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Tsai et al.

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(54) **SHREDDER JAM CLEAR APPARATUS**

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(51) **Int. Cl.**
B02C 18/16 (2006.01)
B02C 18/00 (2006.01)

(52) **U.S. Cl.**
CPC ***B02C 18/0007*** (2013.01); ***B02C 18/16*** (2013.01); *B02C 2018/0023* (2013.01); *B02C 2018/0046* (2013.01); *B02C 2018/164* (2013.01)

(58) **Field of Classification Search**
CPC B02C 18/0007; B02C 18/16; B02C 2018/0023; B02C 2018/164; B02C 2018/0046
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2006/0054725 A1* 3/2006 Matlin B02C 18/0007 241/37.5

* cited by examiner

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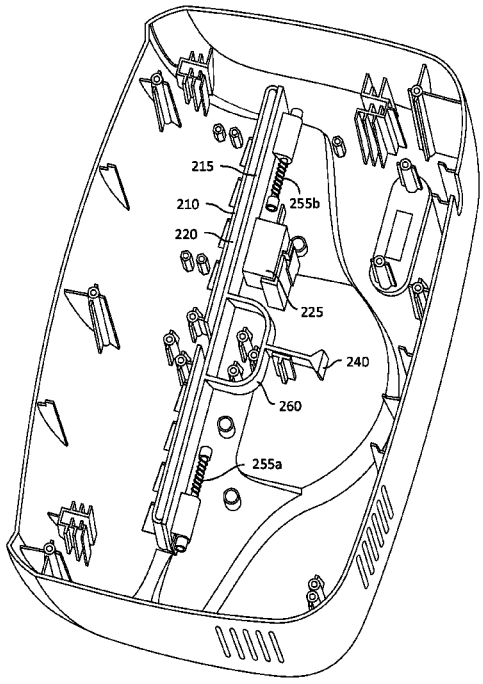
(57) **ABSTRACT**

A paper shredder having shredder cover and a motor coupled to shredder blades includes a shredder throat coupled to an inlet in the shredder cover and in proximity to shredder blades. The shredder throat has a moveable throat blade, which widens the shredder throat. An anti-jam switch, which when activated causes the motor to advance the shredder blades to clear a jam in the widened shredder throat. The jam clearing mechanism can be automatic or manual, as by push-button or turn-knob linkages. A method for recovering from a shredder jam in a paper shredder is provided, including providing a moveable throat blade; sensing a shredder throat jammed condition; releasing the moveable throat blade; moving the moveable throat blade to a wide gap position; sensing the moveable throat blade in the wide gap position; advancing shredder blades in response to the sensing, by which the jammed condition is cleared.

