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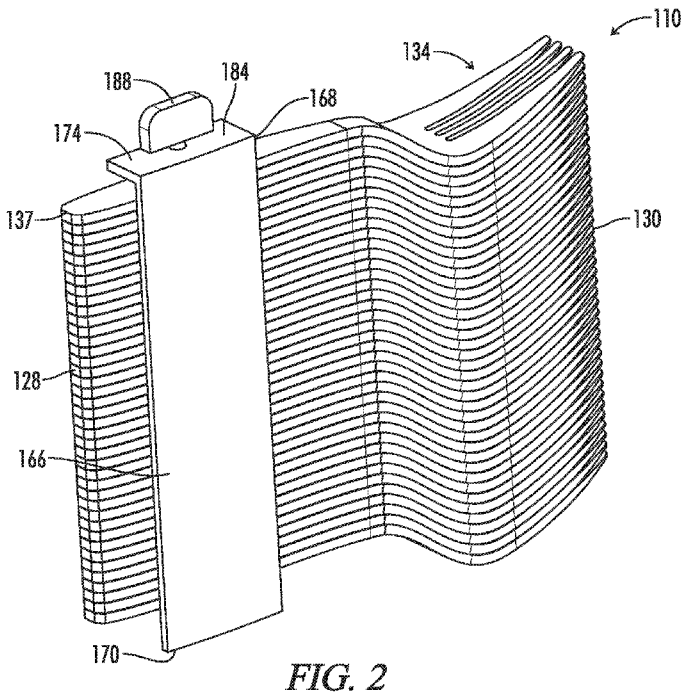

FIG. 2

(57) Abstract: A lockable skewer for loading stacks of plastic cutlery into dispensers is described. The skewer comprises a vertical shaft that passes through holes in the cutlery. The vertical shaft includes a flange located below the bottom of the stack. The vertical shaft is configured to rotate between an unlocked position in which the flange is configured to pass through the holes in the cutlery pieces and a locked position in which the flange is not configured to pass through the holes in the cutlery pieces.

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[Continued on next page]

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INTERNATIONAL PATENT APPLICATION

SKEWER FOR LOADING CUTLERY

BACKGROUND

TECHNICAL FIELD

[0001] The present disclosure relates to plastic cutlery dispensers accessories, more particularly, to skewers for loading stacks of cutlery pieces into plastic cutlery dispensers.

BACKGROUND OF THE INVENTION

[0002] Dispensers of plastic cutlery pieces (e.g., knives, spoons, forks and sporks) are well known in the art. U.S. Patent No. 6,336,568 to Tucker, the entire contents of which are incorporated herein by reference, relates to a cartridge-type dispenser that dispenses cutlery pieces one at a time upon hand operation of an externally accessible utensil delivery controller. The dispenser includes a housing having at least one interior compartment in communication with an exit opening. At least partially accommodateable within the interior compartment is a stack of cutlery within a cartridge capable of universally accommodating knives or forks or spoons and provided with a portal through which a single piece of cutlery can pass and wherein a dispensable piece of cutlery is situated. The portal is situated in a pathway aligned with the exit opening. Finally, the utensil delivery controller is an externally accessible hand operable ejector engageable with the cutlery and situated for ejecting the cutlery from the portal of the cartridge and thereafter through the pathway to the exit opening for ultimate user retrieval.

[0003] Other types of dispensers include dispensers in which the cutlery is loaded in the housing such as U.S. Patent No. 8,210,364 to Smith, the entire contents of which are incorporated herein by reference. In U.S. Patent No. 8,210,364 the dispenser generally includes a housing comprising: (a) an actuator, the actuator generally facing in a direction associated with a side of

the housing; (b) an opening for loading disposable cutlery; (c) a dispensing chute through which the cutlery passes prior to ejection from the housing; and (d) at least one rocking cam comprising a displacement surface and having a first position and a second position, wherein upon activation of the actuator, the rocking cam moves from the first position to the second position and the displacement surface contacts at least one piece of cutlery, moving the at least one piece of cutlery in a generally lateral direction and toward the dispensing chute, wherein the generally lateral direction is towards the side of the housing in which the actuator is generally facing.

[0004] Certain dispensers require reloading the dispensers once all the cutlery is used. Such reloading takes time and, if incorrectly loaded, the dispenser could be prone to jamming. Also, if the person loading the dispenser has not washed her hands prior to loading, the utensils may be unhygienic.

[0005] U.S. Patent No. 8,152,004 to Smith describes a banded packets of disposable cutlery that uses an adhesive.

[0006] European Patent No. 1,213,985 to Cassebasse teaches a rod that has one end a grip part and a retaining abutment that holds the top spoon in a stack of spoons in place and at the other end a retaining abutment which holds the bottom spoon in place and the rod is extracted by elastically retracting the elastic retaining projection as the first step in the extraction operation. The rod is inserted through a hole in the stack of spoons.

[0007] There is a continuing need for new methods of loading cutlery into dispensers.

BRIEF SUMMARY

[0008] A skewer system for loading a stack of cutlery into a cutlery dispenser is described herein. In some embodiments, the skewer system includes: a) a stack of pieces of cutlery, the stack comprising a top, a bottom, a height extending from the top to the bottom, a front side, a rear side, a width extending from the front side to the rear side, a left side, a right side, and a length extending from the left side to the right side, and further wherein each piece of cutlery

comprises a top, a bottom, a height from the top to the bottom and generally parallel to the stack height, a front side, a rear side, a width extending from the front side to the rear side and generally parallel to the stack width, an eating portion, a handle extending from the eating portion, the handle comprising a handle end and a non-circular hole extending from the cutlery piece top to the cutlery piece bottom; and b) a skewer removably attached to the stack and comprising a vertical shaft comprising a vertical shaft top located above the stack top, a vertical shaft bottom located below the stack bottom, a vertical shaft height extending from the vertical shaft top to the vertical shaft bottom and generally parallel to the stack height, and a vertical shaft flange located adjacent to the vertical shaft bottom and located below the stack bottom, the vertical shaft positioned through the non-circular holes of the cutlery pieces, the vertical shaft rotatable relative to the stack of cutlery pieces along a rotation axis generally parallel to the stack height, wherein the vertical shaft is configured to rotate about the rotation axis between a locked position in which the vertical shaft flange is unable to pass through the non-circular hole in the cutlery pieces and an unlocked position in which the vertical shaft flange is able to pass through the non-circular hole in the cutlery pieces.

