



- (51) **International Patent Classification:**
A47J 43/07 (2006.01) *B26D 3/11* (2006.01)
- (21) **International Application Number:**
PCT/US2016/034287
- (22) **International Filing Date:**
26 May 2016 (26.05.2016)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
62/166,243 26 May 2015 (26.05.2015) US
- (71) **Applicant:** SHARKNINJA OPERATING LLC
[US/US]; 180 Wells Avenue, Suite 200, Newton, Massachusetts 02459 (US).
- (72) **Inventors:** BRUNNER, Charles Stewart; 3 Valley Road, North Reading, Massachusetts 01864 (US). GALVIN, Shannon; 1 Nathaniel Drive, Bow, New Hampshire 03304 (US).
- (74) **Agent:** HAYTER, Alicia; Cantor Colburn LLP, 20 Church Street, 22nd Floor, Hartford, Connecticut 06103 (US).
- (81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,

BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) **Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

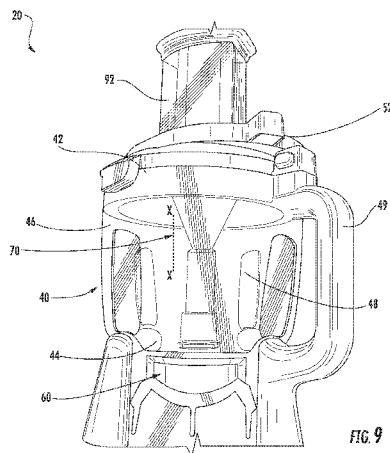
Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report (Art. 21(3))

(54) **Title:** SPIRALIZER ATTACHMENT FOR FOOD PROCESSOR SYSTEM



(57) **Abstract:** A spiralizer blade attachment for a food processing system is provided including a base and a receiver portion. The receiver portion is coupled to the base such that the receiver portion and base are arranged vertically. The receiver portion includes a cutting slot and at least cutting edge. The at least one cutting edge is configured to rotate about an axis created by a food item received within the receiver portion.

SPIRALIZER ATTACHMENT FOR FOOD PROCESSOR SYSTEM

CROSS-REFERENCE TO RELATED APPLICATION

This application is related to and claims the benefit of U.S. Provisional Patent Application Serial No. 62/166,243 filed on May 26, 2015, the entire contents of which are herein incorporated by reference.

BACKGROUND

[0001] This application is directed to a food processor, and more particularly, to a food processor having one or more unique features designed for enhancing the safety, ease of use, and/or versatility of the food processor.

[0002] Blenders are commonly used to process a plurality of different food products, including liquids, solids, semi-solids, gels and the like. It is well-known that blenders are useful devices for blending, cutting, and dicing food products in a wide variety of commercial settings, including home kitchen use, professional restaurant or food services use, and large-scale industrial use. They offer a convenient alternative to chopping or dicing by hand, and often come with a range of operational settings and modes adapted to provide specific types or amounts of food processing, e.g., as catered to particular food products.

SUMMARY

[0003] According to one embodiment, a spiralizer blade attachment for a food processing system is provided including a base and a receiver portion. The receiver portion is coupled to the base such that the receiver portion and base are arranged vertically. The receiver portion includes a cutting slot and at least cutting edge. The at least one cutting edge is configured to rotate about an axis created by a food item received within the receiver portion.

[0004] In addition to one or more of the features described above, or as an alternative, in further embodiments said base is configured to couple to a rotatable component.

[0005] In addition to one or more of the features described above, or as an alternative, in further embodiments said base includes an attachment area having a contour generally complementary to said rotatable component.

[0006] In addition to one or more of the features described above, or as an alternative, in further embodiments said receiver portion includes more than one cutting edge.

[0007] In addition to one or more of the features described above, or as an alternative, in further embodiments the spiralizer blade attachment is configured to form a plurality of substantially identical elongated strands.

[0008] In addition to one or more of the features described above, or as an alternative, in further embodiments the spiralizer blade attachment is configured to form a plurality of different strands.

[0009] In addition to one or more of the features described above, or as an alternative, in further embodiments the receiver portion is generally conical in shape.

[0010] In addition to one or more of the features described above, or as an alternative, in further embodiments a protrusion extends inwardly from a first end of said receiver portion, the protrusion being configured to pierce said food item within said receiver portion.

[0011] According to another embodiment, a food processing system is provided including a food processor having a motor and a rotatable component. A spiralizer blade attachment is configured for removable association with the food processor. The spiralizer blade attachment includes a base and a receiver portion. The receiver portion includes a cutting slot and at least one cutting edge. The spiralizer blade attachment is configured to cut a food item into at least one elongated strand.

[0012] In addition to one or more of the features described above, or as an alternative, in further embodiments said receiver portion is configured to receive a food item therein, and said at least one cutting edge of said spiralizer blade attachment is configured to rotate about an axis created by said food item received within said receiver portion.

[0013] In addition to one or more of the features described above, or as an alternative, in further embodiments said rotation of said spiralizer blade attachment is driven by said rotatable component.

[0014] In addition to one or more of the features described above, or as an alternative, in further embodiments said food processor further includes a processor base having a rotary component and a container configured to couple to the processor base. The container includes a rotatable assembly, wherein the rotatable assembly includes a coupling component configured to engage the rotary component when the container is mounted to the processor base to drive the rotatable assembly about an axis.

[0015] In addition to one or more of the features described above, or as an alternative, in further embodiments said base includes an attachment area having a contour generally complementary to said rotatable component.

[0016] In addition to one or more of the features described above, or as an alternative, in further embodiments said receiver portion includes more than one cutting edge.

[0017] In addition to one or more of the features described above, or as an alternative, in further embodiments the spiralizer blade attachment is configured to form a plurality of substantially identical elongated strands.

[0018] In addition to one or more of the features described above, or as an alternative, in further embodiments the spiralizer blade attachment is configured to form a plurality of different strands.

BRIEF DESCRIPTION OF THE FIGURES

[0019] The accompanying drawings incorporated in and forming a part of the specification embodies several aspects of the present invention and, together with the description, serves to explain the principles of the invention. In the drawings:

[0020] FIG. 1 is a perspective view of an example of a food processing system;

[0021] FIG. 2 is a front view of a spiralizer blade attachment configured for use with a food processing system according to an embodiment of the present disclosure;

[0022] FIG. 3 is a bottom view of a spiralizer blade attachment configured for use with a food processing system according to an embodiment of the present disclosure;

[0023] FIG. 4 is a detailed view of the spiralizer blade attachment of FIG. 2 according to an embodiment of the present disclosure;

[0024] FIG. 5 is a top view of a spiralizer blade attachment configured for use with a food processing system according to an embodiment of the present disclosure;

[0025] FIG. 6 is a top view of a lid of a food processing system according to an embodiment of the present disclosure;

[0026] FIG. 7 is a top view of a food processing system including a spiralizer blade attachment according to an embodiment of the present disclosure;

[0027] FIG. 8 is a bottom perspective view of a spiralizer blade attachment and a lid of a food processing system according to an embodiment of the present disclosure;

[0028] FIG. 9 is a perspective view of a food processing system including a spiralizer blade attachment according to an embodiment of the present disclosure; and

[0029] FIG. 10 is a detailed view of the food processing system of FIG. 9 according to an embodiment of the present disclosure.