20 Claims, 14 Drawing Sheets



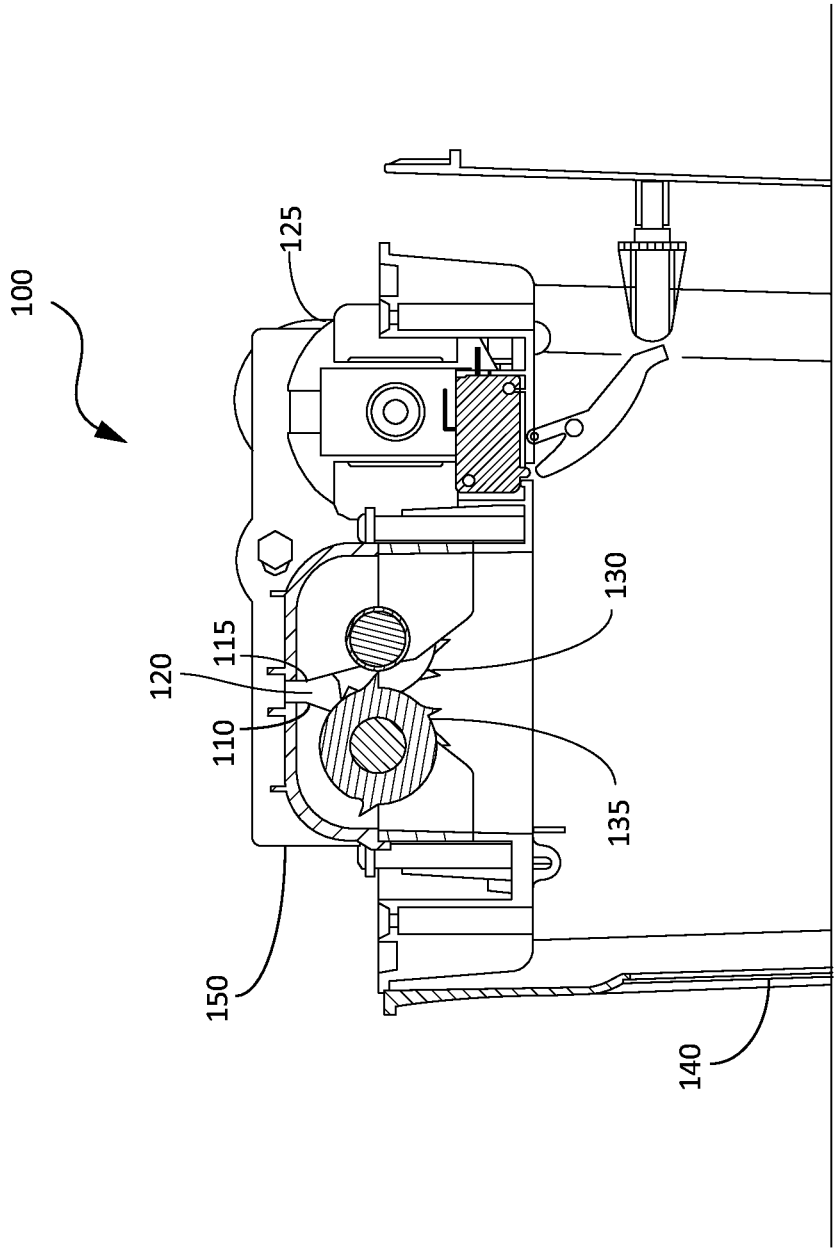


FIG. 1

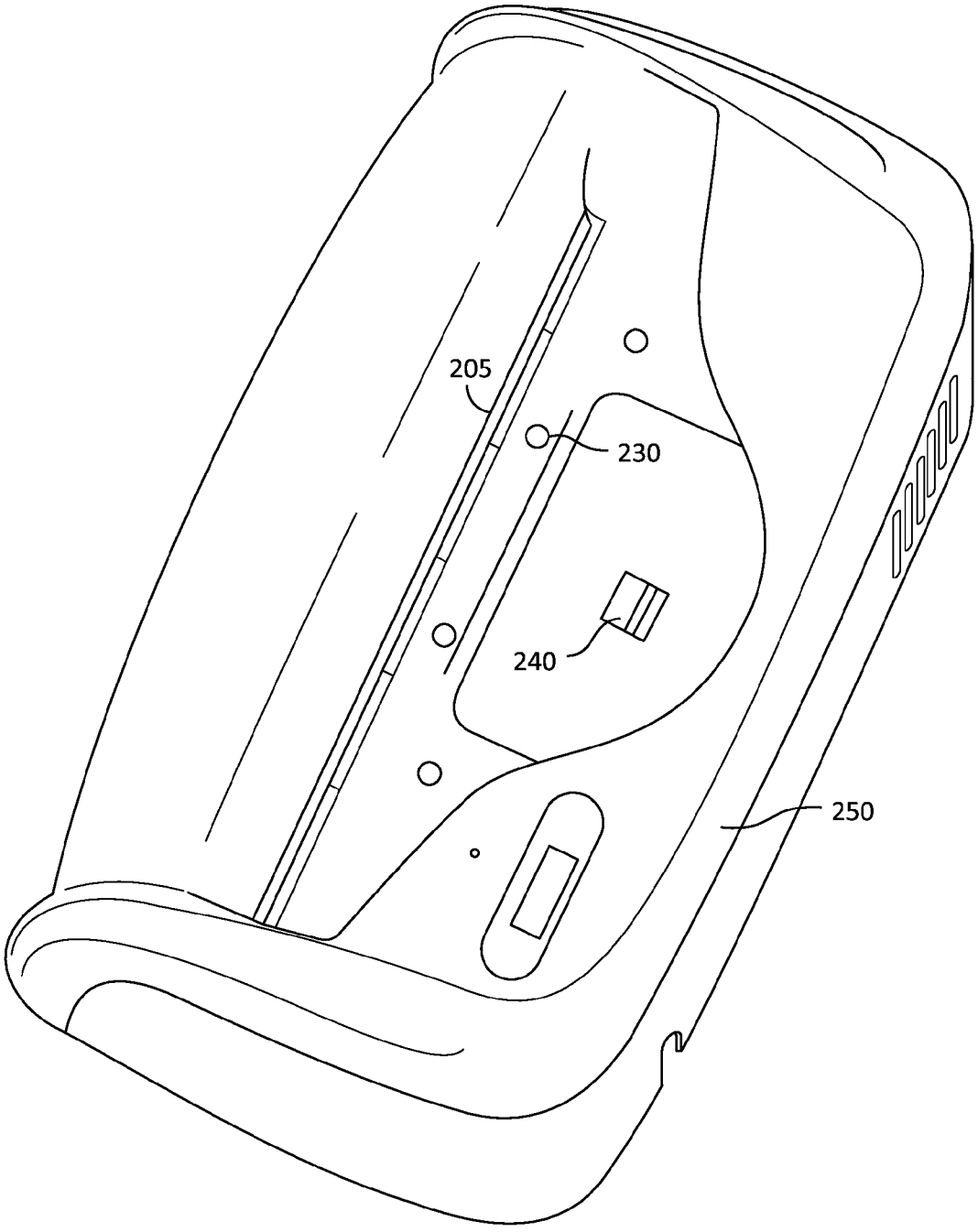


FIG. 2

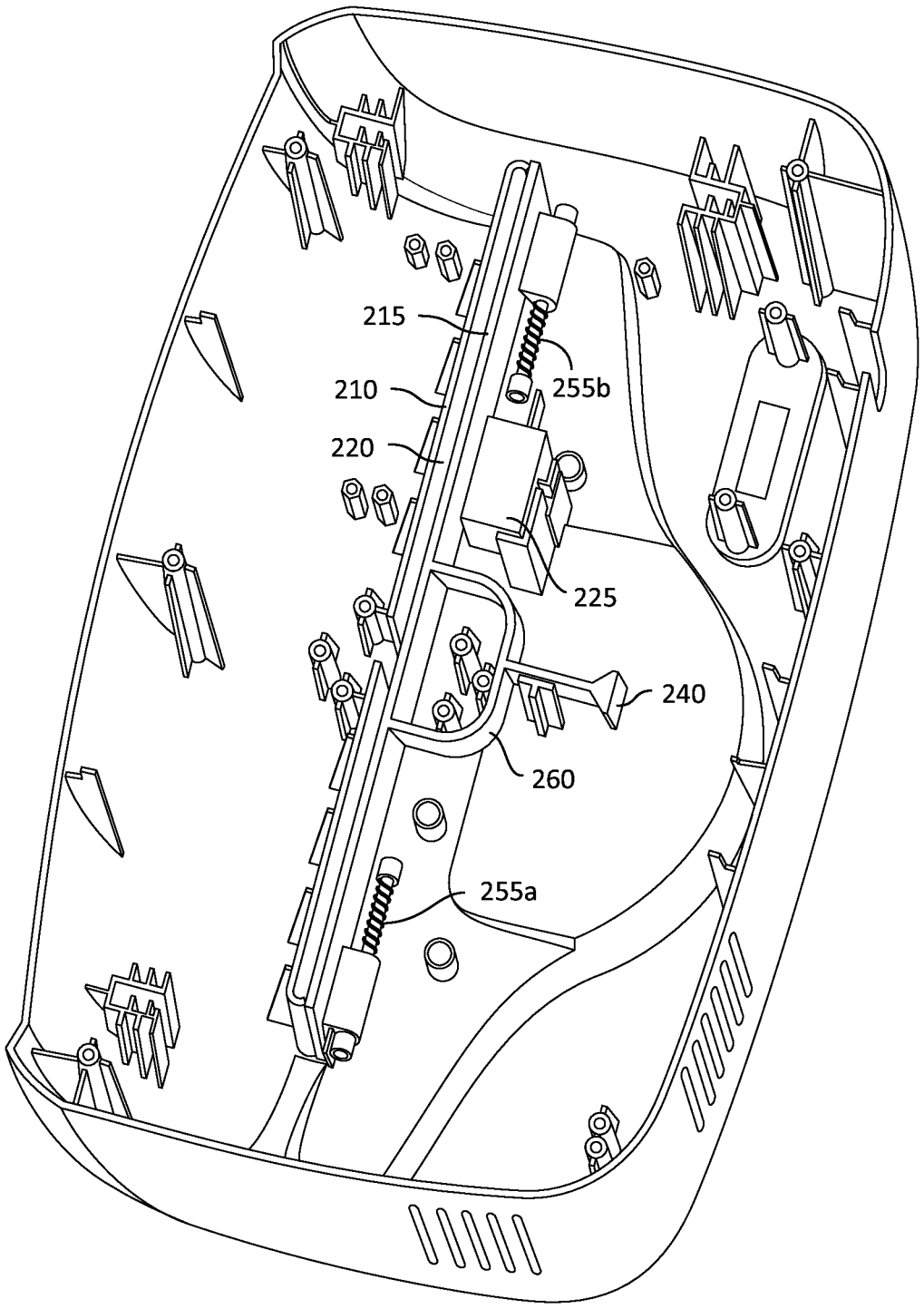


FIG. 3

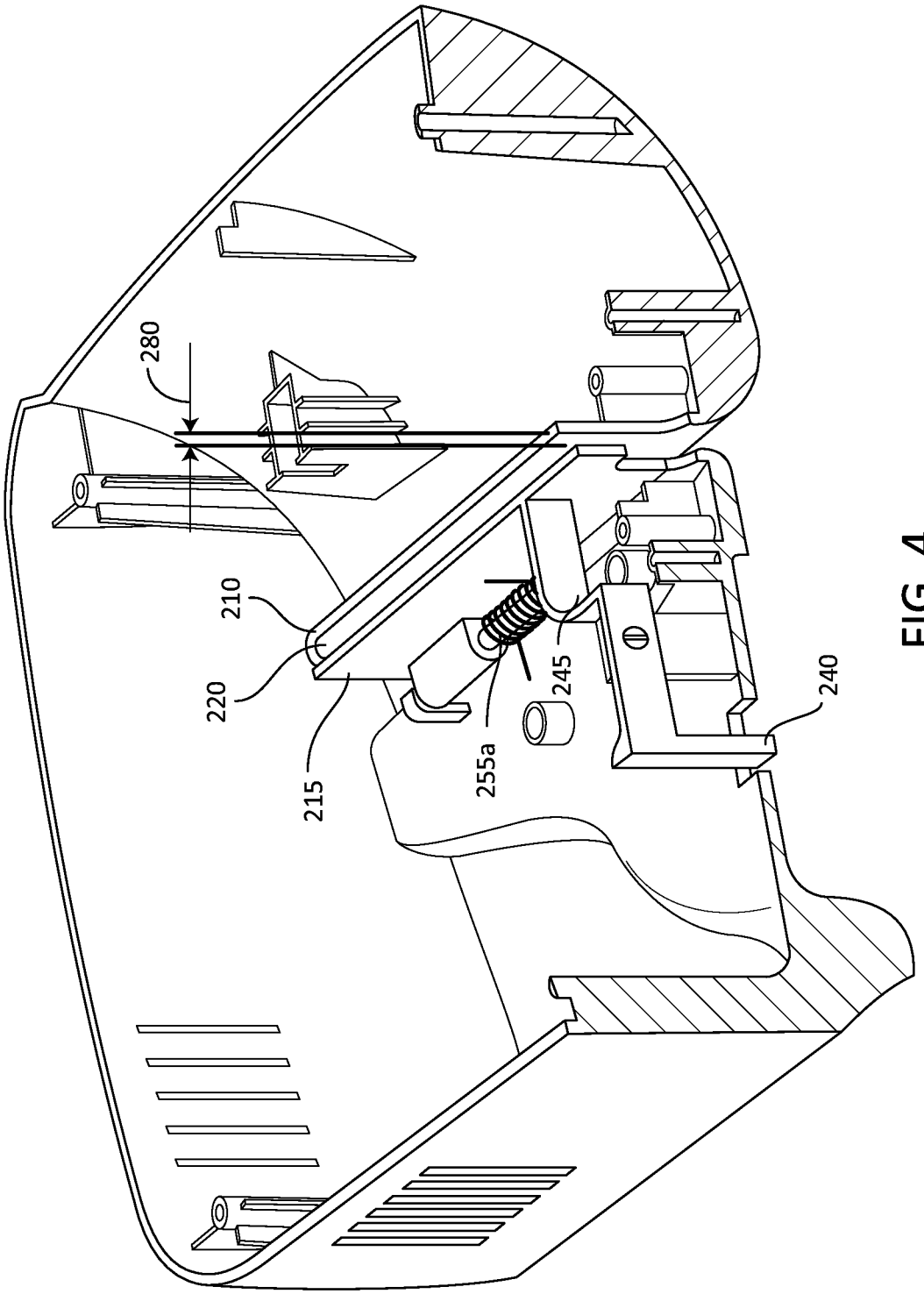


FIG. 4

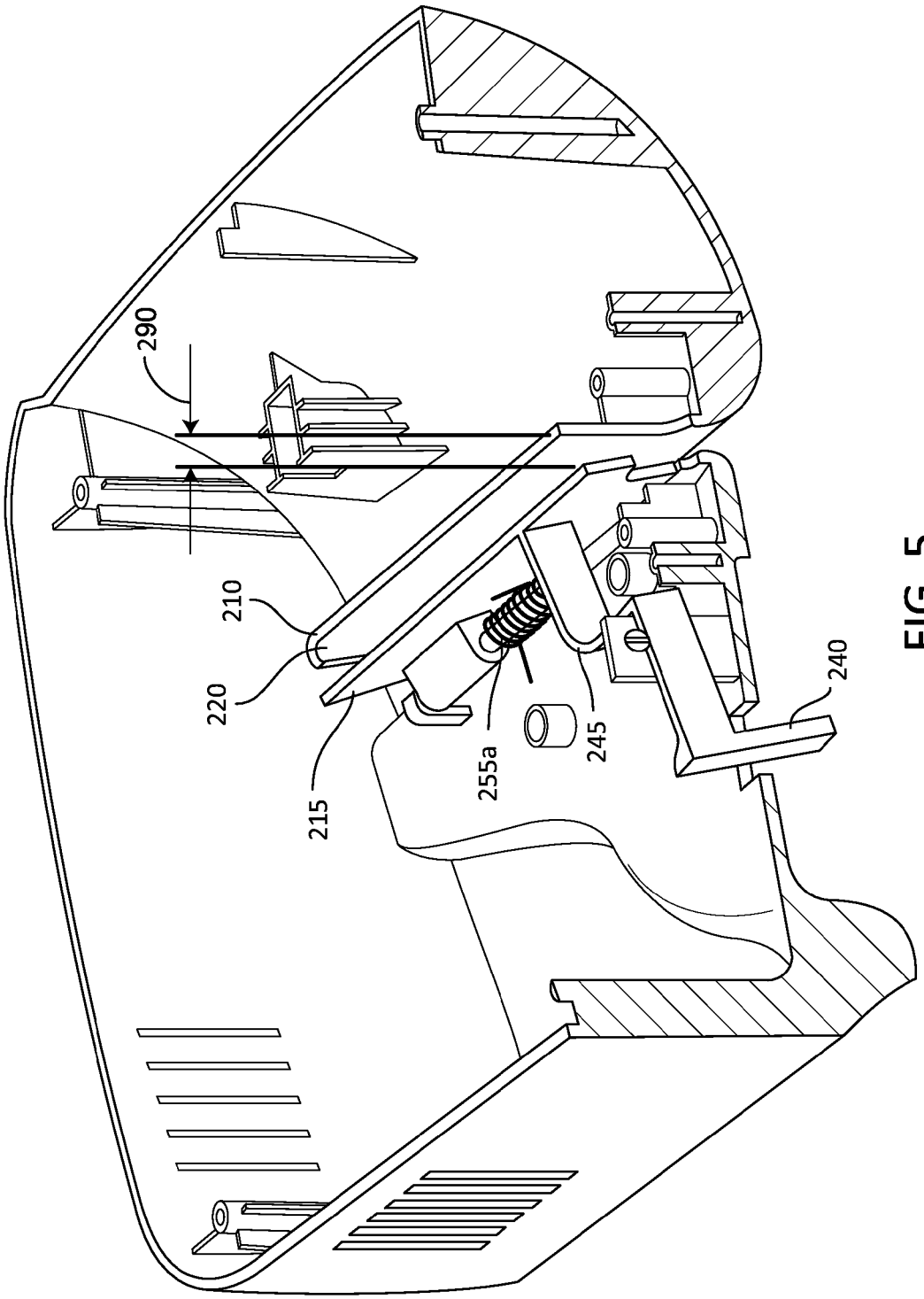


FIG. 5

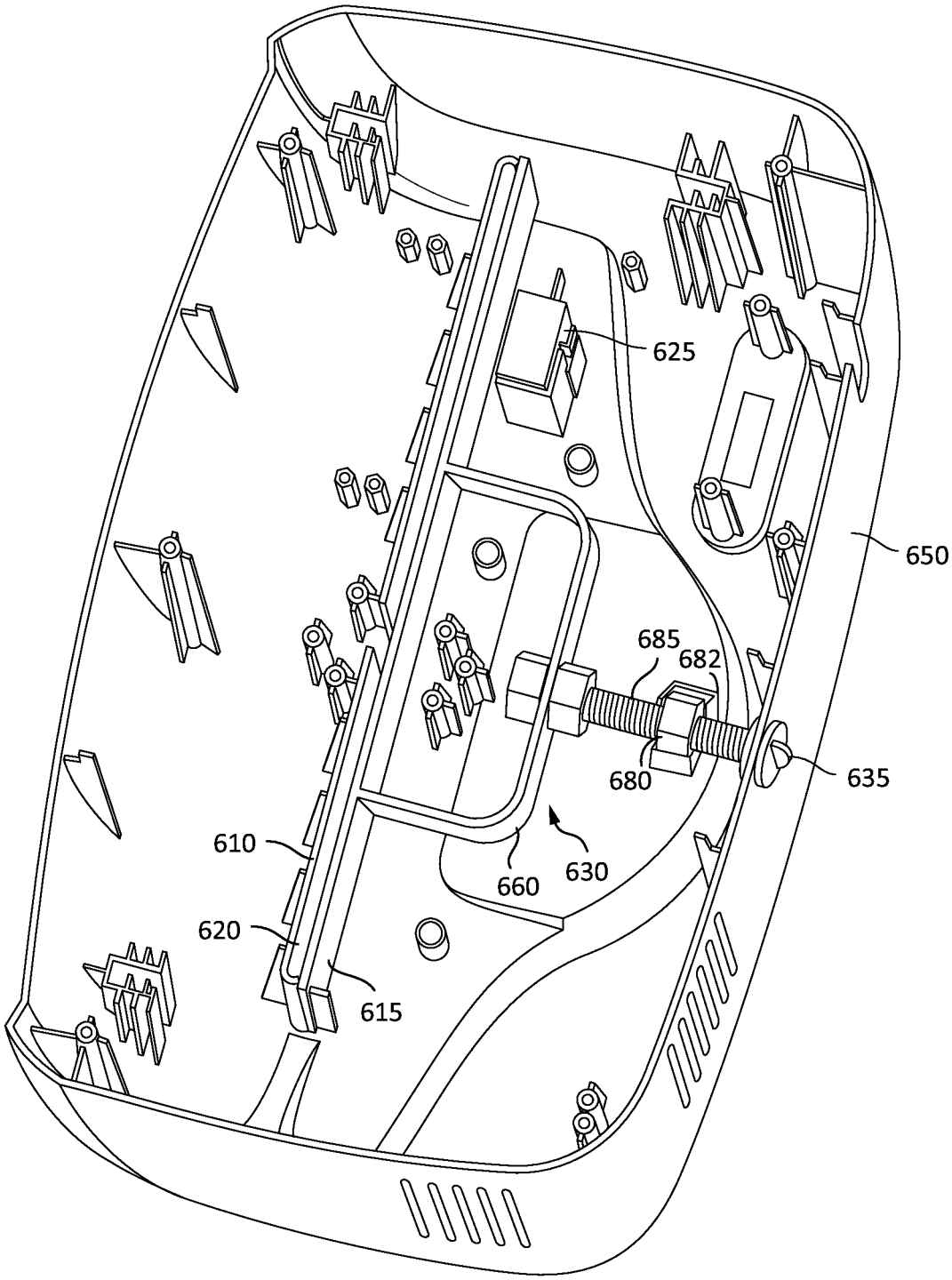


FIG. 6

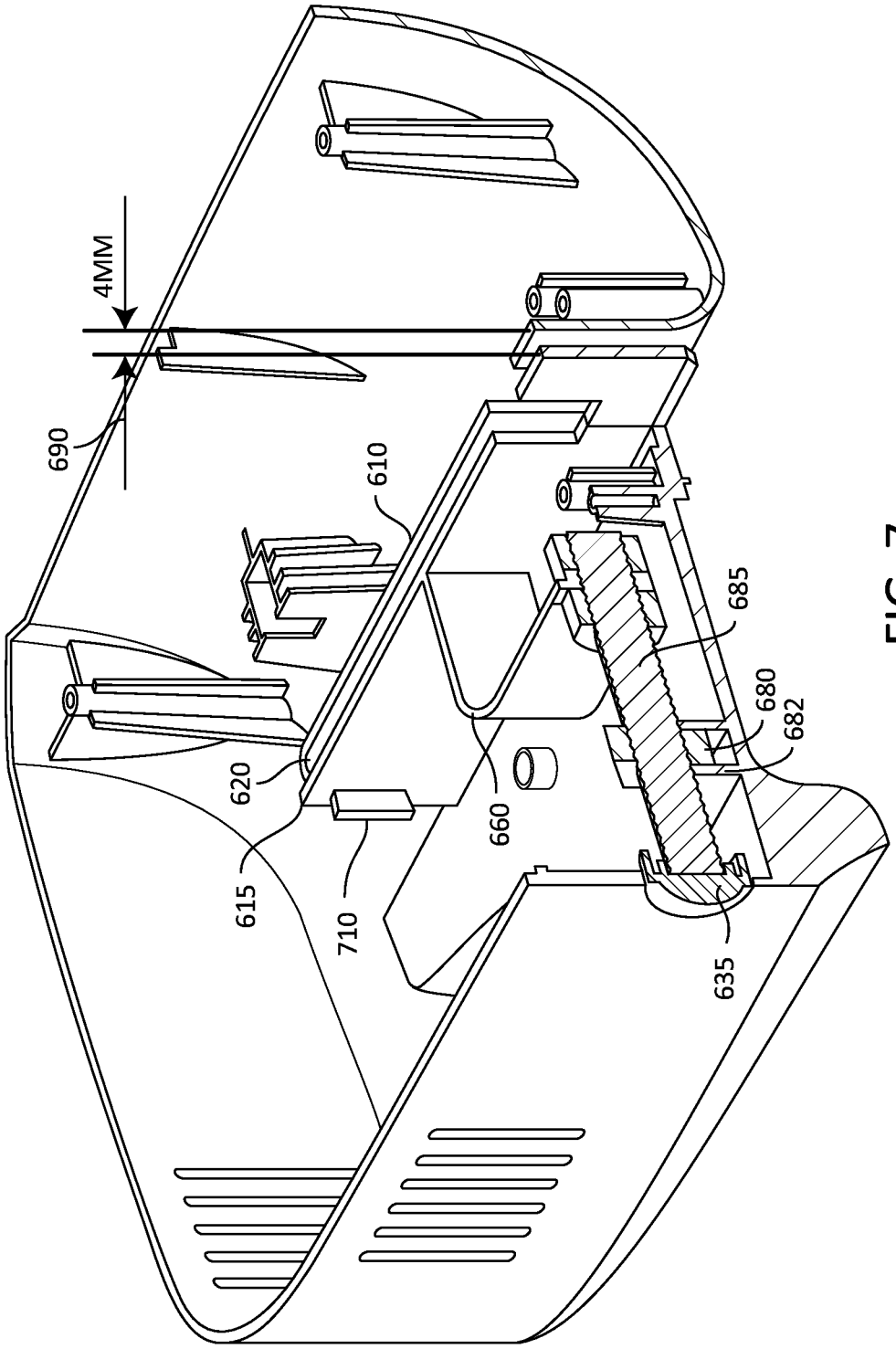


FIG. 7

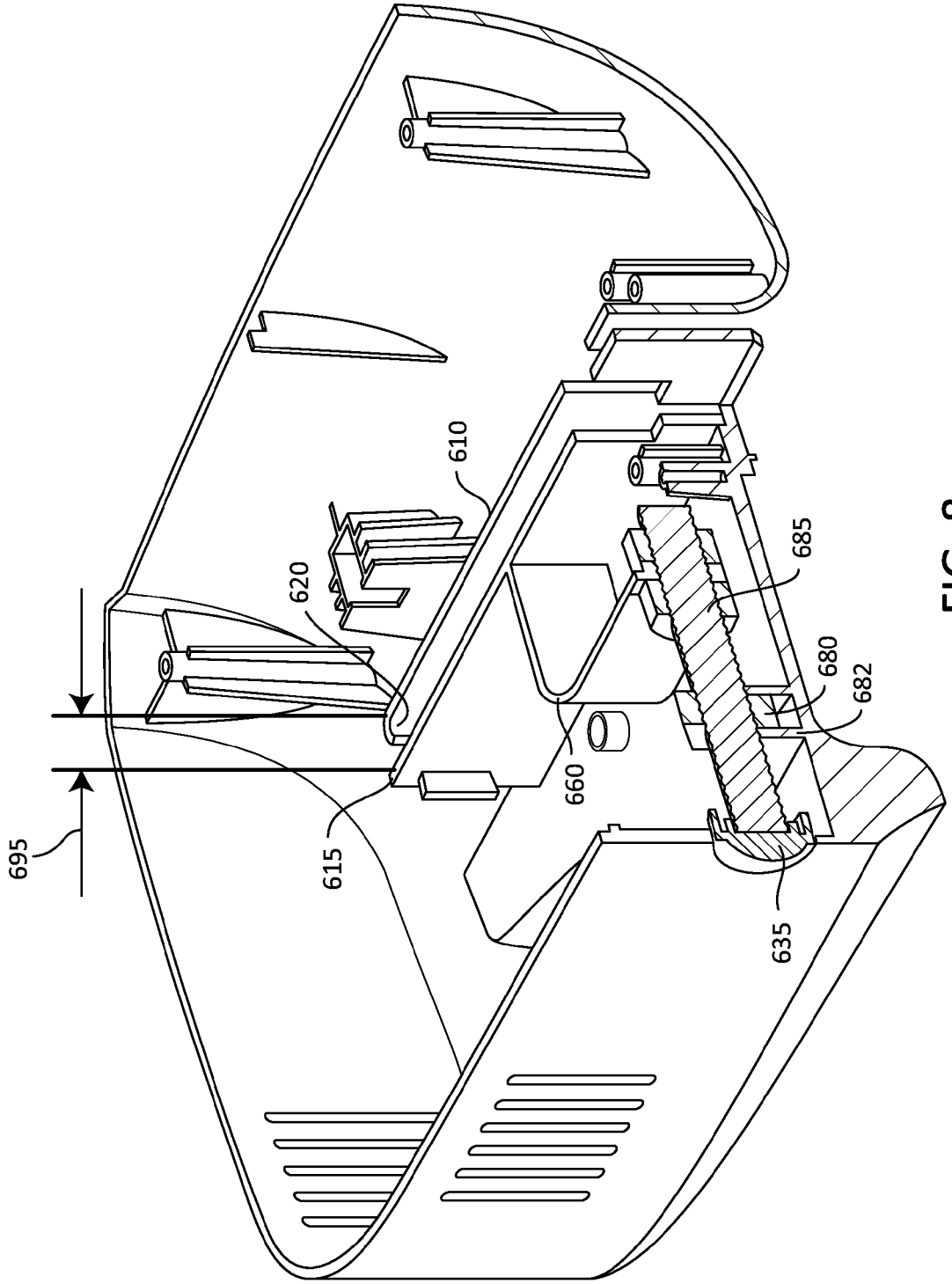


FIG. 8

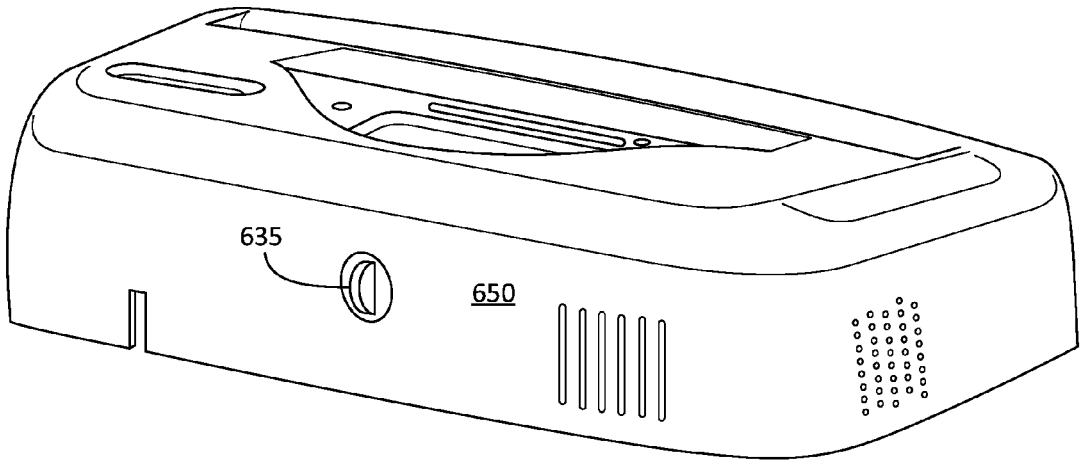


FIG. 9

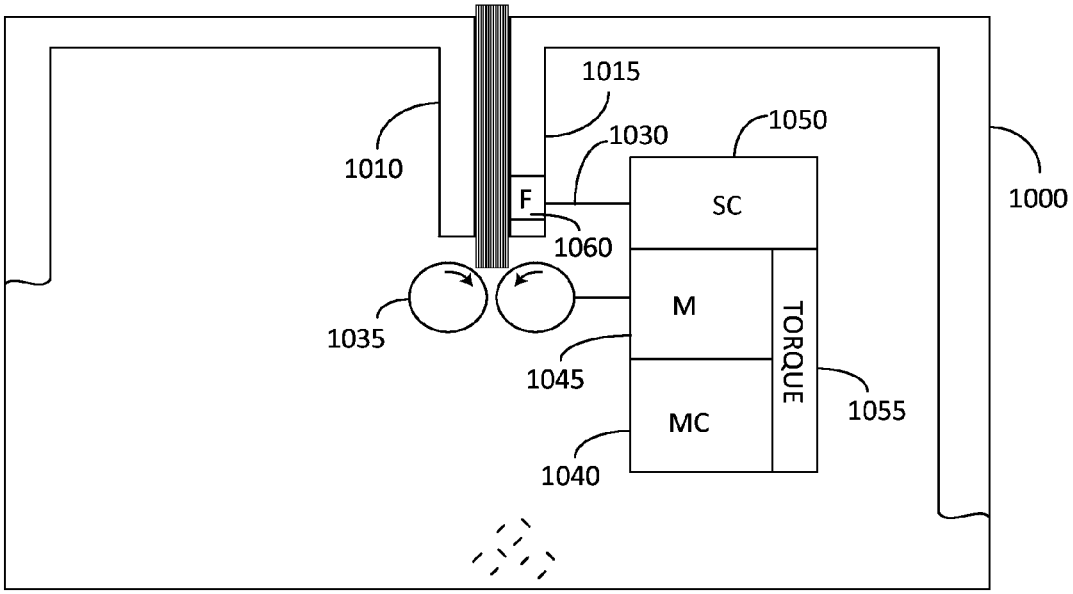

1015
1010
1030
1050
1000
F
SC
1060
M
TORQUE
1035
1045
1055
MC
1040

FIG. 10

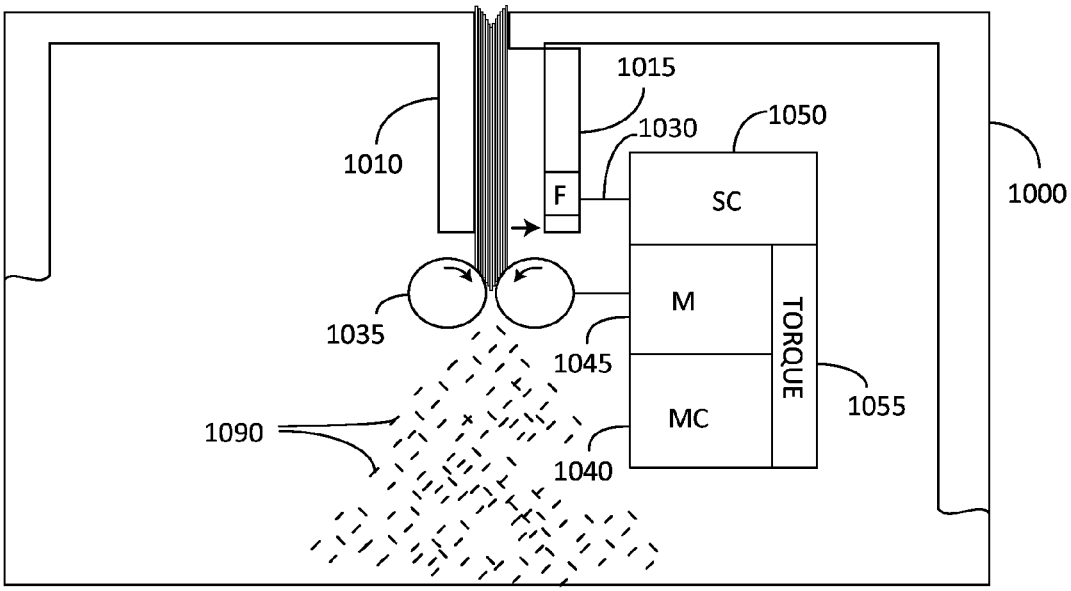

1015
1010
1030
1050
1000
F
SC
M
TORQUE
1035
1045
1055
MC
1090
1040

FIG. 11

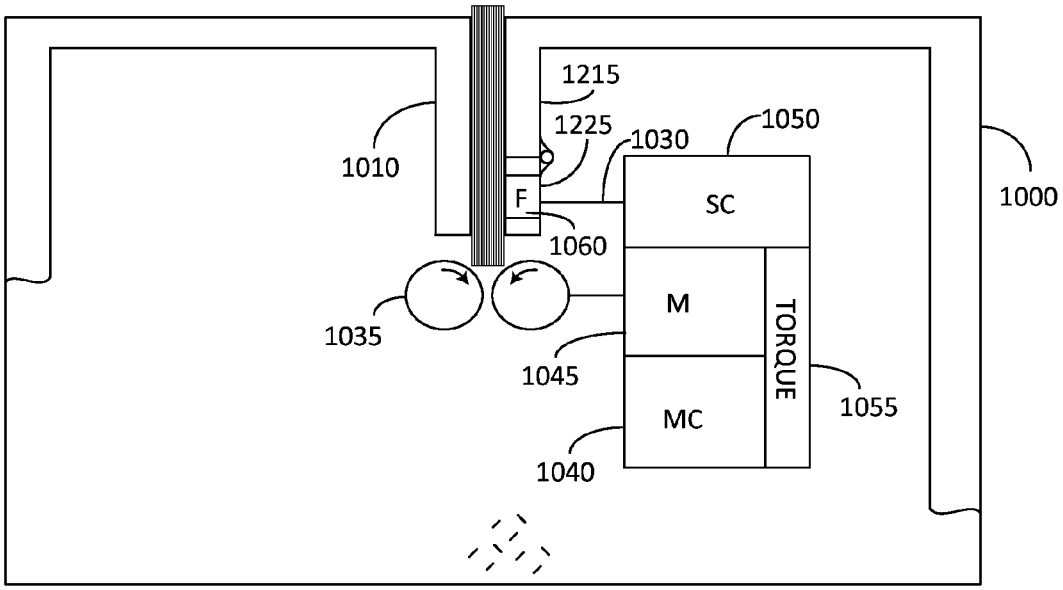

1215
1225
1030
1050
1010
F
SC
1000
1060
M
TORQUE
1035
1045
1055
MC
1040

FIG. 12

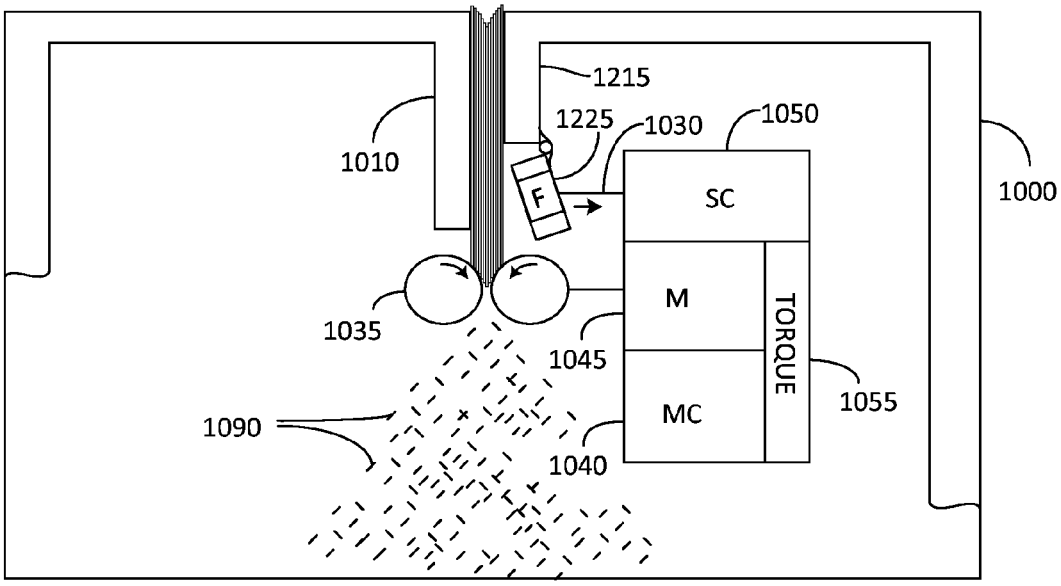

1215
1225
1030
1050
1010
F
SC
1000
M
TORQUE
1035
1045
1055
MC
1090
1040

FIG. 13

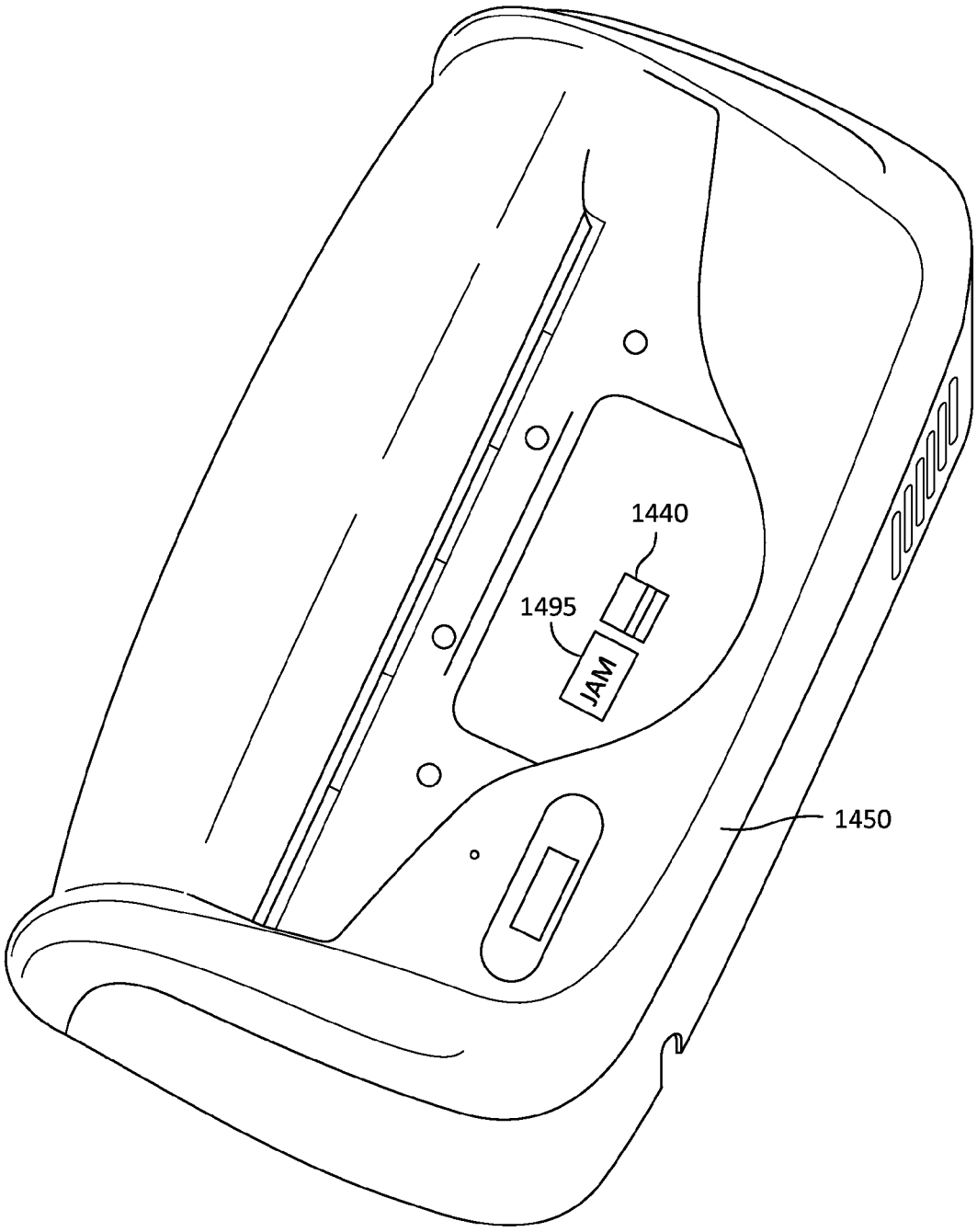


FIG. 14

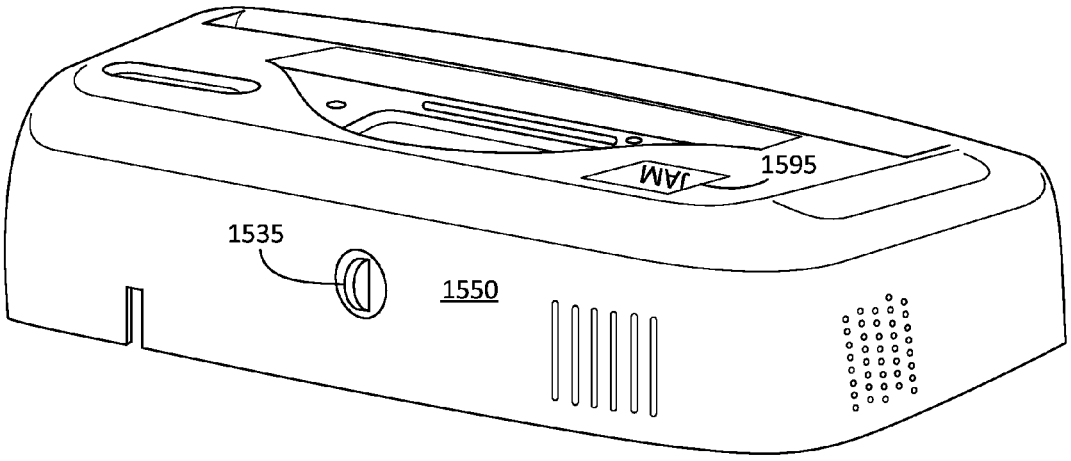


FIG. 15

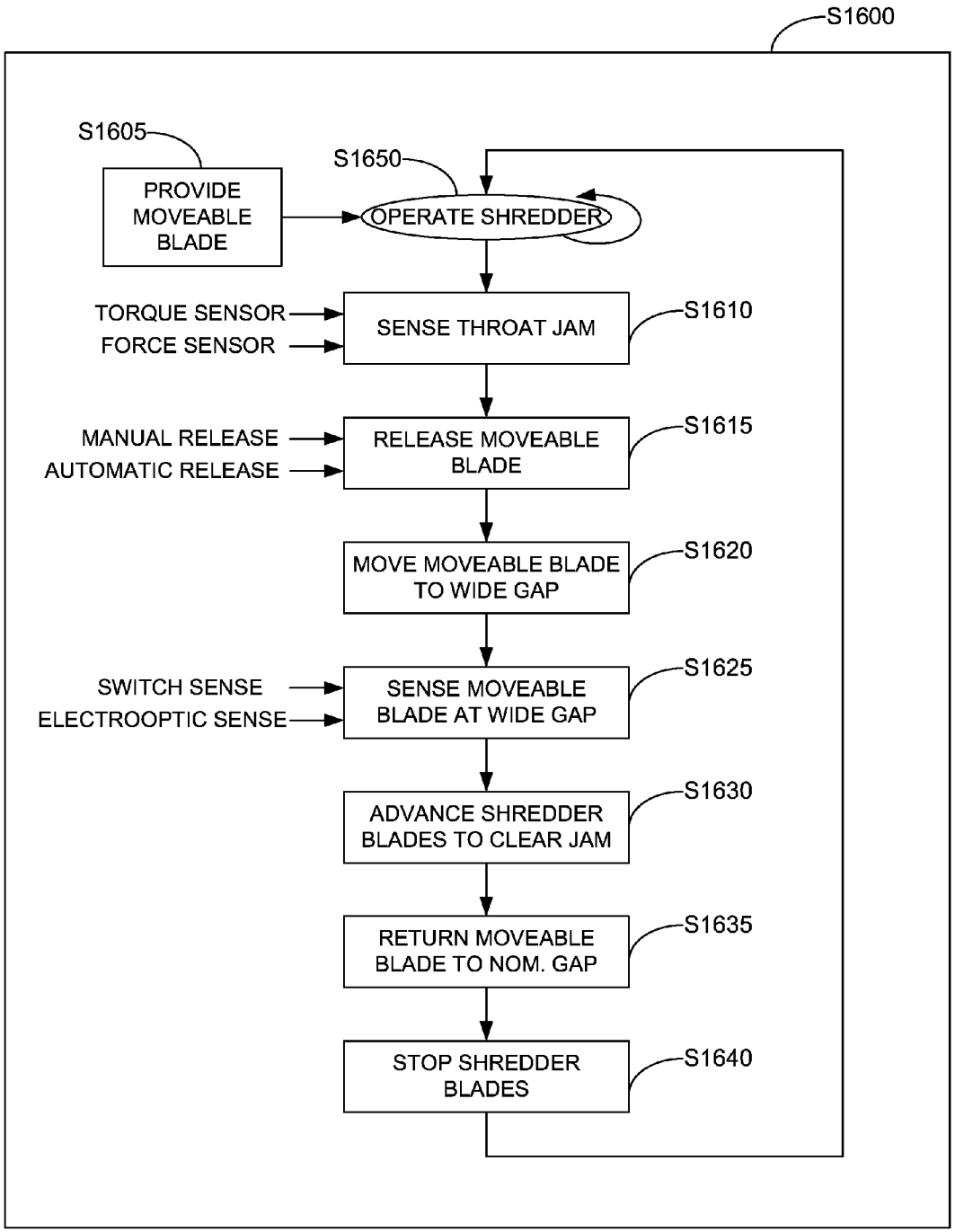

S1600
S1605
PROVIDE MOVEABLE BLADE
