



HU000027622T2

(19) **HU****MAGYARORSZÁG**
Szellemi Tulajdon Nemzeti Hivatala(11) Lajstromszám: **E 027 622**(13) **T2****EURÓPAI SZABADALOM**
SZÖVEGÉNEK FORDÍTÁSA(21) Magyar ügyszám: **E 10 779393**(22) A bejelentés napja: **2010. 11. 09.**(51) Int. Cl.: **A47K 10/38** (2006.01)**A47K 10/32** (2006.01)

(96) Az európai bejelentés bejelentési száma:

EP 20100779393

(86) A nemzetközi (PCT) bejelentési szám:

PCT/US 10/055938

(97) Az európai bejelentés közzétételi adatai:

EP 2512315 A1 **2011. 06. 23.**

(87) A nemzetközi közzétételi szám:

WO 11075236

(97) Az európai szabadalom megadásának meghirdetési adatai:

EP 2512315 B1 **2015. 07. 22.**

(30) Elsőbbségi adatok:

638589 **2009. 12. 15.** **US**

(73) Jogosult(ak):

SCA Tissue North America LLC, Philadelphia, Pennsylvania 19104 (US)

(72) Feltaláló(k):

FORMON, John S., Oxford, Pennsylvania 19363 (US)**BRICKL, Jeffrey, Lodi, Wisconsin 53555 (US)****WIESER, Russell, Downingtown, Pennsylvania 19335 (US)**

(74) Képviselő:

Mészárosné Dónusz Katalin, SBGK**Szabadalmi Ügyvivői Iroda, Budapest**(54) **Adagoló tekercselt anyag több tekercse számára automatikus tekercs-áthelyezéssel, valamint eljárás ennek a feltöltésére**

Az európai szabadalom ellen, megadásának az Európai Szabadalmi Közlönyben való meghirdetésétől számított kilenc hónapon belül, felszólalást lehet benyújtani az Európai Szabadalmi Hivatalnál. (Európai Szabadalmi Egyezmény 99. cikk(1))

A fordítást a szabadalmas az 1995. évi XXXIII. törvény 84/H. §-a szerint nyújtotta be. A fordítás tartalmi helyességét a Szellemi Tulajdon Nemzeti Hivatala nem vizsgálta.



(11) **EP 2 512 315 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
22.07.2015 Bulletin 2015/30

(21) Application number: **10779393.7**

(22) Date of filing: **09.11.2010**

(51) Int Cl.:
A47K 10/38 ^(2006.01) **A47K 10/32** ^(2006.01)

(86) International application number:
PCT/US2010/055938

(87) International publication number:
WO 2011/075236 (23.06.2011 Gazette 2011/25)

(54) **DISPENSER FOR MULTIPLE ROLLS OF WEB MATERIAL WITH AUTOMATIC ROLL TRANSFER,
AND METHOD OF LOADING SAME**

SPENDER FÜR MEHRERE ROLLEN VON BAHNMATERIAL ROLLEN MIT AUTOMATISCHEM
ROLLENWECHSEL UND VERFAHREN ZUM BEFÜLLEN DESSELBEN

DISTRIBUTEUR POUR ROULEAUX MULTIPLES DE TISSU DOTÉ D'UN TRANSFERT
AUTOMATIQUE DE ROULEAU ET SON PROCÉDÉ DE CHARGEMENT

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **15.12.2009 US 638589**

(43) Date of publication of application:
24.10.2012 Bulletin 2012/43

(73) Proprietor: **SCA Tissue North America LLC
Philadelphia, Pennsylvania 19104 (US)**

(72) Inventors:
• **FORMON, John S.**
Oxford, Pennsylvania 19363 (US)
• **BRICKL, Jeffrey**
Lodi, Wisconsin 53555 (US)
• **WIESER, Russell**
Downingtown, Pennsylvania 19335 (US)

(74) Representative: **Valea AB**
Box 1098
405 23 Göteborg (SE)

(56) References cited:
GB-A- 2 245 882 NL-A- 7 709 378

EP 2 512 315 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a dispenser for web material in rolled form, and a method of loading such a dispenser. A plurality of rolls of web material are mounted on a carousel and once a current roll is spent or substantially spent, the carousel rotates to automatically transfer a next roll into a dispensing position.

BACKGROUND OF THE INVENTION

[0002] G.B. Patent No. 2,245,882A discloses a turret (fig. 5-7, (221)), a plurality of roll holders (212,213,231,232), roll diameter sensors (214a-d) and a movable trigger latch (217).

[0003] Efforts have been made over the years to store and then sequentially dispense multiple rolls of web material. Such web material is usually in the form of paper towels or toilet tissue. However, the prior art devices are often complex and/or produce core waste, that is spent cores are not retained by the dispenser.

[0004] U.S. Patent No. 7,461,810 describes a multiple roll dispenser in which each roll holder has an associated release arm for securing the roll in dispensing position and for permitting rotation of the roll-carrying carousel when the current roll has been depleted. In order for the carousel of this patent to rotate under the influence of gravity, the rolls must be dispensed from a position offset from the central vertical axis of the housing.

[0005] U.S. Patent No. 5,310,129 also describes a multiple roll dispenser in which each roll holder has an associated lock mechanism and the roll being dispensed must be offset from the central vertical axis of the housing in order for the carousel to rotate under the influence of gravity when a roll being dispensed has been depleted.

[0006] U.S. Patents Nos. 6,991,251 and 7,041,140 describe multiple tissue roll dispensers in which the catch and release mechanism for the rotary turret requires the use of split core tissue rolls, i.e., rolls in which the core is in the form of two axially separated sections.

SUMMARY OF THE INVENTION

[0007] The present invention provides a multiple roll sheet material dispenser that is mechanically simple, robust and reliable in operation, as well as a novel method of loading such a dispenser. In preferred embodiments the dispenser prevents core waste and automatically transfers a new roll to the dispensing position under the influence of gravity.

[0008] According to the invention a turret is rotatably mounted to a dispenser body. The turret includes a plurality of roll holders connected thereto. The roll holders preferably extend parallel to an axis of rotation of the turret. A catch and release mechanism is positioned at a selected position within the rotation path of the turret,

and cooperates with a sensor that senses the diameter of the roll being dispensed, such that when the roll reaches a predetermined minimum diameter corresponding to a fully or almost fully depleted state, the catch and release mechanism release the downstream spindle that it had been holding and permits the turret to rotate under the influence of gravity until it catches the just-depleted spindle, whereupon the next roll of web material is in the dispensing position.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The above and other features, advantages and objects of the present invention will be more fully apparent with reference to the following description of certain preferred embodiments of the invention, taken with reference to the accompanying drawings in which:

Figure 1 is an exploded perspective view of a dispenser according to an embodiment of the present invention;

Figure 2 is a vertical sectional view showing the roll diameter sensor of the Fig. 1 dispenser on a full roll of web material;

Figure 3 is a view similar to Fig. 2 when the roll has become depleted and just prior to release of the latch mechanism;

Figure 4 is a view similar to Fig. 3 when the latch mechanism has released the downstream spindle and the turret has begun to rotate so as to advance the next roll to the dispensing position;

Figure 5 is a vertical sectional view on a plane closer to the front of the dispenser, with the cover removed, in the state corresponding to Fig. 2;

Figure 6 is a vertical sectional view on a plane closer to the front of the dispenser, with the cover removed, in the state corresponding to Fig. 3; and

Figure 7 is a vertical sectional view on a plane closer to the front of the dispenser, with the cover removed, in the state corresponding to Fig. 4.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0010] The dispenser of Fig. 1 includes a body 1 that is configured to be mounted to a vertical support structure such as a restroom wall or the wall of a toilet stall. The dispenser also includes a turret in the form of a carousel 12 rotatably mounted to a wider section 36 of a boss formed on or connected to the body 1. The turret could alternatively take the form of a spider in which the roll holders are connected not to a plate but each to a corresponding spoke radiating from a common hub.

[0011] A plurality of roll holders 22, 24, 26, 28 and 30 are connected to a front face of the carousel 12 and extend preferably in parallel to an axis of rotation A of the carousel 12. In the embodiment of Figure 1 there are five roll holders. In practice, the number of roll holders can

vary from a minimum of three to a maximum of any desired number.

[0012] The roll holders 22, 24, 26, 28 and 30 are each configured to hold a roll of web material. Such web material might be paper towels or toilet tissue or any other web material that comes in roll form. For convenience, the term tissue is used below.

[0013] In Figure 1, the dispenser is shown with its cover in an open position. The cover is connected to the body 1 by the depicted pivot structure and is movable from the open position to a closed position covering the carousel 12 and roll holders and defining a dispensing opening. In the open position, the roll holders are accessible for loading full rolls R or replacing spent rolls or cores C.