[0030] The detailed description explains embodiments of the invention, together with advantages and features, by way of example with reference to the drawings.

DETAILED DESCRIPTION

[0031] Referring now to the FIG. 1, an example of a multi-functional food processing system 20 is illustrated in more detail. In general, the food processing system 20 can be adapted to perform any food processing or blending operation including as non-limiting examples, dicing, chopping, cutting, slicing, mixing, blending, stirring, crushing, or the like. Although an example of a food processing system 20 is illustrated and described herein, other food processing systems are within the scope of the present disclosure. The food processing system 20 includes a base 22 having a body or housing 24 within which a motorized unit (not shown) and at least one controller (not shown) are located. The base 22 includes at least one rotary component, such as a drive coupler 26 (see FIG. 2) for example, driven by the motorized unit within the body 24. The base 22 additionally includes a control panel or user interface 28 with including at least one input device 30 for turning the motorized unit on and off and for selecting various modes of operation, such as pulsing, blending, or continuous food processing.

[0032] The food processing system 20 additionally includes a container 40 adapted (e.g. sized and dimensioned) to receive one or more food products therein to be processed. The container 40 generally includes a first end 42, a second end 44, and one or more walls 46 extending there between to define an interior chamber 48 within which food products are placed and processed. As shown in the illustrated, non-limiting embodiment, a handle 49 may be integrally formed with at least a portion of the container 40, such as a sidewall 46 for example. As best shown in the embodiment illustrated in FIG. 1, the top 42 of the container 40 includes an opening 50 that provides access for the one or more food items into the chamber 48. The second end 44 is generally closed such that food products contained within the chamber 48 are unable to escape through the second end 44.

[0033] A lid 52 generally complementary in size to the opening 50 is attached to the first end 42 of the container 40. The lid 52 may be removably secured to the container 20, such as via a plurality of threads, or a press-fit configuration. Alternatively, the lid 52 may be configured to fixedly attach to the first end 22 of the container. Inclusion of the lid 52, such as during a food processing and/or blending operation restricts movement of the one or more food products from the chamber 48 via the first end 42 of the container 40. In one embodiment, the lid 52 may be shaped or include one or more features to prevent the accumulation of food particles thereon. In addition, a gasket 54 may be positioned between the lid 52 and the first end 42 to form a seal preventing a food product from spilling out at the interface between the lid 52 and the opening 50.

[0034] Depending on the type of food processing system 20 being used, the container 40 may be configured to slidably or rotatably attach to the base 22. In the illustrated, non-limiting embodiment, the container 40 is moved vertically to connect to the base 22. However, in other embodiments, sliding or rotational movement of the container 40 in a direction other than the direction of downward movement of the container 40 onto the base 22 may be necessary to successfully mount the container 40 to the base 22. In one embodiment, the connection formed between the base 22 and the container 40 is intended to limit unintended movement of the container 40 relative to the base 22 during operation of the food processing system 20.

[0035] In the illustrated, non-limiting embodiment, a rotatable assembly 60 including a spindle 62 extends through the second end 44 into the chamber 48 of the container 40. Mounted to a portion of the spindle 62 adjacent an underside of the container 40 is a coupling component (not shown) configured to engage the rotary component of the base 22. As a result of this engagement, the motorized unit within the base 22 may be used to drive rotation of the spindle 62 about an axis X.

[0036] A plurality of interchangeable blade attachments 70 varying in size and/or functionality may be configured for use with the rotatable assembly 60 for the processing of food products located within the chamber 48 of container 40. Referring now to FIGS. 2-5, an example of a spiralizer blade attachment 70 configured for use with the food processing system 20 is illustrated. The spiralizer blade attachment 70 is configured to cut or slice a food item to form one or more elongated strands. The spiralizer blade attachment 70 includes a base 72 and a receiver portion 80. The base 72 is configured to couple to a portion of the rotatable assembly 60. In one embodiment, the base 72 includes an attachment area 74 (see FIG. 3) having a contour generally complementary to and configured to receive or mate with at least a portion of the spindle 62 such that rotation of the rotatable assembly 60 similarly drives rotation of the base 72 about axis X.

[0037] The receiver portion 80 is configured to receive any of a variety of foods, including fruits and vegetables, such as, zucchini, cucumber, potato, carrot, and squash for example. In the illustrated, non-limiting embodiment, the receiver portion 80 is generally conical in shape. However, other shapes are also within the scope of the disclosure. A first end 82 of the receiver portion 80, such as the apex end thereof, may be attached to a portion of the base 72. As shown, the receiver portion 80 is connected to an end 76 of the base 72 such that the receiver portion 80 is arranged axisymmetrically about axis X.

[0038] A slot 86 extending vertically and/or circumferentially is formed in a sidewall 84 of the receiver portion 80. Arranged directly adjacent the slot 86 is at least one cutting edge 88, such as a blade for example. In the illustrated, non-limiting embodiment of FIG. 5, a plurality of blades 88 are mounted directly adjacent the slot 86. However, embodiments where the receiver portion 80 includes only a single cutting edge 88 are also within the scope of the present disclosure. In addition, the orientation and type of cutting edge 88 may be varied to achieve different shapes and textures. In embodiments including more than one cutting edge, each strand formed by a respective cutting edge 88 may be substantially identical, or alternatively, may be different.

[0039] Referring now to FIGS. 6-10, to use the food processor 20 when the spiralizer blade attachment 70 is coupled to the rotatable assembly 60 within the interior chamber 48 of the container 40, a food item is inserted into the interior of the receiver portion 80 such that both the cutting edge 88 and food item extend vertically, in a generally parallel orientation. A protrusion or spike 90 may extend inwardly from the first end 82 of the receiver portion 80. The protrusion 90 is configured to pierce the food item, to limit movement of the food item from the receiver portion 80. In one embodiment, a feed opening 92 is formed in the lid 52 to provide limited access to the chamber 48 of the container 40 when the food processor 20 is operation. The feed opening 92 is sized to allow a food item configured for use with the spiralizer blade attachment 70 to pass there through while maintaining a safe distance between a user's hand and the blade attachment 70. In addition, the feed opening 92 is positioned so as to allow a user to easily insert food into the receiver portion 80 of the spiralizer blade attachment 70. In one embodiment, the feed opening is a chute extending upwardly from the lid 52. In some embodiments, the feed opening 92 may be generally aligned with the blade attachment 70, centered about the axis of rotation X.

[0040] As the motorized unit operates, the engagement between the rotary coupling of the base 22 and the coupling component of the rotatable assembly 60 drives the spindle 62, and therefore the spiralizer blade attachment 70 mounted thereto, about axis X. This rotation causes the spiralizer blade attachment 70 to rotate about the exterior of a food item arranged within the receiver portion 80. As the spiralizer blade attachment 70 rotates, the at least one cutting edge 88 engages a portion of the food item, thereby generating one or more long, continuous strands of the food item extending through the cutting slot. The thickness of the strands formed may be controlled by varying the angle at which the cutting edge 88 contacts the food item.

[0041] Use of the spiralizer blade attachment 70 with a food processing system 20 allows for the efficient slicing of one or more food items into a plurality of elongated strands similar to noodles. Motorized rotation of the attachment 70, and therefore the at least one cutting edge 88 thereof, about a food item arranged within the receiver portion 80 eliminates the struggle of manually rotating a food item relative to the cutting edge that exists in conventional hand-driven systems. In addition, the motorized rotation of the attachment 70 allows the food item to be sliced in its entirety, and does not leave a core of uncut material.