[0009] Optionally, the system further comprises a lock configured to prevent the vertical shaft from freely rotating between the locked position and the unlocked position. Optionally, the skewer further comprises a front tab bar comprising a front tab bar top located above the top of the stack, a front tab bar bottom located below the bottom of the stack, and a front tab bar height extending from the front tab bar top to the front tab bar bottom, the front tab bar height generally parallel to the vertical shaft height and the stack height, the front tab bar extending along the stack height and confronting the front sides of the cutlery pieces as the front tab bar extends along the stack height and a top lateral extension extending from the front tab bar generally perpendicular to the front tab bar height and located directly above the top of the stack.

[0010] Optionally, the lock comprises a top lateral extension tooth located on the top lateral extension and a first vertical shaft slot located on the vertical shaft and above the stack top and configured to receive the top lateral extension tooth, and further wherein the top lateral extension tooth is located in the first vertical shaft slot when the vertical shaft is in the locked position. Optionally, the top lateral extension tooth is configured to flex and move out of the first vertical shaft slot when a user rotates the vertical shaft about the rotational axis. Optionally, the vertical shaft further comprises a second vertical shaft slot located on the vertical shaft between about 20 degrees and about 330 degrees relative to the first vertical shaft slot and above the stack top, and further wherein the top lateral extension tooth is located in the second vertical shaft slot when the vertical shaft is in the unlocked position. Optionally, the top lateral extension tooth is configured to flex and move out of the second vertical shaft slot when a user rotates the vertical shaft about the rotational axis. Optionally, the top lateral extension comprises a bottom surface facing the cutlery stack and a top surface opposite the bottom surface and further wherein the top lateral extension tooth is located on the bottom surface. Optionally, the skewer further comprises a handle located above the top lateral extension and configured to allow the user to rotate the vertical shaft about the rotational axis. Optionally, at least the portion of the vertical shaft extending along the stack height is generally cylindrical in shape. Optionally, the noncircular hole and the vertical shaft flange are substantially the same shape and size.

[0011] The present disclosure also provides a method of loading a cutlery dispenser comprising the steps of: a) providing a cutlery dispenser; b) loading the skewer system into the cutlery dispenser wherein the vertical shaft is in the locked position (and the top lateral extension tooth is in the first vertical shaft slot); c) rotating the vertical shaft between about 20 and about 330 degrees about the rotational axis (so that the top lateral extension tooth enters the second vertical shaft slot); d) lifting the vertical shaft through the non-circular holes; and e) removing the skewer without removing the cutlery stack from the cutlery dispenser.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 illustrates a top plan view of a piece of cutlery with a hole for use with the skewer system of the present invention.

[0013] FIG. 2 illustrates a front perspective view of one embodiment of the skewer system of the present invention; in FIG. 2, the vertical shaft flange is in the locked position.

[0014] FIG. 3 illustrates a rear perspective view of the skewer system of FIG. 2; in FIG. 3, the vertical shaft flange is in the locked position.

[0015] FIG. 4 illustrates a bottom perspective view of the skewer system of FIG. 2; in FIG. 4, the vertical shaft flange is in the locked position.

[0016] FIG. 5 illustrates a rear elevation view of the skewer system of FIG. 2; in FIG. 5, the vertical shaft flange is in the locked position.

[0017] FIG. 6 illustrates a rear elevation view of the skewer system of FIG. 2; in FIG. 6, the vertical shaft flange is in the unlocked position.

[0018] FIG. 7 illustrates a rear perspective view of the skewer of the skewer system of FIG. 2; in FIG. 7, the vertical shaft flange is in the unlocked position.

[0019] FIG. 8 illustrates a rear perspective view of the skewer of the skewer system of FIG. 2; in FIG. 8, the vertical shaft flange is in the locked position.

[0020] FIG. 9 illustrates a bottom perspective view of the skewer of the skewer system of FIG. 2; in FIG. 9, the vertical shaft flange is in the locked position.

[0021] FIG. 10 illustrates a bottom perspective view of the skewer of the skewer system of FIG. 2; in FIG. 10, the vertical shaft flange is in the unlocked position.

DETAILED DESCRIPTION

[0022] Referring to FIGs. 1-10, the present disclosure provides a skewer system generally designated by the numeral **110**. In the drawings, not all reference numbers are included in each drawing for the sake of clarity.

[0023] Referring to FIGs. 1-10, the skewer system **110** includes a stack **112** of pieces of cutlery **114**. The stack **112** has a top **116**, a bottom **118**, a height **120** extending from the top **116** to the bottom **118**, a front side **122**, a rear side **124**, a width **126** extending from the front side **122** to the rear side **124** and generally perpendicular to the height **120**, a left side **128**, a right side **130**, and a length **132** extending from the left side **128** to the right side **130** and generally perpendicular to the width **126** and the height **120**. Each piece of cutlery **114** has a top **140**, a bottom **142**, a height extending from the top **140** to the bottom **142** and generally parallel to the stack height **120**, a front side **144**, a rear side **146,** a width **148** extending from the front side **144** to the rear side **146** and generally parallel to the stack width **126**, an eating portion **134** and a handle **136** extending from the eating portion **134** and comprising a handle tip **137** and a hole **138** extending from the cutlery piece top **140** to the cutlery piece bottom **142**. (The eating portion **134** is also referred to in the art as the food contact portion of the cutlery such as the serrations of a knife, the tines of a fork, and the bowl of a spoon). The hole **138** may be non-circular, as best seen in FIG. 1.

[0024] The skewer system **110** further includes a skewer **152** removably attached to the stack **112** and comprising a vertical shaft **154** comprising a vertical shaft top **156** located above the stack top **116**, a vertical shaft bottom **158** located below the stack bottom **118**, a vertical shaft height **160** extending from the vertical shaft top **156** to the vertical shaft bottom **158** and generally parallel to the stack height **120**, and a vertical shaft flange **162** located adjacent to (i.e., at or near) the vertical shaft bottom **158** and located below the stack bottom **118.** The vertical shaft **154** is positioned through the holes **138** of the cutlery pieces **114**. The holes **138** of each cutlery piece **114** are generally the same size and shape and are also aligned in the stack **112** to permit passage of vertical shaft **154**. The vertical shaft **154** is configured to rotate about a rotation axis **164**, which is generally parallel to the stack height **120** and the vertical shaft height **160**, between a locked position in which the vertical shaft flange **162** is unable to pass through the hole **138** in

the cutlery pieces **114** and an unlocked position in which the vertical shaft flange **162** is able to pass through the hole **138** in the cutlery pieces **114**. For example, in a non-limiting example, the hole **138** may be key-shaped and the vertical shaft bottom **158** may also be key-shaped, as best seen in FIGs. 1, 3, and 4-10.

