(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 4 817 433 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
07.10.2026 Bulletin 2026/41

(21) Application number: **26154240.1**

(22) Date of filing: **26.01.2026**

(51) International Patent Classification (IPC):
A24C 5/40 *(2006.01)* ***A24F 15/00*** *(2020.01)*
B65D 85/62 *(2006.01)*

(52) Cooperative Patent Classification (CPC):
A24C 5/06; A24C 5/40; A24F 15/00; B65D 85/62

(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 ME MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
GE KH LA MA MD TN

(30) Priority: **28.01.2025 US 202563750663 P**
17.10.2025 US 202519361847

(71) Applicant: **Sream, Inc.**
Riverside CA 92503 (US)

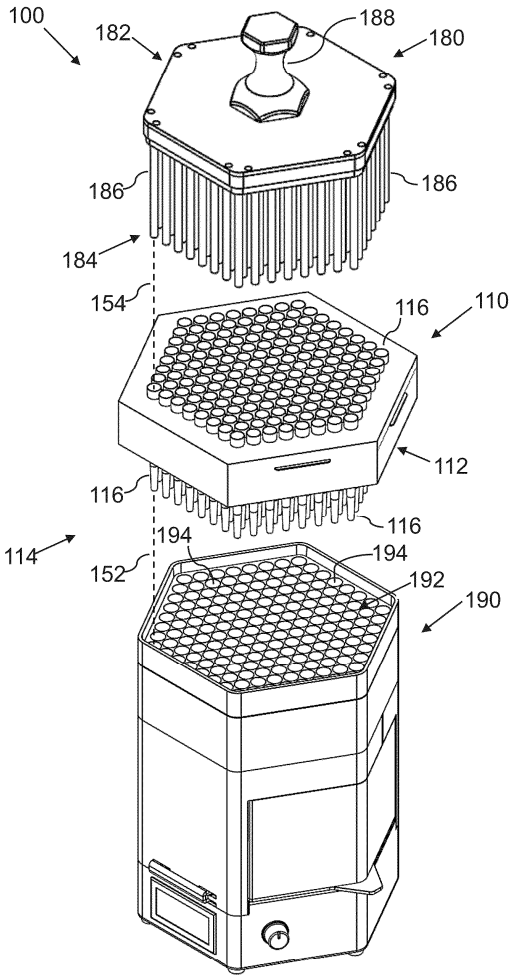
(72) Inventor: **Farraj, Jarir**
Corona (US)

(74) Representative: **Script Intellectual Property LLP**
Suite J, Anchor House
School Close
Chandlers Ford
Eastleigh, Hampshire SO53 4DY (GB)

(54) **PRE-ROLL LOADING SYSTEM AND CARTRIDGE WITH PUSHING DEVICE**

(57) A pre-roll loading system includes a pre-roll loading cartridge with a mounting structure, which is mounted with a plurality of empty pre-rolled cones; a pre-roll pushing device with a plurality of cone pusher rods; and a pre-roll packing device with a cone receiving structure; such that the plurality of empty pre-rolled cones can be pushed into the cone receiving structure of the pre-roll packing device, when the pre-roll loading cartridge is mounted on a top of the pre-roll packing device, whereby the pre-roll packing device can be configured to pack the empty pre-rolled cones with a smoking material. Also disclosed is a pre-roll loading system including a pre-roll loading assembly with a pre-roll loading stack of pre-roll loading cartridges stored in a stack container; along with a pre-roll pushing device.

FIG. 1A
Pre-Roll Loading System



EP 4 817 433 A1

Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application No. 63/750,663, filed January 28, 2025; which is hereby incorporated herein by reference in its entirety.

FIELD OF THE INVENTION

[0002] The present invention relates generally to the field of cannabis production, and more particularly to methods and systems for loading pre-roll cones and tubes into pre-roll packing machines.

BACKGROUND OF THE INVENTION

[0003] Merchants will frequently individually load pre-rolled cones and tubes into pre-roll packing machines by hand in order to prepare rolled cones or tube for sale.

[0004] However, such manual processes are often time consuming and are impractical in the mass production of filled tubes or cones for cannabis sales and consumption.

[0005] As such, considering the foregoing, it may be appreciated that there continues to be a need for novel and improved devices and methods for loading pre-rolled cones and tubes into pre-roll packing machines.

SUMMARY OF THE INVENTION

[0006] The foregoing needs are met, to a great extent, by the present invention, wherein in aspects of this invention, enhancements are provided to the existing model of packing of processed cannabis material into pre-rolled tubes.

[0007] In an aspect, a pre-roll loading system can include:

a) a pre-roll loading cartridge, which can include:

i. a mounting structure; and

ii. a plurality of empty pre-rolled cones;

such that each empty pre-rolled cone is slidably mounted in the mounting structure;

b) a pre-roll pushing device, which can include:

i. a mounting plate;

ii. a plurality of cone pusher rods; and

iii. a handle;

such that an upper end of each cone pusher rod is connected to a bottom surface of the mounting plate;

such that the handle can be connected to a top surface of the mounting plate; and

c) a pre-roll packing device, which can include:

i. a cone receiving structure, which can include:

1. a plurality of receiving tubes, which each protrude vertically through the cone receiving structure, such that an upper opening of each receiving tube is exposed on the upper surface of the cone receiving structure;

such that each empty pre-rolled cone of the pre-roll loading cartridge is vertically aligned with a corresponding receiving tube of the cone receiving structure, when the pre-roll loading cartridge is mounted on a top of the pre-roll packing device; and

such that each cone pusher rod of the pre-roll pushing device is vertically aligned with a corresponding empty pre-rolled cone and the corresponding receiving tube, when the pre-roll loading cartridge is mounted on a top of the pre-roll packing device and the pre-roll pushing device is pushed into the pre-roll loading cartridge, such that the plurality of empty pre-rolled cones is pushed into the cone receiving structure of the pre-roll packing device, whereby the pre-roll packing device can be configured to pack the empty pre-rolled cones with a smoking material.

[0008] In another aspect, a pre-roll loading system can include:

a) a pre-roll loading assembly, which can include;

i. a pre-roll loading stack; which can include

1. a stacked plurality of pre-roll loading cartridges, which are stacked vertically; and

2. a stack mounting base, such that the plurality of pre-roll loading cartridges is mounted on a top of the stack mounting base; and

ii. a stack container, which is configured to store the pre-roll loading stack; and

b) a pre-roll pushing device;

such that a selected pre-roll loading cartridge can be taken out from the plurality of pre-roll loading cartridges in the stack container for use to load a pre-roll packing

device with empty pre-rolled cones.

[0009] There has thus been outlined, rather broadly, certain embodiments of the invention in order that the detailed description thereof herein may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional embodiments of the invention that will be described below and which will form the subject matter of the claims appended hereto.

[0010] In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of embodiments in addition to those described and of being practiced and carried out in various ways. In addition, it is to be understood that the phraseology and terminology employed herein, as well as the abstract, are for the purpose of description and should not be regarded as limiting.

[0011] As such, those skilled in the art will appreciate that the conception upon which this disclosure is based may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012]

FIG. **1A** is a perspective view of a pre-roll loading system prior to use, according to an embodiment of the invention.

FIG. **1B** is a front view of a pre-roll loading system prior to use, according to an embodiment of the invention.

FIG. **1C** is a front view of a pre-roll loading system during use, showing a pre-roll loading cartridge mounted on a pre-roll packing machine, according to an embodiment of the invention.

FIG. **1D** is a front view of a pre-roll loading system during use, showing a pre-roll loading cartridge mounted on a pre-roll packing machine with a pre-roll pusher device inserted into the pre-roll loading cartridge, according to an embodiment of the invention

FIG. **1E** is a front view of a pre-roll loading system during use, showing the pre-roll loading cartridge and pre-roll pusher device removed from the pre-roll packing machine, such that empty pre-rolled cones are inserted into the pre-roll packing machine, according to an embodiment of the invention

FIG. **1F** is a perspective view of a pre-roll loading system after use, according to an embodiment of the invention.

FIG. **2** is a perspective view of a pre-roll loading system, according to an embodiment of the invention.

FIG. **3A** is a perspective view of a pre-roll loading assembly with a pre-roll loading stack removed from a pre-roll stack container, according to an embodiment of the invention.

FIG. **3B** is a perspective view of a pre-roll stack container, according to an embodiment of the invention.

FIG. **4A** is a perspective view of a partially disassembled pre-roll loading stack of a pre-roll loading system, according to an embodiment of the invention.

FIG. **4B** is a perspective view of a partially disassembled pre-roll loading stack of a pre-roll loading system, according to an embodiment of the invention.

FIG. **4C** is a top view of a pre-roll loading stack of a pre-roll loading system, according to an embodiment of the invention.

FIG. **4D** is a perspective cross-sectional view of a pre-roll loading stack of a pre-roll loading system taken along section line **4D-4D** of FIG. **4C,** according to an embodiment of the invention.

FIG. **4E** is a left side cross-sectional view of a pre-roll loading stack of a pre-roll loading system taken along section line **4D-4D** of FIG. **4C,** according to an embodiment of the invention.

FIG. **4F** is a perspective cross-sectional view of a pre-roll loading stack of a pre-roll loading system taken along section line **4F-4F** of FIG. **4C,** according to an embodiment of the invention.

FIG. **5A** is a top perspective view of a pre-roll loading cartridge of a pre-roll loading stack, according to an embodiment of the invention.

FIG. **5B** is a bottom perspective view of a pre-roll loading cartridge of a pre-roll loading stack, according to an embodiment of the invention.

FIG. **5C** is a left side view of a pre-roll loading

cartridge of a pre-roll loading stack, according to an embodiment of the invention.

FIG. **5D** is a front view of a pre-roll loading cartridge of a pre-roll loading stack, according to an embodiment of the invention.

FIG. **5E** is a top view of a pre-roll loading cartridge of a pre-roll loading stack, according to an embodiment of the invention.

FIG. **5F** is a bottom view of a pre-roll loading cartridge of a pre-roll loading stack, according to an embodiment of the invention.

FIG. **5G** is a top view of a pre-roll loading cartridge of a pre-roll loading stack, according to an alternative embodiment of the invention.

FIG. **5H** is a bottom view of a pre-roll loading cartridge of a pre-roll loading stack, according to an alternative embodiment of the invention.

FIG. **6A** is a top exploded perspective view of a pre-roll loading cartridge of a pre-roll loading stack, according to an embodiment of the invention.

FIG. **6B** is a bottom exploded perspective view of a pre-roll loading cartridge of a pre-roll loading stack, according to an embodiment of the invention.

FIG. **7A** is a top view of a mounting structure of a pre-roll loading cartridge, according to an embodiment of the invention.

FIG. **7B** is a bottom view of a mounting structure of a pre-roll loading cartridge, according to an embodiment of the invention.

FIG. **7C** is a top exploded perspective view of a mounting structure of a pre-roll loading cartridge, according to an embodiment of the invention.

FIG. **7D** is a bottom exploded perspective view of a mounting structure of a pre-roll loading cartridge, according to an embodiment of the invention.

FIG. 8 is a top view of a pre-cut flat cardboard piece configured for folding into a mounting structure of a pre-roll loading cartridge, according to an embodiment of the invention.

FIG. **9A** is a bottom perspective view of a pre-roll pusher device of a pre-roll loading system, according to an embodiment of the invention.

FIG. **9B** is a left side view of a pre-roll pusher device of a pre-roll loading system, according to an embodiment of the invention.

FIG. **9C** is a front view of a pre-roll pusher device of a pre-roll loading system, according to an embodiment of the invention.

FIG. **9D** is a top view of a pre-roll pusher device of a pre-roll loading system, according to an embodiment of the invention.

FIG. **9E** is a bottom view of a pre-roll pusher device of a pre-roll loading system, according to an embodiment of the invention.

DETAILED DESCRIPTION

[0013] Before describing the invention in detail, it should be observed that the present invention resides primarily in a novel and non-obvious combination of elements and process steps. So as not to obscure the disclosure with details that will readily be apparent to those skilled in the art, certain conventional elements and steps have been presented with lesser detail, while the drawings and specification describe in greater detail other elements and steps pertinent to understanding the invention.

[0014] The following embodiments are not intended to define limits as to the structure or method of the invention, but only to provide exemplary constructions. The embodiments are permissive rather than mandatory and illustrative rather than exhaustive.

[0015] In the following, we describe the structure of an embodiment of a pre-roll loading system **100** with reference to FIG. **1A,** in such manner that like reference numerals refer to like components throughout; a convention that we shall employ for the remainder of this specification.

[0016] In an embodiment, as shown in FIGS. **1A-1F,** a pre-roll loading system **100** for loading pre-rolled cones **116** into a pre-roll packing device **190** can include:

a) a pre-roll loading cartridge **110,** which can include:

i. a mounting structure **112;** and

ii. a plurality **114** of empty pre-rolled cones **116;**

such that each empty pre-rolled cone **116** is slidably mounted in the mounting structure **112;**

b) a pre-roll pushing device **180,** which can include:

i. a mounting plate **182;**

ii. a plurality **184** of cone pusher rods **186;** and

iii. a handle **188;**

such that an upper end of each cone pusher rod **186** is perpendicularly connected to a bottom surface of the mounting plate **182;**

such that the handle **188** can be connected to a top surface of the mounting plate **182;** and

c) the pre-roll packing device **190,** which can include:

i. a cone receiving structure **192,** which can include:

1. a plurality of receiving tubes **194,** which each project vertically through the cone receiving structure **192,** such that an upper opening of each receiving tube **194** is exposed on the upper surface of the cone receiving structure **192;**

such that each empty pre-rolled cone **116** of the pre-roll loading cartridge **110** can be configured to be vertically aligned **152** with a corresponding receiving tube **194** of the cone receiving structure **192,** when the pre-roll loading cartridge **110** is mounted on a top of the pre-roll packing device **190,** as shown in FIG. **1C;** and

such that each cone pusher rod **186** of the pre-roll pushing device **180** can be configured to be vertically aligned **154** with a corresponding empty pre-rolled cone **116** and the corresponding receiving tube **194,** when the pre-roll loading cartridge **110** is mounted on the top of the pre-roll packing device **190** and the pre-roll pushing device **180** is pushed into the pre-roll loading cartridge **110,** as shown in FIG. **1D,** such that the plurality **114** of empty pre-rolled cones **116** is pushed into the cone receiving structure **192** of the pre-roll packing device **190,** whereby the pre-roll packing device **190** can be configured to pack the empty pre-rolled cones **116** with a smoking material **198,** which can for example be an herb material, including ground/shredded/cut tobacco or a ground/shredded/cut cannabis material.

