the pin **24** to assume an initial trajectory that is closer to horizontal upon counterclockwise rotation of release actuator **20**.

**[0046]** Of course, it should be appreciated that various arrangements are possible, as this aspect is not so limited. In some cases, the horizontal offset between the pivot **25** and the pin **24** when the locking member **30** is in the locked configuration may be eliminated such that the pivot **25** is directly above the pin **24**. In some cases, the vertical distance between the pivot **25** and the pin **24** when the locking member **30** is in the locked configuration may be decreased or eliminated. In some cases, the pivot **25** may be located vertically below the pin **24**.

**[0047]** In embodiments where the overall handle is oriented relative to horizontal in a different orientation than shown in the embodiments herein when locked, the pivot **25** may not necessarily be positioned vertically above pin **24**. Yet, the same overall relative orientation of pivot **25**, pin **24** and the engagement members may be maintained. Accordingly, a more general description of the arrangement in some embodiments is that the release actuator, the pivot **25** and the pin **24** are not collinear when viewed from the side. In some embodiments, the three components form a right triangle when viewed from the side.

**[0048]** FIG. **8**, which shows an enlarged portion of the locking member **30** in isolation, shows the second engagement member **36** and the opening **34**. In some embodiments, the locking member **30** also includes an opening **31** that receives a spring, shown in FIGS. **9**A-**9**B.

**[0049]** As shown in FIGS. **9**A-**9**B, a spring **40** is located within handle **10**. One end of the spring **40** abuts against locking member **30** while the other end abuts against handle **10**. The spring **40** biases the locking member **30** in a direction toward the food processing device **1**. Movement of the locking member **30** away from the food processing device **1** causes the spring **40** to compress. Thus, once application of force to the locking member **30** has ceased, the compressed spring **40** releases its stored potential energy to urge locking member **30** back toward the food processing device **1**.

**[0050]** As shown in FIG. **10**, the release actuator **20** may act as a lever system, with pivot point **25** as the fulcrum, user-engaging portion **23** as the effort application point, and pin **24** as the load application point. In some embodiments, the pivot point **25**, user-engaging portion **23** and pin **24** may be positioned to create a mechanical advantage, where mechanical advantage is defined as the ratio of output force to input force. Mechanical advantage is equal to the ratio of the distance between the fulcrum and the effort application point to the distance between the fulcrum and the load application point. As shown schematically in FIGS. **10** and **11**, the distance "a" between the pivot point **25** and the user-engaging portion **23** is greater than the distance "b" between the pivot point **25** and the pin **24**. Since the mechanical advantage of the lever is the ratio a:b, the mechanical advantage of the release actuator **20** in this embodiment is greater than **1**.

**[0051]** Of course, it should be appreciated that various lengths of "a" and "b" may be used, as this aspect is not so limited. For example, "a" and "b" may have equal lengths, or "b" may be longer than "a." As such, the mechanical advantage of the release actuator may be equal to or less than 1.

**[0052]** FIGS. **12**A-**12**B schematically depict how the handle can be rotated down from an unlocked state to the locked state. As shown in FIG. **12**A, handle **10** is in an unlocked state and locking member **30** is in an unlocked configuration, since both the handle **10** and locking member **30** are free to rotate relative to the food processing device **1**. As handle **10** rotates downward about handle pivot **12** in the clockwise direction, the second engagement member **36** of the locking member **30** contacts the first engagement member **6** of the device **1**, as shown in FIG. **12**A. The rounded bottom edge of the second engagement member **36** slides against the stationary first engagement member **6**, causing locking member **30** to slide linearly outward away from the device **1**, allowing the second engagement member **36** to slide past the

first engagement member **6** until the handle **10** is rotated all the way down into its lowermost position. As shown in FIG. **12**B, once the handle **10** is in the lowermost position, because the locking device **30** is biased towards the device **1** by a spring **40** as discussed and shown above, the locking device **30** slides back toward the device **1** into the locked configuration such that the second engagement member **36** is obstructed by the first engagement member **6** of the device **1**, thereby placing handle **10** in the locked state. When the locking device **30** is in the locked configuration shown in FIG. **12**B, the handle **10** is prohibited from rotating upward toward device **1** about handle pivot **12** in the counterclockwise direction.

**[0053]** According to another aspect, the handle may function as part of a safety system which controls actuation of the motor. One embodiment of a safety system is shown in FIGS. **13**-**17**B. As shown in FIG. **13**, the underside surface of handle **10** may include pins **52**. The pins **52** on the handle **10** are positioned to interact with the first ends **62** of a pair of actuators, shown in FIG. **14**. In FIG. **14**, actuator covers **61** obscure the rest of the actuators from view. FIG. **15** shows the actuator cover **61** in phantom, revealing the actuator **60** beneath. Actuator **60** has a first end **62** and a second end **64**. When the handle **10** is rotated downward toward the actuator **60**, the pins **52** on the handle **10** contact the first end **62** of the actuator **60** and causes the entire actuator **60** to shift downward. FIG. **16**A shows the actuator **60** in a first position before contact with the pins **52**, and FIG. **16**B shows the actuator in a second, lower position after contact with the pins **52**. As shown in FIGS. **17**A-**17**B, the second end **64** of the actuator **60** also changes position as a result of contact between pins **52** and first end **62**. FIG. **17**A shows the second end of the actuator **64** in a first position before the actuator has contacted the pins **52**, and FIG. **17**B shows the second end **64** of the actuator in a second, extended position after the actuator has contacted the pins **52**. The bottom of the food processing device **1** may be coupled to a base (not shown), and the base may contain a motor. Extension of the second ends **64** actuates a switch on the base, which permits activation of the motor for operation of the food processing device.