S1650
OPERATE SHREDDER
TORQUE SENSOR
FORCE SENSOR
SENSE THROAT JAM
S1610
MANUAL RELEASE
AUTOMATIC RELEASE
RELEASE MOVEABLE BLADE
S1615
MOVE MOVEABLE BLADE TO WIDE GAP
S1620
SWITCH SENSE
ELECTROOPTIC SENSE
SENSE MOVEABLE BLADE AT WIDE GAP
S1625
ADVANCE SHREDDER BLADES TO CLEAR JAM
S1630
RETURN MOVEABLE BLADE TO NOM. GAP
S1635
STOP SHREDDER BLADES
S1640

FIG. 16

SHREDDER JAM CLEAR APPARATUS

BACKGROUND

1. Field of the Invention

The present invention relates to paper shredders and, more particularly, to apparatus and methods for clearing jams in paper shredders.

2. Background Art

A shredder inlet has an opening and a throat, formed from at least two throat blades. The inlet receives the material to be shredded and the throat blades direct that material to the shredder blades. The shredder blades convert the material into shreddant, i.e., shredded material. In a typical shredder, the throat blades are fixed, and may be rigid, to prevent fingers and unacceptable items from being pushed into contact with the shredder blades. Some throat blades do not lead to the shredder blades in a straight line, but are disposed at an