[0017] In a related embodiment, as shown in FIGS. **4E, 5A-5F, 6A-6B,** and **7A-7D,** the mounting structure **112** of the pre-roll loading cartridge **110** can include:

a) an upper receiving plate **512,** which comprises:

i. a plurality of upper cone receiving apertures **514;**

b) a lower receiving plate **532,** which comprises:

i. a plurality of lower cone receiving apertures **534;** and

c) a plurality of side walls **521, 522, 523, 524, 525, 526,** which are vertically connected to form a peripheral sidewall **520;**

such that upper portions of the side walls **521, 522, 523, 524, 525, 526** can be connected to an outer periphery of the upper receiving plate **512;** and

such that an outer periphery of the lower receiving plate **532** can be connected along an inner side of the peripheral sidewall **520,** below the upper receiving plate **512;**

such that each upper cone receiving aperture **514** is vertically aligned **456** with a corresponding lower cone receiving aperture **534** such that the upper cone receiving aperture **514** and the corresponding lower cone receiving apertures **534** are configured to receive a corresponding empty pre-rolled cone **116.**

[0018] In a further related embodiment, the peripheral sidewall **520** of the plurality of side walls **521, 522, 523, 524, 525, 526** can include a plurality of slits **142,** and the lower receiving plate **532** can include a plurality of tabs **544,** such that each tab **544** can be configured to slide into a corresponding slit **142,** to connect the lower receiving plate **832** to the peripheral sidewall **520** of the side walls **521, 522, 523, 524, 525, 526.**

[0019] In yet a further related embodiment, as shown in FIGS. **4E, 5A-5F, 6A-6B,** and **7A-7D,** the mounting structure **112** of the pre-roll loading cartridge **110** can include:

a) a bottom plate **146, 546,** which comprises:

i. a bottom central aperture **547, 548;**

wherein an outer periphery of the bottom plate **146, 546** can be connected along an inner side of the peripheral sidewall **520, 530,** below the upper receiving plate **512** and the lower receiving plate **532;**

such that the bottom central aperture **547, 548** of the bottom plate **146, 546** can be configured to enable the plurality **114** of empty pre-rolled cones **116** to project through the bottom central aperture **547, 548;**

wherein the bottom central aperture **547, 548** of the bottom plate **146, 546** can be configured to accept a top portion of the pre-roll packing device **190,** such that the top portion of the pre-roll packing device **190** projects through the bottom central aperture **547, 548** and contacts with the lower receiving plate **532** when the pre-roll loading cartridge **110** is mounted on a top of the pre-roll packing device **190,** as shown in FIG. **1C.**

[0020] In a related embodiment, as shown in FIG. **8,** the mounting structure **802** can be folded from a flat pre-cut

piece, which can for example be made of cardboard or heavy paper, such that the mounting structure **802** of the pre-roll loading cartridge **110,** can include:

a) an upper receiving plate **812,** which comprises:

i. a plurality of upper cone receiving apertures **814;**

b) a lower receiving plate **832,** which comprises:

i. a plurality of lower cone receiving apertures **834;** and

c) a plurality of side walls **821, 822, 823, 824, 825, 826,** which can be vertically connected when folded to form a peripheral sidewall;

such that upper portions of the side walls **821, 822, 823, 824, 825, 826** can be connected to the upper receiving plate **812;** and

such that the lower receiving plate **832** can be connected to the plurality of side walls **821, 822, 823, 824, 825, 826** below the upper receiving plate **812.**

[0021] In a further related embodiment, the plurality of side walls **821, 822, 823, 824, 825, 826** can include slits **842,** and the lower receiving plate **832** can include tabs **844,** such that the tabs **844** slide into the slits **842,** to connect the lower receiving plate 832 to the side walls **821, 822, 823, 824, 825, 826.**

[0022] In another embodiment, as shown in FIGS. **1A-1F, 2, 3A,** and **4A-4F,** a pre-roll loading system **200** can include:

a) a pre-roll loading assembly **205,** which can include:

i. a pre-roll loading stack **210,** which can include:

1. a stacked plurality **212** of pre-roll loading cartridges **110,** which are stacked vertically, as shown in FIG. 3A, with each pre-roll loading cartridge **110** stacked consecutively on a top of a lower pre-roll loading cartridges **110** (or the stack mounting base **320);**

2. wherein each pre-roll loading cartridge **110** comprises a plurality of empty pre-rolled cones **116;** and

3. a stack mounting base **320,** such that the plurality of pre-roll loading cartridges **110** is mounted on a top of the stack mounting base **320;** and

ii. a stack container **230,** which comprises:

1. a top opening **232;**

2. front, rear, left, and right sides; and

3. a bottom (shown in FIG. **3B);**

wherein the stack container **230** is configured to store the pre-roll loading stack **210,** such that the pre-roll loading stack **210** is configured to be positionable inside the stack container **230** via the top opening **232;** and

b) a pre-roll pushing device **180;**

such that a selected pre-roll loading cartridge **110** can be retrieved from (i.e., is retrievable and can be selected and taken out from) a top of the pre-roll loading cartridges **110** in the stack container **230** (via the top opening **232)** for use to load a pre-roll packing device **190** with the empty pre-rolled cones **116** from the selected pre-roll loading cartridge **110;**
such that each empty pre-rolled cone **116** of the selected pre-roll loading cartridge **110** can be configured to be vertically aligned **152** with a corresponding receiving tube **194** of the cone receiving structure **192,** when the selected pre-roll loading cartridge **110** is mounted on a top of the pre-roll packing device **190,** as shown in FIG. **1C;** and
such that each cone pusher rod **186** of the selected pre-roll pushing device **180** can be configured to be vertically aligned **154** with a corresponding empty pre-rolled cone **116** and the corresponding receiving tube **194,** when the selected pre-roll loading cartridge **110** is mounted on the top of the pre-roll packing device **190** and the pre-roll pushing device **180** is pushed into the selected pre-roll loading cartridge **110,** as shown in FIG. **1D,** such that the plurality **114** of empty pre-rolled cones **116** is pushed into the cone receiving structure **192** of the pre-roll packing device **190,** whereby the pre-roll packing device **190** can be configured to pack the empty pre-rolled cones **116** with a smoking material **198.**

[0023] In a related embodiment, as shown in FIG. **3B,** the stack container **230, 330** can be configured with at least one side slit **332** or a plurality of side slits **332, 334,** positioned in a top of at least one (or several) of the front, rear, left, and right sides, to enable easy removal of pre-roll loading cartridges **110** from a top of the stacked plurality **212** of pre-roll loading cartridges **110.**

[0024] In another related embodiment, as shown in FIGS. **4D-4F, 5A, 5C-5D,** each pre-roll loading cartridge **110** in the stacked plurality **212** of pre-roll loading cartridges **110** can be configured such that:

a) upper portions of the plurality **114** of empty pre-

rolled cones **116** protrude vertically above (i.e., project vertically above) the mounting structure **112,** as shown in FIGS. **5C-5D;** and

b) lower portions of the plurality **114** of empty pre-rolled cones **116** protrude vertically below (i.e., project vertically below) the mounting structure **112,** as shown in FIGS. **5C-5D;**

such that a lower portion of each upper pre-rolled cone **116, 416** of an upper pre-roll loading cartridge **110, 412** can be vertically aligned **456** with and nested inside an upper portion of a corresponding lower pre-rolled cone **116, 418** of a corresponding consecutive lower pre-roll loading cartridge **110, 414,** whereby the pre-roll loading stack **210** can be efficiently packed vertically, as shown in FIG. 4E.

[0025] In a further related embodiment, the stack mounting base **320** can be configured with a sufficient height **458,** such that lower portions of each pre-rolled cone **116** of a lower-most pre-roll loading cartridge **110, 415** are protected inside the stack mounting base **320** with a clearance **459** between lower tips of each pre-rolled cone **116** of a lower-most pre-roll loading cartridge **110** and a bottom of the stack mounting base 320.

[0026] In various related embodiments, parts of the pre-roll loading system **200** can be:

a) Folded from heavy paper or cardboard;

b) injection molded or 3D-printed in a plastic material, such as Acrylonitrile butadiene styrene (ABS), High-density polyethylene (HDPE), Polyethylene terephthalate glycol (PETG), or other suitable thermoplastic polymers;

c) made from a sheet metal alloy, including stainless steel sheet material and high strength sheet alloys;

d) made from composite materials, including glass fiber, carbon fiber, and composites thereof; and/or

e) combinations of these.

[0027] In a related embodiment, a pre-roll packing device **190,** as shown in FIGS. **1A** - **1F,** for packing a plurality of empty pre-rolled cones **116** with a smoking material **198,** which can for example be an herb material, including ground/shredded/cut tobacco or a ground/shredded/cut cannabis material, such that the pre-roll packing device **190** can include:

a) a cone receiving structure **192,** as shown in FIG. **1A;**

wherein the plurality of empty pre-rolled cones **116,** can be inserted into the cone receiving structure **192,** such that each empty pre-rolled cone **116** in the plurality of empty pre-rolled cones **116** is disposed in a vertical orientation with an upper opening of the pre-rolled cones **116** facing upward;

such that the smoking material **198** can be dispensed onto an upper surface of the cone receiving structure **192,** such that the cone receiving structure **192** is configured to enable the smoking material **198** to fall into the upper openings of the empty pre-rolled cones **116,** when the smoking material **198** is dispensed onto an upper surface of the cone receiving structure **192,** as shown in FIG. **1F;**

such that the pre-roll packing device **190** can be configured to create a vibration and/or cyclical movement, such that the smoking material **198** falls into the upper openings of the empty pre-rolled cones **116,** such that the plurality of empty pre-rolled cones **116** can be uniformly filled and packed with the smoking material **198.**

[0028] In various related embodiments, the pre-roll loading cartridge **110** and the pre-roll pushing device **180** can be adapted to match different manufacturer make and models of the pre-roll packing device **190,** such that the pre-roll loading cartridge **110** and the pre-roll pushing device **180** are adapted to match a shape and cone layout of the cone receiving structure **192** of the pre-roll packing device **190.** The pre-roll loading cartridge **110** can for example be adapted with a hexagonal shape to fit a hexagonal cone receiving structure **192** with **169** receiving apertures, as shown herein; or the pre-roll loading cartridge **510** can for example, as shown in FIGS. **5G-5H,** be adapted with a quadratic shape to fit a hexagonal cone receiving structure **192** with 169 receiving apertures. Alternatively, the pre-roll loading cartridge can, in an alternative example embodiment, be adapted with a quadratic shape to fit a quadratic cone receiving structure with 100 receiving apertures laid out in a 10 by 10 grid.

[0029] Here has thus been described a multitude of embodiments of the pre-roll loading system **100, 200,** the pre-roll loading cartridge **110, 510,** and methods related thereto, which can be employed in numerous modes of usage.

[0030] The many features and advantages of the invention are apparent from the detailed specification, and thus, it is intended by the appended claims to cover all such features and advantages of the invention, which fall within the true spirit and scope of the invention.

[0031] Many such alternative configurations are readily apparent, and should be considered fully included in this specification and the claims appended hereto. Accordingly, since numerous modifications and variations will readily occur to those skilled in the art, the invention is not limited to the exact construction and operation illustrated and described, and thus, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

Claims

1. A pre-roll loading system for loading pre-rolled cones into a pre-roll packing device, comprising:

   (a) a pre-roll loading cartridge, comprising:

   a mounting structure; and
   a plurality of empty pre-rolled cones;
   such that each empty pre-rolled cone is slidably mounted in the mounting structure;

   (b) a pre-roll pushing device, comprising:

   a mounting plate; and
   a plurality of cone pusher rods;
   such that an upper end of each cone pusher rod is perpendicularly connected to a bottom surface of the mounting plate; and

   (c) the pre-roll packing device, comprising:
   a cone receiving structure, which comprises:
   a plurality of receiving tubes, which each project vertically through the cone receiving structure, such that an upper opening of each receiving tube is exposed on an upper surface of the cone receiving structure;
   such that each empty pre-rolled cone of the pre-roll loading cartridge is configured to be vertically aligned with a corresponding receiving tube of the cone receiving structure, when the pre-roll loading cartridge is mounted on a top of the pre-roll packing device; and
   such that each cone pusher rod of the pre-roll pushing device is configured to be vertically aligned with a corresponding empty pre-rolled cone and the corresponding receiving tube, when the pre-roll loading cartridge is mounted on the top of the pre-roll packing device and the pre-roll pushing device is pushed into the pre-roll loading cartridge, such that the plurality of empty pre-rolled cones is pushed into the cone receiving structure of the pre-roll packing device, whereby the pre-roll packing device is configured to pack the empty pre-rolled cones with a smoking material.

2. The pre-roll loading system of claim 1, wherein the mounting structure further comprises:

   an upper receiving plate, which comprises:
   a plurality of upper cone receiving apertures;
   such that each upper cone receiving aperture in the plurality of upper cone receiving apertures is configured to receive the corresponding empty pre-rolled cone.

3. The pre-roll loading system of claim 2, wherein the mounting structure further comprises:
   a plurality of side walls, which are vertically connected to form a peripheral sidewall:
   such that upper portions of the side walls are connected to an outer periphery of the upper receiving plate.

4. The pre-roll loading system of claim 3, wherein the mounting structure further comprises:

   a lower receiving plate, which comprises:
   a plurality of lower cone receiving apertures;
   such that an outer periphery of the lower receiving plate is connected along an inner side of the peripheral sidewall below the upper receiving plate;
   such that each upper cone receiving aperture is vertically aligned with a corresponding lower cone receiving aperture;
   such that each lower cone receiving aperture in the plurality of lower cone receiving apertures is configured to receive the corresponding empty pre-rolled cone.

5. The pre-roll loading system of claim 4, wherein:

   the peripheral sidewall comprises a plurality of slits; and
   the lower receiving plate comprises a plurality of tabs;
   such that each tab in the plurality of tabs is configured to slide into a corresponding slit, to connect the lower receiving plate to the peripheral sidewall.

6. The pre-roll loading system of claim 5, wherein the mounting structure is folded from a flat pre-cut piece.

7. The pre-roll loading system of claim 4, wherein the mounting structure further comprises:

   a bottom plate, which comprises:
   a bottom central aperture;
   such that the lower receiving plate is connected to an inner side of the peripheral sidewall below the upper receiving plate;
   wherein an outer periphery of the bottom plate is connected along an inner side of the peripheral sidewall, below the upper receiving plate and the lower receiving plate.

8. The pre-roll loading system of claim 7, wherein the bottom central aperture of the bottom plate is configured to accept a top portion of the pre-roll packing device, such that the top portion of the pre-roll packing device projects through the bottom central aperture and contacts with the lower receiving plate when the pre-roll loading cartridge is mounted on a top of

the pre-roll packing device.

9. A pre-roll loading system, comprising:

(a) a pre-roll loading assembly, which comprises a pre-roll loading stack, comprising

a stacked plurality of pre-roll loading cartridges, which are stacked vertically;
wherein each pre-roll loading cartridge in the stacked plurality of pre-roll loading cartridges comprises:
a plurality of empty pre-rolled cones; and

(b) a pre-roll pushing device, comprising:
a plurality of cone pusher rods;
such that a selected pre-roll loading cartridge is retrievable from a top of the stacked plurality of pre-roll loading cartridges, for use to load a pre-roll packing device with the empty pre-rolled cones;
such that each empty pre-rolled cone of the selected pre-roll loading cartridge is configured to be vertically aligned with a corresponding receiving tube of a cone receiving structure of the pre-roll packing device when the selected pre-roll loading cartridge is mounted on a top of the pre-roll packing device; and
such that each cone pusher rod of the pre-roll pushing device is configured to be vertically aligned with a corresponding empty pre-rolled cone and the corresponding receiving tube, when the selected pre-roll loading cartridge is mounted on the top of the pre-roll packing device and the pre-roll pushing device is pushed into the selected pre-roll loading cartridge, such that the plurality of empty pre-rolled cones is pushed into the cone receiving structure of the pre-roll packing device, whereby the pre-roll packing device is configured to pack the empty pre-rolled cones with a smoking material.

10. The pre-roll loading system of claim 9, wherein the pre-roll loading assembly further comprises:

a stack container, which comprises:
a top opening;
wherein the stack container is configured to store the pre-roll loading stack, such that the pre-roll loading stack is configured to be positionable inside the stack container via the top opening;
such that the selected pre-roll loading cartridge is retrievable from the top of the stacked plurality of pre-roll loading cartridges when the pre-roll loading stack is positioned inside the stack container.

11. The pre-roll loading system of claim 10, wherein the stack container is configured with at least one side slit to enable easy removal of the pre-roll loading cartridges from a top of the stacked plurality of pre-roll loading cartridges.

12. The pre-roll loading system of claim 9, wherein the pre-roll loading stack further comprises:
a stack mounting base, such that the stacked plurality of pre-roll loading cartridges is mounted on a top of the stack mounting base.

13. The pre-roll loading system of claim 12, wherein each pre-roll loading cartridge further comprises:
a mounting structure, such that each empty pre-rolled cone in the plurality of empty pre-rolled cones is slidably mounted in the mounting structure.

14. The pre-roll loading system of claim 13, wherein each pre-roll loading cartridge in the stacked plurality of pre-roll loading cartridges is configured such that:

(a) an upper portion of each empty pre-rolled cone in the plurality of empty pre-rolled cones protrudes vertically above the mounting structure; and
(b) a lower portion of each empty pre-rolled cone in the plurality of empty pre-rolled cones protrudes vertically below the mounting structure;

such that the lower portion of each upper pre-rolled cone of an upper pre-roll loading cartridge is vertically aligned with and nested inside the upper portion of a corresponding lower pre-rolled cone of a corresponding consecutive lower pre-roll loading cartridge, whereby the pre-roll loading stack is efficiently packed vertically.

15. The pre-roll loading system of claim 14, wherein the stack mounting base is configured with a sufficient height, such that lower portions of each pre-rolled cone of a lower-most pre-roll loading cartridge are protected inside the stack mounting base with a clearance between lower tips of each pre-rolled cone of a lower-most pre-roll loading cartridge and a bottom of the stack mounting base.

16. A pre-roll loading system for loading pre-rolled cones into a pre-roll packing device, comprising:

(a) a pre-roll loading cartridge, comprising:

a mounting structure; and
a plurality of empty pre-rolled cones;
such that each empty pre-rolled cone is slidably mounted in the mounting structure;

(b) a pre-roll pushing device, comprising:

a plurality of cone pusher rods;

such that each empty pre-rolled cone of the pre-roll loading cartridge is configured to be vertically aligned with a corresponding receiving tube of a cone receiving structure of a pre-roll packing device, when the pre-roll loading cartridge is mounted on a top of the pre-roll packing device; and

such that each cone pusher rod of the pre-roll pushing device is configured to be vertically aligned with a corresponding empty pre-rolled cone and the corresponding receiving tube, when the pre-roll loading cartridge is mounted on the top of the pre-roll packing device and the pre-roll pushing device is pushed into the pre-roll loading cartridge, such that the plurality of empty pre-rolled cones is pushed into the cone receiving structure of the pre-roll packing device, whereby the pre-roll packing device is configured to pack the empty pre-rolled cones with a smoking material.