[0014] The dispenser further includes a sensor 10 pivotally mounted to the narrower section 38 of the boss formed on or connected to the body 1. A coil spring 4 is captive between the sensor 10 and boss section 38, and urges the sensor to pivot in the counterclockwise direction. The sensor 10 includes a portion 8 that bears on the outer periphery of a roll of tissue currently being dispensed, as will be described in greater detail later. The portion 8 may be integrally formed with the remainder of sensor 10, or may take the form of a roller that is rotatably mounted within the pair of depicted arms projecting from sensor 10.

[0015] The sensor 10 is covered by a shroud 3 that is preferably formed of transparent plastic so as to permit inspection of the catch and release mechanism. Shroud 3 is fixed via screws 14 to the body 1, at points radially outside the path of carousel 12. Shroud 3 also provides an opening for receiving the screw 14 that secures the sensor 10 to the narrower boss section 38. The shroud projects axially from the inside rear surface of body 1 a distance sufficient to permit the roll holders 22, 24, 26, 28 and 30 to pass by, subject to the action of the catch and release mechanism as will be described.

[0016] Sensor 10 also coacts with a trigger latch 9, which is pivotally mounted to shroud 3 at mounting point 34, via another screw 14. Trigger latch 9 includes a pair of rollers 11 to reduce the frictional contact with sensor 10. Shroud 3 includes a pair of interior arcuate grooves (visible in Fig. 1 as a pair of exterior arcuate lands 32) which receive the outer ends of rollers 11 and thus limit the range of angular movement of the trigger latch 9.

[0017] Carousel 12 rotates clockwise when transferring a fresh roll of tissue to the dispensing station, whereas pawl 7 pivotally mounted at its one end 40 in corresponding recess 38 formed in body 1 prevents rotation of carousel 12 in the counterclockwise direction, by its other end 42 engaging with the series of inclined ramps formed on the opposite side of carousel 12, in the manner of a conventional ratchet mechanism.

[0018] The cover of the dispenser includes a latch mechanism 13, preferably operated by a key, that keeps the cover in the closed position.

[0019] It will be noted that the roll holders 22, 24, 26, 28 and 30 of this embodiment are wider at their ends

proximate the turntable 12 and taper toward narrower portions at the opposite, free distal ends. As such, these roll holders are adapted to hold rolls of tissue as described in the commonly owned copending application ser. No. 11/541,666, the entirety of which is hereby expressly incorporated by reference.

[0020] In Fig 2, the dispenser contains four full rolls of tissue, a roll C in the dispensing position on roll holder 28 and three rolls R in reserve on holders 22, 24 and 26. Roll holder 30 is either empty or holds a fully or almost fully depleted roll core from a previous dispensing cycle. Roll holder 30 is latched in this position by trigger latch 9, as shown in Fig. 5.

[0021] A notable feature of this embodiment is that the latch is positioned within the southwest quadrant of the turret, so as to latch a roll holder that has just advanced from the dispensing position, and is therefore either empty or holds a spent or nearly spent roll. Obviously, if the turret were configured for counterclockwise rotation, the latch would be in the southeast quadrant, and the dispenser would be essentially a mirror image of that shown. In this embodiment, only four rolls of tissue are loaded into the dispenser despite the presence of five roll holders, so that the roll holder in the position of holder 30 in Fig. 2 will always be either empty or holding a spent or nearly spent roll. This provides an imbalance in the center of gravity of the turret that causes the turret to rotate automatically in the clockwise direction under the influence of gravity, when the roll C becomes depleted as described herein. Preferably, in order to optimize the effects of gravity, the dispenser includes a means for ensuring that the unit is level, such as a bubble level 17 as seen in Figure 1.

[0022] By virtue of this construction and technique, the roll C currently being dispensed may be suspended on the vertical axis of the dispenser, which is to say that axis of rotation of the roll holder 28 is aligned vertically with the axis of rotation of turret 12, i.e., the roll being dispensed in this embodiment may be in the "six o'clock" position, in contrast to the prior art discussed above.

[0023] The ability to have the current roll in the six o'clock position means that it will be positioned directly above the dispensing opening 44 of the dispenser, which in turn will minimize the force need to pull a length of tissue from the roll C, and prevent the withdrawn web from tearing prematurely.

[0024] In Fig. 2, the roller 8 of sensor 10 bears against the outer generally cylindrical periphery of the current roll C, which at this point is still nearly full. As the roll C is depleted, spring 4 urges sensor 10 to pivot counterclockwise, such that roller 8 remains in contact with the cylindrical periphery of roll C as it continues to be depleted.

[0025] Fig. 3 shows the condition in which the roll C has been fully or nearly fully depleted, i.e., just before the catch mechanism will release roll holder 30 and permit clockwise rotation of the carousel 12 so as to bring roll holder 26 into dispensing position. Roller 8 is maintained in contact with the roll C by the action of spring 4.

[0026] In Fig. 4, the trigger latch 9 has released roll holder 30, such that turret 12 is free to rotate and as shown in this figure in fact has begun to rotate. Holder 28 is being transferred to the next position, where it will be latched by trigger latch 9, while reserve roll R on roll holder 26 is advancing toward the dispensing position above opening 44, where it will become the new current roll C. This advancing motion of turret 12 occurs automatically under the influence of gravity, as a result of the eccentric load maintained by the empty or essentially empty roll holder between the six o'clock and nine o'clock positions, which is latched by the trigger latch 9.

[0027] Figs 5-7 show the relationship between sensor 10 and trigger latch 9 at the states shown in Figs. 2-4, respectively. In Fig. 5, when the current roll C is full, the sensor 10 bears via its arcuate periphery 50 on the rollers 11 mounted on trigger latch 9, thereby keeping the hooked nose 52 of trigger latch confined on the roll holder 30. The distal end of roll holder 30 projects far enough beyond the core of the spent roll E on holder 30 that the nose 52 can latch on the roll holder 30 directly.

[0028] While the roll holders 22, 24, 26, 28 and 30 have wider proximate ends and narrower distal ends in this embodiment, it is also possible for the roll holders to be of constant or stepped diameter.

[0029] So long as the arcuate periphery 50 of sensor 10 bears on the rollers 11, the hooked nose 52 of trigger latch 9 remains on roll holder 30, and the carousel 12 is prevented from rotating. It bears noting that this arrangement has the advantage of maintaining the carousel 12 in a fixed angular orientation while the roll C is being dispensed. This is in contrast to various of the prior art dispensers discussed above, in which the carousel steadily advances as the current roll is depleted. In the present embodiment, the roller 8 applies a slight resistance to pulling web material from the roll, but that resistance is not compounded as in the prior art by the rotational moment of the overall turret loaded with the reserve rolls. This also contributes to the reliable operation of the present invention.

[0030] In Fig. 6, the current roll C has been mostly depleted, but the arcuate periphery 50 of sensor 10 remains in contact with one of the rollers 11 mounted on trigger latch 9, and thus the hooked nose 52 of trigger latch 9 continues to clamp roll holder 30, and the carousel 12 remains in the same angular orientation as in Fig. 5.

[0031] In Fig. 7, the diameter of the current roll C has decreased further, corresponding to the condition in which the roll C is either completely empty or close to completely empty. The continuing pivotal motion of sensor 10 urged by spring 4 as roller 8 follows the decreasing diameter of roll C has now caused the arcuate periphery 50 of sensor 10 to come out of contact with both rollers 11. Without the sensor 10 clamping the trigger latch 9 in the locking position, the contour of the hooked nose 52 and the rotational moment of the carousel 12 bearing against it causes the trigger latch 9 to lift off of the roll holder 30, such that the carousel 12 is free to rotate under

the force of gravity in a clockwise direction so as to advance the next roll R on roll holder 26 to the dispensing location, to become the new roll C.

[0032] At this stage not only the sensor 10 but also the trigger latch 9 are positioned entirely radially inwardly of the circle described by the axes of the roll holders 22, 24, 26, 28 and 30.

[0033] As the new roll on holder 26 advances to the dispensing position, its full diameter bears on roller 8 and causes sensor 10 to pivot clockwise against the force of spring 4, to return to its initial position shown in Fig. 5. Simultaneously therewith, the newly spent core on holder 28 arrives in proximity of the trigger latch 9, just as the trigger latch 9 is being pivoted counterclockwise by the returning outer periphery 50 of sensor 10. In this way, the sensor 10 acts as a cam to move the latch back into the initial position of Figure 5.

[0034] The latching arrangement of this embodiment thus automatically resets itself as the new roll advances to the dispensing position. Furthermore, this embodiment permits using only a single catch and release mechanism that is common to all of the roll holders.