angle from the opening to further impede the progress of fingers and unacceptable items towards the shredder blades. Typically, a throat has a predetermined opening, that is, the throat blades are spaced apart such that a predetermined mass of material, usually measured in sheets of paper, can successfully be comminuted (shredded). For example, a throat may be about 4 mm wide, to accommodate 6 standard sheets of paper. Exceeding the predetermined mass of material being introduced into a throat can cause a "jam," in which the mass of shredding material being comminuted exceeds the shredder's capability and a wad of partly-shredded material is lodged in the entrance to the shredder blades, causing the shredder motor to momentarily fail. At present, many shredders provide no solution for jams other than to have the user remove the cover of the shredder, which contains the opening and the throat, and expose the jam—and more importantly—the shredder blades. In this case, the user must pull the partially shredded wad from the jaws of the blades, exposing the user to receiving cuts from the blades.

SUMMARY

Described are apparatus and methods for clearing a jam in a paper shredder. In apparatus embodiments, a paper shredder having shredder cover and a motor coupled to shredder blades, includes a shredder throat, coupled to an inlet in the cover and in proximity to the shredder blades. The shredder throat has a moveable throat blade, in which the moveable throat blade widens the shredder throat. The paper shredder embodiments also include an anti-jam switch capable of being activated, and wherein upon activating the motor advances the shredder blades to clear a jam in the widened shredder throat. In some embodiments, the moveable throat blade is moved manually. Also, the anti-jam switch is activated by contact with the moveable throat blade. In some embodiments, the moveable blade is moved with a push-button linkage accessible by the shredder cover, and the moveable blade when widened activates the anti-jam switch.

In other embodiments, the moveable blade is moved with a turn-knob linkage accessible by the shredder cover, and the moveable blade, when widened, activates the anti jam switch. In still other embodiments, the anti jam switch is activated by a user contacting a switch button on a shredder cover after moving the moveable throat blade. In yet other embodiments, the moveable blade widens the shredder throat automatically upon a signal. In yet additional embodiments, the anti-jam switch activates automatically upon a signal. In some of these embodiments, the signal is a torque-based measurement from the motor. In others, a force sensor is disposed in the moveable blade capable of sensing a jam in the shredder throat and the signal is a force signal from the moveable blade.

In method embodiments, a method for recovering from a shredder jam in a paper shredder is provided, including providing a moveable throat blade in the shredder throat; sensing a shredder throat jammed condition; releasing the moveable throat blade in the shredder throat; moving the moveable throat blade to a wide gap position; sensing the moveable throat blade in the wide gap position; advancing shredder blades in response to the sensing, wherein the jammed condition is cleared; returning the moveable throat blade to a nominal gap position; and turning off the shredder blades in response to the returning.