FIG. 1A
Pre-Roll Loading System

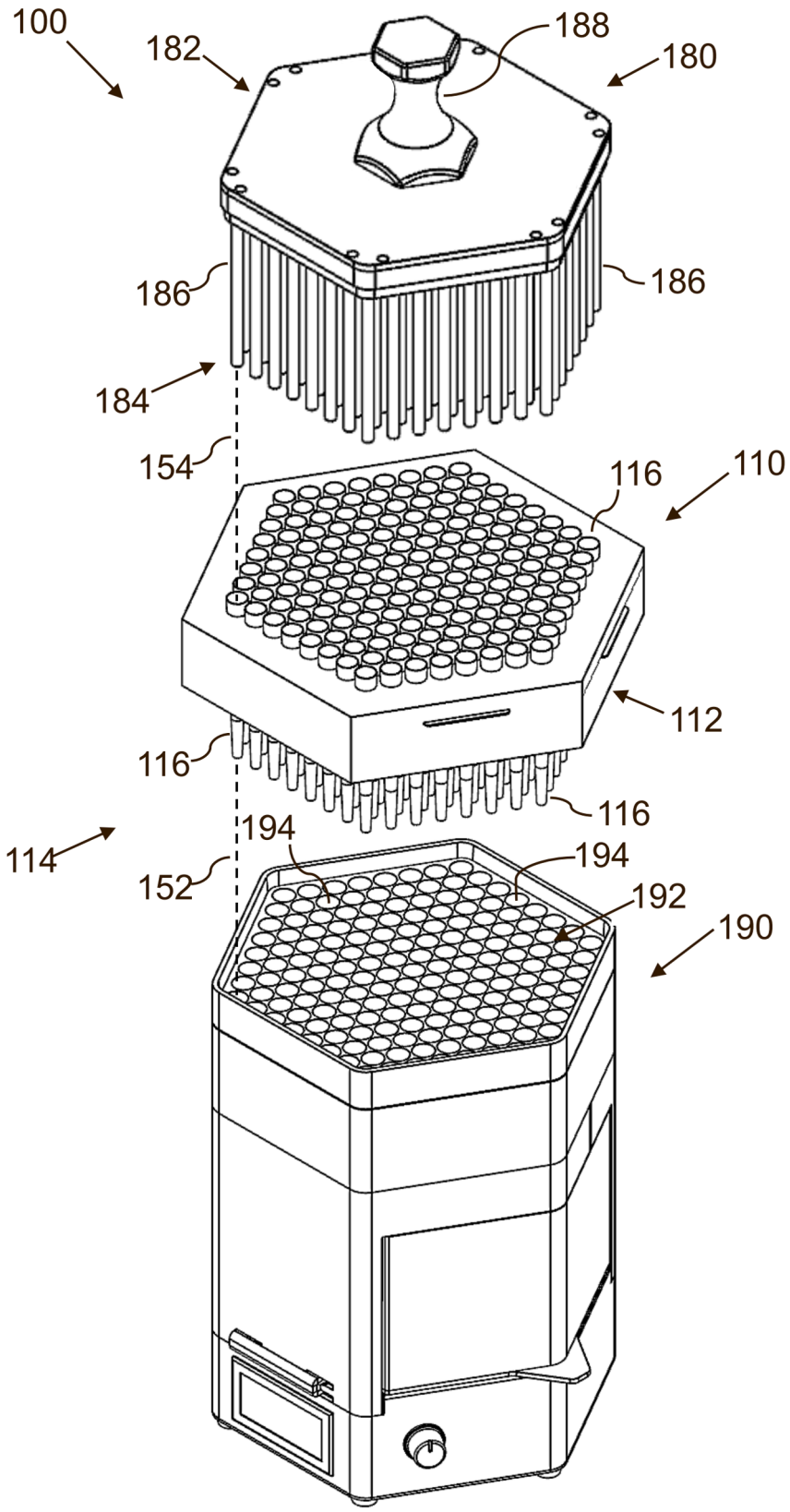


FIG. 1B

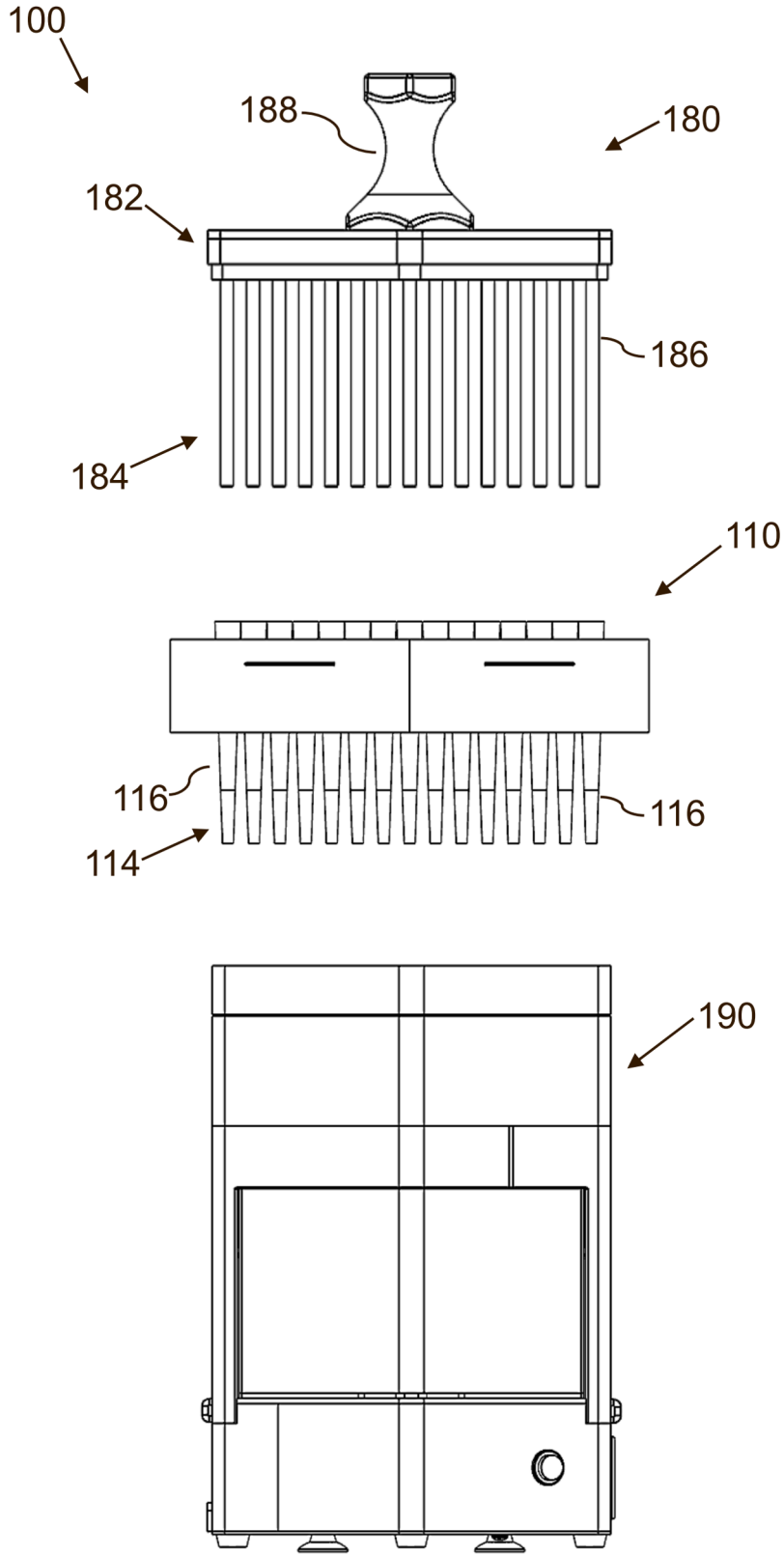


FIG. 1C

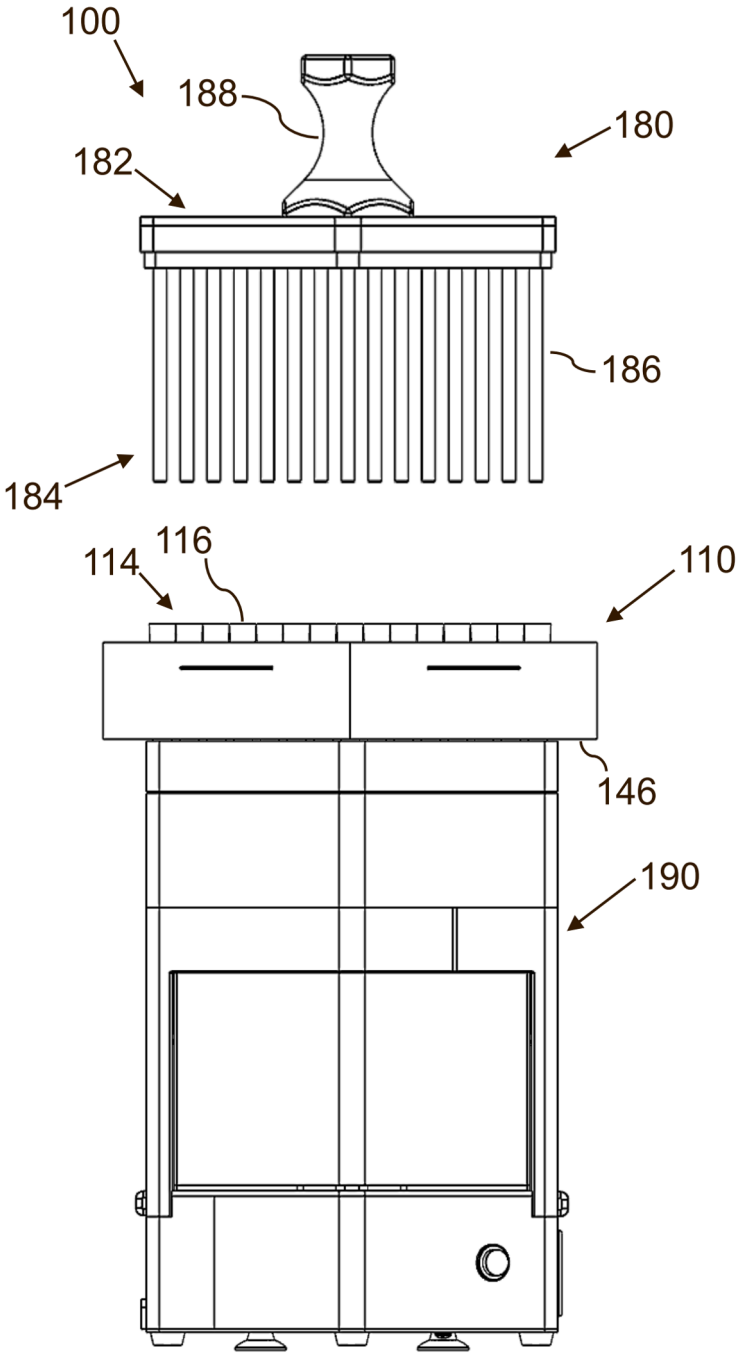


FIG. 1D

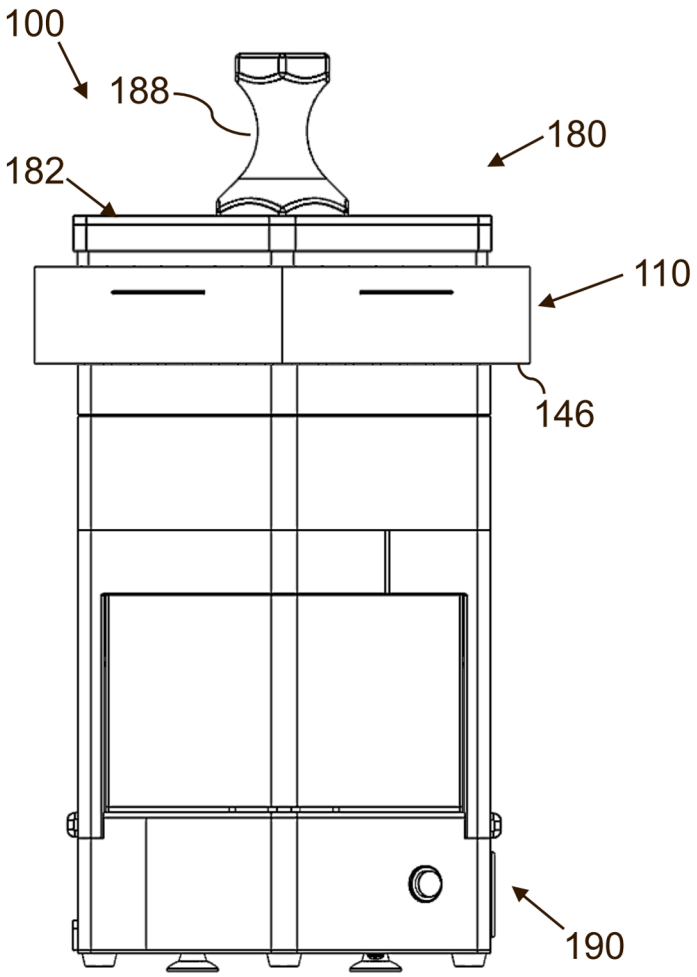
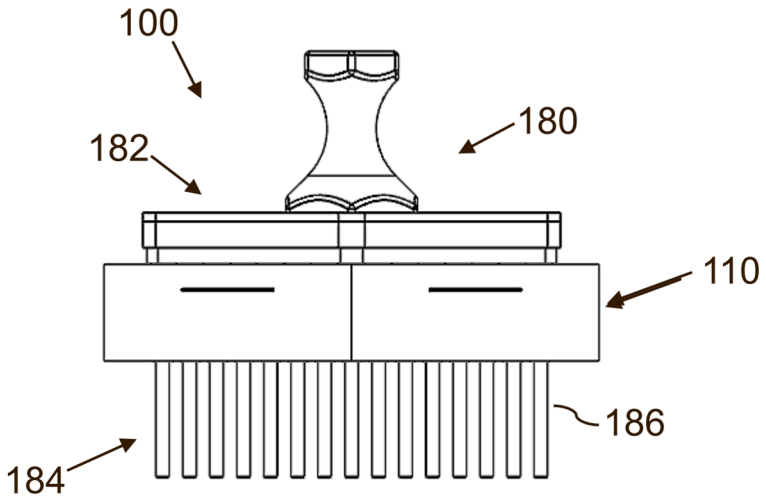