[0035] In the present embodiments the trigger latch 9 is substantially L-shaped with a first end being pivotal about the axis defined by screw 14 and mounting point 34 (see Figure 1) and a second end 52 in contact with one of the roll holders. However, the trigger latch 9 can be any shape such as T-shaped or Y-shaped so long as it is able to latch the roll holder and block rotation of the carousel 12 when the sensor bears against it and permit rotation of the carousel 12 when the sensor does not bear against it.

[0036] To load this dispenser, the washroom attendant or other user opens the cover of the dispenser by using the appropriate key in the locking mechanism 13, and pivots the cover downwardly to the position shown in Fig. 1. At this point, there is hopefully some tissue remaining on the roll C, whereas the roll holder 30 carries a spent roll and one or more of the roll holders 22, 24 and 26 also carry spent rolls. The washroom attendant removes the cores of the spent rolls, which have been retained by their respective roll holders, and places fresh rolls on each roll holder. The roll holder 28 carrying the current roll C might or might not need a fresh roll at this stage, whereas the roll holder 30 that is currently being clamped by the trigger latch 9 does not receive a fresh roll, so that it preserves the weight imbalance of the carousel 12 that causes it to advance by gravity when the trigger latch 9 is released. Since roll holder 30 is behind the shroud 3, it cannot be accessed and thus the imbalance of the carousel is maintained for optimal operation of the dispenser.

[0037] The above description and embodiments are presented as non-limiting examples. Modifications within the scope and spirit of the invention as defined in the appended claims will be readily apparent to those of ordinary skill in the art after reading the present specification.

Claims**1.** A dispenser comprising:

a body;
 a turret (12) rotatably mounted in said body;
 a plurality of roll holders (22, 24, 26, 28, 30) connected to said turret and extending generally parallel to an axis of rotation (A) of said turret;
 a cover connected to said body and movable from a closed position covering said turret to an open position that permits accessing said turret;
 a single roll diameter sensor (10) pivotally mounted about said axis of rotation of said turret within said dispenser, said sensor sensing whether a roll of web material on one of said plurality of roll holders has reached a predetermined minimum diameter; and
 a single movable trigger latch (9) pivotally mounted about an axis parallel to said axis of rotation of said turret within said dispenser and common to each of said plurality of roll holders, said trigger latch blocking rotation of said turret until said roll of web material on said one of said plurality of roll holders has reached said predetermined minimum diameter, said trigger latch then releasing said turret to rotate in a first direction, and
 said trigger latch is movable from a first position in which it clamps one of said plurality of roll holders to a second position free of contact with said one of said plurality of roll holders.

2. The dispenser as claimed in claim 1, wherein the sensor includes an edge movable from a first position in contact with said trigger latch to a second position free of contact with said trigger latch.

3. The dispenser as claimed in claim 2, wherein the edge is movable from the second position back to the first position so as to move the trigger by cam action to block rotation of the turret.

4. The dispenser as claimed in claim 1, further comprising means for preventing rotation of said turret in a direction opposite said first direction.

5. The dispenser as claimed in claim 1, wherein said sensor includes a contact element adapted to bear on a periphery of a roll of tissue mounted on one of said plurality of roll holders.

6. The dispenser as claimed in claim 4, wherein said trigger latch clamps one of said plurality of roll holders that is adjacent in a downstream direction to said one of said plurality of roll holders carrying the roll on which the sensor contact element bears.

7. The dispenser as claimed in claim 1, wherein said trigger latch is mounted in a sector of said dispenser that is below said axis of rotation and to one side of a vertical line passing through said axis of rotation.

8. The dispenser as claimed in claim 1, further comprising a means for leveling the dispenser.

9. A method of loading a multiple roll tissue dispenser having an interior rotatable turret (12) carrying a plurality of roll holders, (22, 24, 26, 28, 30) a single roll diameter sensor (10) pivotally mounted about an axis of rotation (A) of said turret and a single trigger latch (9) pivotally mounted in a sector of the dispenser that is below the axis of rotation of the turret and to one side of a vertical line passing through said axis of rotation, the method comprising:

opening a cover of the dispenser;
 removing any depleted cores on said plurality of roll holders other than a roll holder being latched by the trigger latch;
 loading fresh rolls onto the plurality of roll holders, the number of fresh rolls being at most one fewer than the number of the plurality of roll holders; and
 closing the cover of the dispenser.

10. The method as claimed in claim 9, wherein each fresh roll of tissue comprises an insertion end and an outer end, the insertion end having a wider opening than the outer end, and wherein each of the plurality of roll holders has a wider base proximate the turret and a narrower free distal end.

11. The method as claimed in claim 9, further comprising ensuring that the dispenser is level prior to closing the cover of the dispenser.

12. The dispenser as claimed in claim 1, further comprising a coil spring configured to urge the sensor to pivot.

13. The dispenser as claimed in claim 1, wherein the trigger latch includes a pair of rollers configured to reduce frictional contact with the sensor.

14. The dispenser as claimed in claim 13, further comprising a shroud on which the trigger latch is pivotally mounted, the shroud including a pair of interior arcuate grooves configured to receive outer ends of the rollers to thereby limit a range of angular movement of the trigger latch.

15. The method as claimed in claim 9, wherein the dispenser further comprises a coil spring configured to urge the sensor to pivot.

16. The method as claimed in claim 9, wherein the trigger latch includes a pair of rollers configured to reduce frictional contact with the sensor.
17. The method as claimed in claim 16, wherein the dispenser further comprises a shroud on which the trigger latch is pivotally mounted, the shroud including a pair of interior arcuate grooves configured to receive outer ends of the rollers to thereby limit a range of angular movement of the trigger latch.

Patentansprüche

1. Spender mit: einem Körper (1);
einem Drehrad (12), das in dem Körper drehbar angebracht ist;
einer Mehrzahl von Rollenhaltern (22, 24, 26, 28, 30) die mit dem Drehrad verbunden sind und sich im Allgemeinen parallel zu einer Drehachse (A) des Drehrads erstrecken;
einer Abdeckung, die mit dem Körper verbunden ist und von einer geschlossenen Position, die das Drehrad überdeckt, in eine offene Position bewegbar ist, die einen Zugang zu dem Drehrad erlaubt;
einem einzelnen Rollendurchmessersensor (10), der um die Drehachse des Drehrads schwenkbar in dem Spender angebracht ist, wobei der Sensor erfasst, ob eine Rolle von Bahnmateriale auf einem der Mehrzahl von Rollenhaltern einen vorgegebenen Minimaldurchmesser erreicht hat; und
einer einzelnen bewegbaren Auslöseklinke (9) die um eine Achse, parallel zu der Drehachse des Drehrads, schwenkbar in dem Spender angebracht ist und allen der Mehrzahl von Rollenhaltern gemeinsam ist, wobei die Auslöseklinke eine Drehung des Drehrads blockiert, bis die Rolle von Bahnmateriale auf dem einen der Mehrzahl von Rollenhaltern den vorgegebenen Minimaldurchmesser erreicht hat, wobei die Auslöseklinke das Drehrad dann zur Drehung in einer ersten Richtung freigibt, und die Auslöseklinke von einer ersten Position, in der sie einen der Mehrzahl von Rollenhaltern festklemmt, in eine zweite Position bewegbar ist, die kontaktfrei gegenüber dem einen der Mehrzahl von Rollenhaltern ist.
2. Spender nach Anspruch 1, bei dem der Sensor eine Kante aufweist, die von einer ersten Position, in Kontakt mit der Auslöseklinke, in eine zweite Position bewegbar ist, die frei ist von Kontakt mit der Auslöseklinke.
3. Spender nach Anspruch 2, bei dem die Kante von der zweiten Position zurück in die erste Position bewegbar ist, um den Auslöser durch Nockenwirkung zu bewegen, um eine Drehung des Drehrads zu blockieren.

