



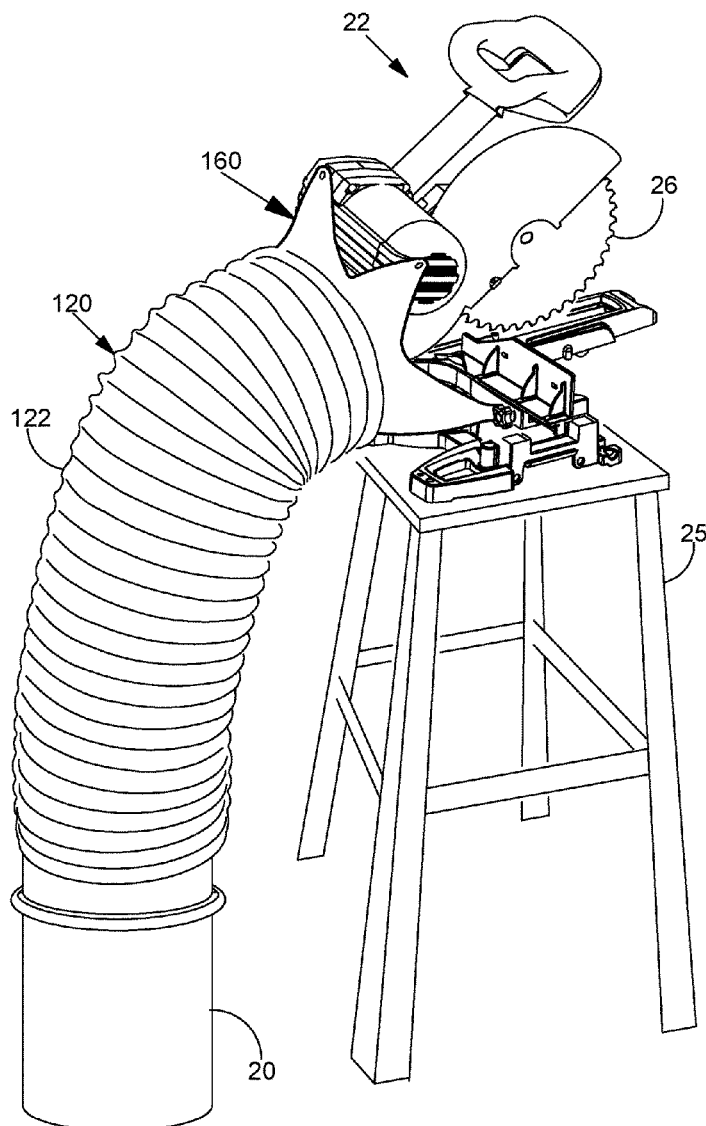
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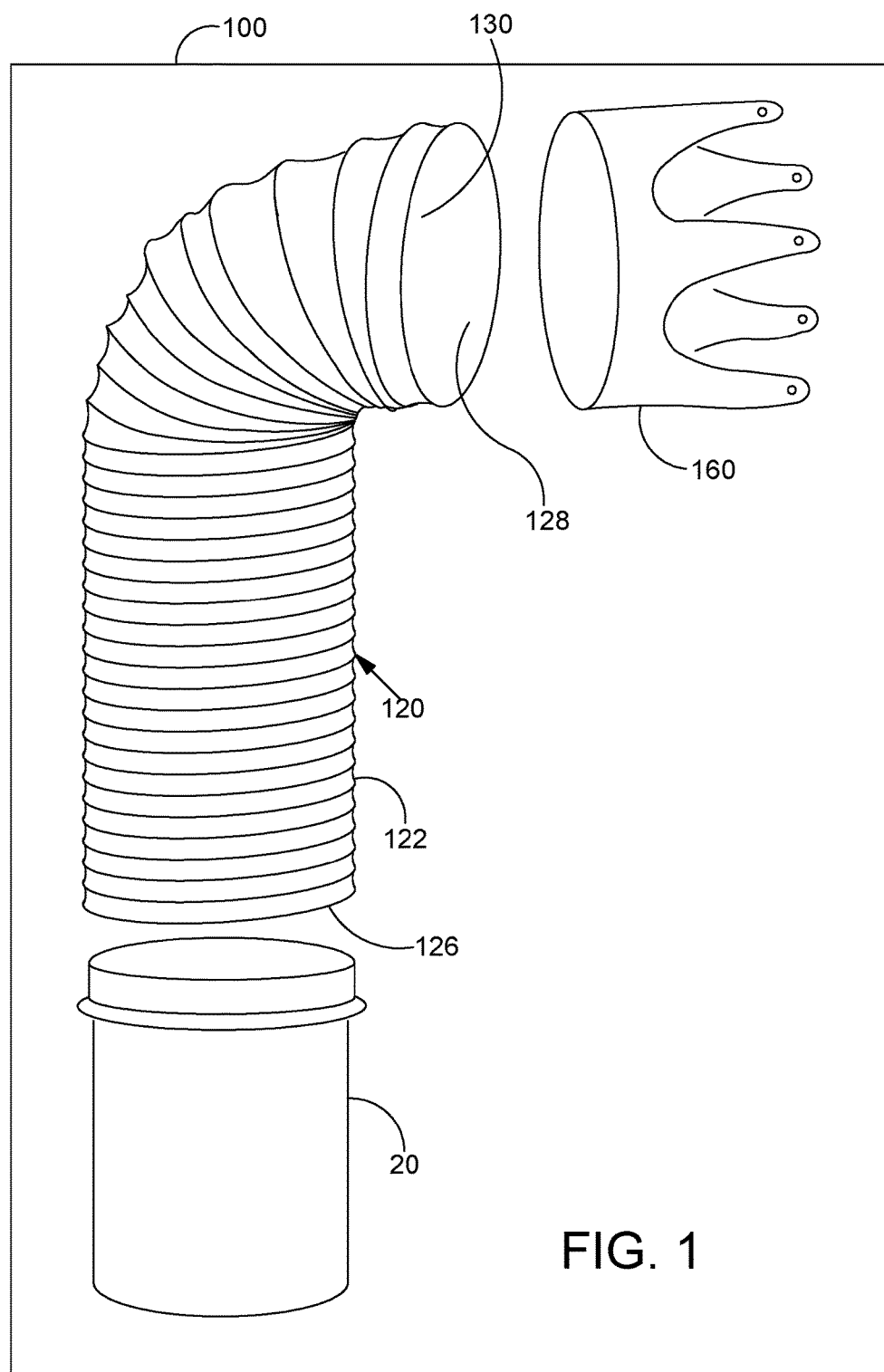
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DRAGAN(10) **Pub. No.: US 2017/0197285 A1**(43) **Pub. Date: Jul. 13, 2017**(54) **COLLECTING SAWDUST AND OTHER
DEBRIS FROM POWER SAWS****Publication Classification**(51) **Int. Cl.****B23Q 11/00** (2006.01)**B23D 59/00** (2006.01)(52) **U.S. Cl.****CPC** **B23Q 11/0046** (2013.01); **B23D 59/006**
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(US)(21) Appl. No.: **15/336,422**(22) Filed: **Oct. 27, 2016****Related U.S. Application Data**(60) Provisional application No. 62/211,096, filed on Aug.
28, 2015.