[0025] The skewer system **110** may further comprise a lock configured to prevent the vertical shaft **154** from freely rotating between the locked position and the unlocked position. More particularly, the skewer 1**52** may further include a front tab bar **166** comprising a front tab bar top **168** located above the top **116** of the stack **112**, a front tab bar bottom **170** located below the bottom **118** of the stack **112**, and a front tab bar height **172** extending from the front tab bar top **168** to the front tab bar bottom **170**, the front tab bar height **172** generally parallel to the vertical shaft height **160** and the stack height **120**, the front tab bar **166** extending along the stack height **120** and confronting the front sides **146** of the cutlery pieces **114** as the front tab bar **166** extends along the stack height **120** and a top lateral extension **174** extending from the front tab bar **166** generally perpendicular to the front tab bar height **172** and located directly above the top **116** of the stack **112**. In such a case, the aforementioned lock may comprise a top lateral extension tooth **176** located on the top lateral extension **174** and a first vertical shaft slot **178** located on the vertical shaft **154** and above the stack top **116** and configured to receive the top lateral extension tooth **176**, and further wherein the top lateral extension tooth **176** is located in the first vertical shaft slot **178** when the vertical shaft **154** is in the locked position, as best seen in FIG. 9. Optionally, the top lateral extension tooth **176** is configured to flex and move out of the first vertical shaft slot **178** when a user rotates the vertical shaft **154** about the rotational axis **164**. Optionally, the vertical shaft **154** further comprises a second vertical shaft slot **180** located on the vertical shaft **154** between about 20 and about 330 degrees relative to the first vertical shaft slot **178** and above the stack top **116**, and further wherein the top lateral extension tooth **176** is located in the second vertical shaft slot **180** when the vertical shaft **154** is in the unlocked

position, as best seen in FIG. 10. Optionally, the top lateral extension tooth **176** is configured to flex and move out of the second vertical shaft slot **180** when a user rotates the vertical shaft **154** about the rotational axis **164**.

[0026] Optionally, the top lateral extension **174** comprises a bottom surface **182** facing the cutlery stack **112** and a top surface **184** opposite the bottom surface **182** and further wherein the top lateral extension tooth **176** is located on the bottom surface. Optionally, the skewer **152** further includes a handle **188** located above the top lateral extension **174** and configured to allow the user to rotate the vertical shaft **154** about the rotational axis **164**. Optionally, the portion of the vertical shaft **154** extending along the stack height **120** (i.e., the portion of the vertical shaft **154** located in the holes **138**) is generally cylindrical in shape (the generally cylindrical shape is shown in FIGs. 7-10 though the cutlery pieces **112** are not shown in FIGs. 7-10 for ease of illustration).

[0027] Optionally, the holes **138** and the vertical shaft flange **162** are substantially the same shape and size, it being understood that the surface area of the holes **138** may be slightly larger than the surface area of the bottom of the vertical shaft flange **162** – e.g., 0.001% to 5% larger – to allow the vertical shaft flange **162** to be lifted through the holes **138** in the cutlery pieces **114.**

[0028] To load the skewer system **110** in a cutlery dispenser, the system **110** is provided with the vertical shaft **154** in the locked position and the top lateral extension tooth **176** in the first vertical shaft slot **178**. The skewer system **110** is loaded into the cutlery dispenser. The user rotates the vertical shaft **162** between approximately 20 degrees and approximately 330 degrees about the rotational axis **164** so that the top lateral extension tooth **176** enters the second vertical shaft slot **180**. The user then lifts the vertical shaft **154** through the holes **138**. Finally, the user removes the skewer **154** without removing the cutlery stack **112** from the cutlery dispenser. (As used herein the term "cutlery dispenser" refers to any device or component thereof that can be used to dispense cutlery, including cutlery dispensers such as the DIXIE SMARTSTOCK cutlery

dispenser (Georgia-Pacific, Atlanta, Georgia) and the KLEENPAK cutlery dispenser cartridge (California; www.kleenpak.com).

[0029] Optionally, the skewer system **10** is a single use, disposable system made out of plastic.

[0030] Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

[0031] With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

[0032] Terms of degree such as “generally”, "substantially", "about" and "approximately" as used herein mean a reasonable amount of deviation of the modified term such that the end result is not significantly changed. For example, these terms can be construed as including a deviation of at least ± 5% of the modified term if this deviation would not negate the meaning of the word it modifies.

[0033] Part List

skewer system	110
stack	112
pieces	114
stack top	116
stack bottom	118
stack height	120
stack front	122

stack rear	124
stack width	126
stack left side	128
stack right side	130
stack length	132
cutlery eating portion	134
cutlery handle	136
cutlery handle end	137
cutlery hole	138
cutlery piece top	140
cutlery piece bottom	142
cutlery piece height	144
cutlery piece front	146
cutlery piece rear	148
cutlery piece width	150
skewer	152
vertical shaft	154
shaft top	156
shaft bottom	158
shaft height	160
vertical shaft flange	162
rotation axis	164
front tab bar	166
front tab bar top	168
front tab bar bottom	170
front tab bar height	172
top lateral extension	174
top lateral extension tooth	176
first vertical shaft slot	178
second vertical shaft slot	180
top lateral extension bottom	182
top lateral extension top	184
handle	188

What is claimed is:

1. A skewer system for loading a stack of cutlery pieces into a cutlery dispenser comprising:

a) a stack of pieces of cutlery, the stack comprising a top, a bottom, a height extending from the top to the bottom, a front side, a rear side, a width extending from the front side to the rear side, a left side, a right side, and a length extending from the left side to the right side, and further wherein each piece of cutlery comprises a top, a bottom, a height from the top to the bottom and generally parallel to the stack height, a front side, a rear side, a width extending from the front side to the rear side and generally parallel to the stack width, an eating portion, a handle extending from the eating portion, the handle comprising a handle end and a non-circular hole extending from the cutlery piece top to the cutlery piece bottom; and

b) a skewer removably attached to the stack and comprising a vertical shaft comprising a vertical shaft top located above the stack top, a vertical shaft bottom located below the stack bottom, a vertical shaft height extending from the vertical shaft top to the vertical shaft bottom and generally parallel to the stack height, and a vertical shaft flange located adjacent to the vertical shaft bottom and located below the stack bottom, the vertical shaft positioned through the non-circular holes of the cutlery pieces, the vertical shaft rotatable relative to the stack of cutlery pieces along a rotation axis generally parallel to the stack height,

wherein the vertical shaft is configured to rotate about the rotation axis between a locked position in which the vertical shaft flange is unable to pass through the non-circular hole in the cutlery pieces and an unlocked position in which the vertical shaft flange is able to pass through the non-circular hole in the cutlery pieces.