4. Spender nach Anspruch 1, der ferner ein Mittel zum Vorbeugen gegen eine Drehung des Drehrads in einer Richtung entgegengesetzt zu der ersten Richtung aufweist.
5. Spender nach Anspruch 1, bei dem der Sensor ein Kontaktelement aufweist, das zum Aufsetzen auf einen Umfang einer Tissuerolle geeignet ist, die an einer der Mehrzahl von Rollenhaltern angebracht ist.
6. Spender nach Anspruch 4, bei dem die Auslöseklinke einen der Mehrzahl von Rollenhaltern festklemmt, der in einer Stromabwärtsrichtung benachbart ist zu dem einen der Mehrzahl der Rollenhaltern, der die Rolle trägt, auf dem das Sensorkontaktelement aufsetzt.
7. Spender nach Anspruch 1, bei dem die Auslöseklinke in einem Sektor des Spenders angebracht ist, der unterhalb der Drehachse und auf einer Seite einer vertikalen Linie angeordnet ist, die durch die Drehachse läuft.
8. Spender nach Anspruch 1, der ferner ein Mittel zum Nivellieren des Spenders aufweist.
9. Verfahren zum Beladen eines Mehrrollentissuespenders mit einem inneren drehbaren Drehrad (12), das eine Mehrzahl von Rollenhaltern (22, 24, 26, 28, 30) trägt,
einem einzelnen Rollendurchmessersensor (10), der um eine Drehachse (A) des Drehrads schwenkbar angebracht ist, und einer einzelnen Auslöseklinke (9), die in einem Sektor des Spenders schwenkbar angebracht ist, der unterhalb der Drehachse des Drehrads und auf einer Seite einer vertikalen Linie angeordnet ist, die durch die Drehachse läuft, wobei das Verfahren umfasst:
Öffnen einer Abdeckung des Spenders;
Entfernen von irgendwelchen aufgebrauchten Kernen bei der Mehrzahl von Rollenhaltern außer einem Rollenhalter, der durch die Auslöseklinke eingeklinkt ist;
Aufladen von frischen Rollen auf die Mehrzahl von Rollenhaltern, wobei die Anzahl von frischen Rollen höchstens eins weniger ist als die Anzahl der Mehrzahl von Rollenhaltern; und
Schließen der Abdeckung des Spenders.
10. Verfahren nach Anspruch 9, bei dem jede frische Tissuerolle ein Einführende und ein äußeres Ende aufweist, wobei das Einführende eine breitere Öffnung als das äußere Ende aufweist, und wobei jeder der Mehrzahl von Rollenhaltern eine breite Basis nahe des Drehrads und ein schmaleres freies distales Ende aufweist.

11. Verfahren nach Anspruch 9, das ferner vor dem Schließen der Abdeckung des Spenders das Sichern einschließt, dass der Spender nivelliert ist.
12. Spender nach Anspruch 1, der ferner eine Schraubenfeder aufweist, die dazu geeignet ist, den Sensor zum Verschwenken anzuregen. 5
13. Spender nach Anspruch 1, bei dem die Auslöseklinke ein Paar von Rollen aufweist, die zum Reduzieren von Reibungskontakt mit dem Sensor geeignet sind. 10
14. Spender nach Anspruch 13, der ferner einen Schutz aufweist, an dem die Auslöseklinke schwenkbar angebracht ist, wobei der Schutz ein Paar von inneren bogenförmigen Nuten aufweist, die zum Aufnehmen von äußeren Enden der Rollen geeignet sind, um dadurch einen Bereich einer Winkelbewegung der Auslöseklinke zu begrenzen. 15
15. Verfahren nach Anspruch 9, bei dem der Spender ferner eine Schraubenfeder aufweist, die dazu geeignet ist, den Sensor zum Verschwenken anzuregen. 20
16. Verfahren nach Anspruch 9, bei dem die Auslöseklinke ein Paar von Rollen aufweist, die zum Reduzieren von Reibungskontakt mit dem Sensor geeignet sind. 25
17. Verfahren nach Anspruch 16, bei dem der Spender ferner einen Schutz aufweist, an dem die Auslöseklinke schwenkbar angebracht ist, wobei der Schutz ein Paar von inneren bogenförmigen Nuten aufweist, die zum Aufnehmen von äußeren Enden der Rollen geeignet sind, um dadurch einen Bereich einer Winkelbewegung der Auslöseklinke zu begrenzen. 30

Revendications

1. Distributeur comprenant :

un corps ;
 une tourelle (12) montée à rotation dans ledit corps ;
 une pluralité de supports de rouleaux (22, 24, 26, 28, 30) connectés à ladite tourelle et s'étendant généralement parallèlement à un axe de rotation (A) de ladite tourelle ;
 un couvercle connecté audit corps et mobile entre une position fermée qui recouvre ladite tourelle et une position ouverte qui permet d'accéder à ladite tourelle ;
 un capteur simple de diamètre de rouleau (10) monté à pivotement autour dudit axe de rotation de ladite tourelle à l'intérieur dudit distributeur,

ledit capteur détectant si un rouleau de matériau en bande présent sur l'un desdits supports de rouleaux a atteint un diamètre minimum prédéterminé ; et

un loquet à gâchette mobile simple (9) monté à pivotement autour d'un axe parallèle audit axe de rotation de ladite tourelle à l'intérieur dudit distributeur et commun à chacun desdits supports de rouleaux, ledit loquet bloquant la rotation de ladite tourelle jusqu'à ce que ledit rouleau de matériau en bande présent sur ledit un des supports de rouleaux ait atteint ledit diamètre minimum prédéterminé, ledit loquet libérant alors ladite tourelle pour qu'elle tourne dans une première direction, et ledit loquet à gâchette étant mobile d'une première position dans laquelle il serre l'un desdits supports de rouleaux à une deuxième position sans contact avec ledit un des supports de rouleaux.

2. Distributeur selon la revendication 1, dans lequel le capteur comprend un bord mobile entre une première position en contact avec ledit loquet à gâchette et une deuxième position sans contact avec ledit loquet.

3. Distributeur selon la revendication 2, dans lequel le bord peut revenir de la deuxième position à la première position afin de déplacer la gâchette par action de came pour bloquer la rotation de la tourelle.

4. Distributeur selon la revendication 1, comprenant en outre un moyen pour empêcher la rotation de ladite tourelle dans une direction opposée à ladite première direction.

5. Distributeur selon la revendication 1, dans lequel ledit capteur comprend un élément de contact adapté pour prendre appui sur une périphérie d'un rouleau de papier absorbant monté sur l'un desdits supports de rouleaux.

6. Distributeur selon la revendication 4, dans lequel ledit loquet à gâchette serre l'un desdits supports de rouleaux, qui est adjacent, dans une direction aval, audit un des supports de rouleaux qui porte le rouleau sur lequel prend appui l'élément de contact de capteur.

7. Distributeur selon la revendication 1, dans lequel ledit loquet à gâchette est monté dans un secteur dudit distributeur qui est sous ledit axe de rotation et situé d'un côté d'une droite verticale passant par ledit axe de rotation.

8. Distributeur selon la revendication 1, comprenant en outre un moyen pour mettre le distributeur de niveau.

9. Procédé de chargement d'un distributeur de papier absorbant à plusieurs rouleaux comportant une tourelle intérieure rotative (12) supportant une pluralité de supports de rouleaux (22, 24, 26, 28, 30), un capteur simple de diamètre de rouleau (10) monté à pivotement autour d'un axe de rotation (A) de ladite tourelle et un loquet à gâchette simple (9) monté à pivotement dans un secteur dudit distributeur qui est sous l'axe de rotation de la tourelle et situé d'un côté d'une droite verticale passant par ledit axe de rotation, le procédé comprenant les opérations suivantes :
- ouvrir un couvercle du distributeur ;
retirer tout rouleau épuisé de ladite pluralité de supports de rouleaux autres qu'un support de rouleau bloqué par le loquet à gâchette ;
charger des rouleaux neufs sur la pluralité de supports de rouleaux, le nombre de rouleaux neufs étant au plus égal à un de moins que le nombre de la pluralité de supports de rouleaux ;
et
fermer le couvercle du distributeur.
10. Procédé selon la revendication 9, dans lequel chaque rouleau de papier absorbant neuf comprend une extrémité d'insertion et une extrémité extérieure, l'extrémité d'insertion ayant une ouverture plus large que l'extrémité extérieure, et dans lequel chacun des supports de rouleaux a une base plus large à proximité de la tourelle et une extrémité distale libre plus étroite.
11. Procédé selon la revendication 9, comprenant en outre l'étape consistant à s'assurer que le distributeur est de niveau avant de fermer le couvercle du distributeur.
12. Distributeur selon la revendication 1, comprenant en outre un ressort hélicoïdal configuré pour obliger le capteur à pivoter.
13. Distributeur selon la revendication 1, dans lequel le loquet à gâchette comprend une paire de roulettes configurées pour réduire le contact de frottement avec le capteur.
14. Distributeur selon la revendication 13, comprenant en outre un capot sur lequel le loquet à gâchette est monté à pivotement, le capot comprenant une paire de rainures intérieures courbées configurées pour recevoir les extrémités extérieures des roulettes afin de limiter une plage de mouvement angulaire du loquet à gâchette.
15. Procédé selon la revendication 9, dans lequel le distributeur comprend en outre un ressort hélicoïdal configuré pour obliger le capteur à pivoter.
16. Procédé selon la revendication 9, dans lequel le loquet à gâchette comprend une paire de roulettes configurées pour réduire le contact de frottement avec le capteur.
17. Procédé selon la revendication 16, dans lequel le distributeur comprend en outre un capot sur lequel le loquet à gâchette est monté à pivotement, le capot comprenant une paire de rainures intérieures courbées configurées pour recevoir les extrémités extérieures des roulettes afin de limiter une plage de mouvement angulaire du loquet à gâchette.