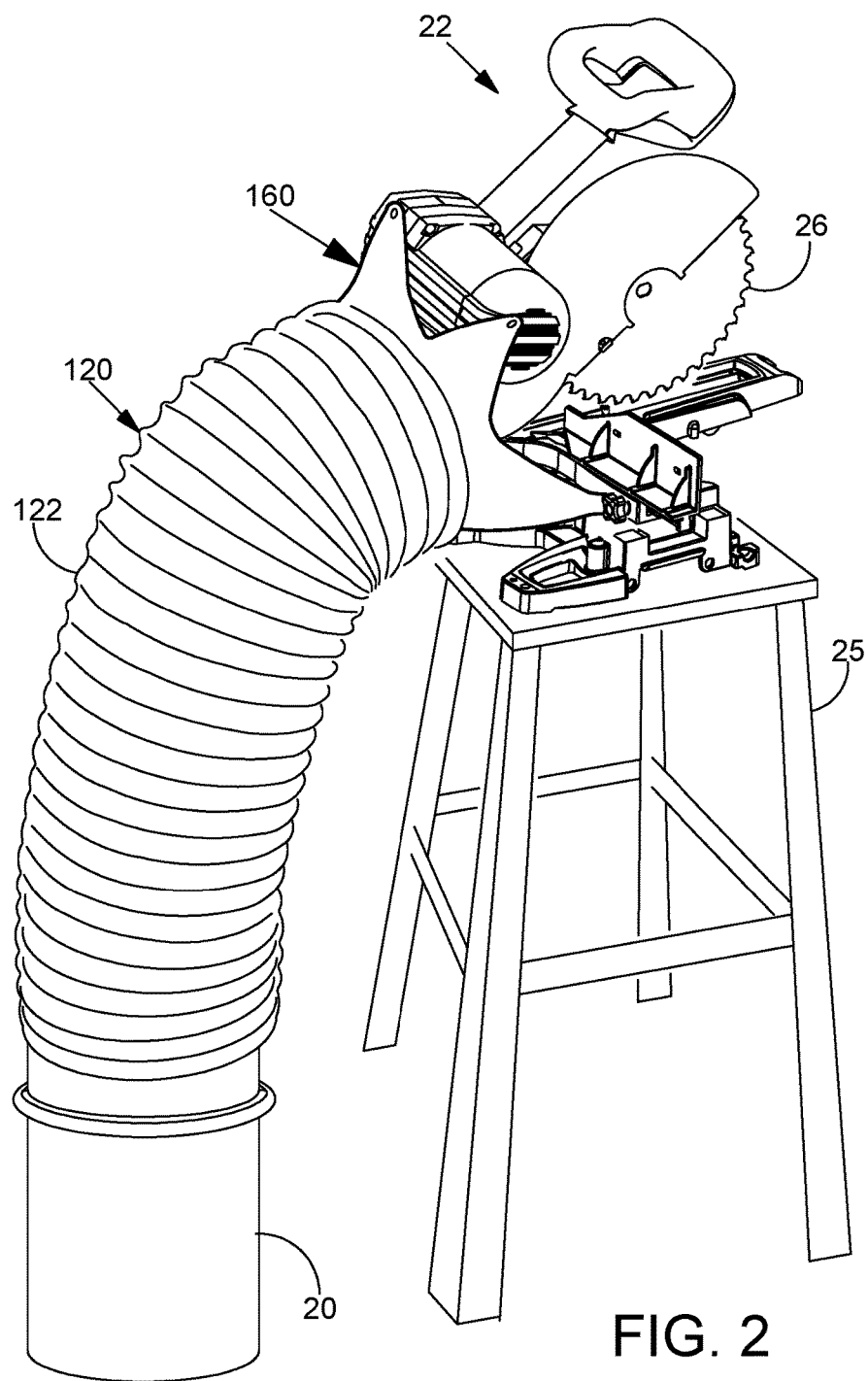
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ABSTRACT

An apparatus that may be attached between a five gallon bucket and a power saw so that debris generated by the power saw is collected in the five gallon bucket. The power saw may be one of a plurality of compatible power saws. The apparatus including a debris conduct, a duct and a skirt disposed about an upstream edge of the duct.