In some embodiments, sensing the moveable throat blade in the wide gap position the method includes providing a switch activated by the moveable throat blade in the wide gap position, the switch configured to advance the shredder blades when the switch is activated. In other embodiments, sensing a shredder throat jammed condition includes sensing a predetermined motor torque value. In still other embodiments, sensing a shredder throat jammed condition includes sensing a predetermined force value against the moveable throat blade. In yet other embodiments, releasing the moveable throat blade in the shredder throat comprises manually releasing the moveable throat blade.

In additional embodiments sensing the moveable throat blade in the wide gap position includes providing a switch activated by the moveable throat blade in the wide gap position, in which the switch configured to advance the shredder blades when the switch is activated. In yet further embodiments, sensing the moveable throat blade in the wide gap position includes providing a manually-activated switch configured to advance the shredder blades when the switch is activated. In still other embodiments, sensing the shredder throat jammed condition includes providing a perceptible indication indicative of the shredder throat jammed condition. In some additional embodiments, moving the moveable throat blade to a wide gap position includes manually moving the moveable throat blade to a wide gap position using a push-button linkage. In other additional embodiments, moving the moveable throat blade to a wide gap position includes manually moving the moveable throat blade to a wide gap position using a turn-knob linkage.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is generally shown by way of reference to the accompanying drawings in which:

FIG. **1** is a side view illustration of a shredder;

FIG. **2** is a view of an obverse side of a shredder cover of a first embodiment;

FIG. **3** is a view of the reverse side of the shredder cover in FIG. **2**, with a push-button linkage;

FIG. **4** is a cut-away view of the shredder cover of FIG. **3** in a nominal gap position;

FIG. **5** is a cut-away view of the shredder cover of FIG. **3** in a wide gap position;

FIG. **6** is a view of an obverse side of a shredder cover of another embodiment, with a turn-knob linkage;

FIG. **7** is a cut-away view of the shredder cover of FIG. **6** in a nominal gap position;

FIG. **8** is a cut-away view of the shredder cover of FIG. **6** in a wide gap position;

FIG. **9** is a perspective view of the obverse side of the shredder cover in FIG. **6**, with the turn-knob linkage;

FIG. **10** is a side-view cut-away illustration of some shredder embodiments, having a moveable throat in a nominal gap position;

FIG. **11** is a side-view cut-away illustration of FIG. **10**, having a moveable throat in a wide gap position;

FIG. **12** is a side-view cut-away illustration of other shredder embodiments, having a moveable throat with a release bar in a nominal gap position;

FIG. **13** is a side-view cut-away illustration of FIG. **12**, having a moveable throat with a release bar in a wide gap position;

FIG. **14** is a top illustration of an obverse side of another embodiment, having push-button linkage and manual push-button anti-jam activation;

FIG. **15** is a perspective illustration of an obverse side of yet another embodiment, having turn-knob linkage and manual push-button anti jam activation; and

FIG. **16** is a block diagram of exemplary methods.

Some embodiments are described in detail with reference to the related drawings. Additional embodiments, features and/or advantages will become apparent from the ensuing description or may be learned by practicing the embodiment. In the figures, which are not drawn to scale, like numerals refer to like features throughout the description. The following description is not to be taken in a limiting sense, but is made merely for the purpose of describing the general principles of the embodiments.

DESCRIPTION

Embodiments provide mechanisms to do away with paper shredder throat jams. In FIG. **1**, exemplary conventional shredder **100** is shown having throat blades **110**, **115** forming shredder throat **120**. Material to be shredded (not shown) can be introduced into throat **120**, and motor **125** can be activated. Motor **125** ultimately drives shredder blades **130**, **135**. If the amount of material introduced into throat **120** is not excessive, the shredding material will be comminuted into shreddant. If the amount of material is excessive, a jam can occur from a wad of shredding material in throat **120**. In FIG. **1**, throat blades **110**, **115** can be fixed, rigid metal or plastic blades. At least a portion of one or both throat blades **110**, **115** can be moveable. For example, at least a part of throat blade **115** can be moveable. When an excessive amount of material is introduced into shredder **100**, throat **120** can become clogged and causing shredder blades **130**, **135** to jam. Typically, a jam requires between about 10 lbs. to about 15 lbs. of force to clear the jam. In accordance with the embodiments herein, a jam may require as little as 1 lb. of force to clear the jam. In the embodiments herein, a shredder jam clear apparatus can be disposed in shredder upper cover **150**. The shredder jam clear apparatus can make throat **120** wider when necessary (e.g., during a jam) but otherwise keep throat **120** in its narrower, nominal operating condition for safety.

In embodiments of shredder jam clear apparatus **200**, as illustrated in FIG. **2** through FIG. **5**, shredder inlet **205** is formed from at least two throat blades **210**, **215** with one blade **215** being at least partly moveable to permit clearing of jams which may occur in the throat **220**. Apparatus **200** can be provided with a jam indicator light **230** shown in FIG. **2**, which, when illuminated, can indicate the presence of a jam. Such a presence can be sensed, for example, by a shredder torque measuring device on the shredder motor (not shown). Other perceptible indications of the presence of a jam may be provided, for example, without limitation, a flashing light, a beeper, a buzzer, or some other aural, visual, or external signal. A shredder having torque-based measurements is described in U.S. Pat. No. 8,967,509 (Ser. No. 13/506,586), filed Apr. 30, 2012, and assigned to the same assignee hereof, and which is incorporated herein by reference in its entirety. A decrease in motor operating speed, below a predetermined level, may be sensed by a torque sensor as being indicative of excessive torque representing motor overloading. Thus, a torque sensor may be used to indicate shredder jams.

As seen in FIGS. **3-5**, some embodiments provide jam clearing by moving at least a portion of throat blade **215**, such that the confinement of the partially-shredded wad (not shown) in throat **220** can be released. In addition to the at least partly moveable blade **215**, the shredder motor may be automatically activated by contact switch **225** when the throat blade **215**, moves throat blade **215** from its nominal gap **280** to its wide gap **290**. This allows the shredder blades (not shown) to comminute the wad without the user's hands coming into contact with the shredder blade, or without removing the cover of the shredder. To activate the feature, the user need only depress button **240** on the obverse exterior of the cover, as is illustrated in FIG. **2**. Returning to FIGS. **3-5**, the accompanying push-button linkage drives open throat blade **215** until it engages contact switch **225**. Engaging switch **225** activates the anti jam feature. The initial (nominal) throat gap **280** may be about 4 mm, as is illustrated in FIG. **4**. Depressing button **240** causes the D-shaped force-spreader **245** to pull back moveable throat blade **215** and be repositioned open relative to fixed throat blade **210**. The repositioned (wide) throat gap **290** may be about 7 mm or more, as illustrated in FIG. **5**. The repositioned throat blade **215** can activate jam-clearing switch **275**, which causes the shredder blades (not shown) to engage, to move forward in the normal cutting motion, and to digest the now-freed jam. For example, a 4 mm throat can be opened to 7 mm, with the wider throat allowing for release of the wad from the throat and comminution of the jammed material. This jam-clearing occurs with shredder cover **250** in-place, so that the user's hands are not exposed to the shredder blades (not shown). D-shaped force-spreader **260** can be biased closed by springs **255***a, b* until released by button **240** and then repositioned when the button is no longer depressed.

Alternately, button **240** may be disposed to move upwards when first depressed allowing D-shaped force spreader **260** to move backwards away from fixed throat blade **210**, being biased open by springs **255***a, b*. In turn, moveable throat blade **215** is pulled back away from blade **210** causing throat gap **290** to be widened relative to its nominal position, for example, 7 mm instead of 4 mm. By depressing switch **240** again, D-shaped force spreader **260** advances toward fixed throat blade **210** and latches in position when full travel of button **240** is realized.

In other embodiments, shown in FIGS. **6** through **9**, shredder jam clear apparatus **600** is described. In FIG. **6**, shredder throat **620** can be formed from at least two throat blades **610**, **615**. One throat blade **615** can be released by a turn-knob **635**, which turn-knob **635** may be situated at the rear of cover **650**. Turn knob **635** can be provided with linkage **630**, which may include a D-shaped force spreader **660** pressing upon the releasable throat blade **615**. Linkage driveshaft **685** can be coupled to turn-knob **635** on one end and force spreader **660** on the other end. As illustrated in FIG. **7**, positioning apparatus **680**, which may be a captured nut, can guide driveshaft **685** to move forwards or backwards, thus translating rotating motion into linear motion. Apparatus **680** may include a nut capturing device **682**. FIG.

8 illustrates that as turn-knob **635** is rotated, for example, by one-quarter turn counterclockwise, the D-shaped force spreader **660** and attached releasable throat blade **615** can be backed away from the fixed throat blade **610**, opening throat **620** wider, relative to a normal operating gap **690** of about 4 mm. A jam—clearing gap **695** can be, for example, 7 mm. FIG. **9** depicts placement of turn-knob **635** on the obverse-rear side of cover **650**.

When releasable throat blade **615** reaches the maximum opening point, it can activate the jam-clearing switch **625**, which causes the shredder blades to engage and operate in the forward direction, digesting the wad. For example, a 4 mm throat can be opened to 7 mm, with the wider throat **620** allowing for release of the wad from the throat **620** and comminution of the jammed material. An opening wider than 7 mm also can be provided to clear throat **620**. When the wad is cleared, turn-knob **635** can be turned in the reverse direction, causing the releasable throat blade **615** to return to its normal operation gap **690** relative to fixed blade **610** and causing jam-clearing switch **625** to be de-activated.