FIG. 1E



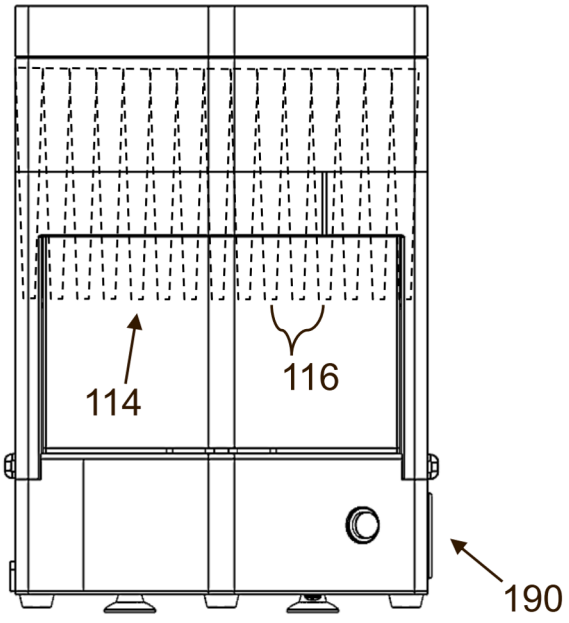


FIG. 1F
Pre-Roll Loading System

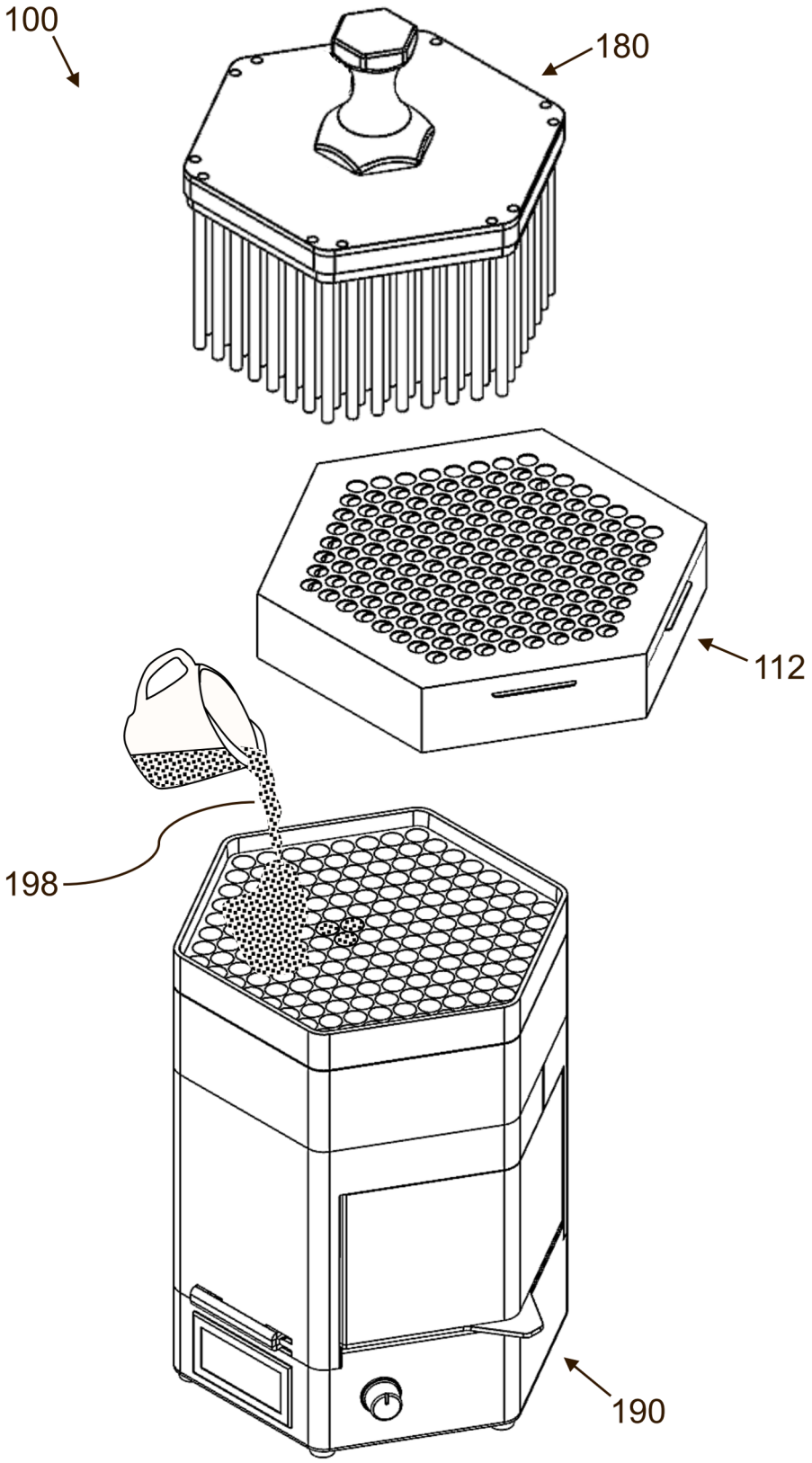


FIG. 2
Pre-Roll Loading System

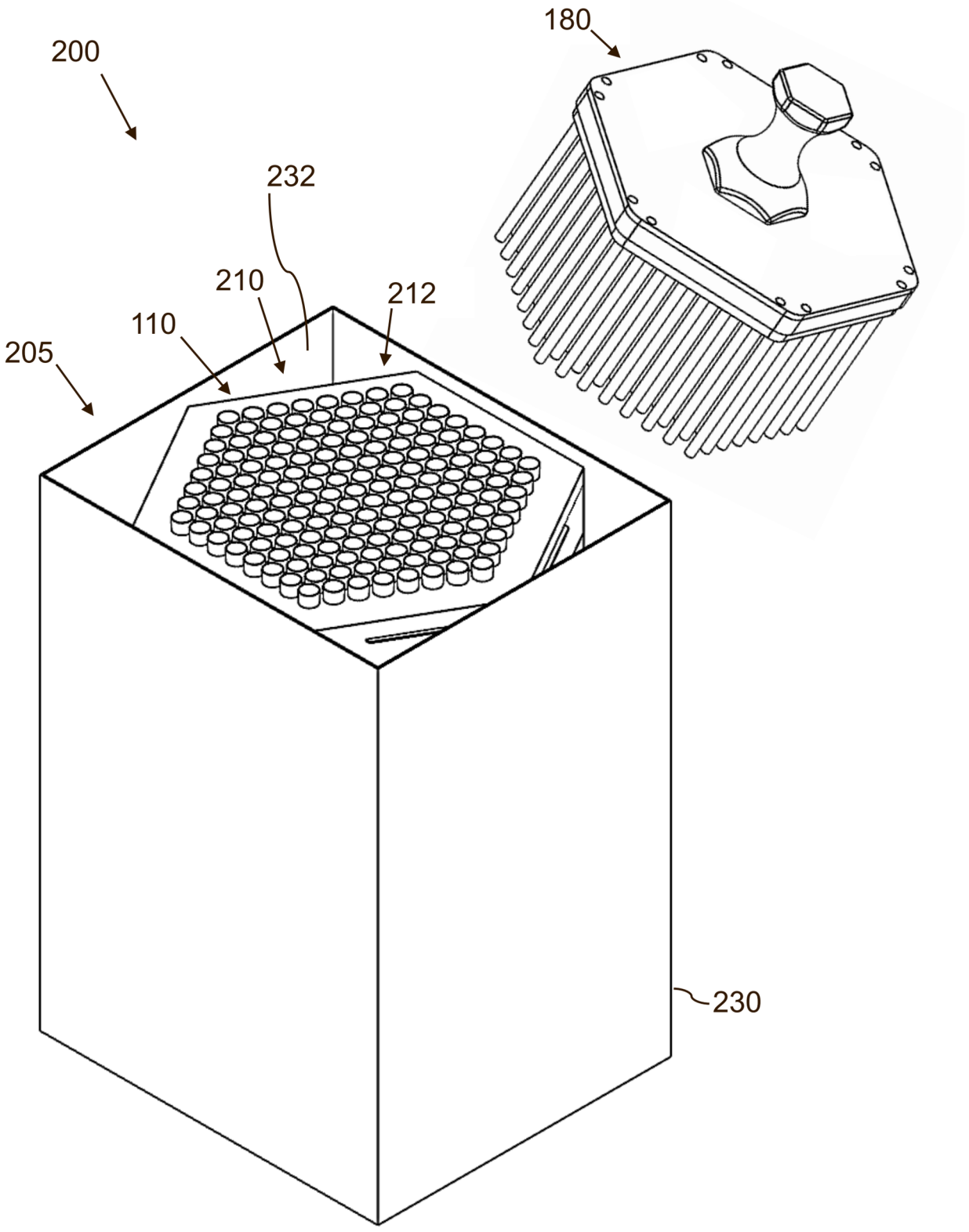


FIG. 3A
Pre-Roll Loading Assembly

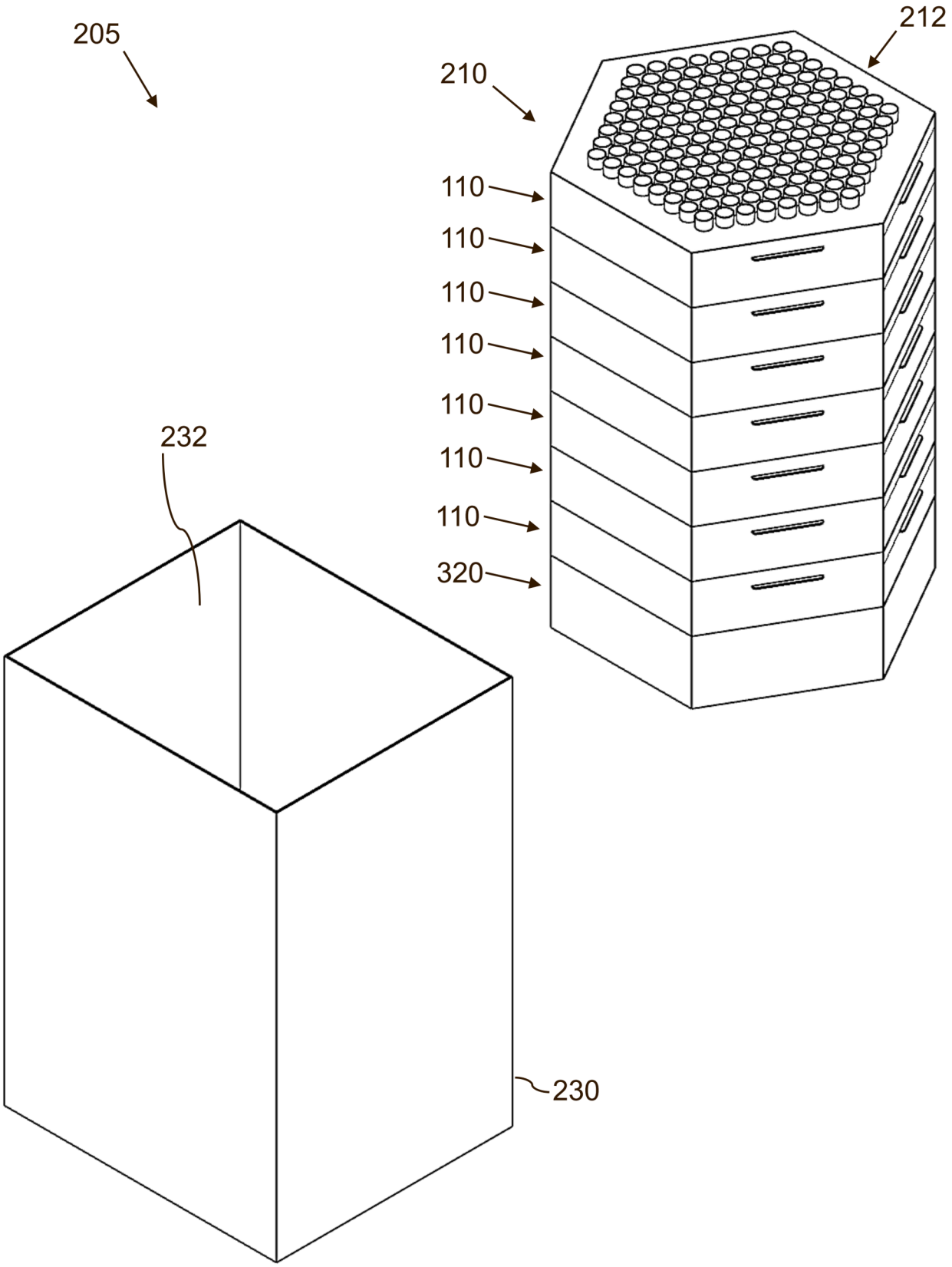


FIG. 3B
Pre-Roll Stack Container

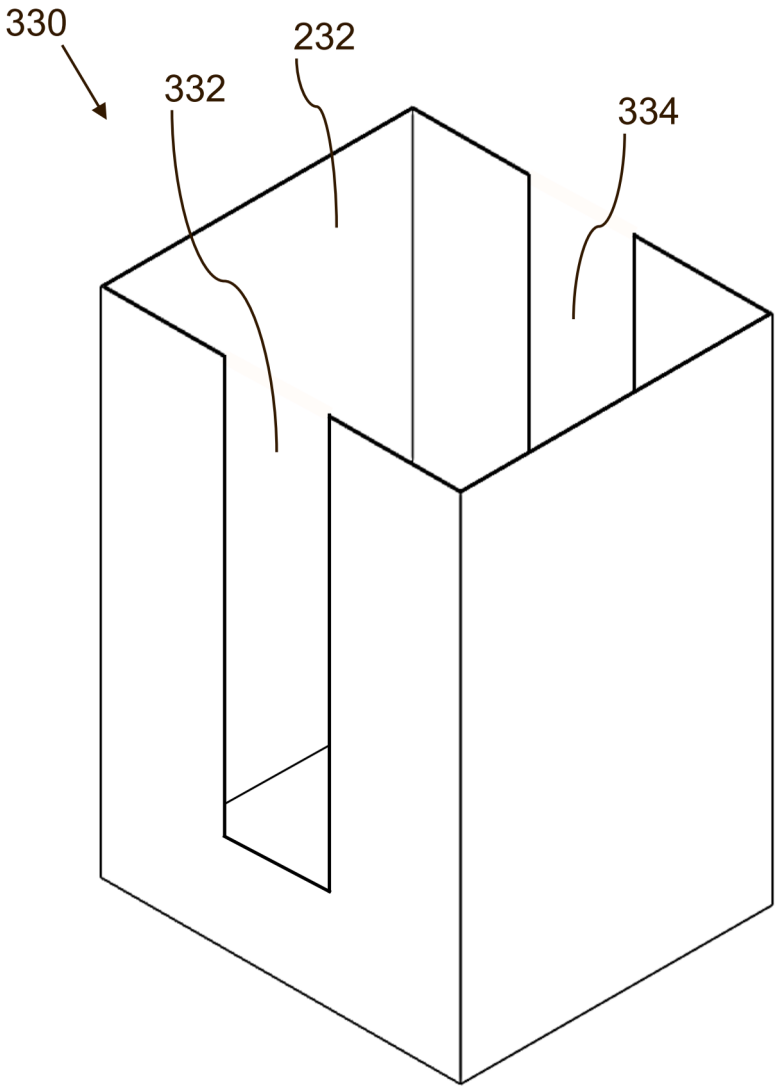


FIG. 4A
Pre-Roll Loading Stack

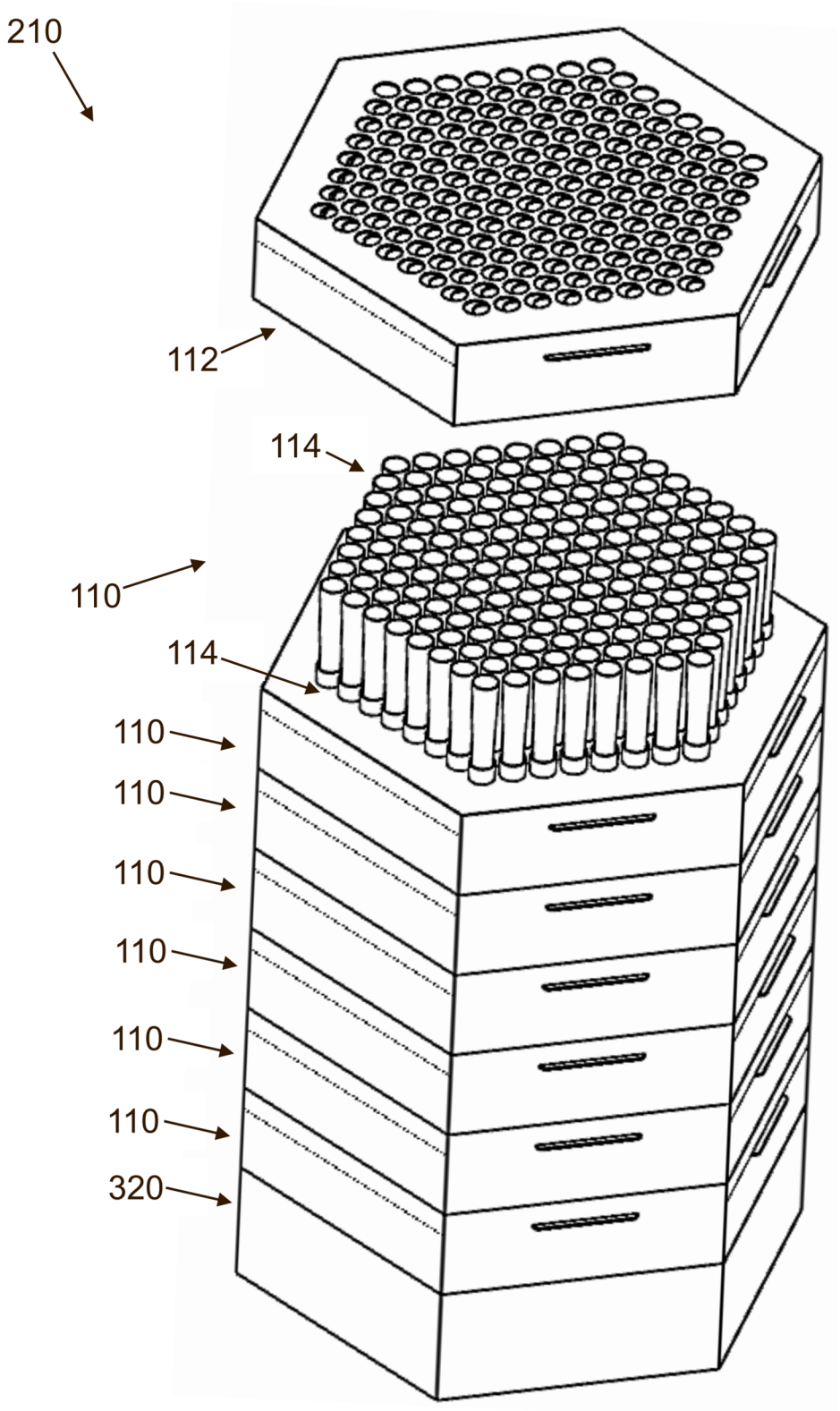


FIG. 4B

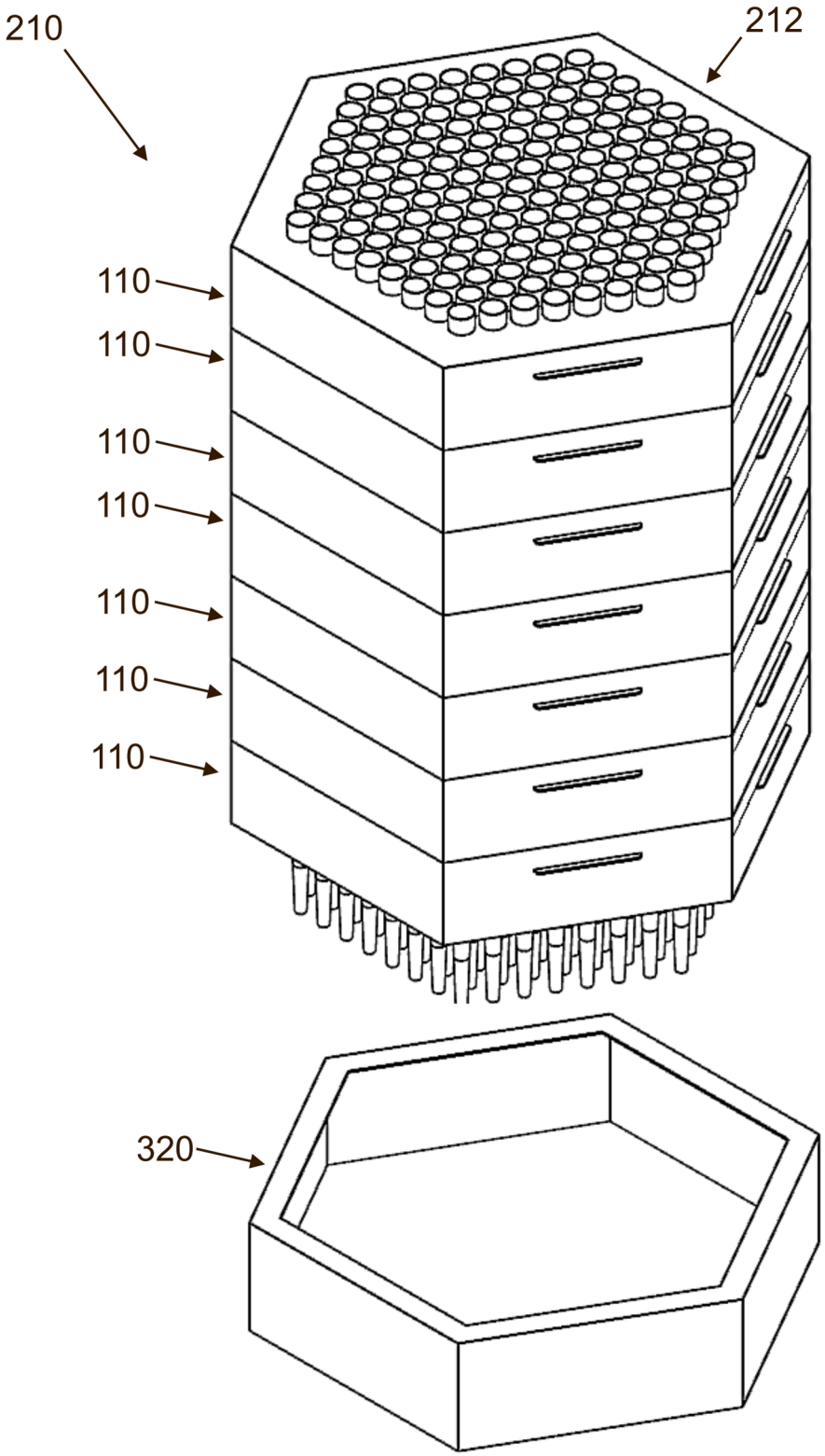


FIG. 4C

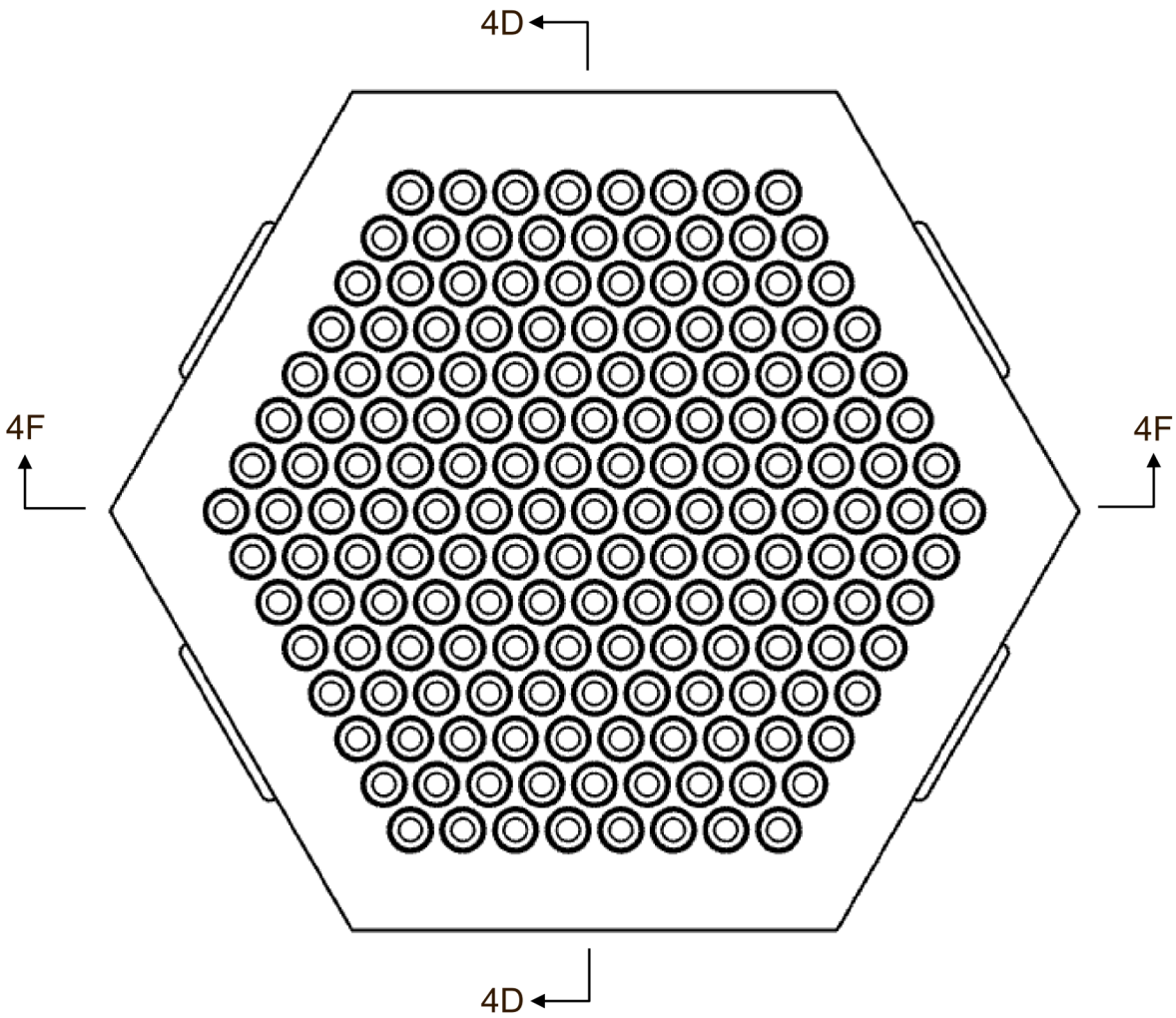


FIG. 4D

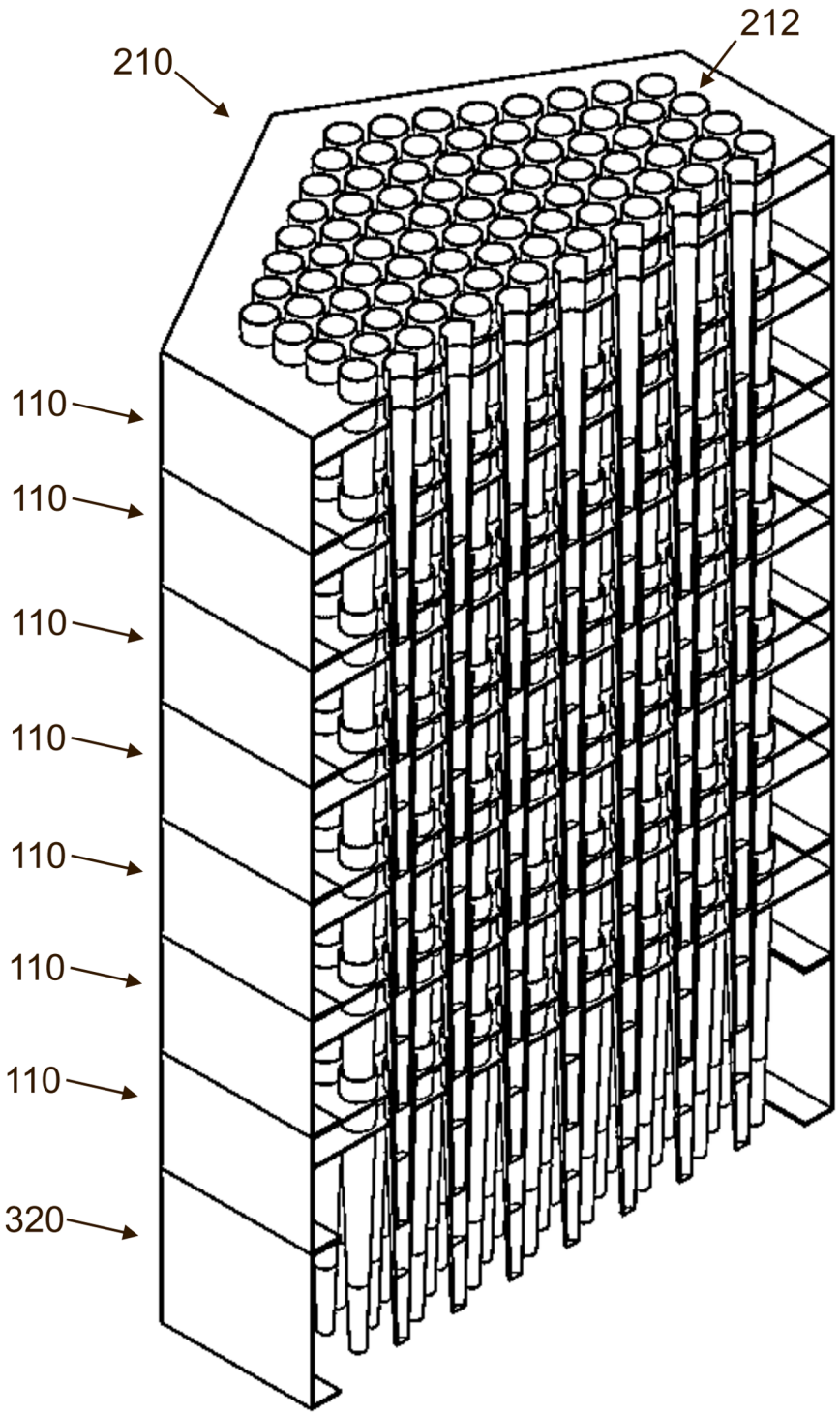


FIG. 4E

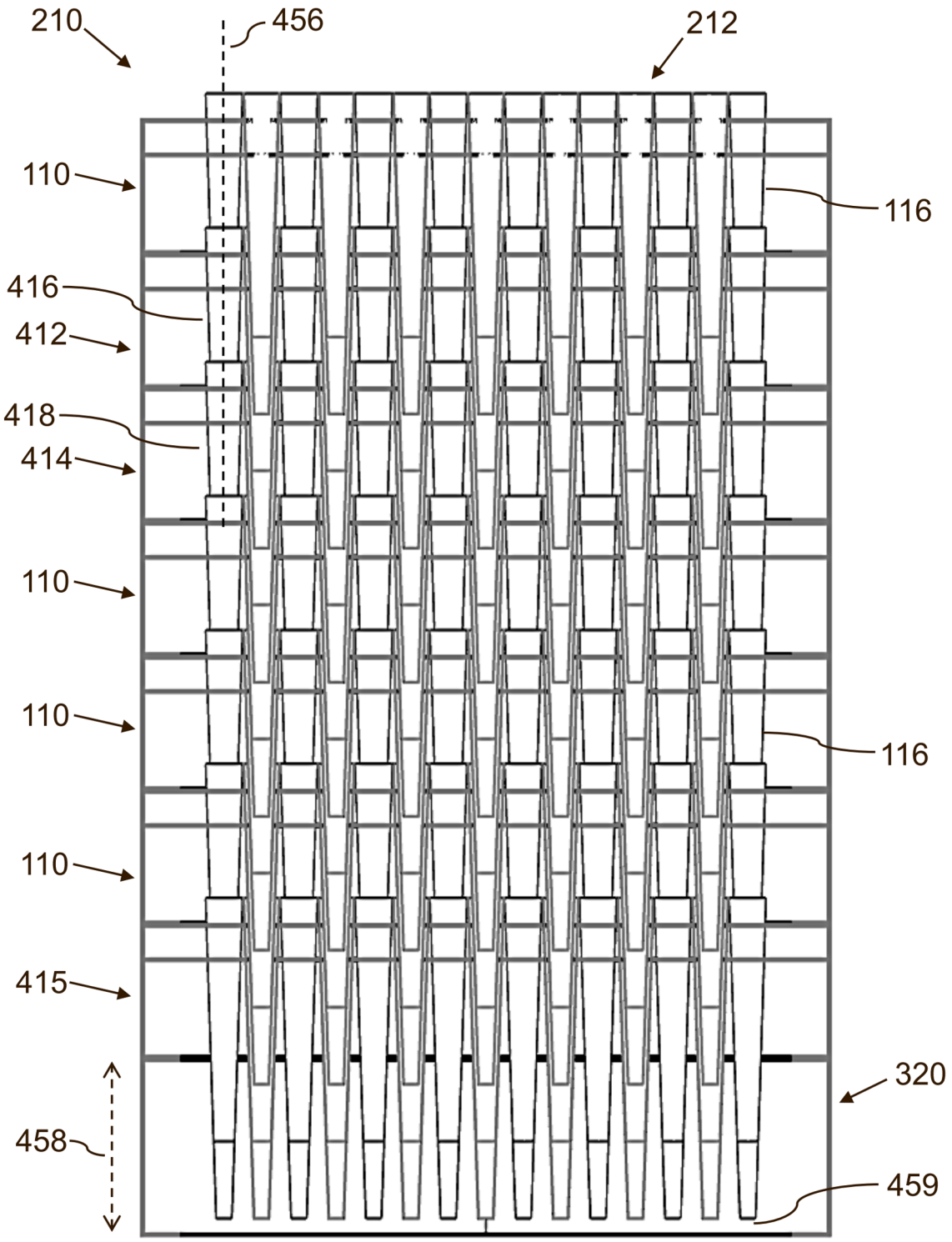

210
456
212
110
116
416
412
418
414
110
110
116
110
415
320
458
459

FIG. 4F

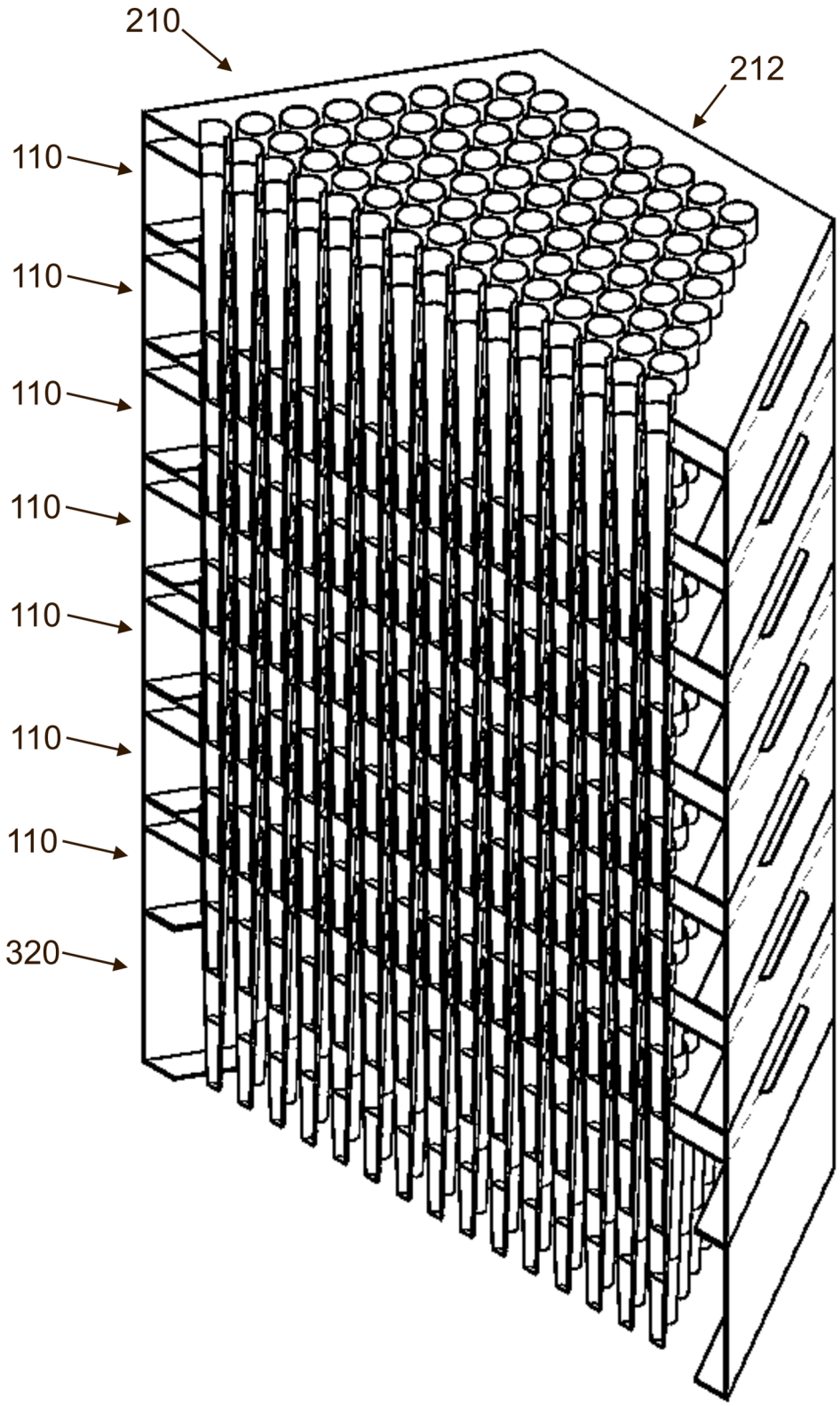


FIG. 5A
Pre-Roll Loading Cartridge

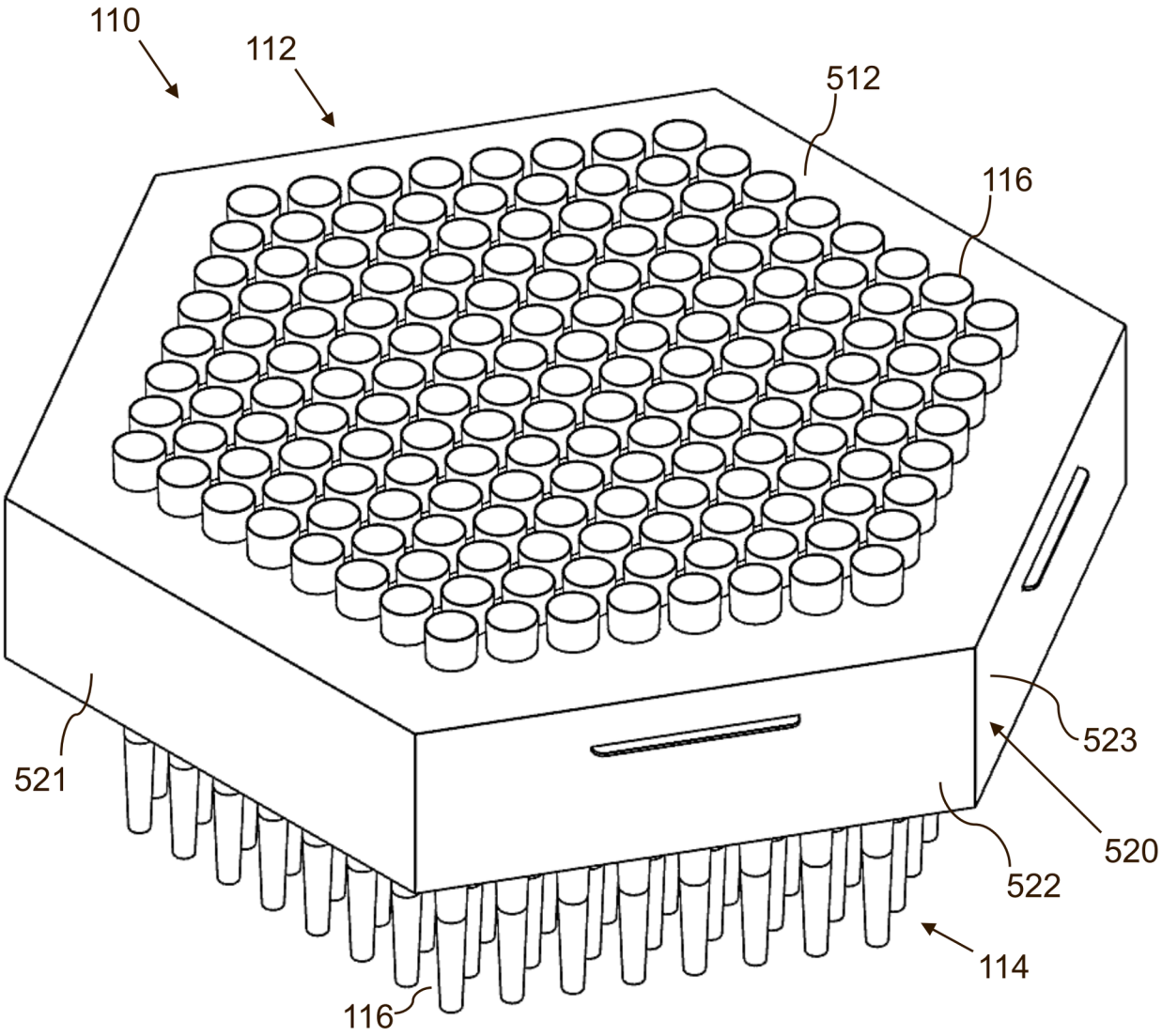


FIG. 5B