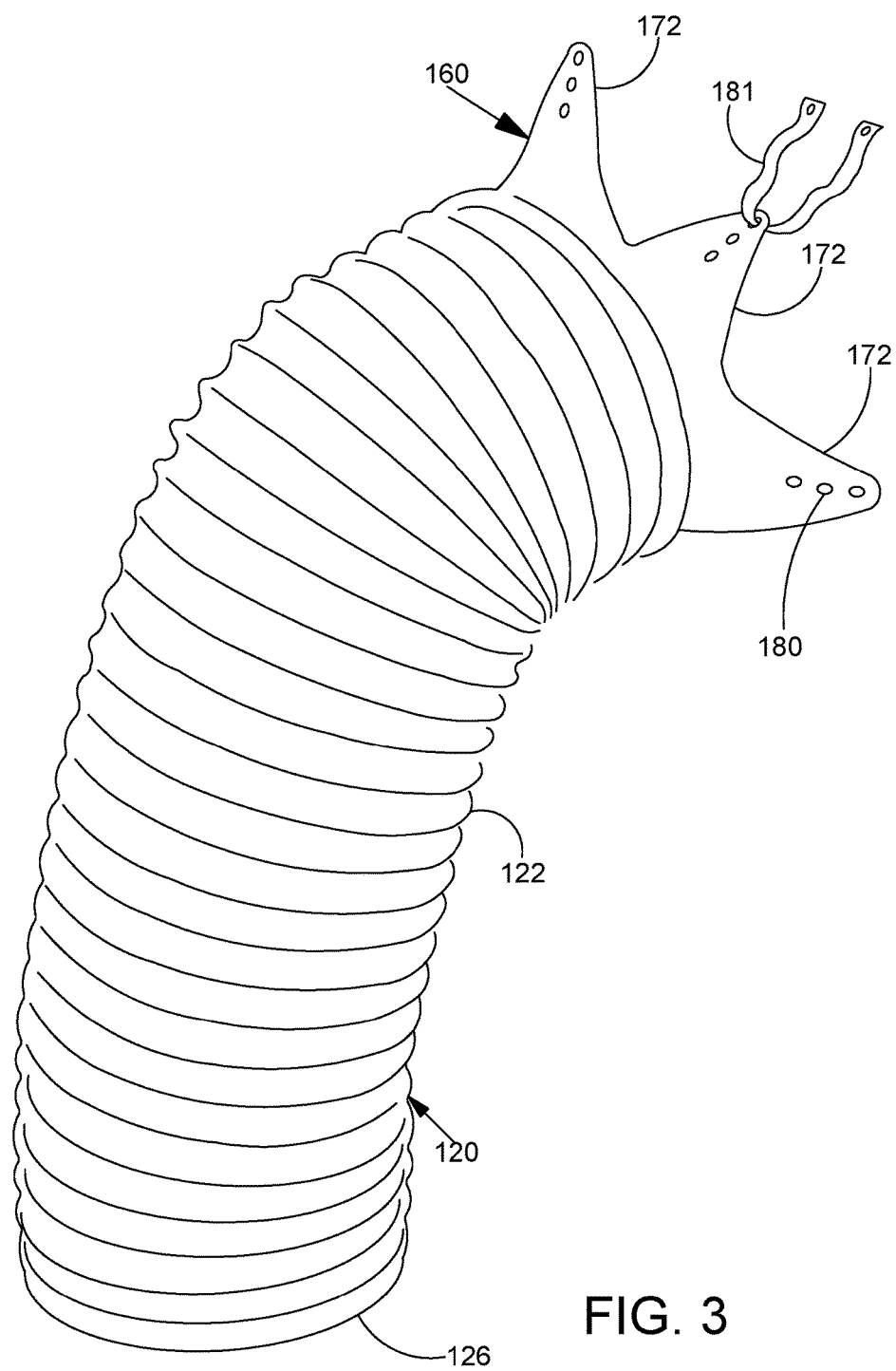
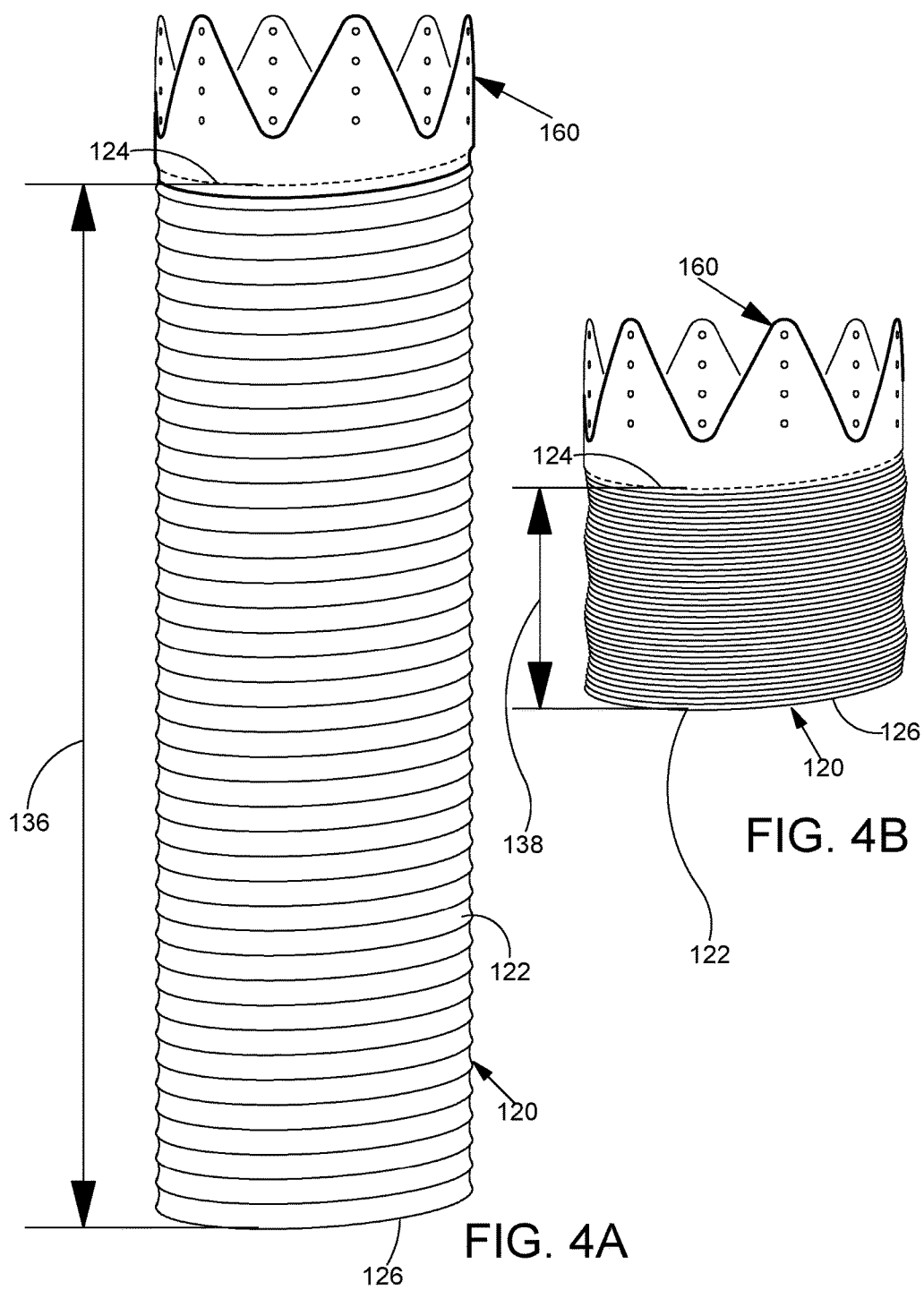