**[0054]** In this system embodiment, the handle **10** must be rotated down into its lowermost, locked position before the motor can be started, ensuring that the device is in a proper configuration and the handle is in a locked state before processing is permitted to begin.

**[0055]** In some embodiments, the food processing device itself contains a motor such that the food processing device does not couple to an additional base. In such embodiments, extension of the second ends **64** actuates a switch that permits activation of the motor for the food processing device.

**[0056]** The above described components may be made with various materials, as the invention is not necessarily so limited.

**[0057]** The above aspects may be employed in any suitable combination, as the present invention is not limited in this respect. Additionally, any or all of the above aspects may be employed in a food processing apparatus; however, the present invention is not limited in this respect, as the above aspects may be employed to devices that process materials other than food.

**[0058]** Having thus described several aspects of at least one embodiment of this invention, it is to be appreciated that various alterations, modifications, and improvements will readily occur to those skilled in the art. Such alterations, modifications, and improvements are intended to be part of this disclosure, and are intended to be within the spirit and scope of the invention. Accordingly, the foregoing description and drawings are by way of example only.

What is claimed is:

**1**. An apparatus comprising:
- a food processing device with a first engagement member;
- a handle rotatably attached to the food processing device;
- a release actuator rotatably attached to the handle;
- a locking member with a second engagement member that cooperates with the first engagement member, the locking member having a locked configuration where the handle is prohibited from moving relative to the food processing device due to interaction between the first and second engagement members, and an unlocked configuration where the handle is permitted to move relative to the food processing device;
- wherein rotation of the release actuator relative to the handle causes linear translation of the locking member from the locked configuration to the unlocked configuration.

**2**. The apparatus of claim **1**, wherein:
- the release actuator includes a cam that rotates with the release actuator; and
- the locking member includes a cam follower that cooperates with the cam.

**3**. The apparatus of claim **2**, wherein the cam comprises a pin and the cam follower includes an opening in which the pin is positioned.

**4**. The apparatus of claim **2**, wherein:
- the release actuator rotates relative to the handle about a rotation axis; and
- the rotation axis is positioned vertically above the cam when the locking member is in the locked configuration.

**5**. The apparatus of claim **1**, wherein the handle includes a track in which the locking member moves.

**6**. The apparatus of claim **5**, wherein the track constrains movement of the locking member such that the locking member can move along only a single axis.

**7**. The apparatus of claim **1**, wherein:
- the food processing device further comprises a motor and a motor actuator, the motor actuator being moveable between a first position and a second, extended position, wherein when the motor actuator is in the second, extended position, the motor actuator is configured to actuate a switch to permit activation of the motor; and
- when the locking member is in the locked configuration, the motor actuator is in the second, extended position.

**8**. The apparatus of claim **7**, wherein:
- the food processing device further comprises a container for receiving food to be processed and a base constructed and arranged such that the container is coupleable to the base, the motor being located in the base;
- when the container is coupled to the base and the motor actuator is in the second, extended position, the motor actuator is configured to actuate a switch to permit activation of the motor; and
- the base is constructed and arranged such that the container can be coupled to the base when the motor actuator is in the second, extended position.

**9**. The apparatus of claim **2**, wherein:
- the release actuator includes a user engaging portion at which a user applies a force to rotate the release actuator relative to the handle about a rotation axis; and

a distance from the rotation axis to the user engaging portion is longer than a distance from the rotation axis to the cam.

**10**. The apparatus of claim **9**, wherein the user engaging portion comprises a recess that is configured to receive a user's finger.

**11**. A handle arrangement for a food processing device, comprising:

a handle rotatably attachable to a food processing device, the food processing device having a first engagement member;

a release actuator rotatably attached to the handle;

a locking member with a second engagement member that cooperates with the first engagement member, the locking member having a locked configuration where the handle is prohibited from moving relative to the food processing device due to interaction between the first and second engagement members and an unlocked configuration where the handle is permitted to move relative to the food processing device;

wherein rotation of the release actuator relative to the handle causes linear translation of the locking member from the locked configuration to the unlocked configuration.

**12**. The apparatus of claim **11**, wherein:

the release actuator includes a cam that rotates with the release actuator; and

the locking member includes a cam follower that cooperates with the cam.

**13**. The apparatus of claim **12**, wherein the cam comprises a pin and the cam follower includes an opening in which the pin is positioned.

**14**. The apparatus of claim **13**, wherein the handle includes a track in which the locking member moves.

**15**. The apparatus of claim **14**, wherein the track constrains movement of the locking member such that the locking member can move along only a single axis.

**16**. The apparatus of claim **11**, wherein:

the food processing device further comprises a motor and a motor actuator being moveable between a first position and a second, extended position, wherein when the motor actuator is in the second, extended position, the motor actuator is configured to actuate a switch to permit activation of the motor; and

when the locking member is in the locked configuration, the motor actuator is in the second, extended position.

**17**. The apparatus of claim **16**, wherein:

the food processing device further comprises a container for receiving food to be processed and a base constructed and arranged such that the container is coupleable to the base, the motor being located in the base;

when the container is coupled to the base and the motor actuator is in the second, extended position, the motor actuator is configured to actuate a switch to permit activation of the motor; and

the base is constructed and arranged such that the container can be coupled to the base when the motor actuator is in the second, extended position.

**18**. A method comprising:

rotating a release actuator relative to a handle, the release actuator being rotatably attached to the handle and the handle being rotatably attached to a food processing device, wherein:

rotating the release actuator causes linear translation of a locking member from a locked configuration where the handle is prohibited from moving relative to the food processing device to an unlocked configuration where the handle is permitted to move relative to the food processing device.

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