[0042] All references, including publications, patent applications, and patents cited herein are hereby incorporated by reference to the same extent as if each reference were individually and specifically indicated to be incorporated by reference and were set forth in its entirety herein.

[0043] The use of the terms “a” and “an” and “the” and similar referents in the context of describing the invention (especially in the context of the following claims) is to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The terms “comprising,” “having,” “including,” and “containing” are to be construed as open-ended terms (i.e., meaning “including, but not limited to,”) unless otherwise noted. Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g., “such as”) provided herein, is intended merely to better illuminate the invention and does not pose a limitation on the scope of the invention unless otherwise claimed. No language in the specification should be construed as indicating any non-claimed element as essential to the practice of the invention.

[0044] Exemplary embodiments of this invention are described herein, including the best mode known to the inventors for carrying out the invention. Variations of those embodiments may become apparent to those of ordinary skill in the art upon reading the foregoing description. The inventors expect skilled artisans to employ such variations as appropriate, and the inventors intend for the invention to be practiced otherwise than as specifically described herein. Accordingly, this invention includes all modifications and equivalents of the subject matter recited in the claims appended hereto as permitted by applicable law. Moreover, any combination of the above-described elements in all possible

variations thereof is encompassed by the invention unless otherwise indicated herein or otherwise clearly contradicted by context.

CLAIMS:

What is claimed is:

1. A spiralizer blade attachment for a food processing system, comprising:
a base;
a receiver portion coupled to said base such that said receiver portion and said base are arranged vertically, said receiver portion including a cutting slot and at least one cutting edge, wherein the at least one cutting edge is configured to rotate about an axis created by a food item received within said receiver portion.
2. The spiralizer blade attachment according to claim 1, wherein said base is configured to couple to a rotatable component.
3. The spiralizer blade attachment according to claim 2, wherein said base includes an attachment area having a contour generally complementary to said rotatable component.
4. The spiralizer blade attachment according to claim 1, wherein said receiver portion includes more than one cutting edge.
5. The spiralizer blade attachment according to claim 4, wherein the spiralizer blade attachment is configured to form a plurality of substantially identical elongated strands.
6. The spiralizer blade attachment according to claim 4, wherein the spiralizer blade attachment is configured to form a plurality of different strands.
7. The spiralizer blade attachment according to claim 1, wherein the receiver portion is generally conical in shape.
8. The spiralizer blade attachment according to claim 1, wherein a protrusion extends inwardly from a first end of said receiver portion, the protrusion being configured to pierce said food item within said receiver portion.
9. A food processing system, comprising:
a food processor including a motor and a rotatable component; and
a spiralizer blade attachment configured for removable association with said food processor, said spiralizer blade attachment including:
a base; and
a receiver portion including a cutting slot and at least one cutting edge,
wherein the spiralizer blade attachment is configured to cut a food item into at least one elongated strand.
10. The food processing system according to claim 9, wherein said receiver portion is configured to receive a food item therein, and said at least one cutting edge of said

spiralizer blade attachment is configured to rotate about an axis created by said food item received within said receiver portion.

11. The food processing system according to claim 10, wherein said rotation of said spiralizer blade attachment is driven by said rotatable component.

12. The food processing system according to claim 11, wherein said food processor further includes:

a processor base having a rotary component; and

a container configured to couple to the processor base, the container including a rotatable assembly, wherein the rotatable assembly includes a coupling component configured to engage the rotary component when the container is mounted to the processor base to drive the rotatable assembly about an axis.

13. The food processing system according to claim 9, wherein said base includes an attachment area having a contour generally complementary to said rotatable component.

14. The food processing system according to claim 9, wherein said receiver portion includes more than one cutting edge.

15. The food processing system according to claim 14, wherein the spiralizer blade attachment is configured to form a plurality of substantially identical elongated strands.

16. The food processing system according to claim 14, wherein the spiralizer blade attachment is configured to form a plurality of different strands.