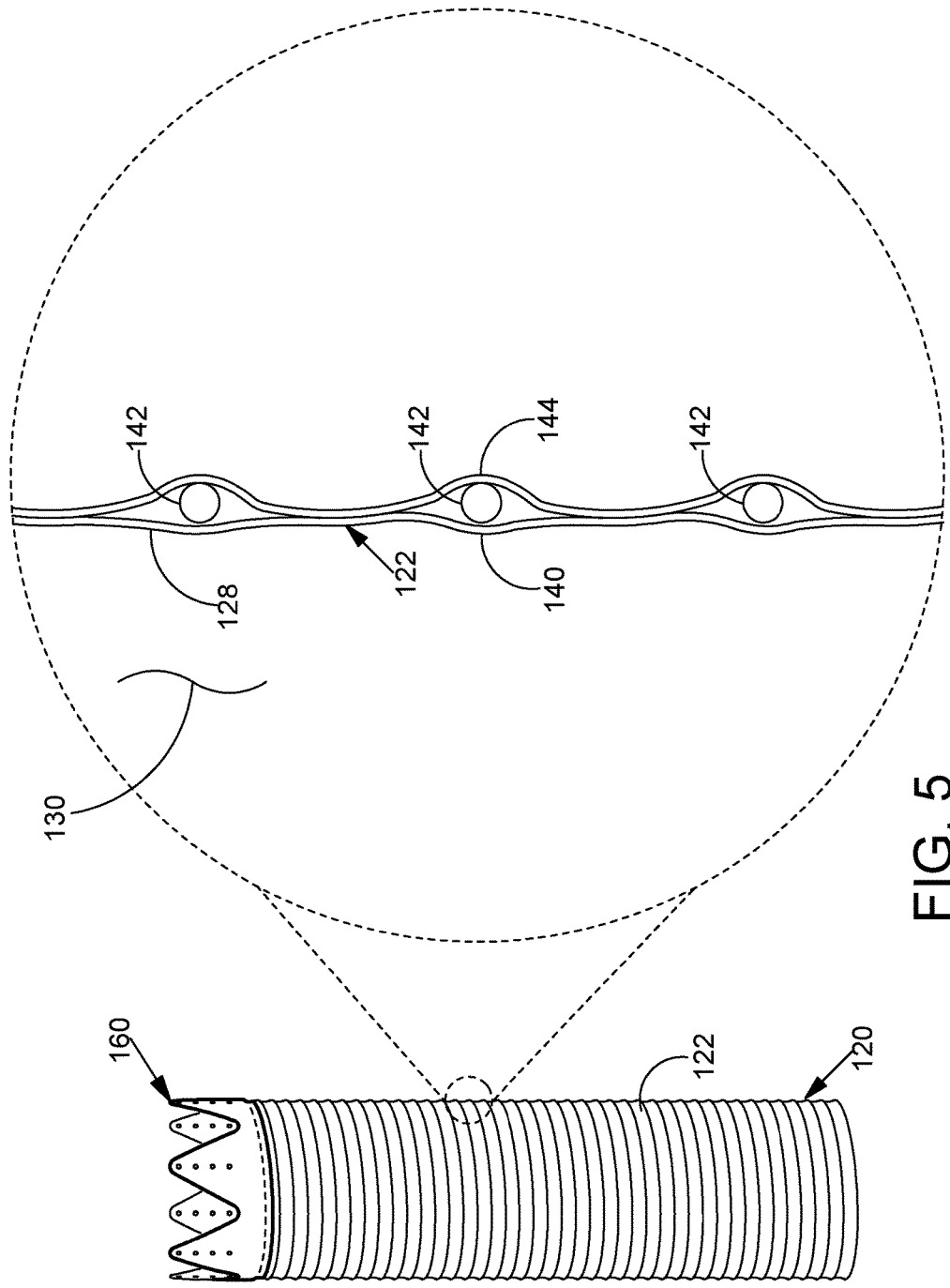
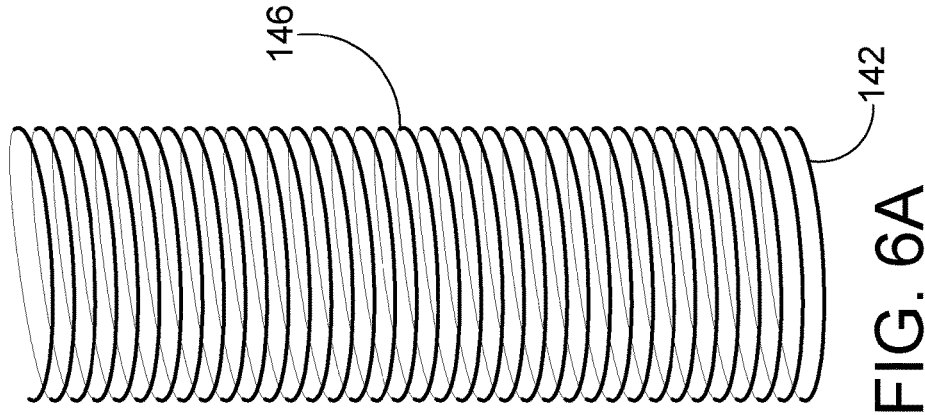