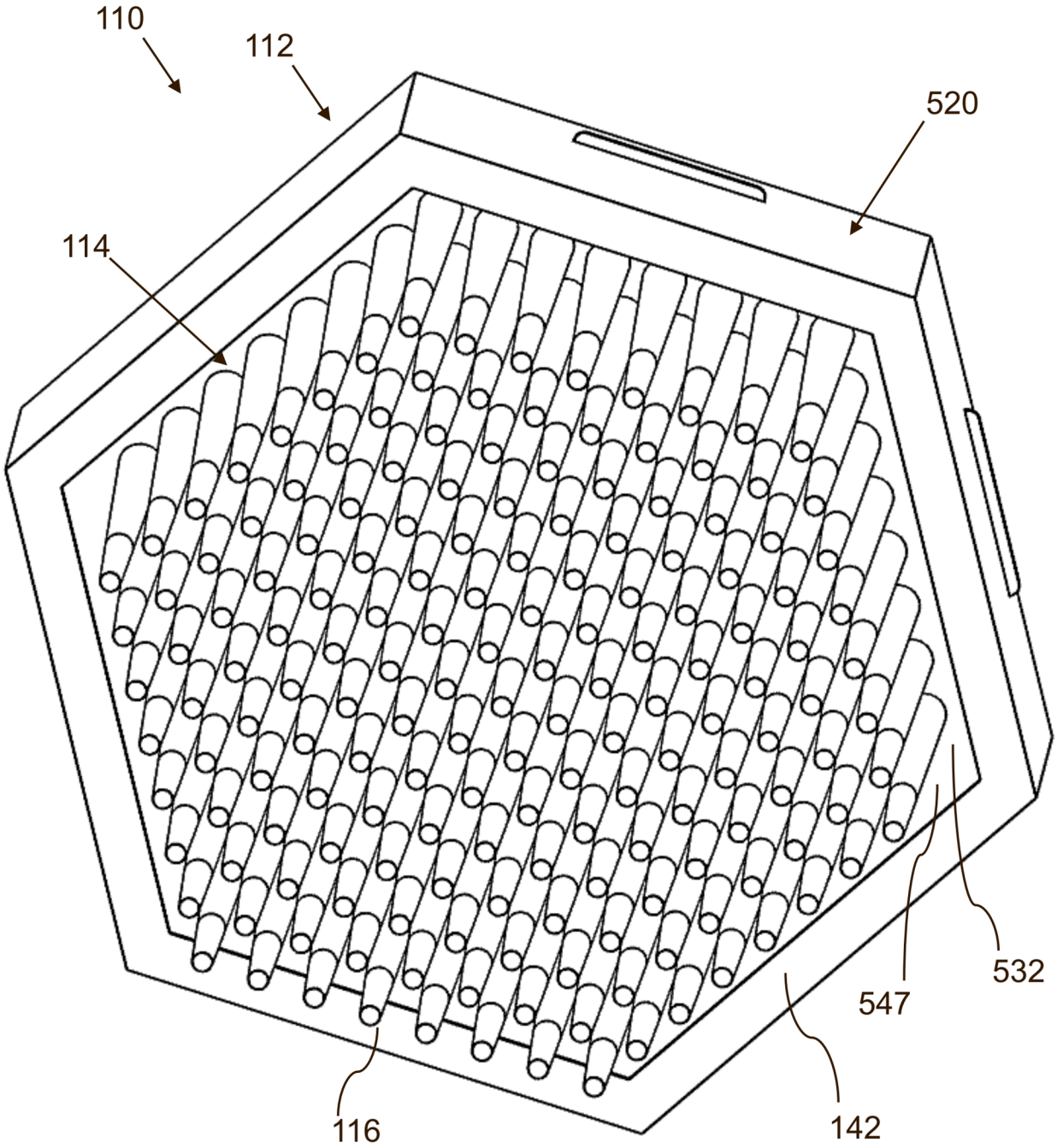


FIG. 5C

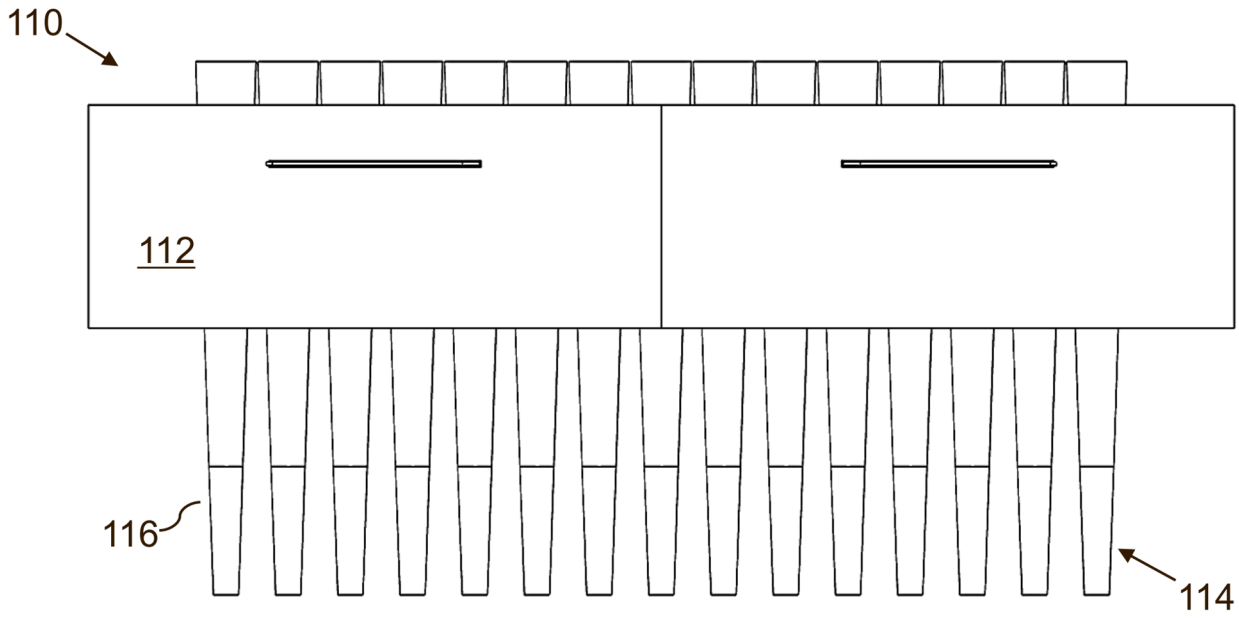


FIG. 5D

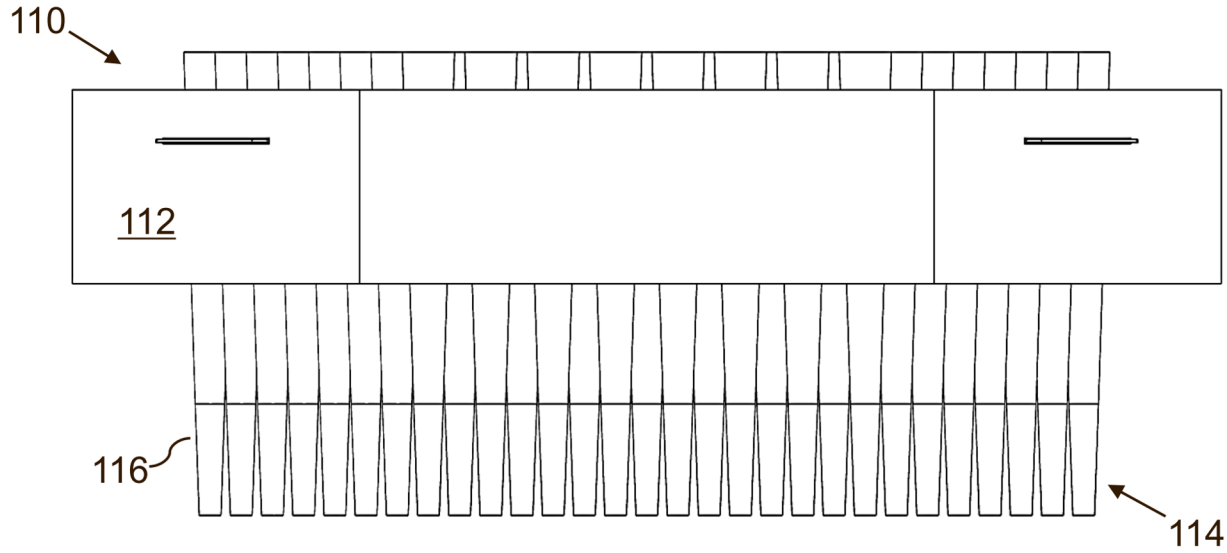


FIG. 5E

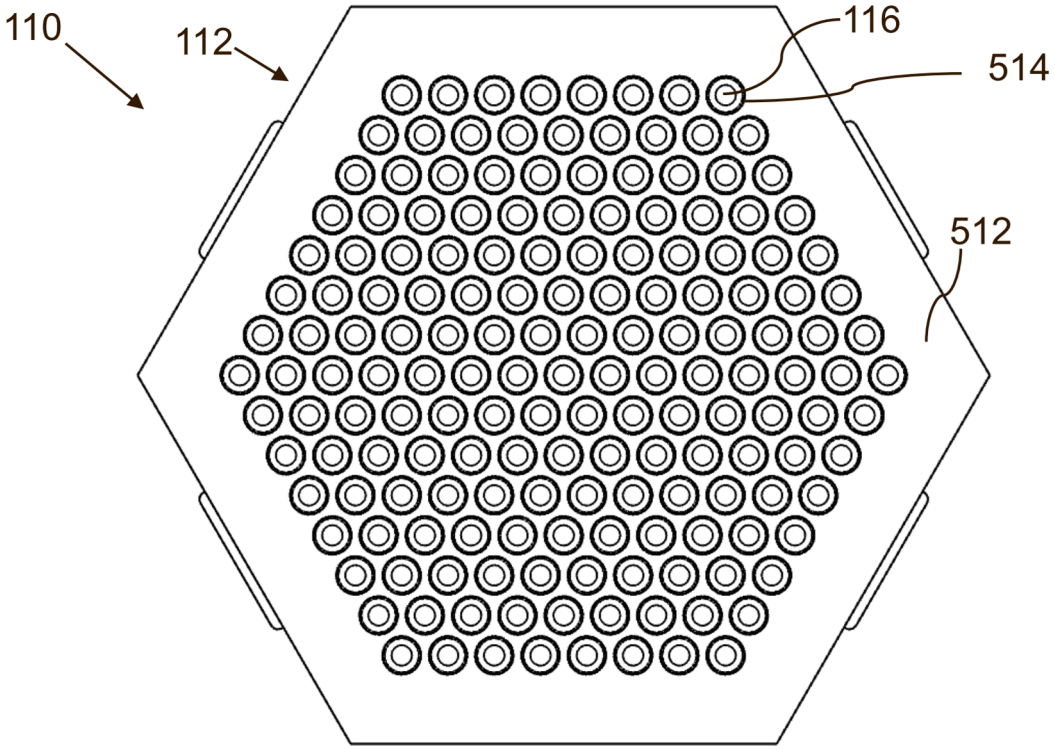


FIG. 5F

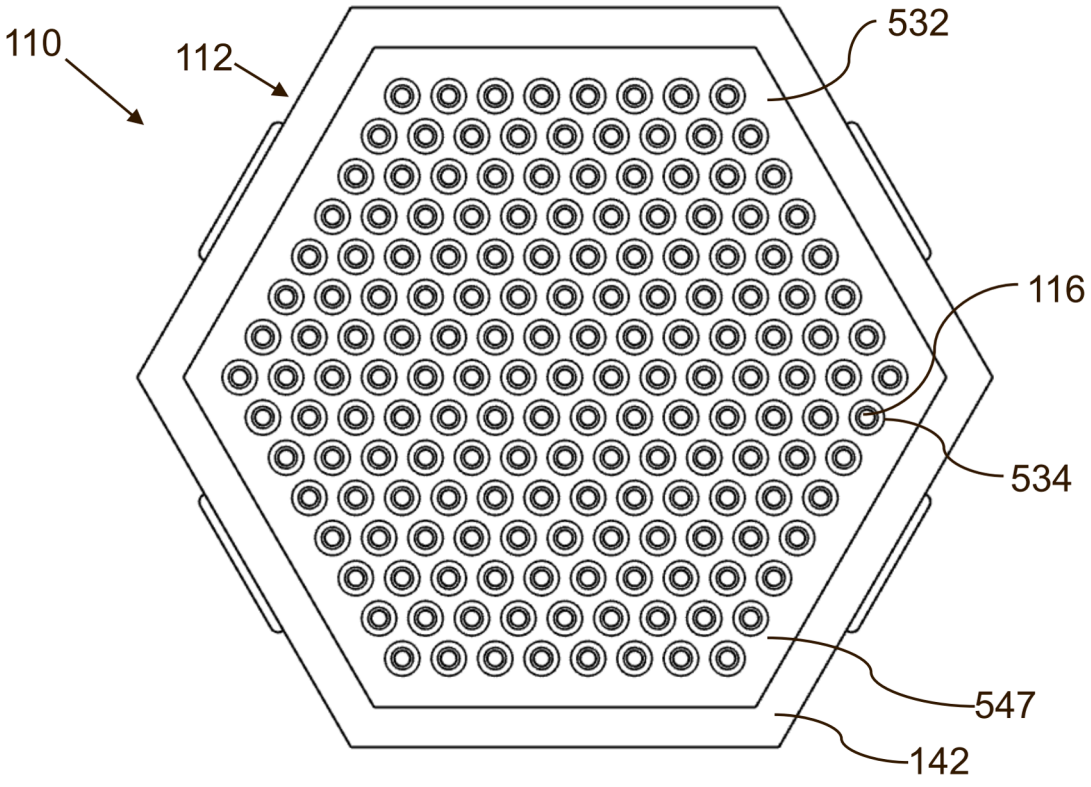


FIG. 5G

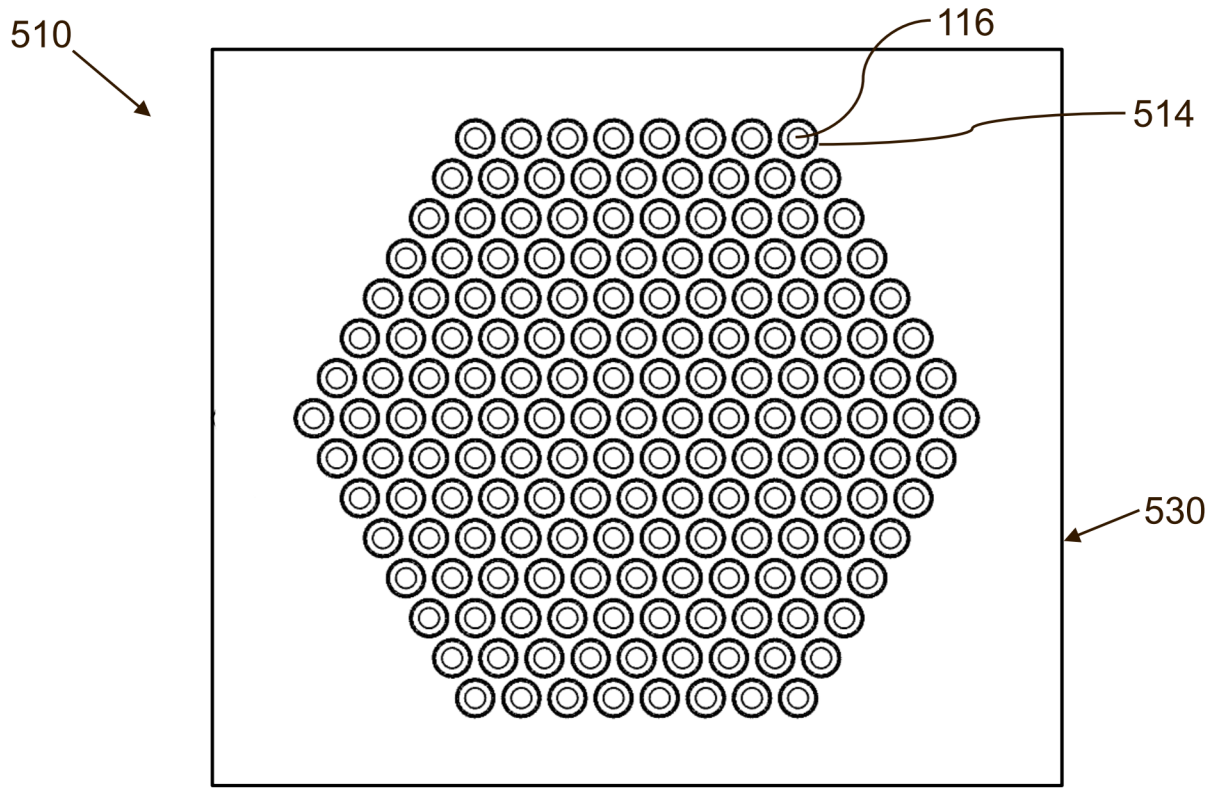


FIG. 5H

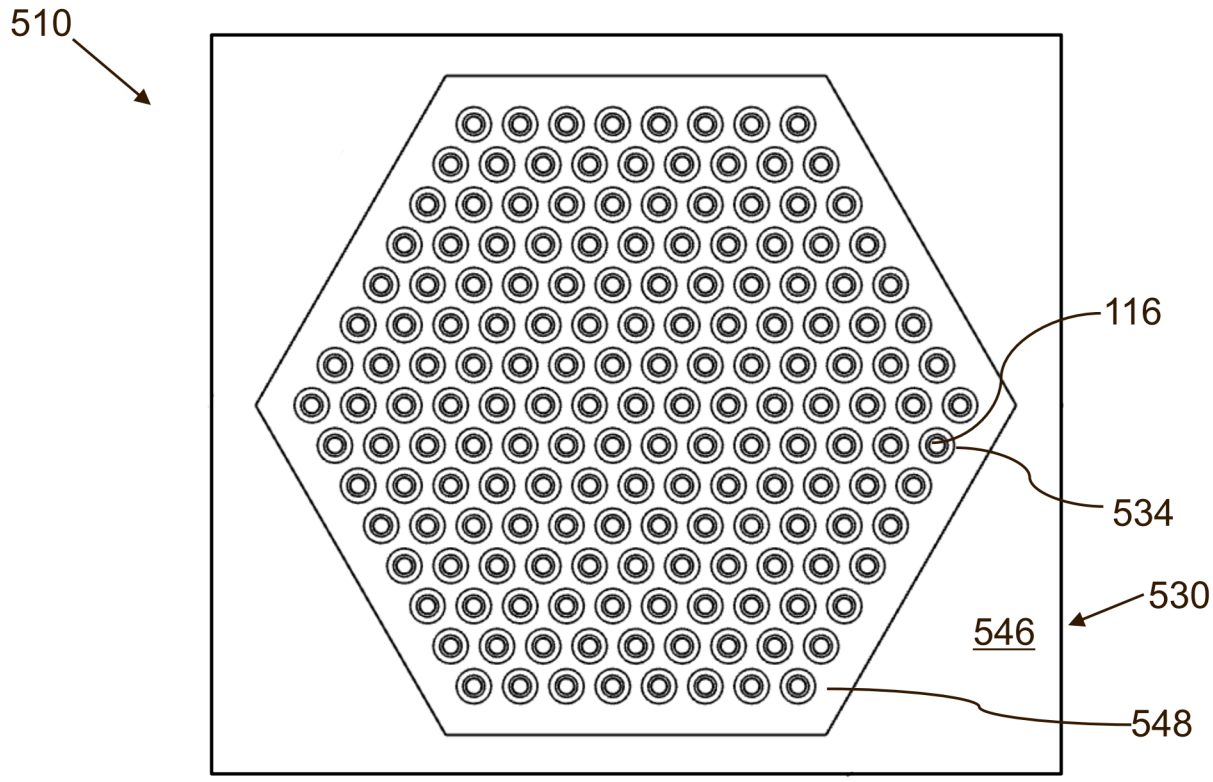


FIG. 6A

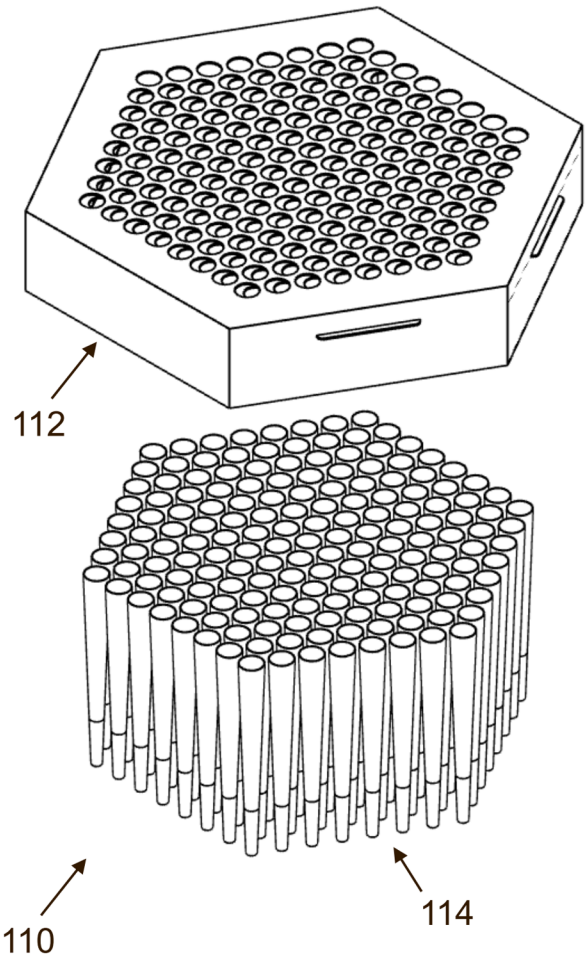


FIG. 6B

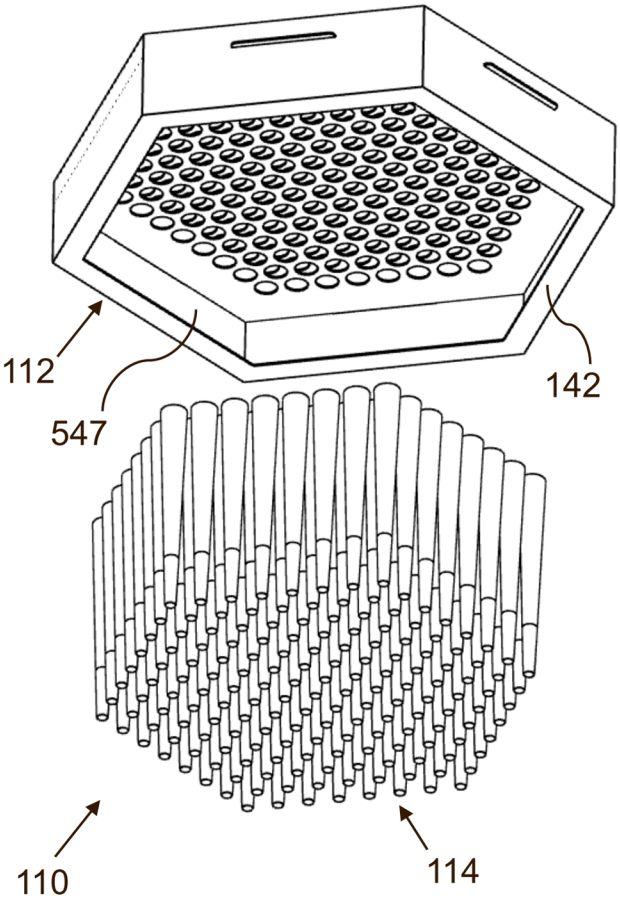


FIG. 7A

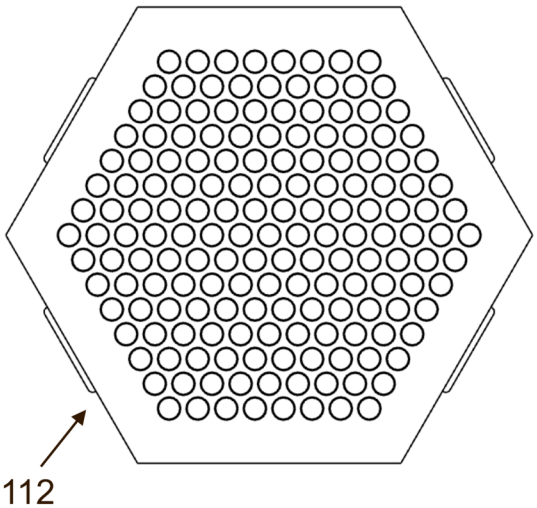


FIG. 7B

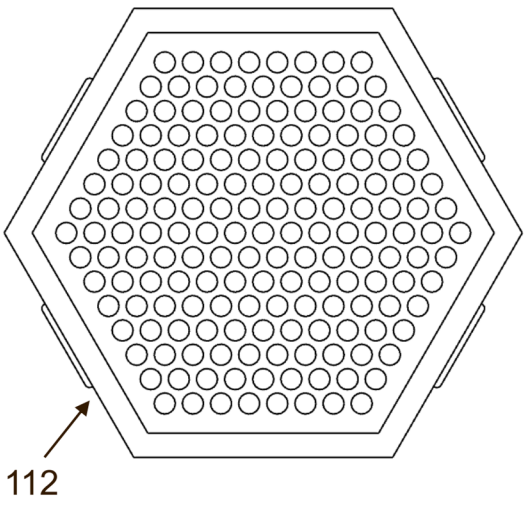


FIG. 7C

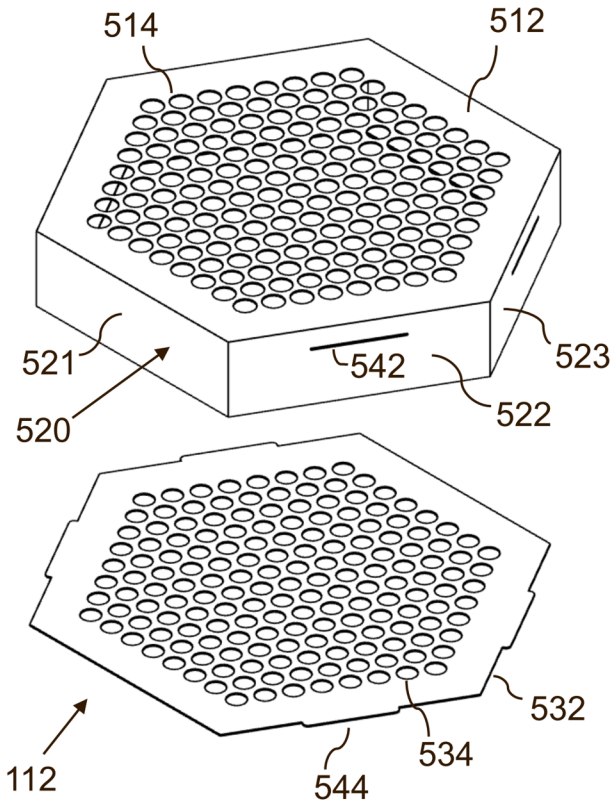


FIG. 7D

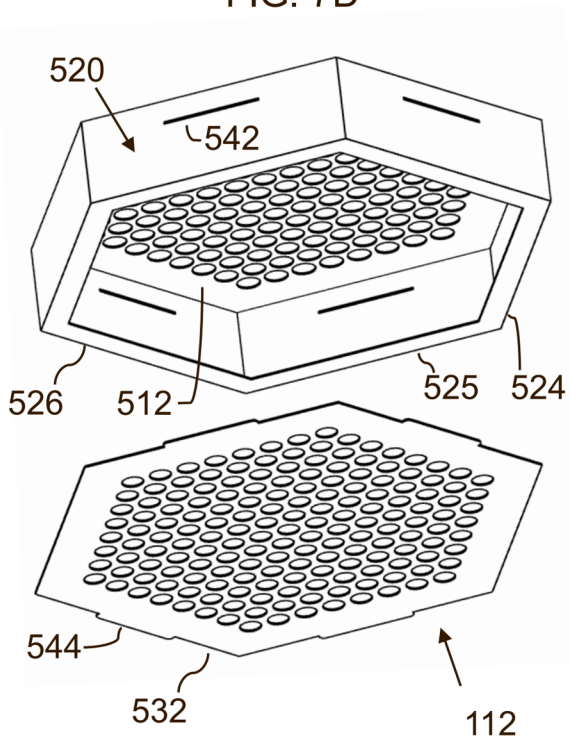


FIG. 8

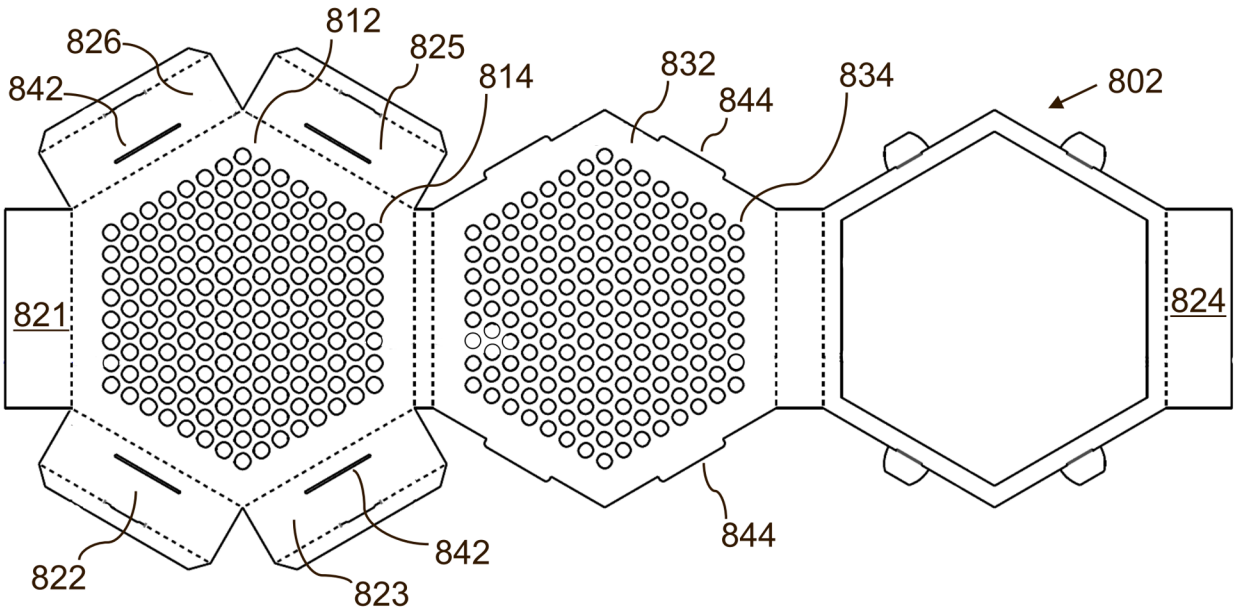


FIG. 9A
Pre-Roll Pusher Device

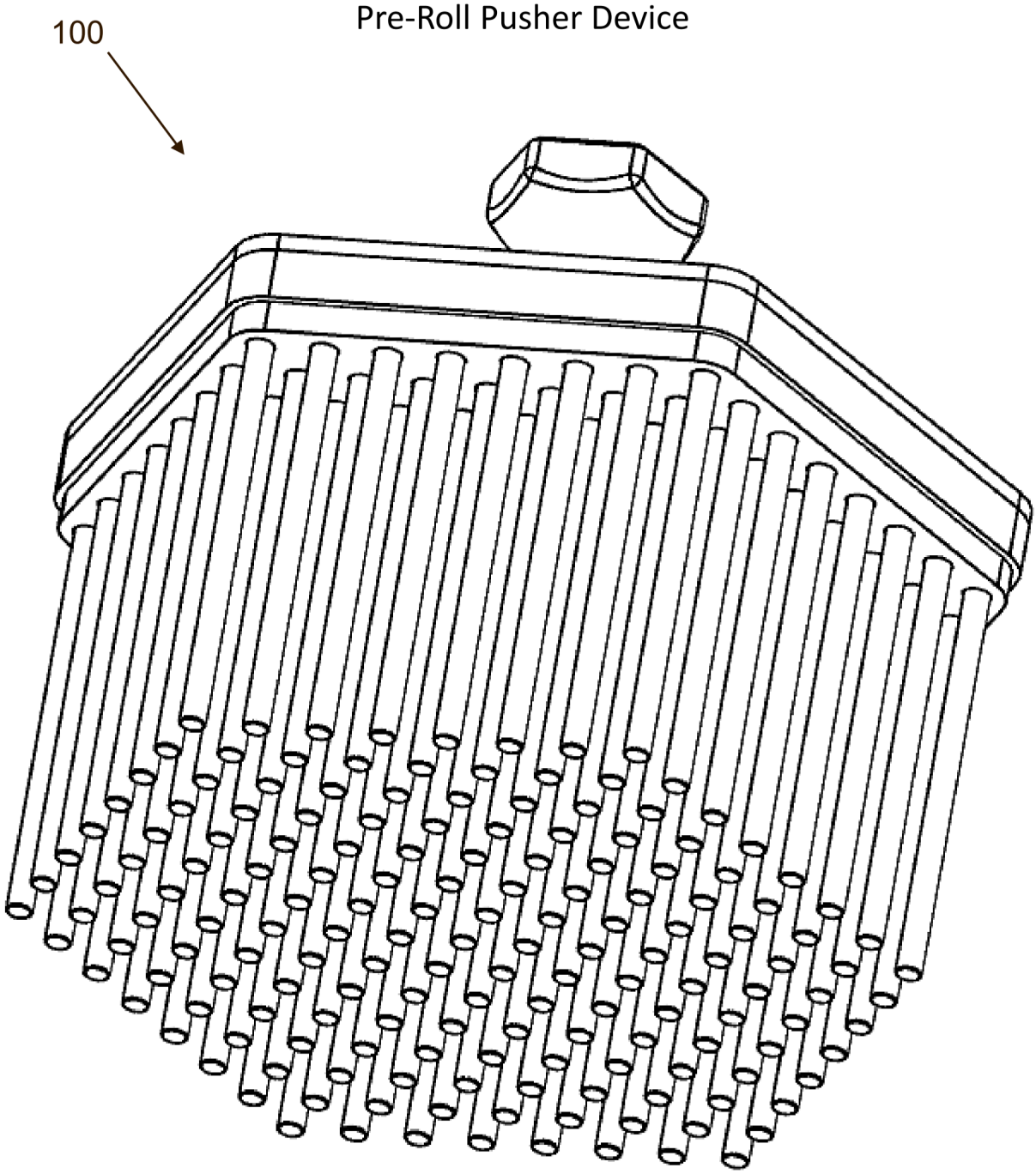


FIG. 9B

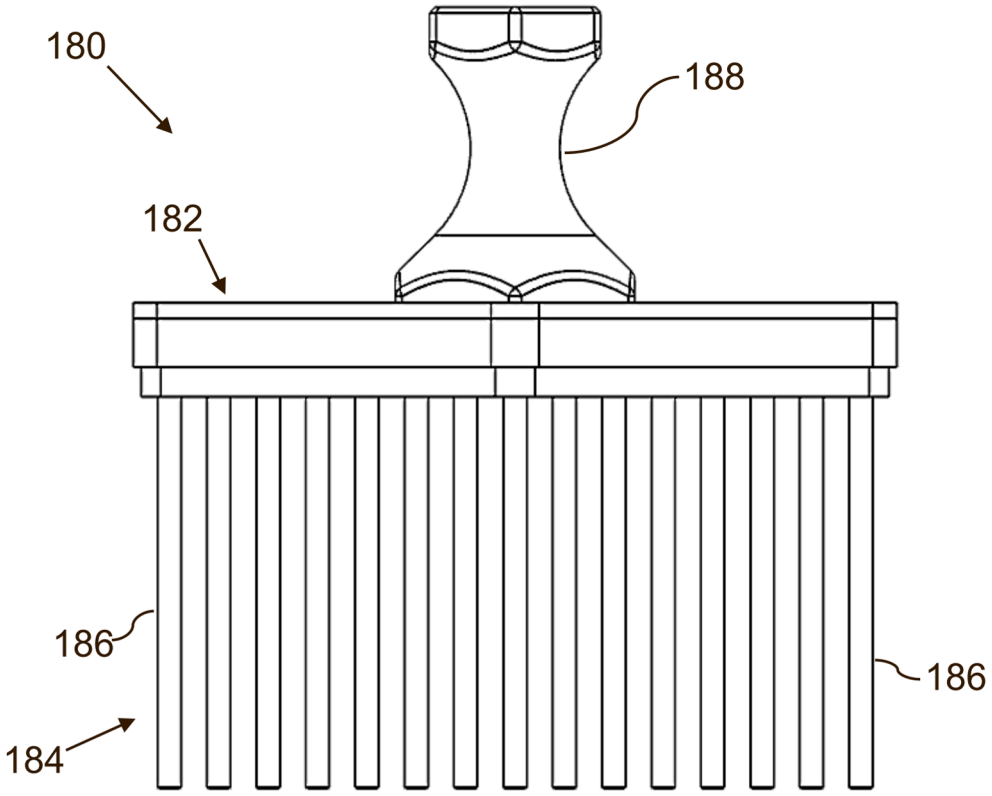


FIG. 9C

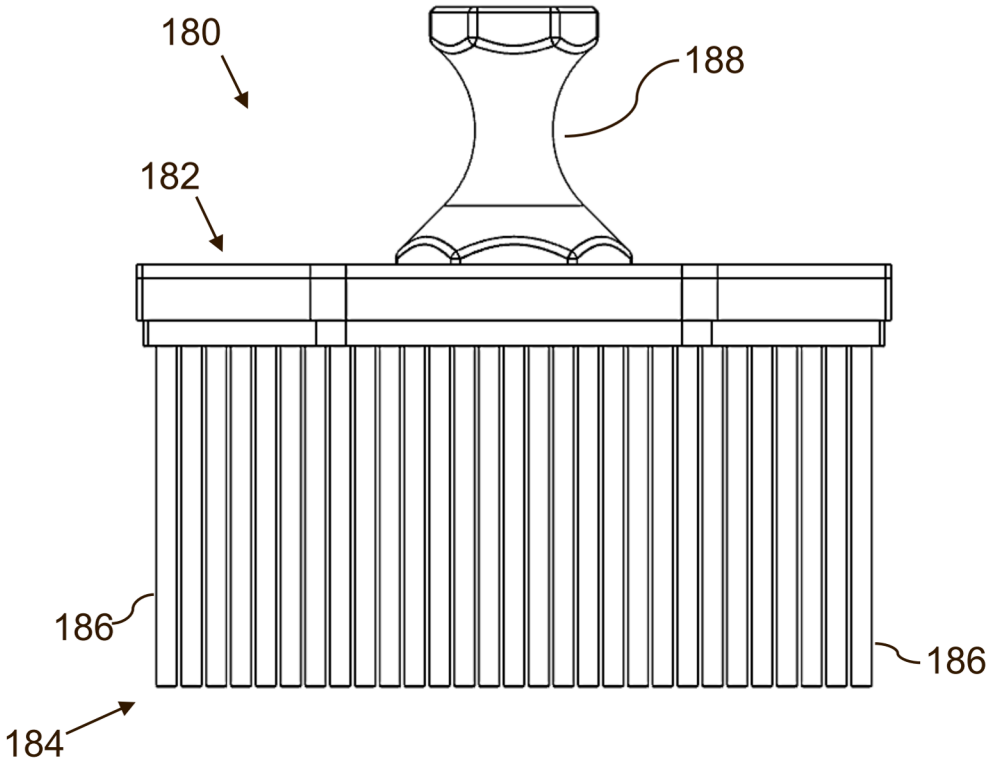