In yet other embodiments, the shredder jam clear mechanism can be automated. In FIGS. **10** and **11**, the paper shredder **1000** may include fixed throat blade **1010**, moveable throat blade **1015**, throat **1020**, actuator arm **1030** coupled to moveable throat blade **1015**, shredder blades **1035** coupled to motor controller **1040**, and motor **1045**, shredder controller **1050**, torque sensor **1055** coupled to motor controller **1040**, motor **1045**, and shredder controller **1050**, shredding material **1075**, and shreddant **1090**. For example, without limitation, the jam may be sensed by torque sensor **1055** in motor **1045**; actuator arm **1030** may be actuated by a solenoid in shredder controller **1050**. An increase in motor torque beyond a predetermined torque limit can indicate a paper jam in throat **1020**. In FIG. **10**, a larger-than-nominal amount of shredding material **1075** can be introduced into throat **1020**. This causes the paper shredder blades to slow down and strain. The increased torque generated by the overload condition is sensed by torque sensor **1055**. Alternatively, a strain gauge or force sensor **1060** may be mounted on or in a flexible moveable throat blade **1015**, or in fixed blade **1010**, and sensed by shredder controller **1050**. As shown in FIG. **11**, whether increased torque, or increased strain or force, is detected, a motor overload condition can be sensed, causing actuator arm **1030** to retract, for example, using a solenoid. Retraction of actuator arm **1030** can pull back moveable throat blade **1015**, and shredder controller **1050** causes motor **1045** to advance shredder blades **1035**. The wide throat gap (e.g., about 7 mm) created by retracting moveable throat blade **1015** can ameliorate the overload condition such that the shredding material **1075** can be successfully comminuted into shreddant **1090**. Once the overload condition has passed, and normal shredding operation is sensed, for example, by the motor torque sensor **1055**, or force sensor **1060**, shredder controller **1050** can cause actuator arm **1030** to return moveable throat blade **1020** to normal operating conditions and normal throat gap (e.g., about 4 mm). The shredder may turn off, in waiting for a new load of shredding material.

In FIGS. **12** and **13**, at least a portion of throat inlet blade **1215** can be coupled to a release bar **1225**. FIG. **12** can be similar to FIG. **10**. Release bar **1225** can be formed from a hinged, spring-loaded throat flap portion, which can be held in place by actuator arm **1030**. A torque sensor **1055** may be used to detect an overload or jam event. Alternatively, a strain gauge or force sensor **1060** may be mounted on or in a flexible moveable throat blade **1015**, and sensed by shredder controller **1050**.

As illustrated in FIG. **13**, when an overload is sensed, for example without limitation, by torque sensor **1055**, or by force sensor **1060**, shredder controller **1050** can cause actuator arm **1030** to release spring-loaded release bar **1225**. Shredder controller **1050** can activate anti jam features by causing shredder blades **1035** to move forward. The additional space given to the shredding material **1075** allows shredder blades **1035** to comminute shredding material **1075** into shreddant **1090**.

In yet other embodiments, release bar **1225** may be released by a push button mechanism, similar to that described with respect to FIGS. **2-5**. In still other embodiments, release bar **1225** may be released by a turn-knob mechanism as described with respect to FIGS. **6-9**. In either embodiment, the opening of the release bar could activate jam-clearing switch, such as switch **225**, which causes the shredder blades **1035** to engage and operate in the forward direction, digesting the jamming wad. Alternatively to anti-jam switch **225**, an electro-optic device may be used.

In yet additional embodiments, the jam-clearing switch can be manually activated. For example, in FIG. **14**, similar to the description regarding FIG. **2**, by pressing a first button **1440** on cover exterior **1450**, the moveable throat blade (not shown) can be released into its wide gap setting. Then, pressing a second button **1495**, the anti jam feature can be activated such that the shredder blades (not shown) move forward and the jamming wad of shredding materials is comminuted into shreddant, clearing the shredder jam.

Similar to the description relative to FIG. **9**, in FIG. **15**, turn-knob **1535** may be disposed on the exterior cover **1550** of the shredder. By turning knob **1535**, the moveable throat (not shown) may be released into its wide gap setting. Then, pressing a second button **1595**, the anti jam feature can be activated such that the shredder blades (not shown) move forward and the jamming wad of shredding materials is comminuted into shreddant, clearing the shredder jam. In FIG. **16**, a method **1600** for recovering from a shredder jam in a paper shredder is provided. The paper shredder is provided (S**1605**) with a moveable throat blade in the paper shredder inlet throat, as is described above. Method **1600** proceeds from, while operating the paper shredder sensing (S**1610**) a shredder throat jammed condition, for example, using a shredder motor torque sensor or a throat blade force sensor, releasing (S**1615**) the moveable throat blade in the shredder throat, for example, using a press-button manual linkage, a turn-knob linkage, or an automated actuator arm, and moving (S**1620**) the moveable throat blade to a wide gap position, which relieves the confined shredding material jammed in the shredder inlet throat. Sensing (S**1625**) the moveable throat blade in the wide gap position can be a switch which, when actuated, advances (S**1630**) the paper shredder blades in order to clear the jam. Advancing S**1630** can be by manual switch or it can be automated. Sensing S**1625** also may be performed by an electro-optic sensor. Once the jam has been digested, the moveable throat blade can be returned (S**1635**) to its nominal gap position. With the jam digested and the moveable throat blade returned to its nominal gap position, the shredder blades can be turned off (S**1640**) in preparation for normal jam-free operations (S**1650**).

In the above embodiments, the motor can move forward to comminute the jammed wad of shredding material. However, the motor also may momentarily move in reverse in order to dislodge the jammed wad, and then move forward

to digest the jammed wad into shreddant. Although 4 mm has been given as a nominal shredder inlet gap, of course, the nominal gap size may vary with the nominal amount of material that a shredder may comminute. Similarly, although 7 mm has been provided as a maximum, the maximum gap size may similarly vary as with the nominal shredder inlet gap. Also, a shredder may be provided with a flexible, moveable shredder throat to facilitate manual removal when there is a jam.

Although the present embodiments have been described by way of example with references to the current drawings, it is to be noted herein that various changes and modifications will be apparent to those skilled in the art. Therefore, unless such changes and modifications depart from the scope of the present invention, they should be construed as being included therein.

The invention claimed is:

1. A paper shredder, comprising:

a shredder throat, coupled to an inlet in a shredder cover and in proximity to shredder blades, the shredder throat having a moveable throat blade, wherein the moveable throat blade provides a wide shredder throat; and

an anti jam switch disposed to cause a motor to advance the shredder blades to clear a jam in the wide shredder throat.

2. The paper shredder of claim **1**, wherein the moveable throat blade is moved manually.

3. The paper shredder of claim **2**, wherein the anti jam switch is activated by contact with the moveable throat blade.

4. The paper shredder of claim **3**, wherein the moveable throat blade is moved with a push-button linkage accessible by the shredder cover, and the wide moveable throat blade activates the anti jam switch.

5. The paper shredder of claim **3**, wherein the moveable throat blade is moved with a turn-knob linkage accessible by the shredder cover, and the wide moveable throat blade activates the anti jam switch.

6. The paper shredder of claim **1**, wherein the anti jam switch is activated by a switch button on the shredder cover after moving the moveable throat blade.

7. The paper shredder of claim **1**, wherein the moveable throat blade widens automatically upon a signal.

8. The paper shredder of claim **7**, wherein the anti jam switch activates automatically upon a signal.

9. The paper shredder of claim **8**, wherein the signal is a torque-based measurement from the motor.

10. The paper shredder of claim **8**, wherein a force sensor is disposed in the moveable blade capable of sensing a jam in the shredder throat and the signal is a force signal from the moveable blade.

11. A method for recovering from a shredder jam in a paper shredder, comprising:

providing a moveable throat blade in the shredder throat;

sensing a shredder throat jammed condition;

releasing the moveable throat blade in the shredder throat;

moving the moveable throat blade to a wide gap position;

sensing the moveable throat blade in the wide gap position;

advancing shredder blades in response to the sensing, wherein the jammed condition is cleared;

returning the moveable throat blade to a nominal gap position; and

turning off the shredder blades in response to the returning.

12. The method of claim **11**, wherein sensing the moveable throat blade in the wide gap position comprises:

providing a switch activated by the moveable throat blade in the wide gap position, the switch configured to advance the shredder blades when the switch is activated.

13. The method of claim **11**, wherein sensing a shredder throat jammed condition comprises sensing a predetermined motor torque value.

14. The method of claim **11**, wherein sensing a shredder throat jammed condition comprises sensing a predetermined force value against the moveable throat blade.

15. The method of claim **11**, wherein releasing the moveable throat blade in the shredder throat comprises manually releasing the moveable throat blade.

16. The method of claim **15**, wherein sensing the moveable throat blade in the wide gap position comprises:

providing a switch activated by the moveable throat blade in the wide gap position, the switch configured to advance the shredder blades when the switch is activated.

17. The method of claim **15**, sensing the moveable throat blade in the wide gap position comprises:

providing a manually-activated switch configured to advance the shredder blades when the switch is activated.

18. The method of claim **11**, wherein sensing the shredder throat jammed condition comprises providing a perceptible indication indicative of the shredder throat jammed condition.

19. The method of claim **11**, wherein moving the moveable throat blade to a wide gap position comprises manually moving the moveable throat blade to a wide gap position using a push-button linkage.

20. The method of claim **11**, wherein moving the moveable throat blade to a wide gap position comprises manually moving the moveable throat blade to a wide gap position using a turn-knob linkage.

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