2. The skewer system of claim 1 wherein the system further comprises a lock configured to prevent the vertical shaft from freely rotating between the locked position and the unlocked position.

3. The skewer system of claim 2 wherein the skewer further comprises

a front tab bar comprising a front tab bar top located above the top of the stack, a front tab bar bottom located below the bottom of the stack, and a front tab bar height extending from the front tab bar top to the front tab bar bottom, the front tab bar height generally parallel to the vertical shaft height and the stack height, the front tab bar extending along the stack height and confronting the front sides of the cutlery pieces as the front tab bar extends along the stack height and

a top lateral extension extending from the front tab bar generally perpendicular to the front tab bar height and located directly above the top of the stack.

4. The skewer system of claim 3 wherein the lock comprises a top lateral extension tooth located on the top lateral extension and a first vertical shaft slot located on the vertical shaft and above the stack top and configured to receive the top lateral extension tooth, and further wherein the top lateral extension tooth is located in the first vertical shaft slot when the vertical shaft is in the locked position.

5. The skewer system of claim 4 wherein the top lateral extension tooth is configured to flex and move out of the first vertical shaft slot when a user rotates the vertical shaft about the rotational axis.

6. The skewer system of claim 4 wherein the vertical shaft further comprises a second vertical shaft slot located on the vertical shaft between about 20 degrees and about 330 degrees relative to the first vertical shaft slot and above the stack top, and further wherein the top lateral extension tooth is located in the second vertical shaft slot when the vertical shaft is in the unlocked position.

7. The skewer system of claim 6 wherein the top lateral extension tooth is configured to flex and move out of the second vertical shaft slot when a user rotates the vertical shaft about the rotational axis.

8. The skewer system of claim 3 wherein the top lateral extension comprises a bottom surface facing the cutlery stack and a top surface opposite the bottom surface and further wherein the top lateral extension tooth is located on the bottom surface.

9. The skewer system of claim 3 wherein the skewer further comprises a handle located above the top lateral extension and configured to allow the user to rotate the vertical shaft about the rotational axis.

10. The skewer system of claim 1 wherein at least the portion of the vertical shaft extending along the stack height is generally cylindrical in shape.

11. The skewer system of claim 1 wherein the noncircular hole and the vertical shaft flange are substantially the same shape and size.

12. A method of loading a cutlery dispenser comprising the steps of:

a) providing a cutlery dispenser;

b) loading the skewer system of claim 1 into the cutlery dispenser wherein the vertical shaft is in the locked position;

c) rotating the vertical shaft between about 20 and about 330 degrees about the rotational axis;

d) lifting the vertical shaft through the non-circular holes; and

e) removing the skewer from the cutlery dispenser without removing the cutlery stack from the cutlery dispenser.

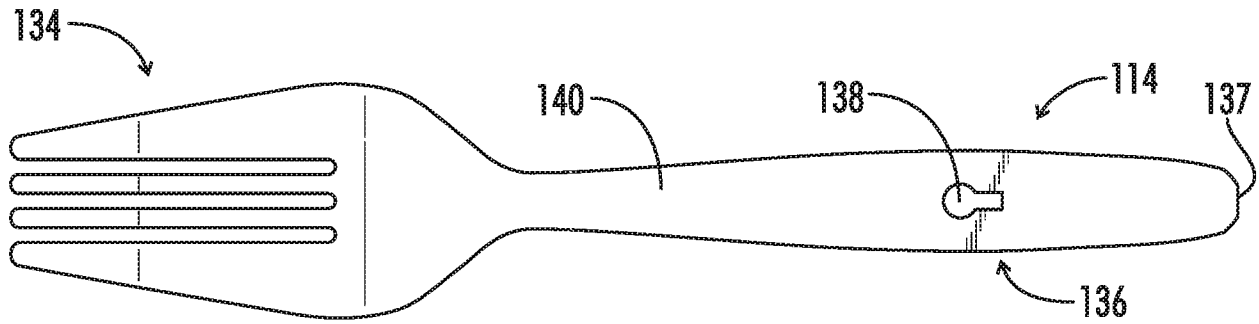
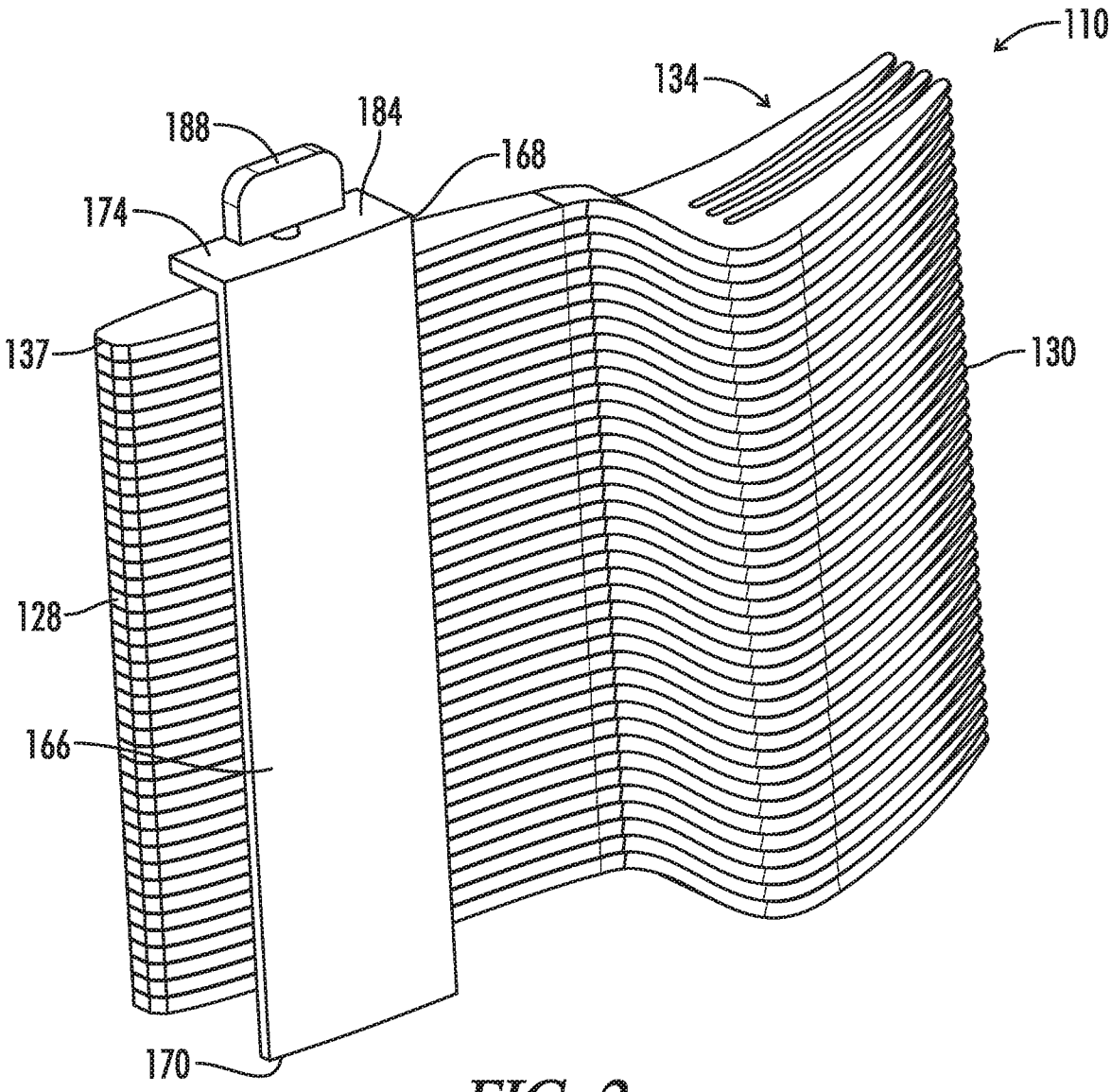