1/10

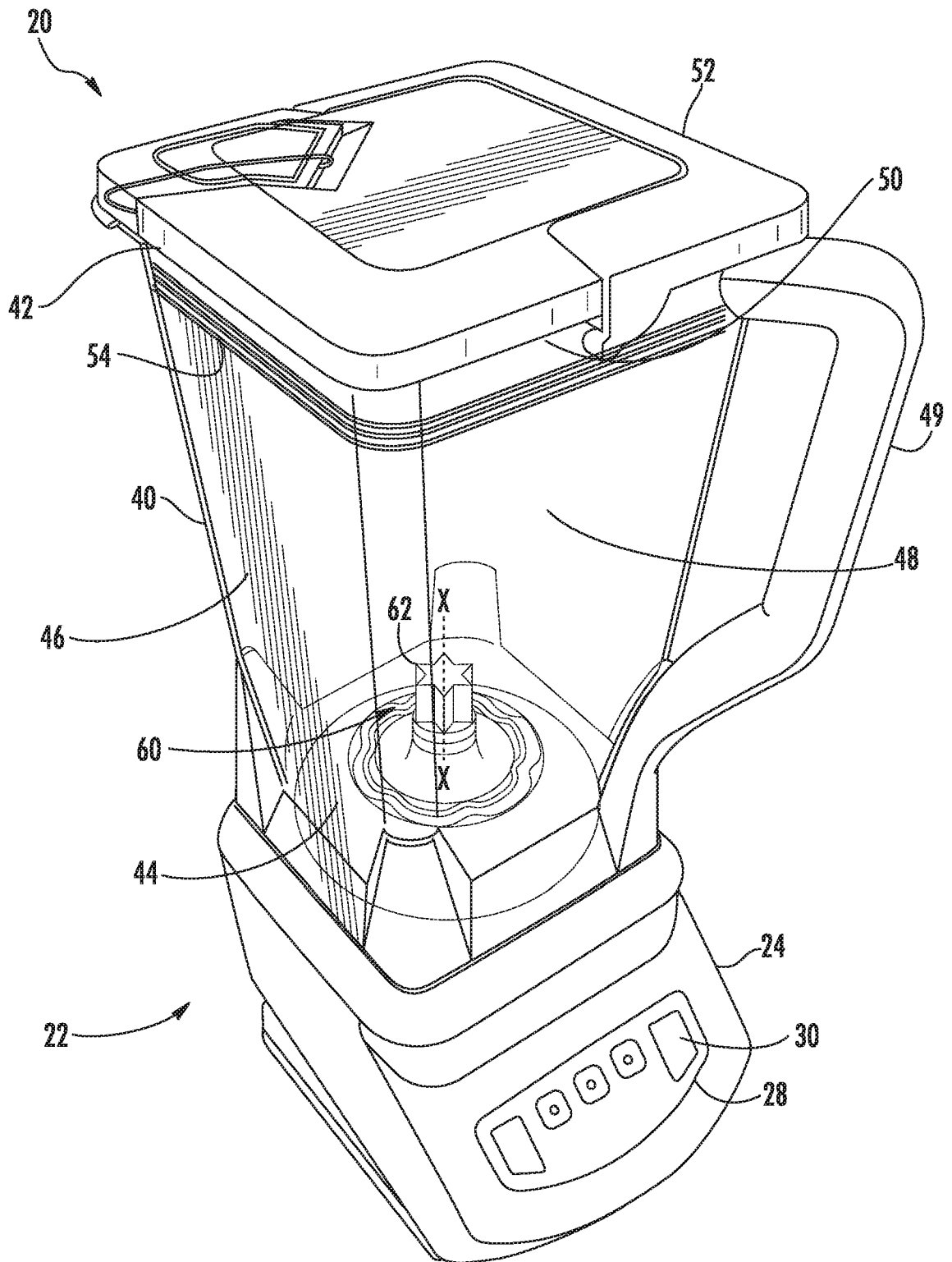


FIG. 1

2/10

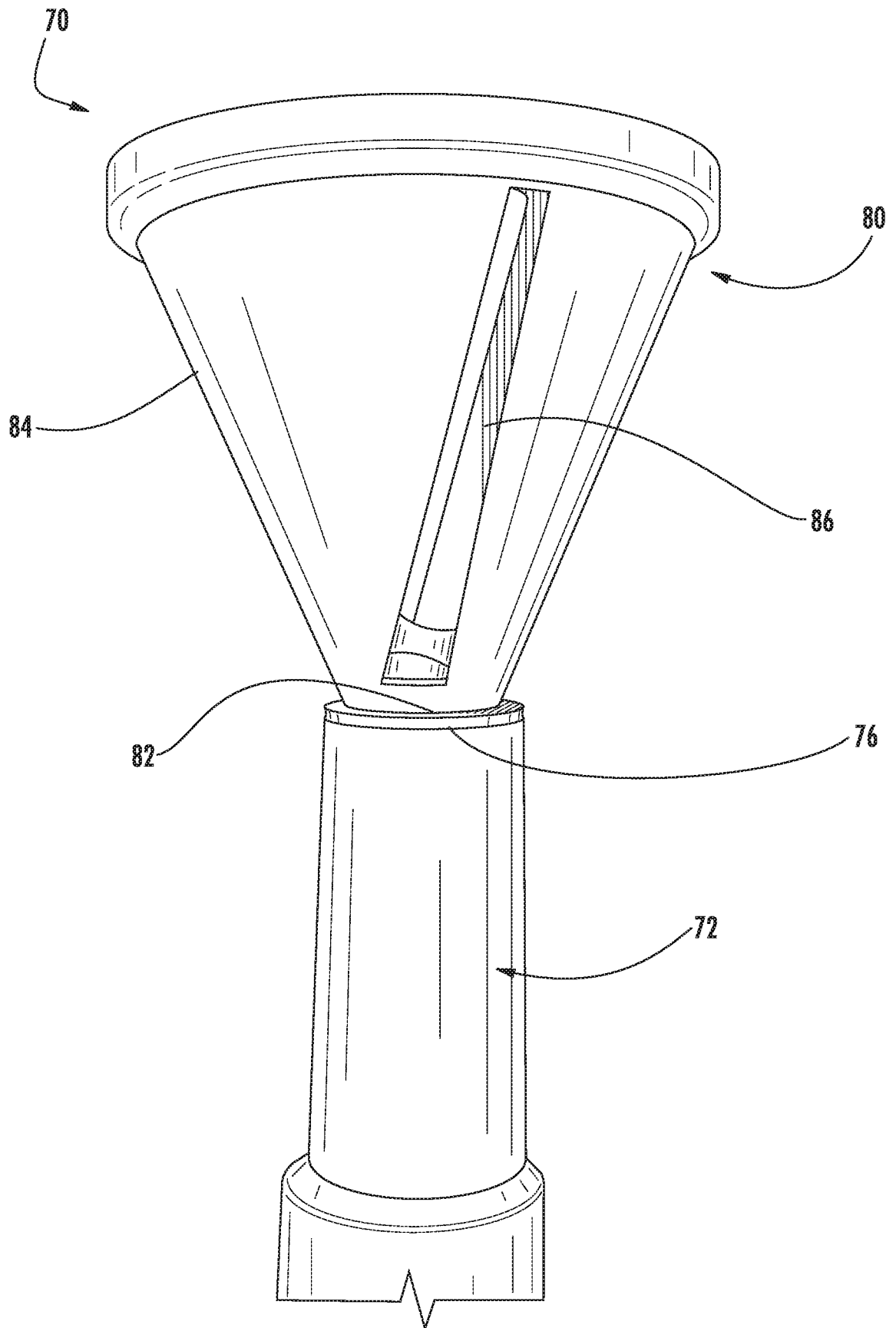