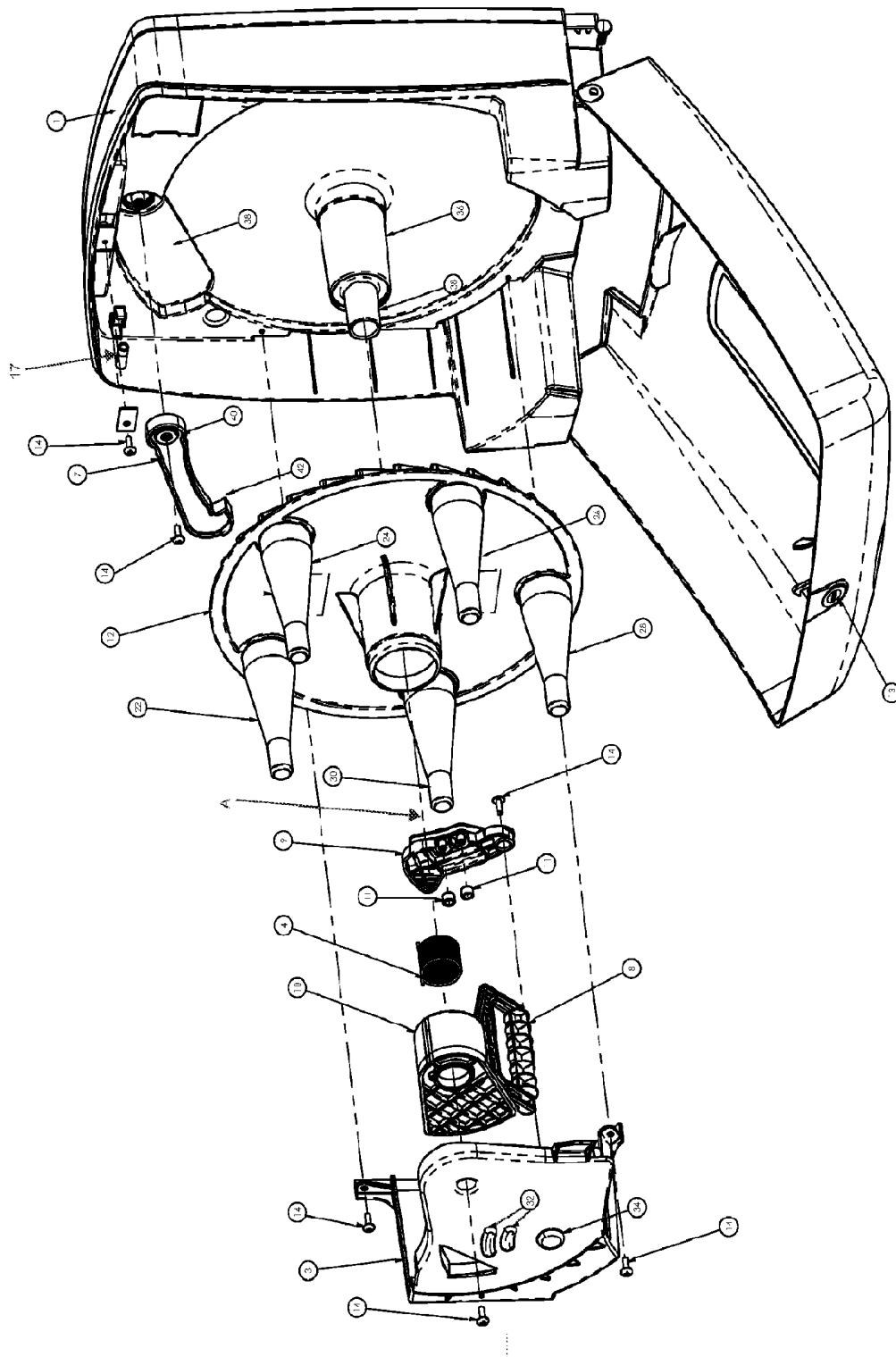


Fig. 1

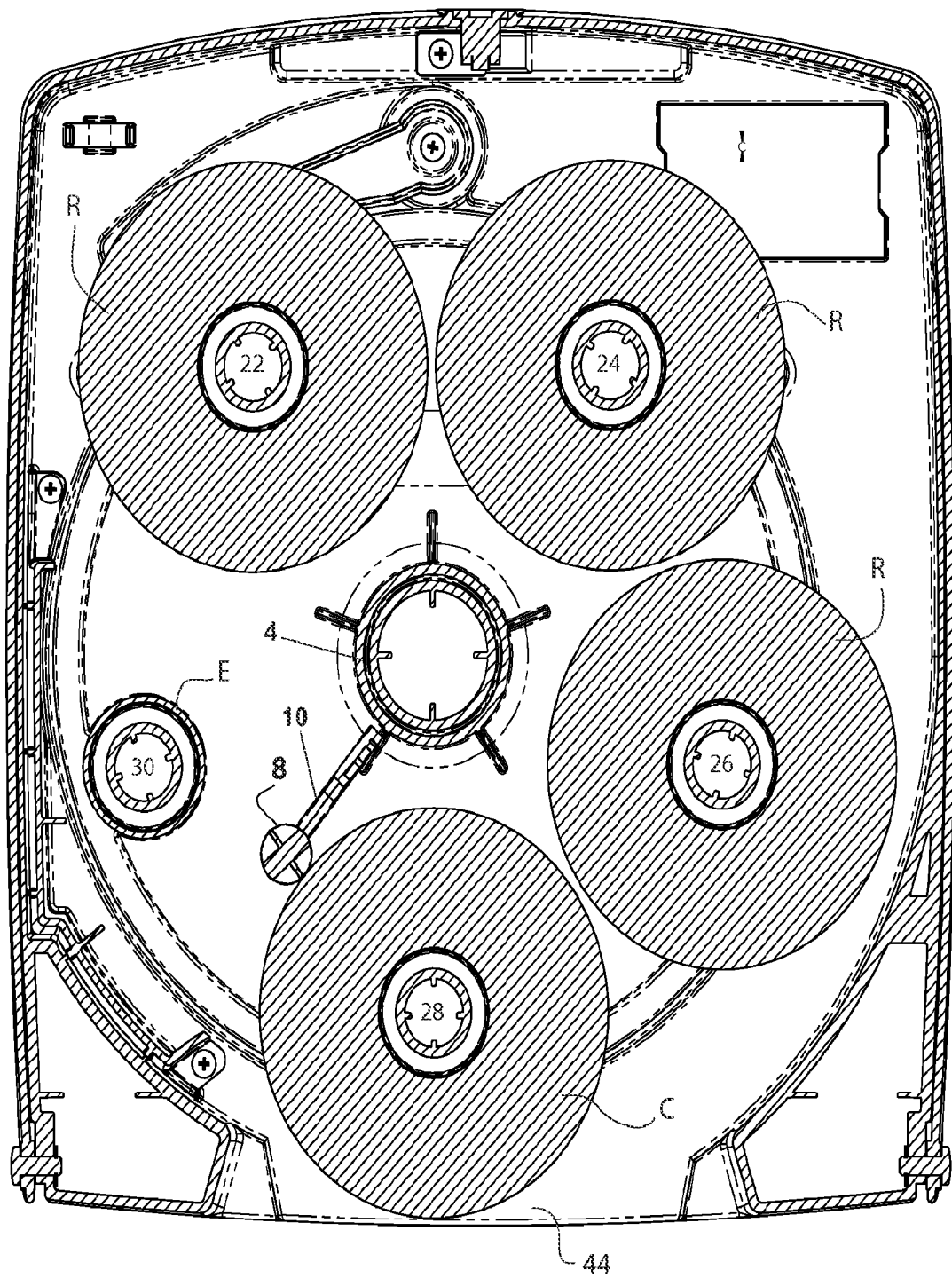


Fig. 2

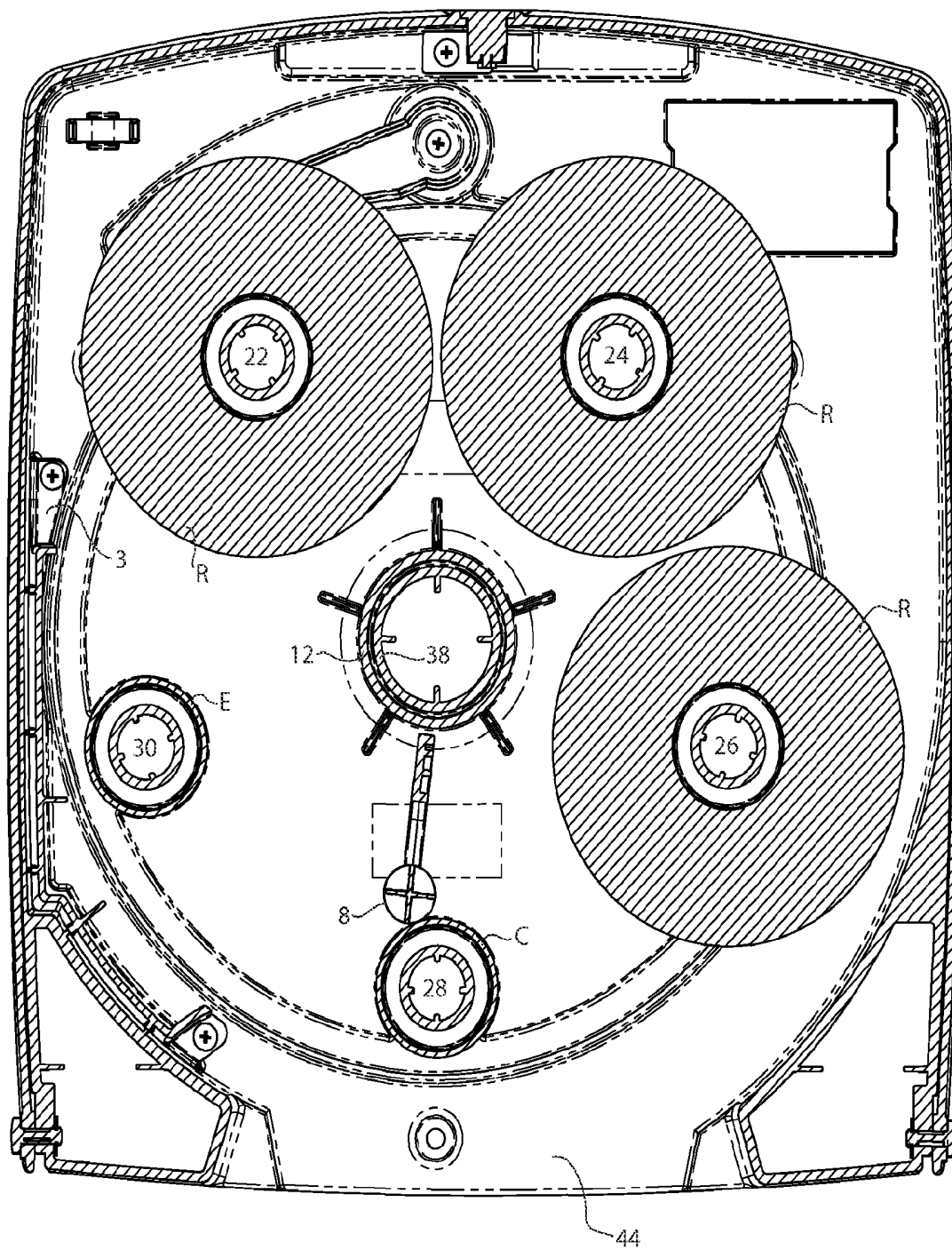


Fig. 3

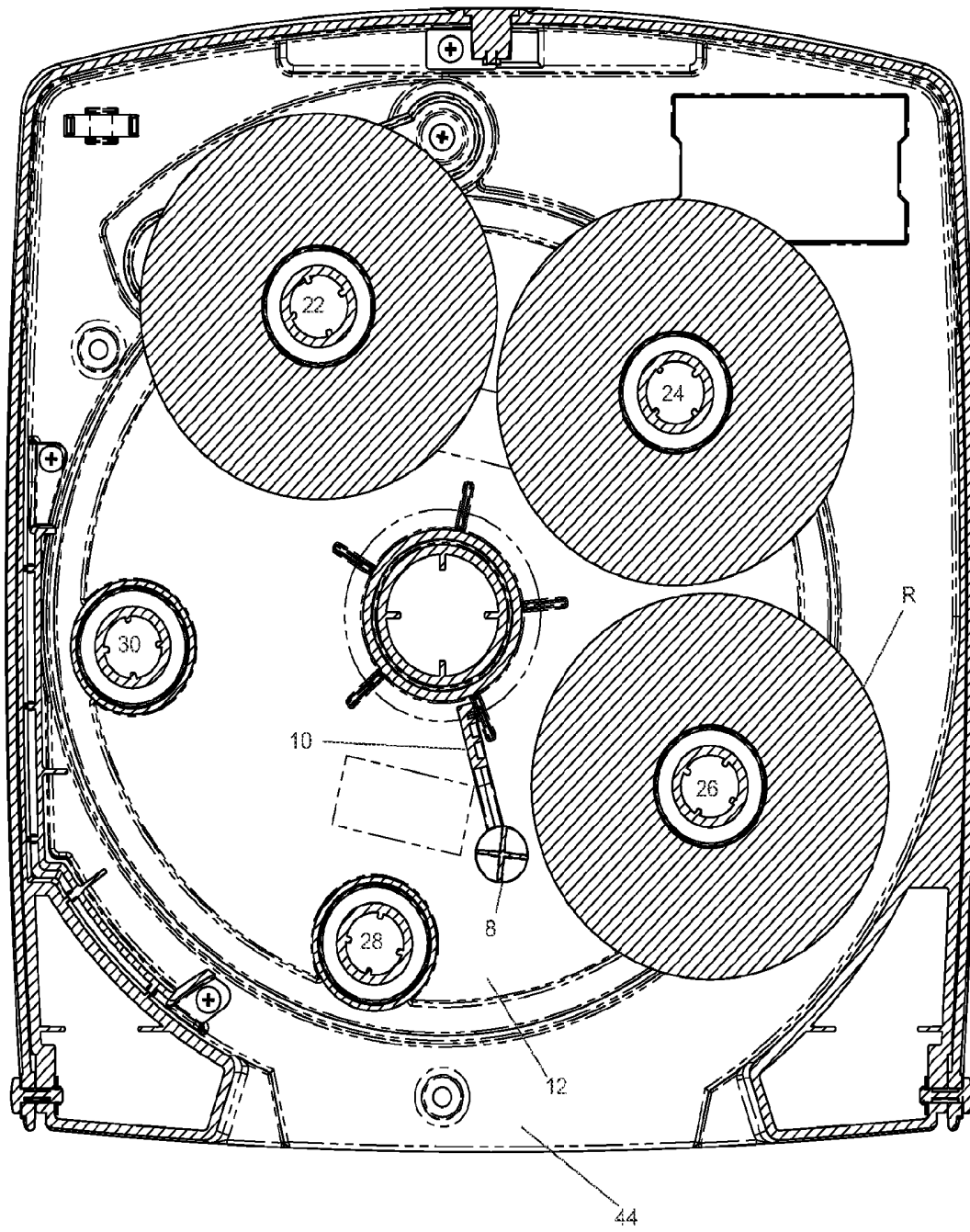


Fig. 4

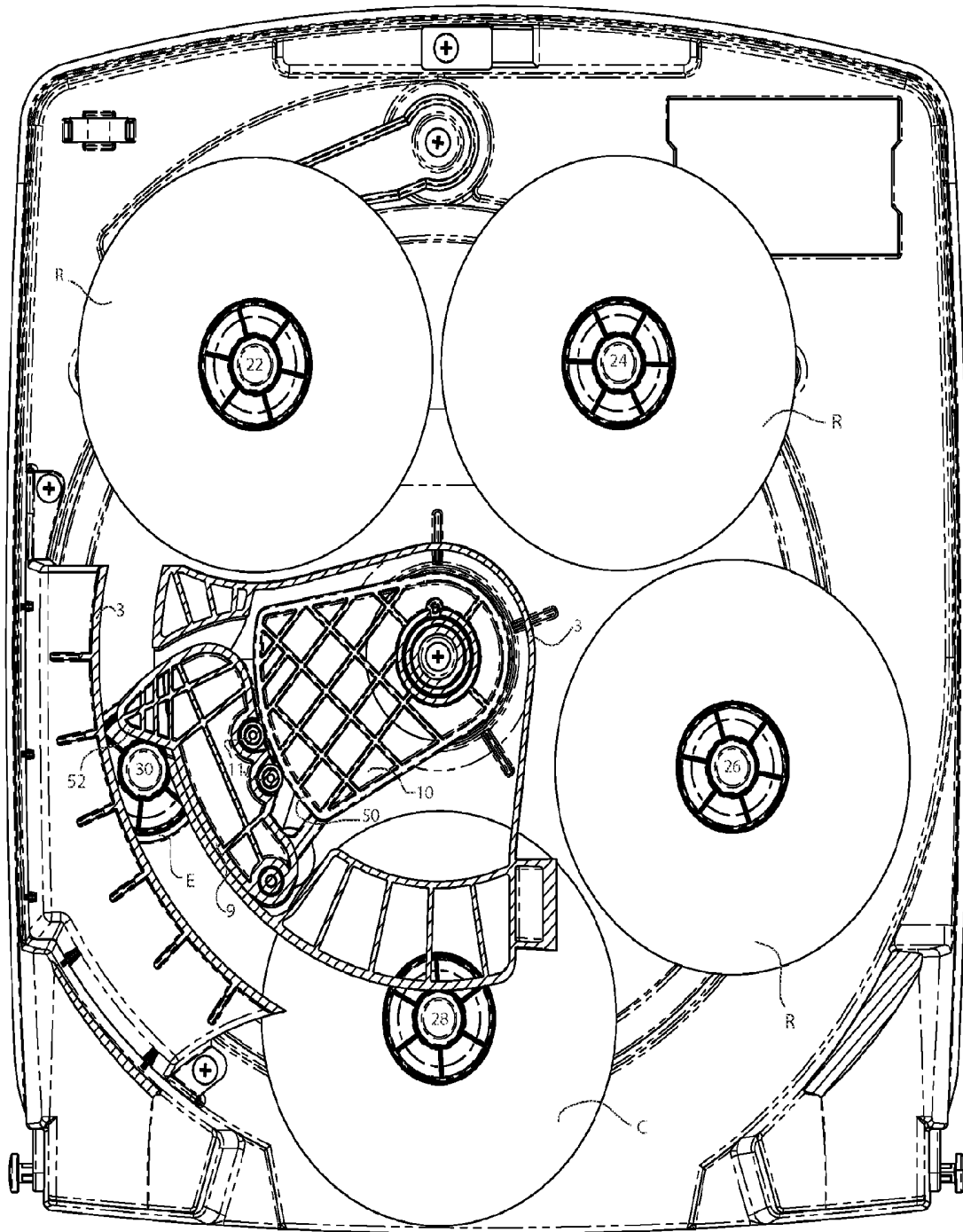


Fig. 5

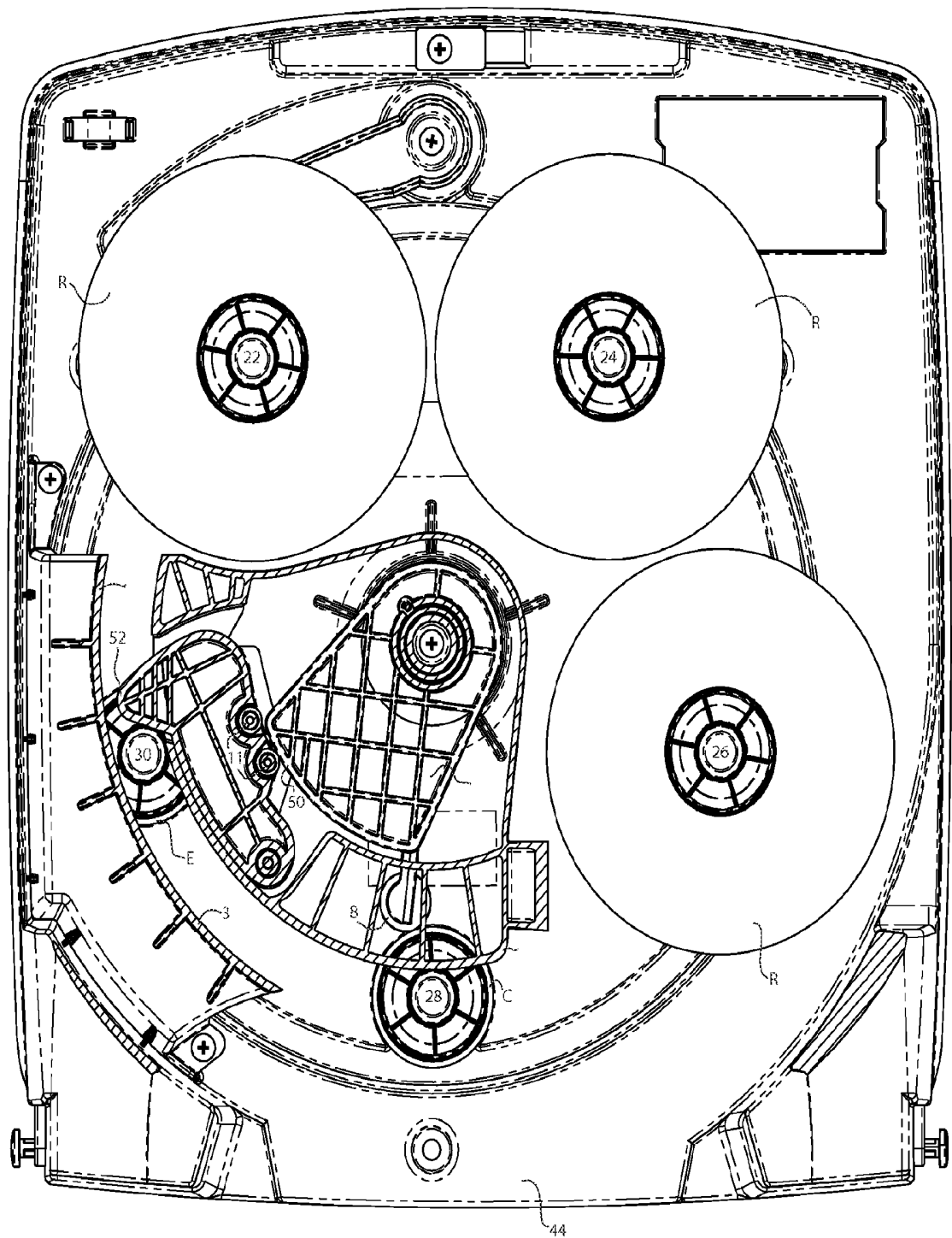


Fig. 6

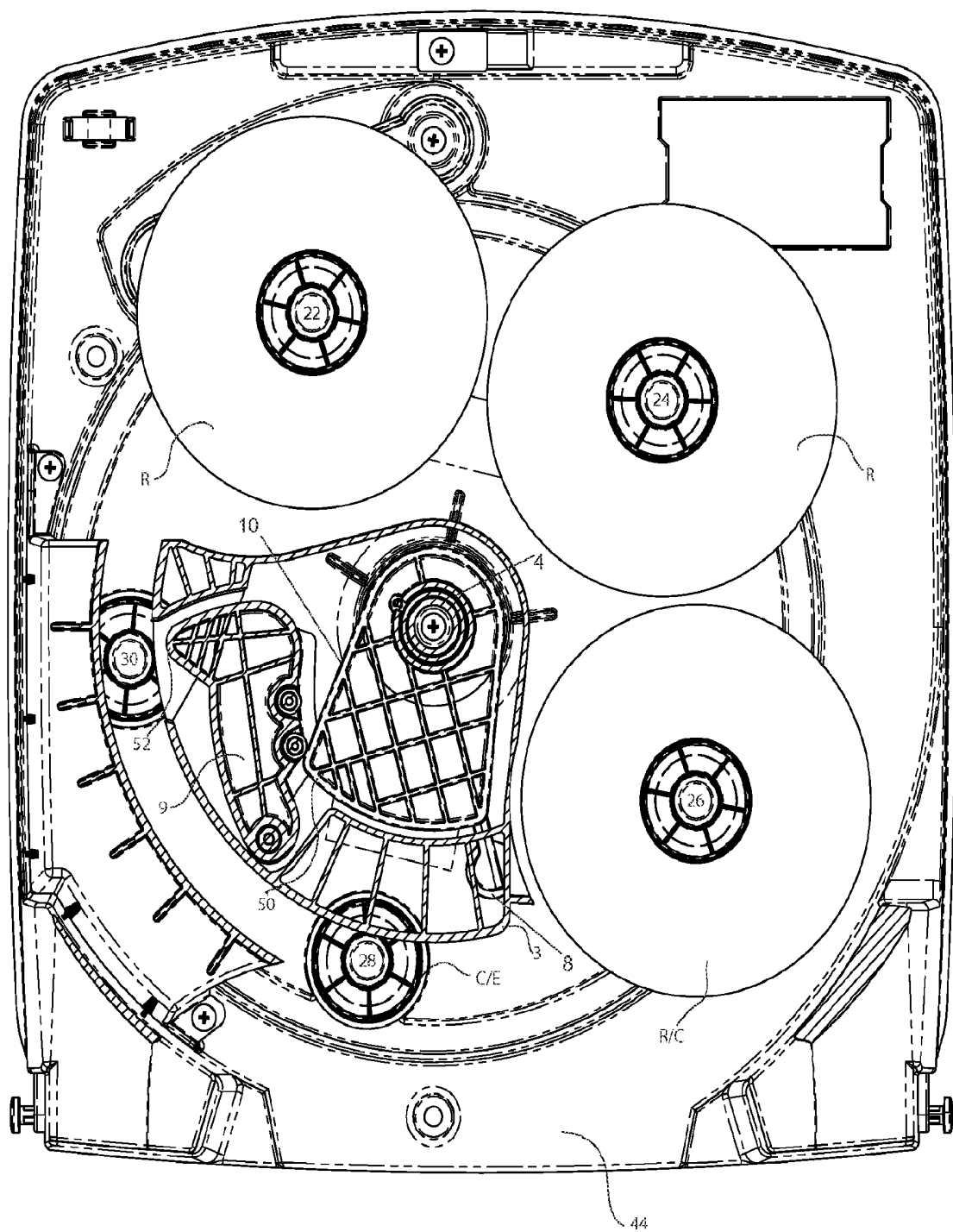


Fig. 7

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- GB 2245882 A [0002]
- US 7461810 B [0004]
- US 5310129 A [0005]
- US 6991251 B [0006]
- US 7041140 B [0006]

713889/DO

ADAGOLÓ TEKERCSELT ANYAG TÖBB TEKERCSE SZÁMÁRA AUTOMATIKUS
TEKERCS-ÁTHELYEZÉSSSEL, VALAMINT ELJÁRÁS ENNEK A FELTÖLTÉSÉRE

SZABADALMI IGÉNYPONTOK

1. Adagoló, amely magában foglal egy házat (1);
egy forgókereket (12), amely a házban forgathatóan szerelve;
több tekercstartót (22, 24, 26, 28, 30), amelyek a forgókerékhez vannak
csatlakoztatva, és nagyjából párhuzamosan terjednek ki a forgókerék
forgástengelyével (A);

egy fedelet, amely a házhoz van csatlakoztatva, és egy, a forgókereket lefedő,
zárt helyzetből egy, a forgókerékhez való hozzáférést lehetővé tevő, nyitott helyzetbe
mozgatható;

egyetlen tekercsátmérő érzékelőt (10), amely az adagolón belül a forgókerék
forgástengelye körül elfordíthatóan van szerelve, amely érzékelő érzékeli, hogy a
több tekercstartó egyikén a tekercselt anyag egy tekercse elért-e egy előre
meghatározott minimális átmérőt; és

egyetlen mozgatható rögzítő reteszt (9), amely az adagolón belül egy, a
forgókerék forgástengelyével párhuzamos tengely körül elfordíthatóan van szerelve,