FIG. 9D

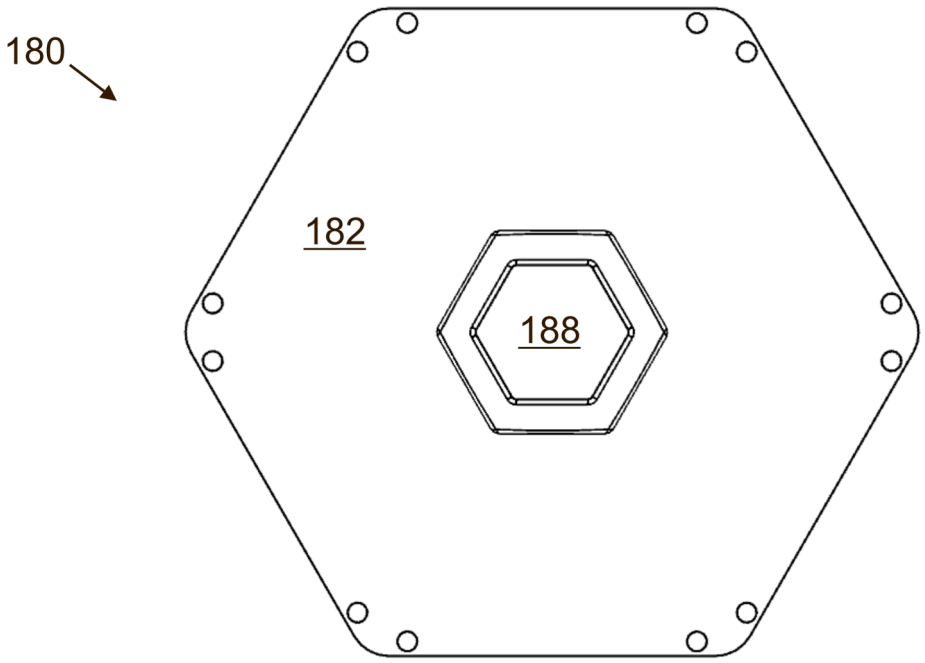
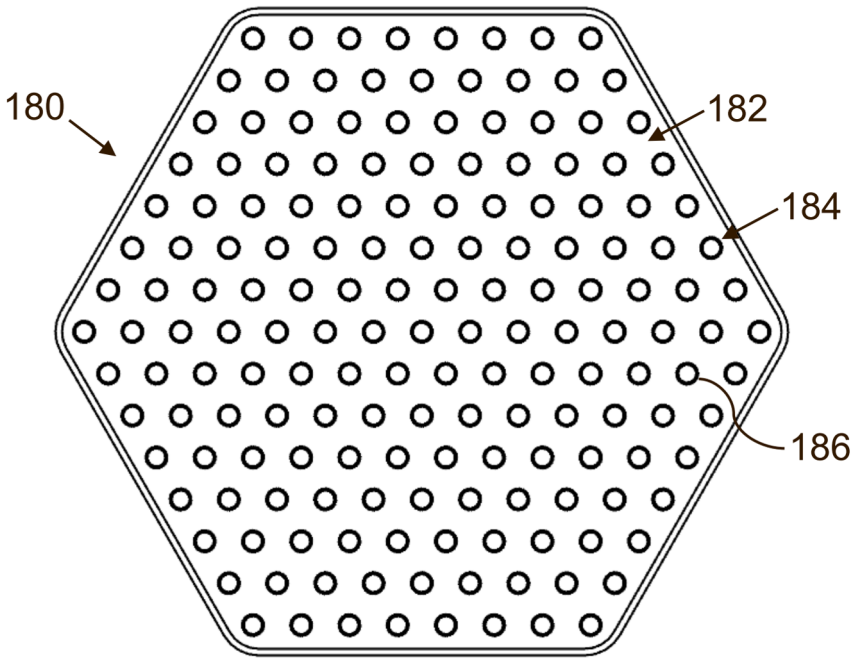


FIG. 9E



Europäisches Patentamt
European Patent Office
Office européen des brevets

PARTIAL EUROPEAN SEARCH REPORT

under Rule 62a and/or 63 of the European Patent Convention. This report shall be considered, for the purposes of subsequent proceedings, as the European search report

Application Number
EP 26 15 4240

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 11 737 488 B2 (SREAM INC [US]) 29 August 2023 (2023-08-29) * figures 1A-3D * * column 3, line 30 - column 10, line 15 * -----	1-8	INV. A24C5/40 A24F15/00 ADD. B65D85/62
A	US 10 604 292 B1 (DODSON TRAVIS [US] ET AL) 31 March 2020 (2020-03-31) * figures 3, 8C * * column 2, line 50 - column 4, line 42 * -----	1-8	
A	US 11 766 069 B2 (FOLD N GO LLC [US]) 26 September 2023 (2023-09-26) * figures 9-20 * * column 9, line 1 - column 10, line 17 * -----	1-8	