FIG. 2

3/10

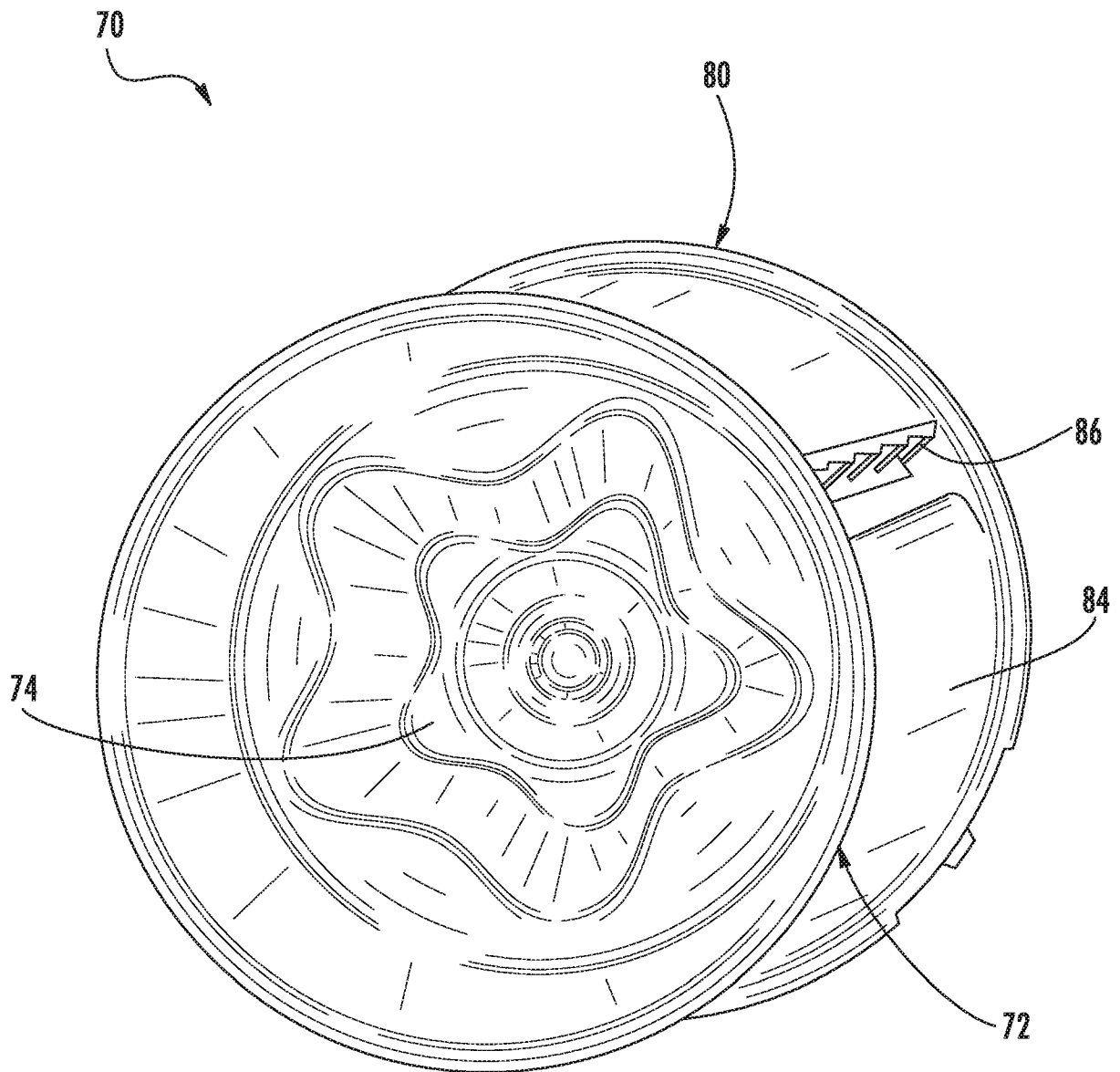
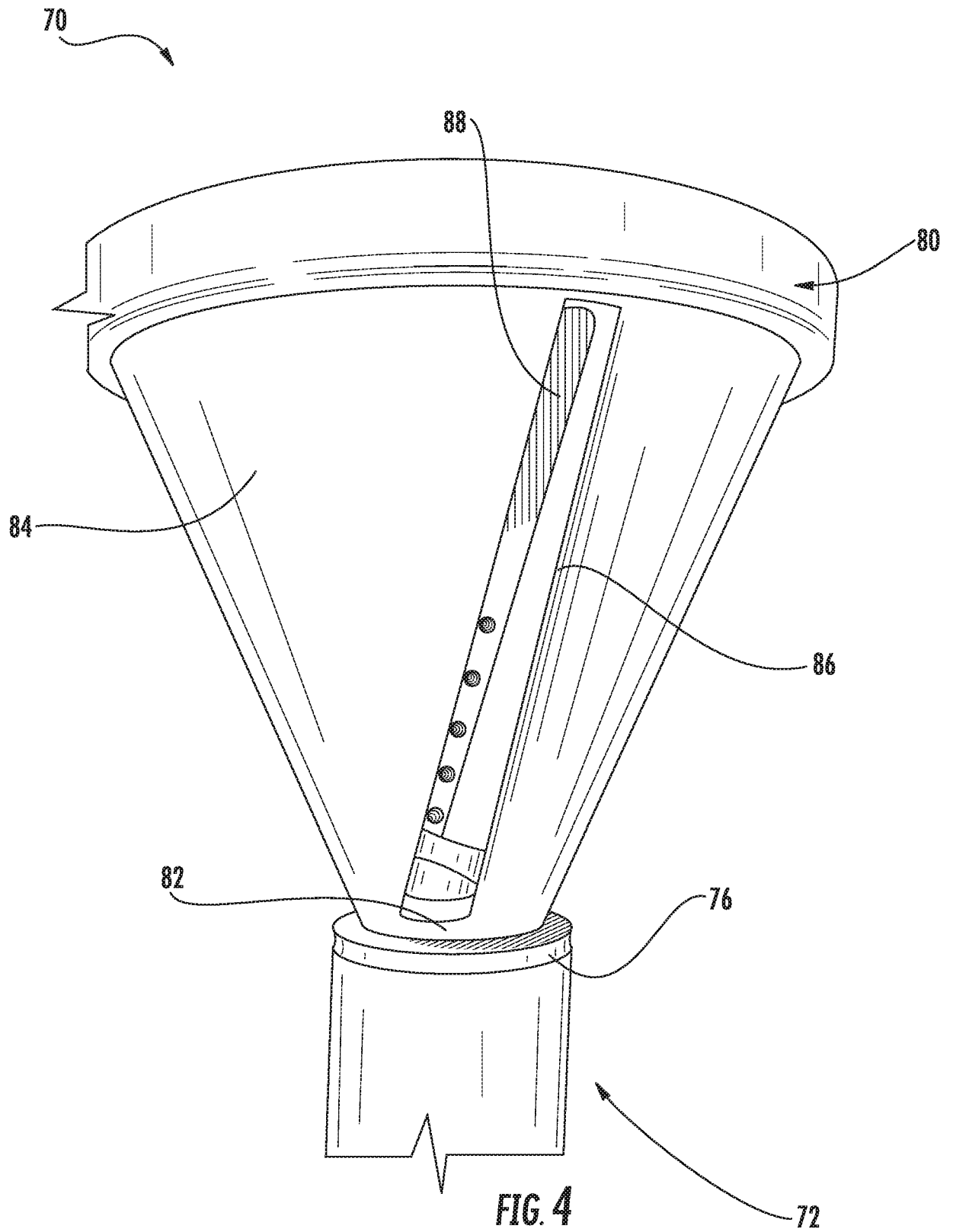