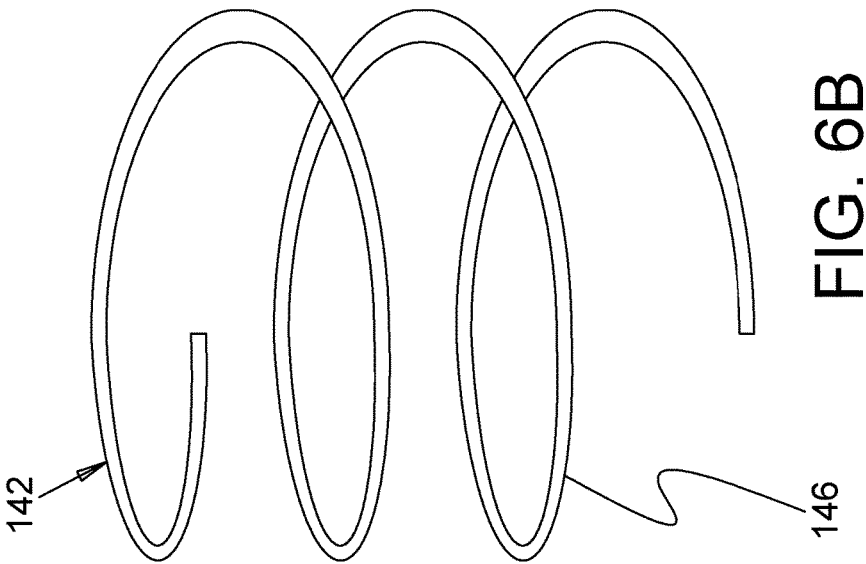
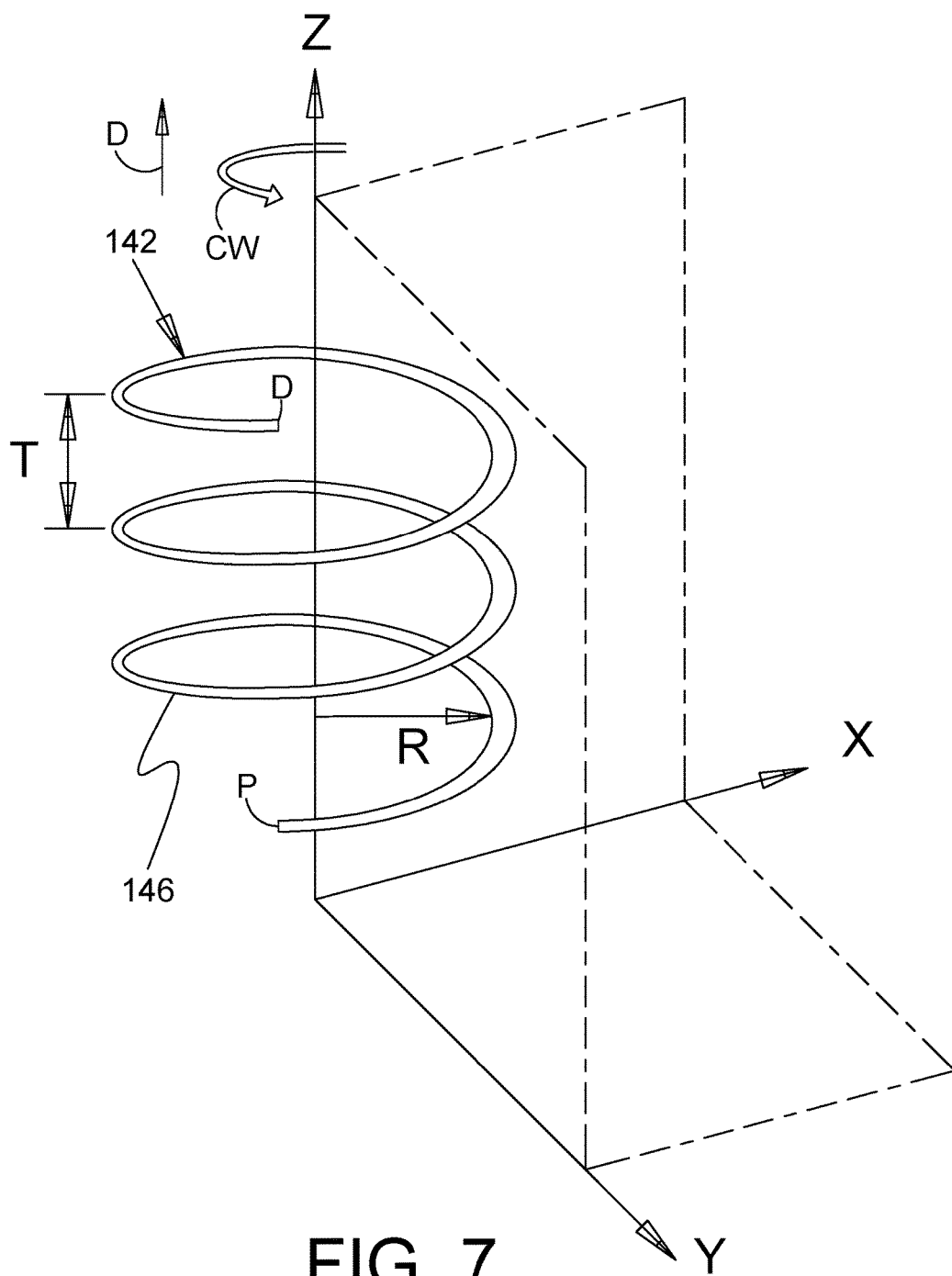