és a több tekercstartó mindegyike számára közös, amely rögzítő retesz blokkolja a
forgókerék forgását, amíg az említett egyik tekercstartón a tekercselt anyag tekercse
el nem érte az előre meghatározott minimális átmérőt, és amely rögzítő retesz ezután
elengedi a forgókereket, hogy az egy első irányba forogjon, és a rögzítő retesz egy
első helyzetből, amelyben fogja a több tekercstartó egyikét, egy második helyzetbe
mozgatható, amelyben nem érintkezik ezzel az egyik tekercstartóval.

2. Az 1. igénypont szerinti adagoló, amelynél az érzékelő magában foglal egy
szélet, amely egy, a rögzítő retesszel érintkezésben lévő, első helyzetből egy, a
rögzítő retesszel nem érintkező, második helyzetbe mozgatható.

3. A 2. igénypont szerinti adagoló, amelynél a szél a második helyzetből
visszmozgatható az első helyzetbe úgy, hogy büttyökhatás révén úgy mozgassa a
reteszt, hogy blokkolja a forgókerék forgását.

4. Az 1. igénypont szerinti adagoló, amely magában foglal továbbá egy

eszközt a forgókeréknek az első iránnyal ellentétes irányba való forgásának megakadályozására.

5. Az 1. igénypont szerinti adagoló, amelynél az érzékelő magában foglal egy érintkező elemet, amely úgy van kialakítva, hogy a több tekercstartó egyikére felszerelt törlőpapír-tekercs kerületén támaszkodjon.

6. A 4. igénypont szerinti adagoló, amelynél a rögzítő retesz a több tekercstartó közül azt fogja, amelyik működési irányban az után a tekercstartó után következik, amely azt a tekercset hordja, amelyen az érzékelő érintkező eleme támaszkodik.