FIG. 3

4/10



5/10

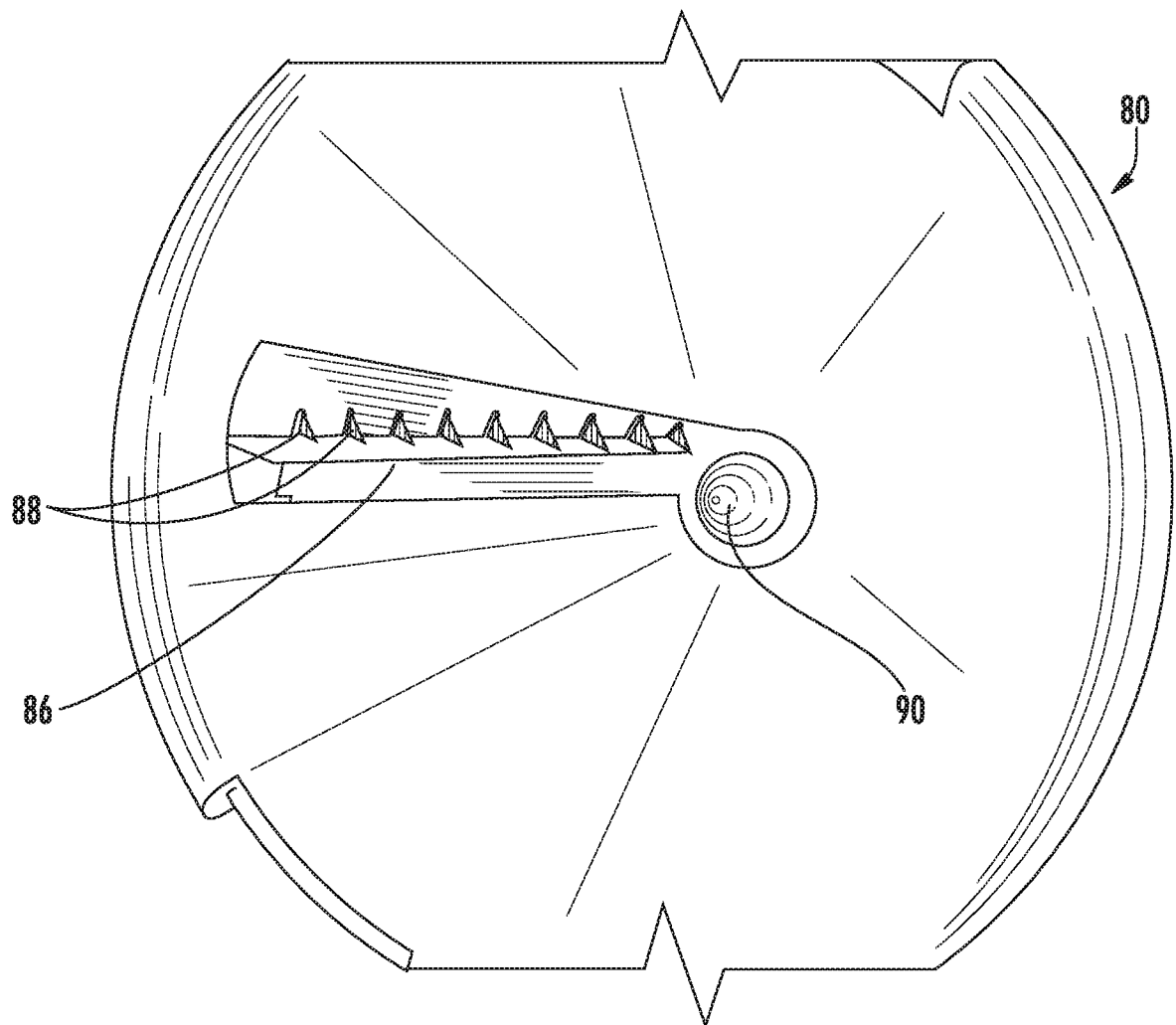
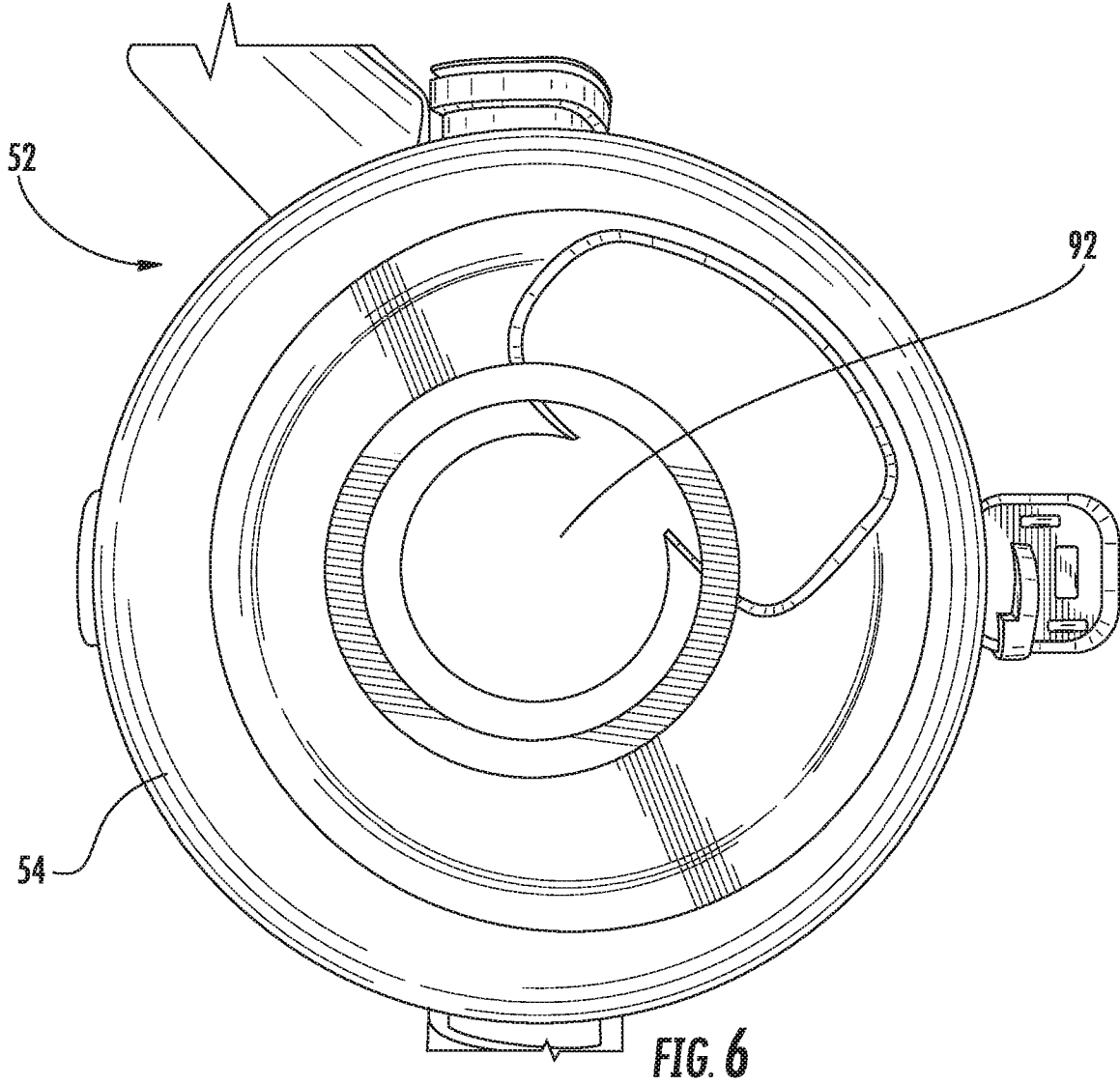
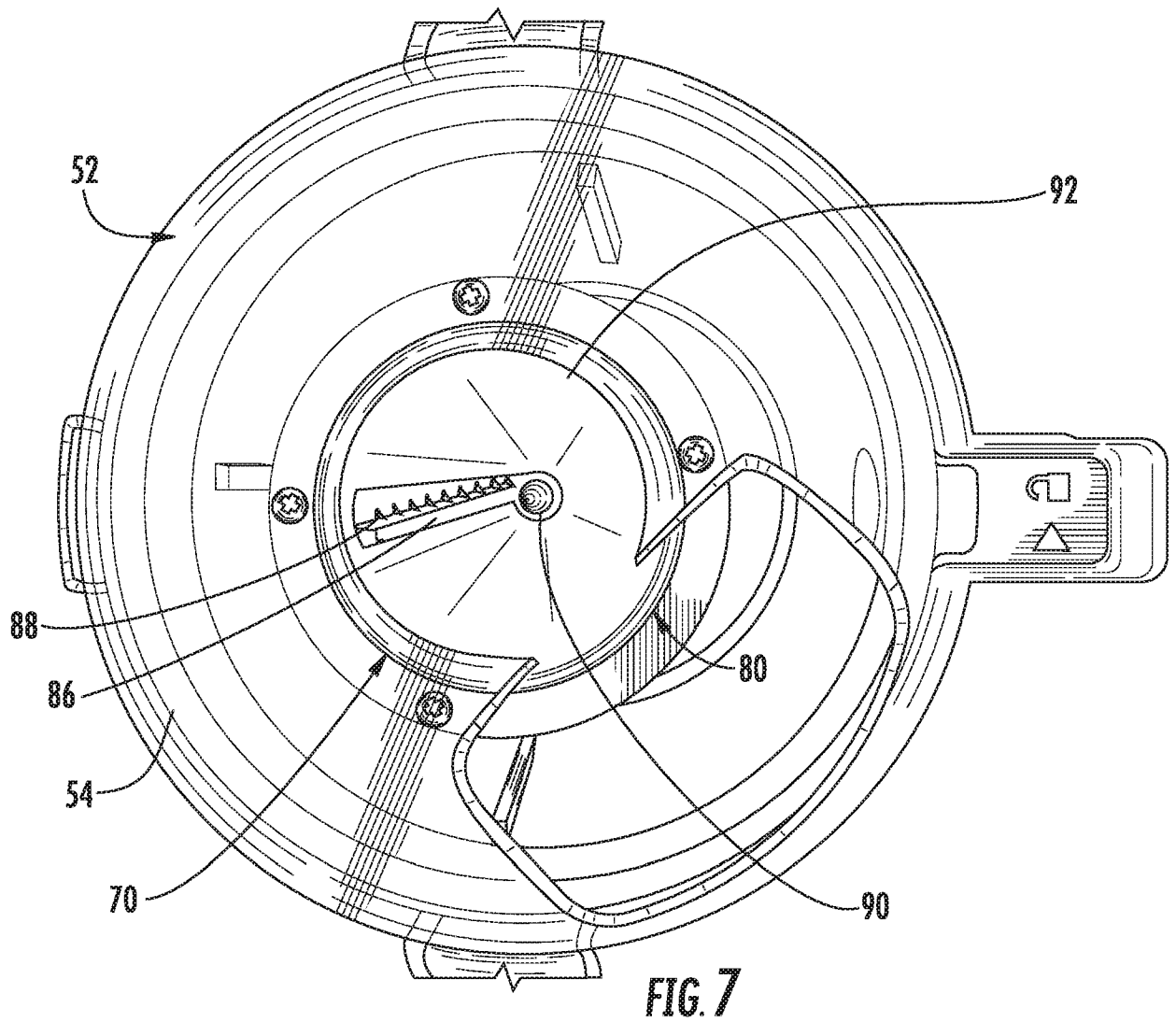