134
140
138
114
137
136

FIG. 1


110
134
188
184
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130
128
166
170

FIG. 2

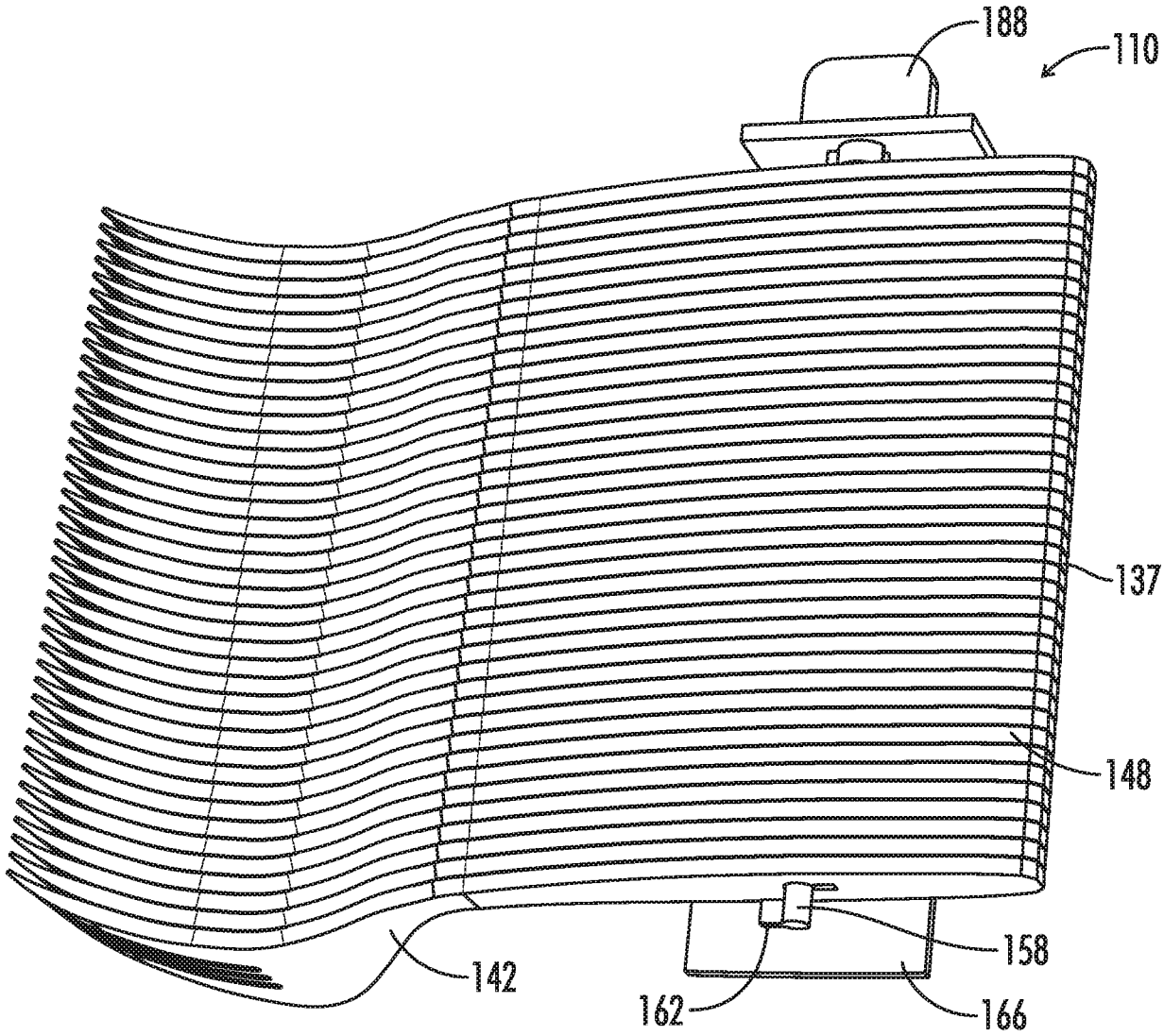

FIG. 3

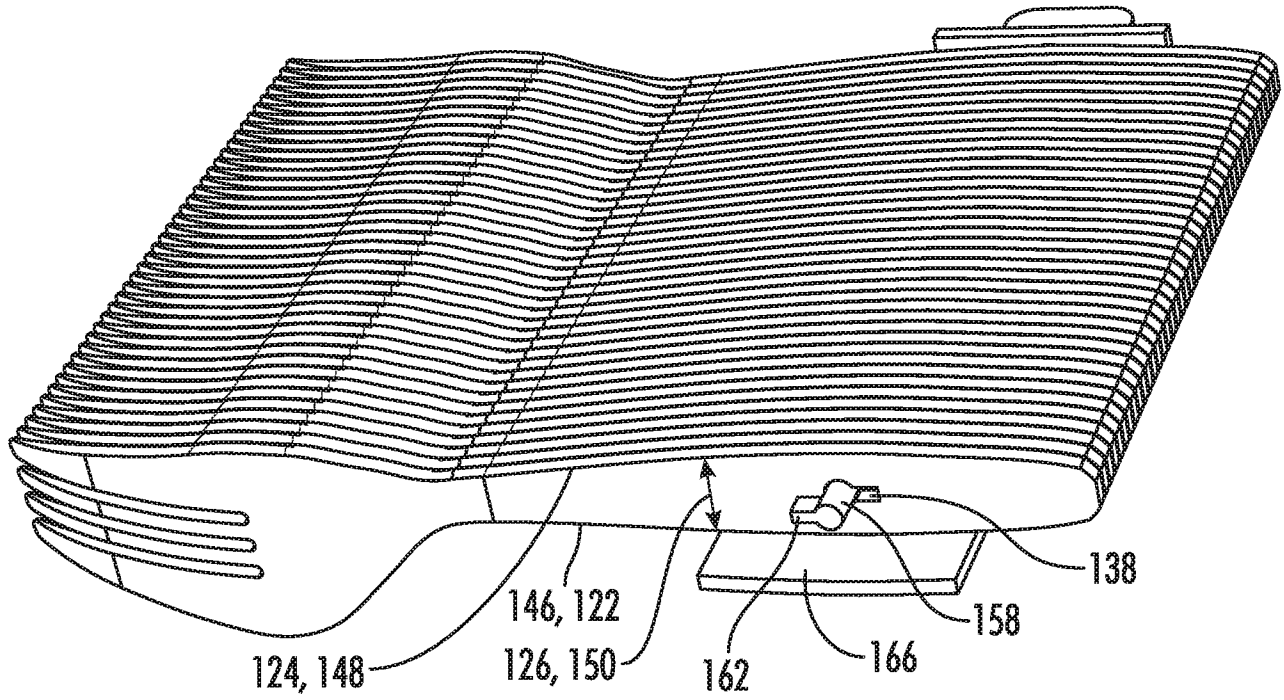

FIG. 4

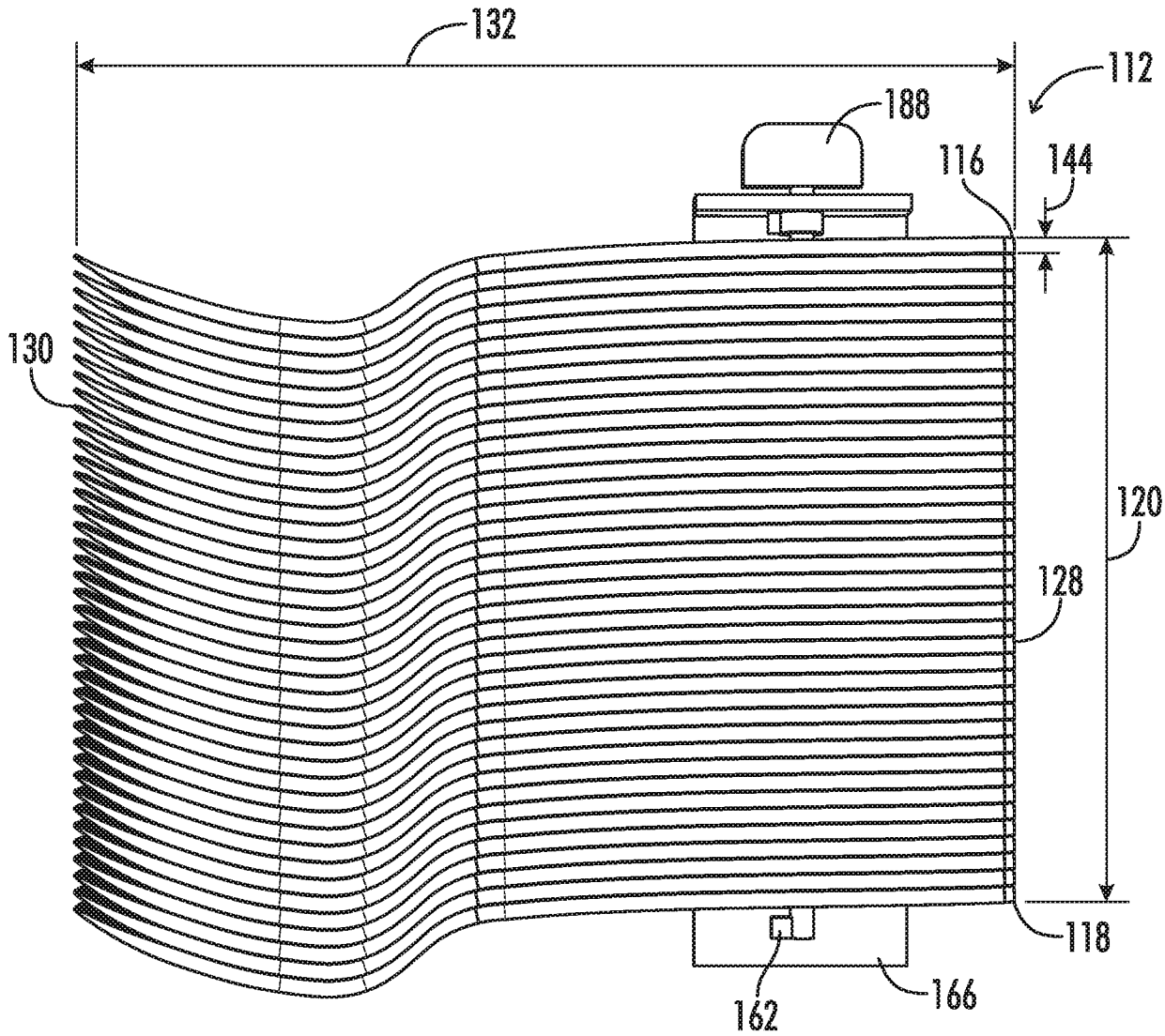

FIG. 5

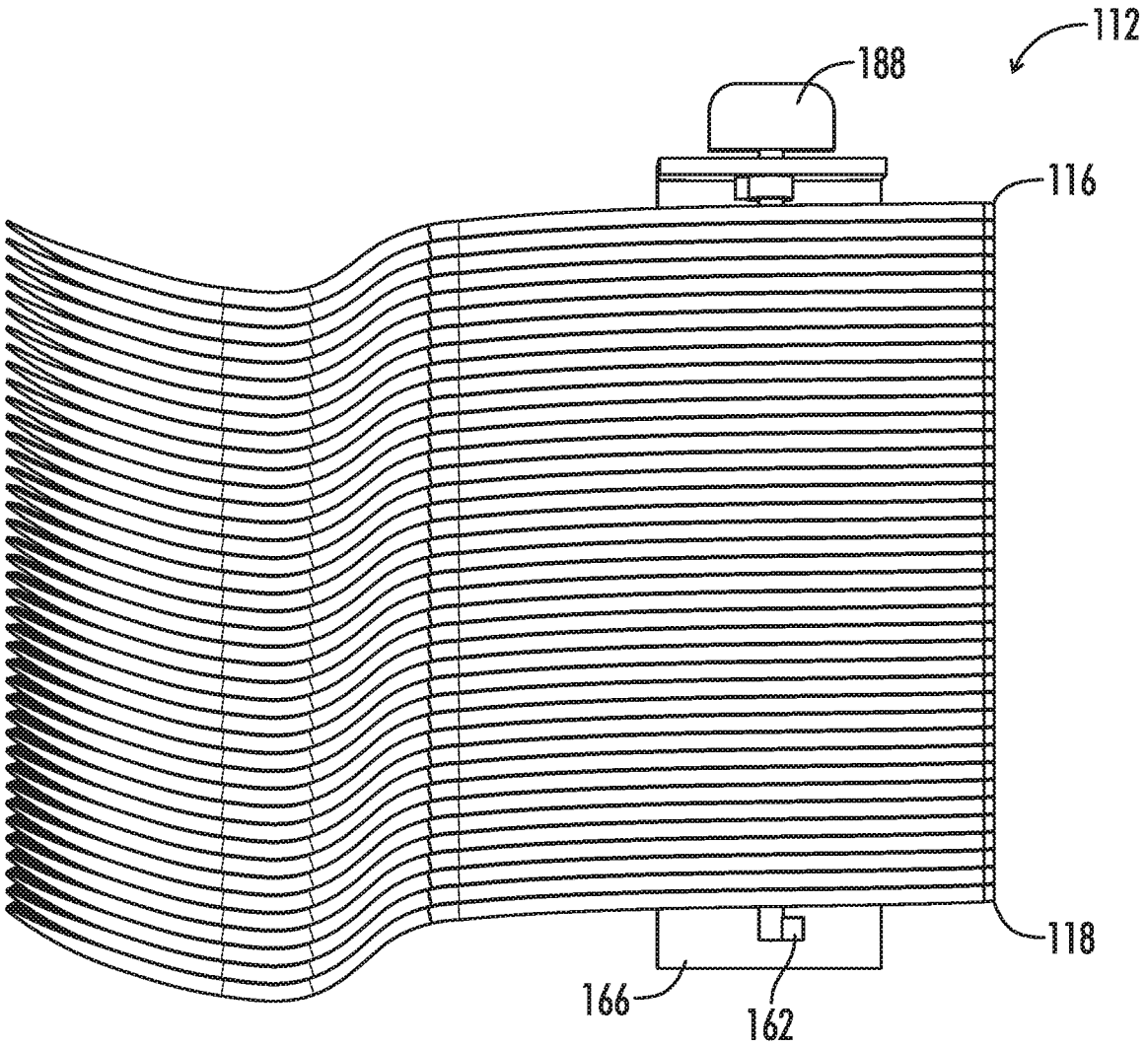

FIG. 6

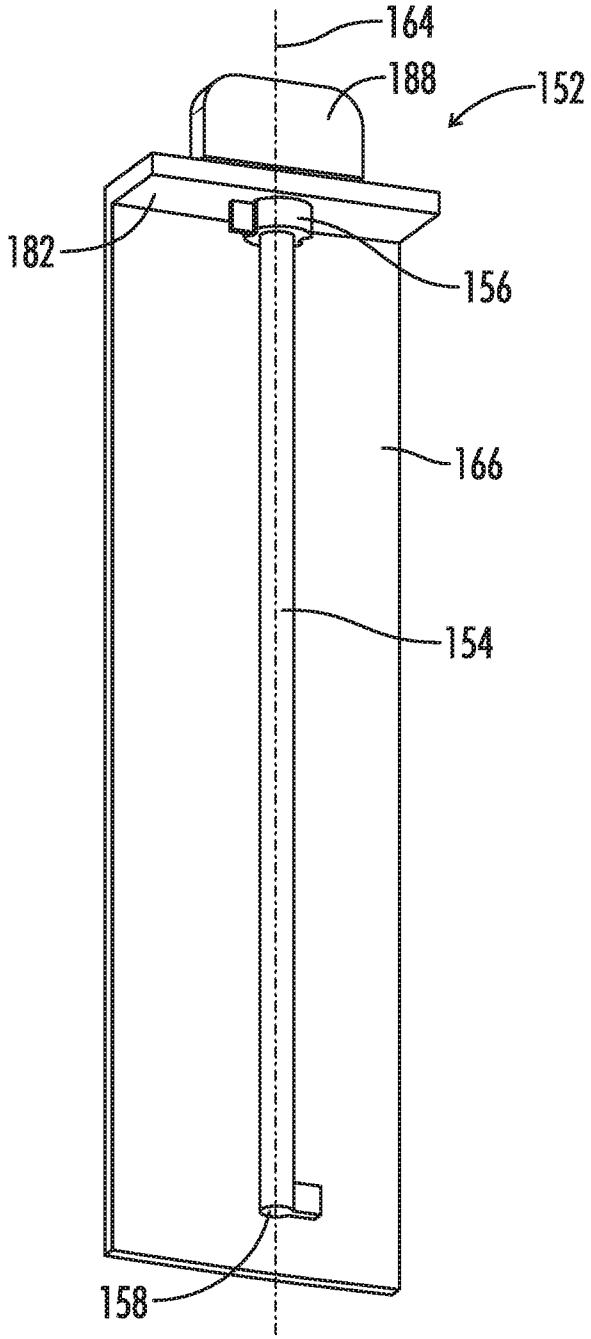

FIG. 7

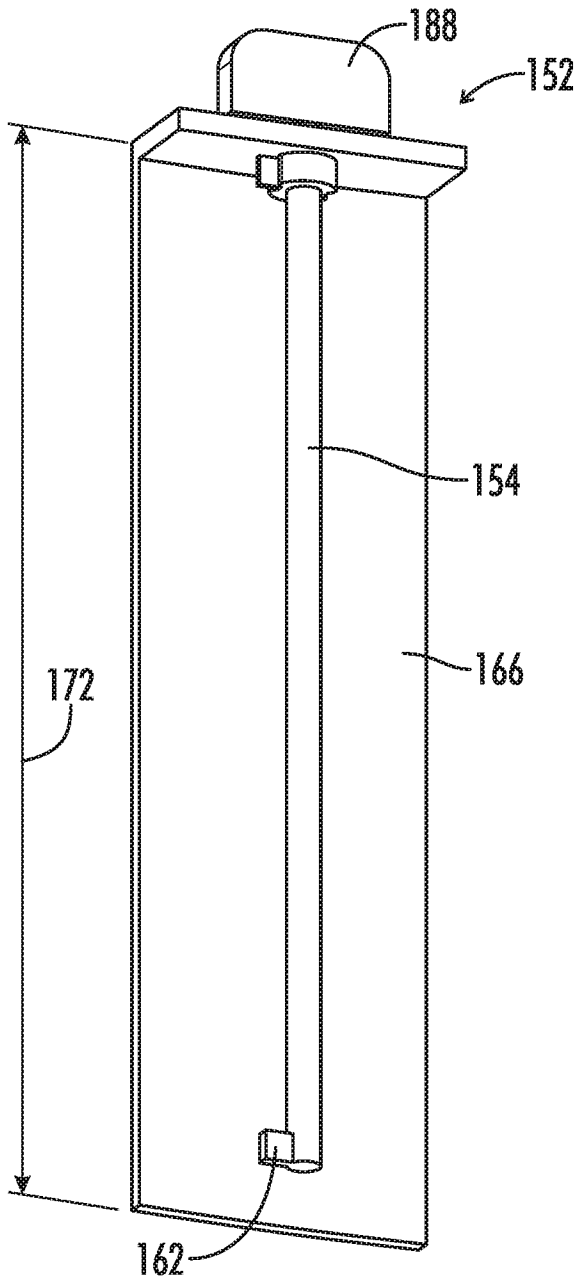

FIG. 8

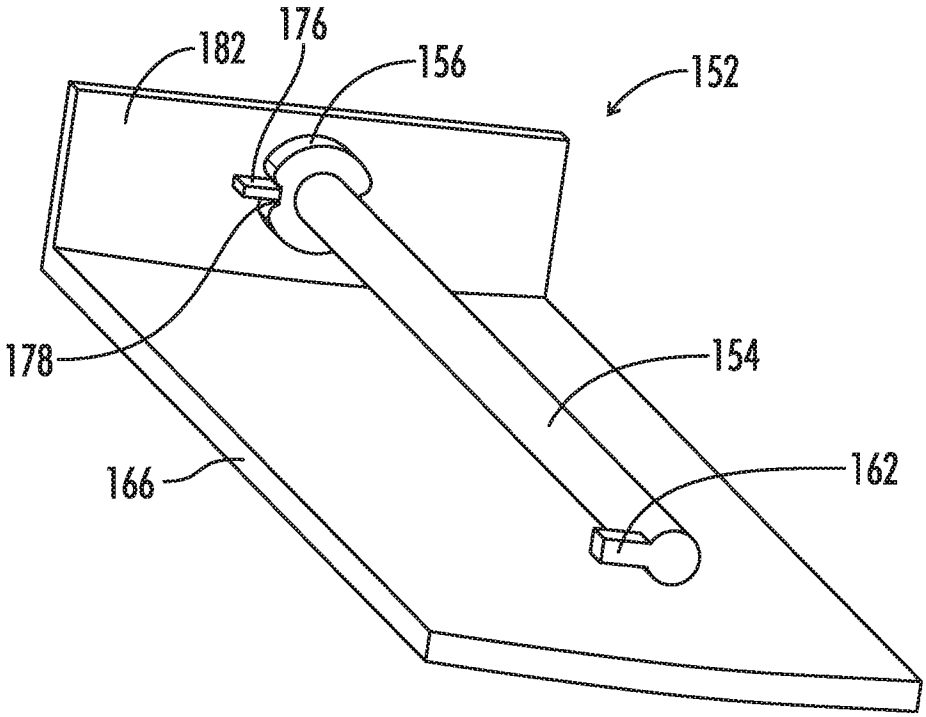