7. Az 1. igénypont szerinti adagoló, amelynél a rögzítő retesz az adagolónak egy, a forgástengely alatt lévő szektorában van szerelve, és egy olyan függőleges vonal egyik oldalához, amely átmegy ezen a forgástengelyen.

8. Az 1. igénypont szerinti adagoló, amely magában foglal továbbá egy eszközt az adagoló vízszintbe állítására.

9. Eljárás egy többtekercses törlőpapír adagoló feltöltésére, amely adagolónak van egy belső forgatható forgókeréke (12), amely több tekercstartót (22, 24, 26, 28, 30) hord,

egyetlen tekercsátmérő érzékelője (10), amely a forgókerék forgástengelye (A) körül elfordíthatóan van szerelve, és

egyetlen rögzítő retesze (9), amely az adagolónak egy, a forgókerék forgástengelye alatt lévő szektorában van felszerelve, és egy olyan függőleges vonal egyik oldalán, amely átmegy ezen a forgástengelyen, az eljárás magában foglalja, hogy:

kinyitjuk az adagoló fedelét;

eltávolítjuk a kifogyott papírhengereket mindegyik tekercstartóról kivéve azt a tekercstartót, amelyiket a rögzítő retesz reteszelve tart;

új tekercseket helyezünk a tekercstartókra, az új tekercsek száma legfeljebb eggyel kevesebb, mint a tekercstartók száma; és

lezárjuk az adagoló fedelét.

10. A 9. igénypont szerinti eljárás, amelynél valamennyi új törlőpapír-tekercs magában foglal egy beillesztési véget és egy külső véget, a beillesztési vég szélesebb nyílással rendelkezik, mint a külső vég, és a több tekercstartó mindegyikének szélesebb a forgókerékhez közelebbi talpa, és keskenyebb az attól távolabbi, szabad vége.