FIG. 5



7/10



8/10

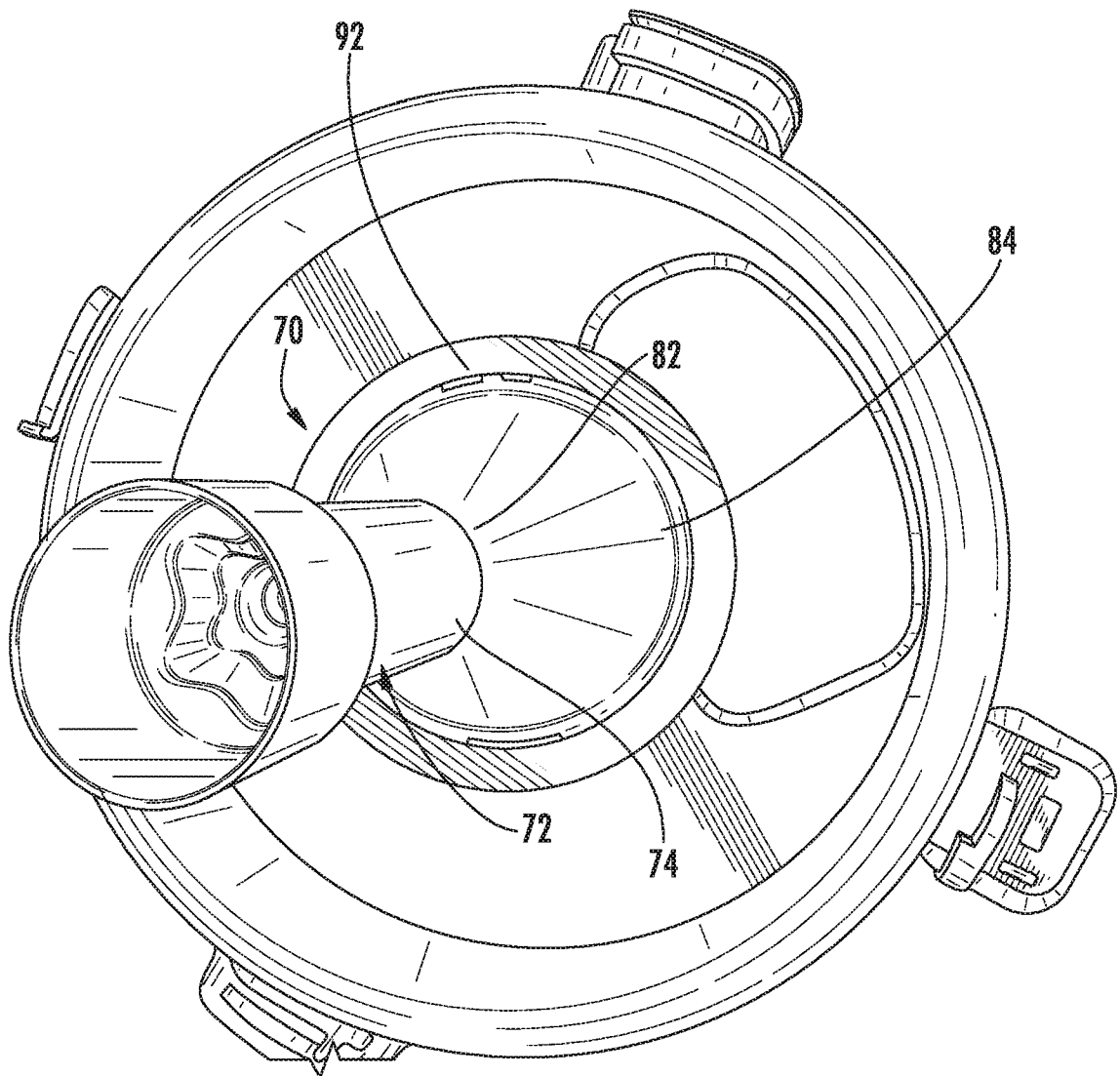
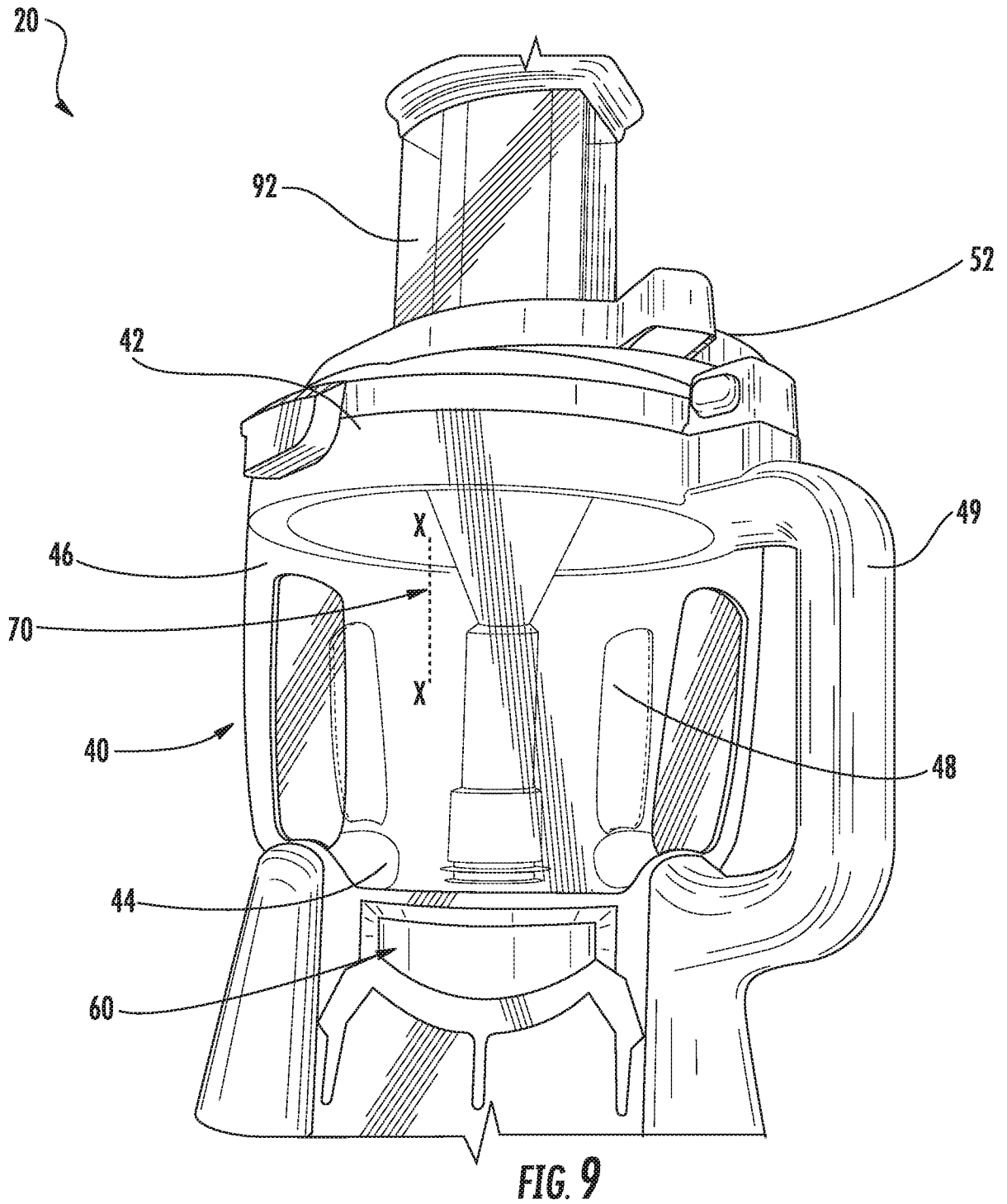
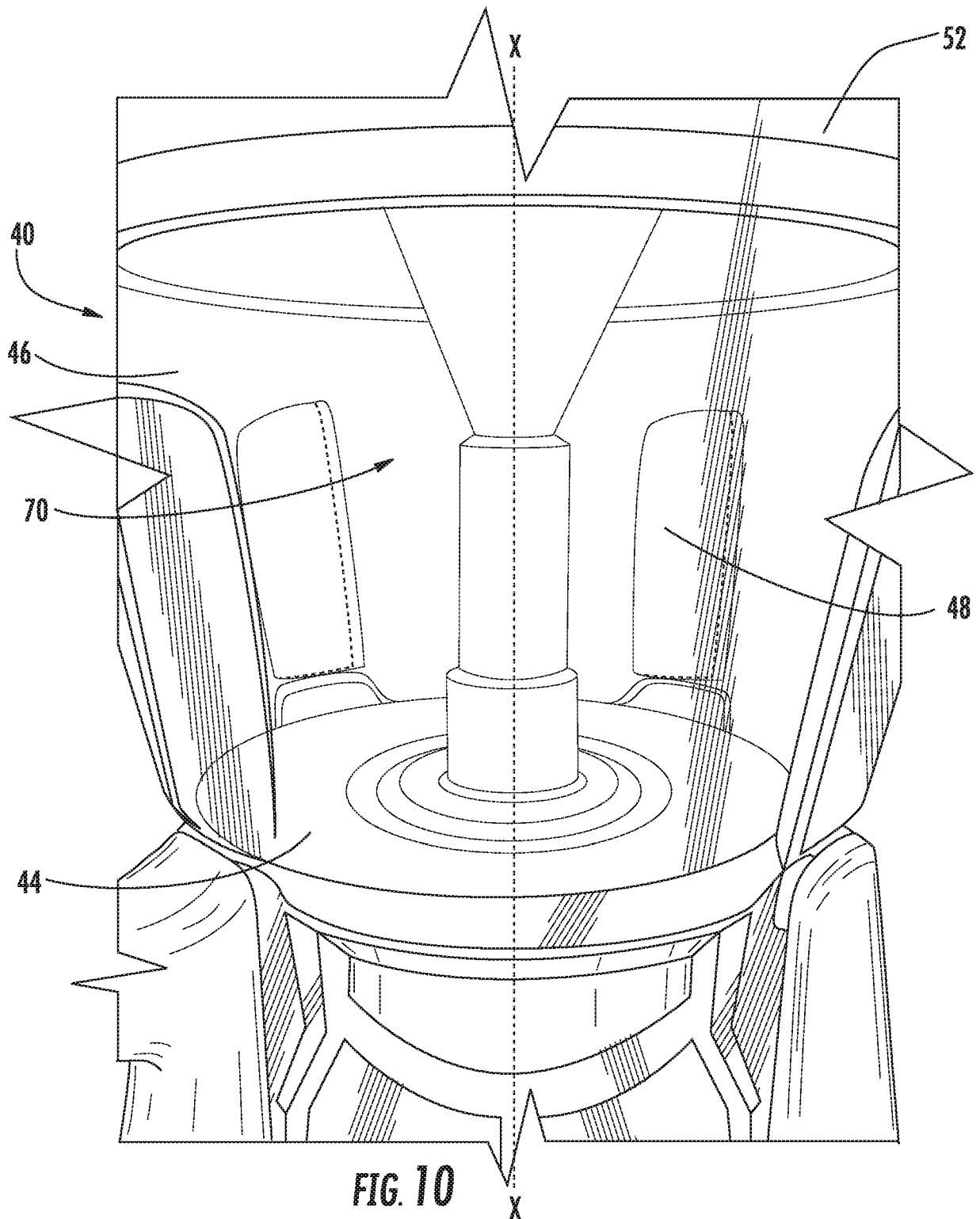


FIG. 8

9/10



10/10



INTERNATIONAL SEARCH REPORT

International application No
PCT/US2016/034287

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47J43/07 B26D3/11
ADD.

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)
A47J B26D

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

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP S55 175095 U (N.N.) 15 December 1980 (1980-12-15) figures 1,5	1-5,9-15
X	US 3 392 768 A (ANLIKER W) 16 July 1968 (1968-07-16) column 3, lines 3-23; figures 1,4,5	1-5,9-15



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"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

5 July 2016

Date of mailing of the international search report

18/07/2016

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Reichhardt, Otto

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2016/034287

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP S55175095	U	15-12-1980	NONE

US 3392768	A	16-07-1968	BE 680437 A 17-10-1966
			DE 1265364 B 04-04-1968
			GB 1140669 A 22-01-1969
			LU 51007 A 04-07-1966
			NL 6605928 A 04-11-1966
			US 3392768 A 16-07-1968