FIG. 9

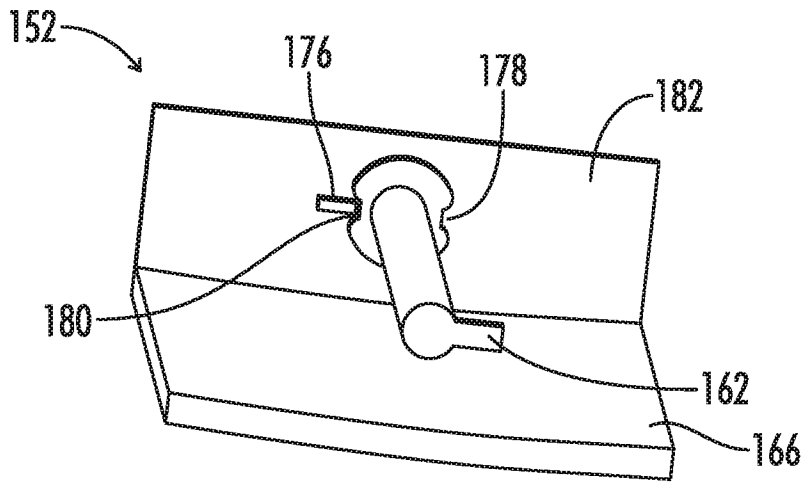

FIG. 10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2017/042977

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A47F 1/10; A47F 1/00; A47F 1/04; A47F 1/08; A47G 21/00; A47G 21/02; A47G 21/04 (2017.01)

CPC - A47F 1/10; A47F 1/00; A47F 1/04; A47F 1/08; A47F 1/106; A47F 2001/103; A47G 21/00; A47G 21/02; A47G 21/04 (2017.08)

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History document

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

USPC - 30/142; 211/49.1; 211/70.7; 221/1; 221/23; 221/191; 221/255; 221/282 (keyword delimited)

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

See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2015/0289679 A1 (DIXIE CONSUMER PRODUCTS LLC) 15 October 2015 (15.10.2015) entire document	1-12
A	US 2015/0041484 A1 (DIXIE CONSUMER PRODUCTS LLC) 12 February 2015 (12.02.2015) entire document	1-12
A	US 2008/0121650 A1 (SMITH) 29 May 2008 (29.05.2008) entire document	1-12
A	US 2012/0145735 A1 (ERICKSON et al) 14 June 2012 (14.06.2012) entire document	1-12

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

* Special categories of cited documents:

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"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 September 2017	29 SEP 2017
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774