11. A 9. igénypont szerinti eljárás, amely magában foglalja továbbá, hogy mielőtt az adagoló fedelét lezárjuk, meggyőződünk arról, hogy az adagoló vízszintes.

12. Az 1. igénypont szerinti adagoló, amely magában foglal továbbá egy tekercsrugót, amely úgy van kialakítva, hogy az érzékelőt elfordulásra kényszerítse.

13. Az 1. igénypont szerinti adagoló, amelynél a rögzítő retesz magában foglal egy pár görgőt, amelyek úgy vannak kialakítva, hogy csökkentsék a súrlódásos érintkezést az érzékelővel.

14. A 13. igénypont szerinti adagoló, amely magában foglal továbbá egy burkolatot, amelyen a rögzítő retesz elfordíthatóan van szerelve, amely burkolat magában foglal egy pár belső ívelt hornyot, amelyek úgy vannak kialakítva, hogy befogadják a görgők külső végeit, hogy ezáltal egy tartományt határoljanak a rögzítő retesz szögelfordulásának.

15. A 9. igénypont szerinti eljárás, amelynél az adagoló magában foglal továbbá egy tekercsrugót, amely úgy van kialakítva, hogy az érzékelőt elfordulásra kényszerítse.

16. A 9. igénypont szerinti eljárás, amelynél a rögzítő retesz magában foglal egy pár görgőt, amelyek úgy vannak kialakítva, hogy csökkentsék a súrlódásos érintkezést az érzékelővel.

17. A 16. igénypont szerinti eljárás, amelynél az adagoló magában foglal továbbá egy burkolatot, amelyen a rögzítő retesz elfordíthatóan van szerelve, amely burkolat magában foglal egy pár belső ívelt hornyot, amelyek úgy vannak kialakítva, hogy befogadják a görgők külső végeit, hogy ezáltal egy tartományt határoljanak a rögzítő retesz szögelfordulásának.

(A meghatalmazott)