TECHNICAL FIELDS SEARCHED (IPC)

A24C

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

Place of search	Date of completion of the search	Examiner
Munich	12 August 2026	Schwertfeger, C

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons
.....
& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P34E07)

Europäisches Patentamt
European Patent Office
Office européen des brevets

INCOMPLETE SEARCH
SHEET C

Application Number
EP 26 15 4240

Claim(s) completely searchable:
1-8

Claim(s) not searched:
9-16

Reason for the limitation of the search:

In reply to the invitation of 30.04.2026 to indicate the claims on which the search is to be based, the applicant did not supply the requested indication in due time. Therefore, the search report has been drawn up on the basis of the first independent claim of each category (Rule 62a (1) EPC), i.e. claim 1 (pre-roll loading system) and its dependent claims 2-8.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 26 15 4240

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

12-08-2026

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 11737488 B2	29-08-2023	NONE	
US 10604292 B1	31-03-2020	CA 3060825 A1	20-08-2020
		CN 111591476 A	28-08-2020
		EP 3699105 A1	26-08-2020
		EP 3838779 A1	23-06-2021
		ES 2899932 T3	15-03-2022
		US D962537 S	30-08-2022
		US 10604292 B1	31-03-2020
		US 2020262596 A1	20-08-2020
		US 2020262597 A1	20-08-2020
		US 2021147104 A1	20-05-2021
		US 2024166396 A1	23-05-2024
US 11766069 B2	26-09-2023	US 2022104535 A1	07-04-2022
		US 2023413893 A1	28-12-2023

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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

- US 63750663 **[0001]**