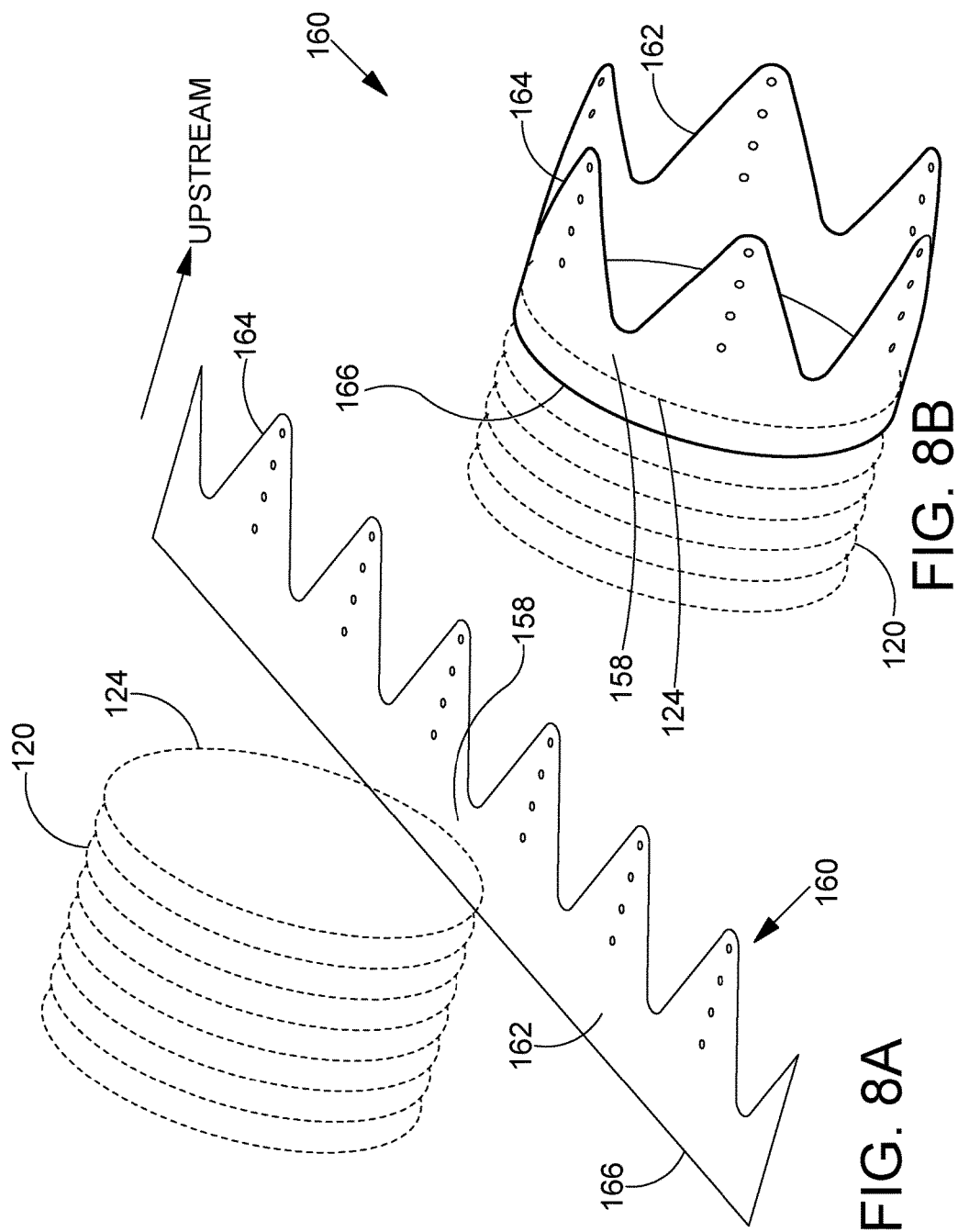
FIG. 3

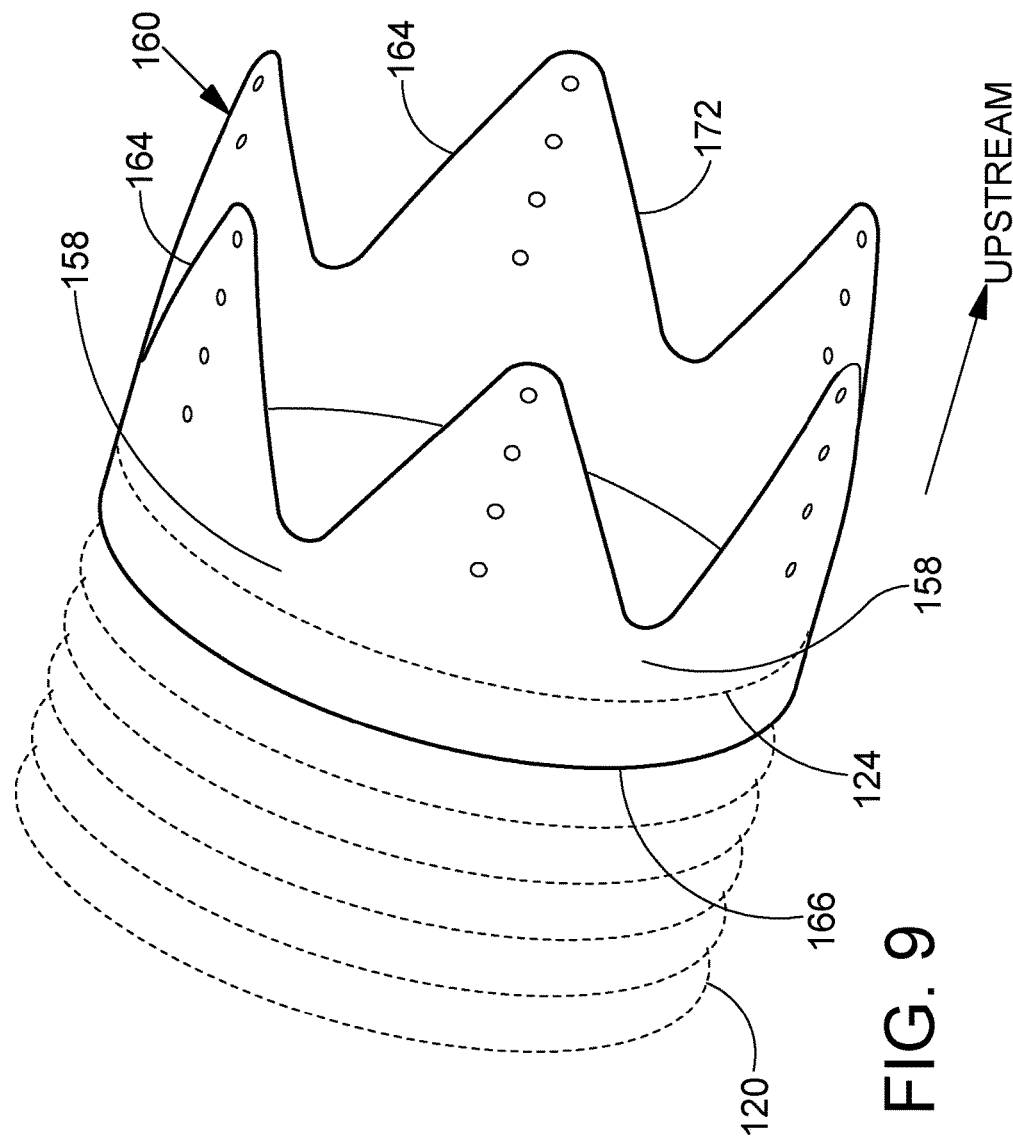


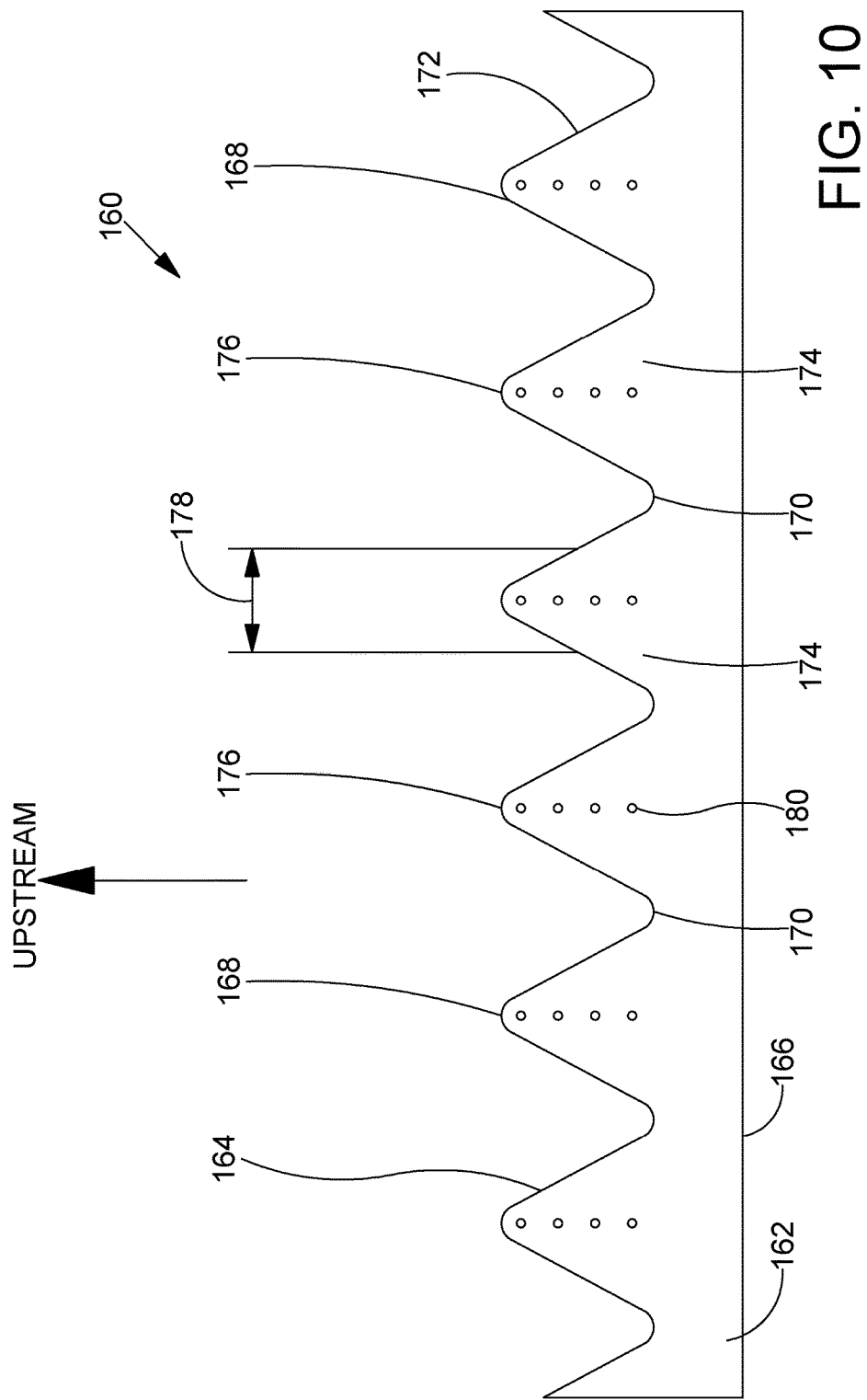












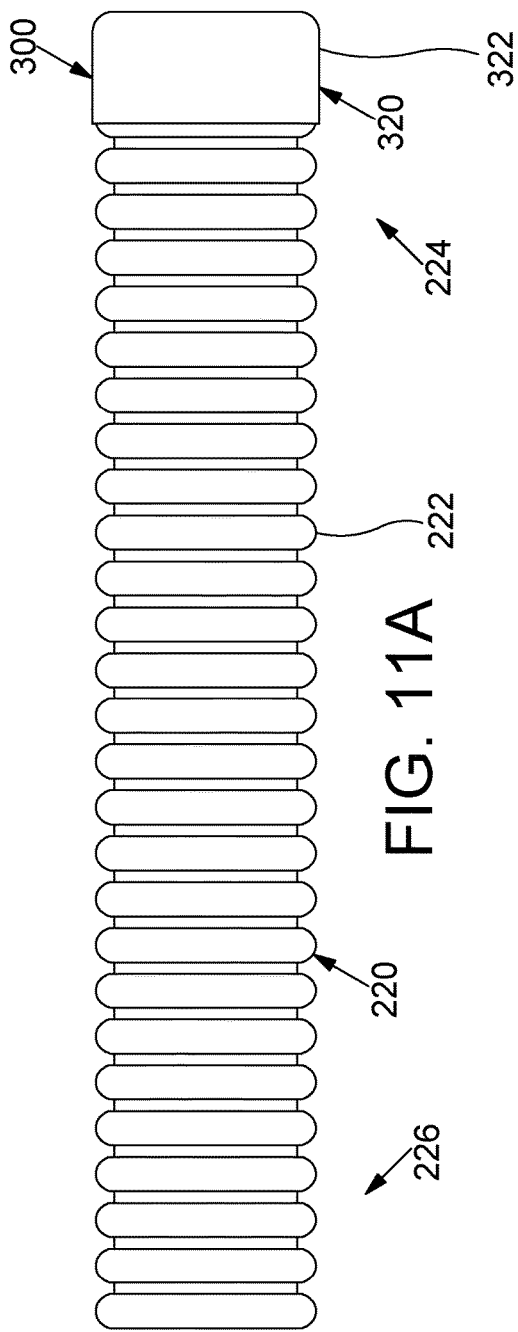


FIG. 11A

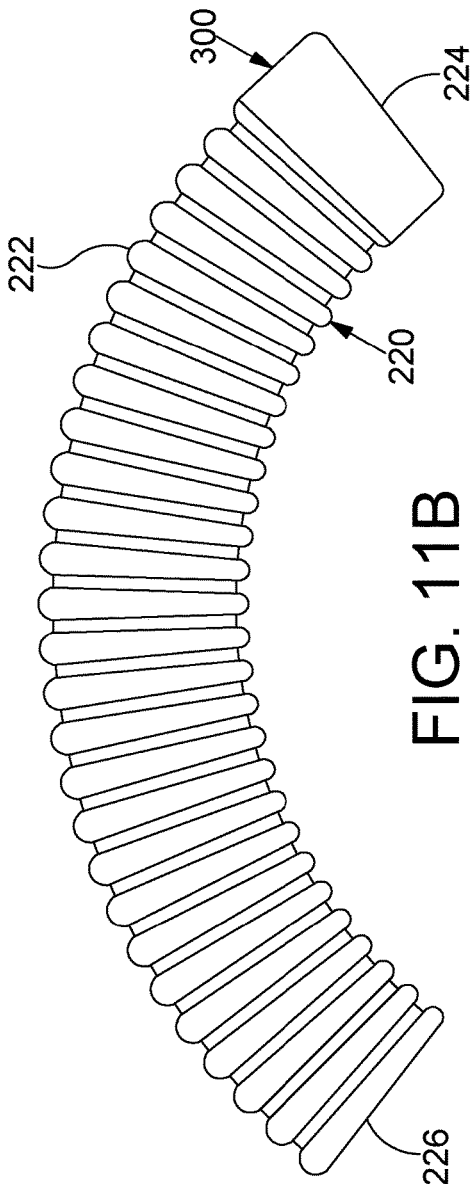


FIG. 11B

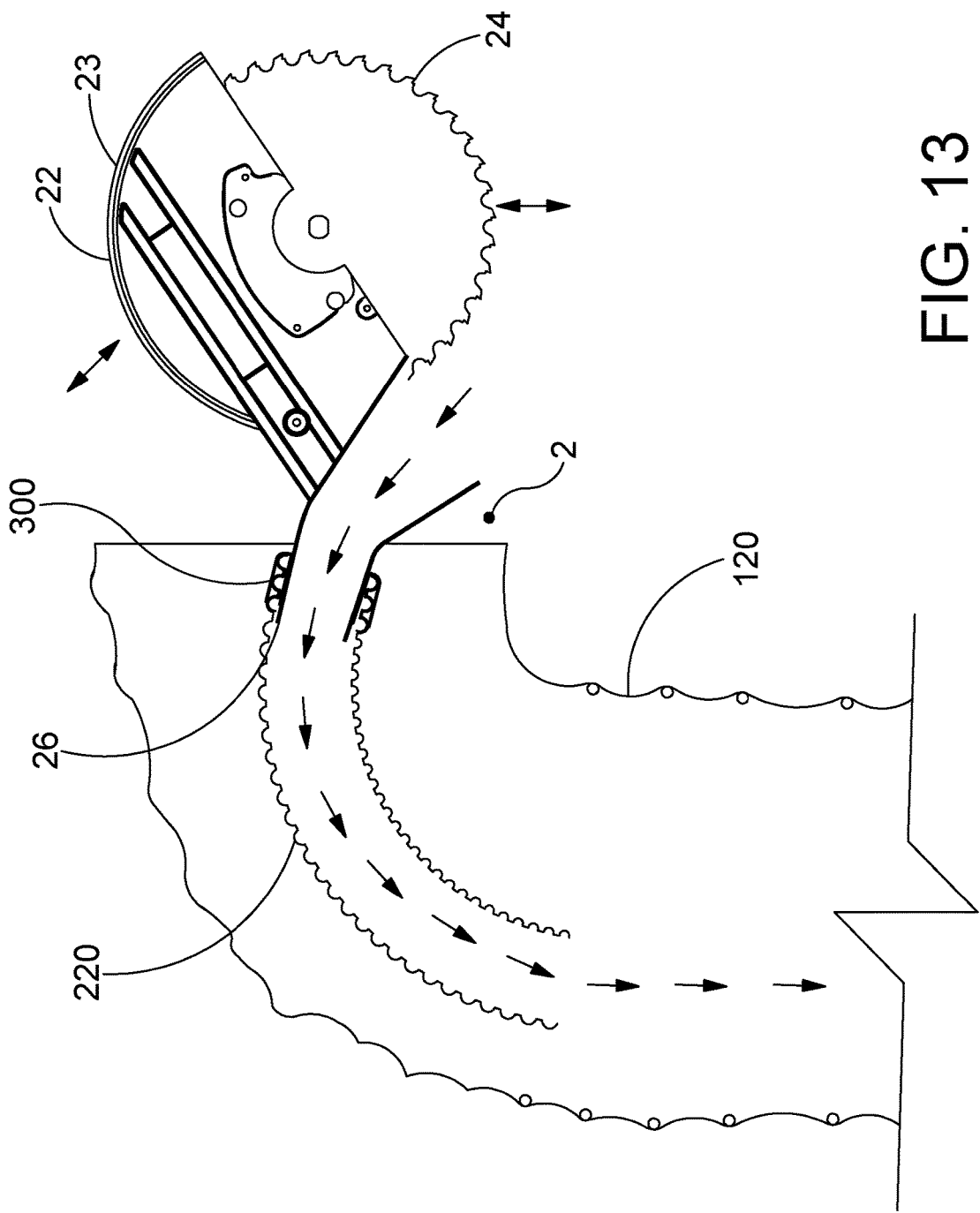


FIG. 13

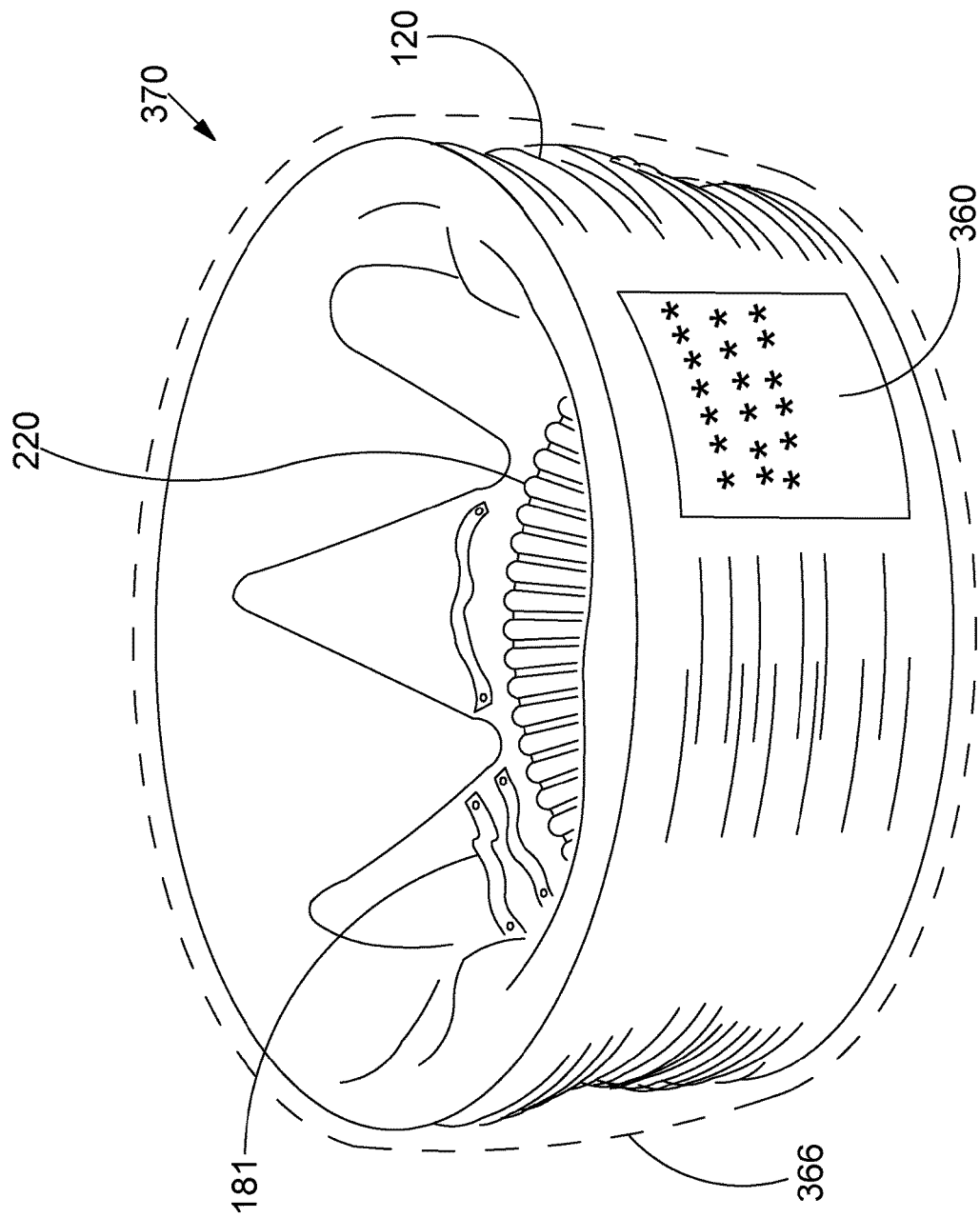


FIG. 14

COLLECTING SAWDUST AND OTHER DEBRIS FROM POWER SAWS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the benefit of U.S. Provisional Patent Application No. 62/211,096, filed Aug. 28, 2015, which is hereby incorporated by reference herein in its entirety.

FIELD

[0002] The present disclosure relates to accessories for powers saws, more particularly, accessories for collecting sawdust and other debris from power saws.

BACKGROUND OF THE DISCLOSURE

[0003] The most common used power saws in the construction industry and home shops are chop saws, compound miter saws, and sliding compound miter saws. These saws are typically mounted on stands and may create a large amount of sawdust that is often ejected openly in the room where it is used. The dust collection systems readily available on the market today are large stands with a wraparound shield system attached. These discharge systems are expensive and difficult to set up and move on a daily basis. Large complete table top level stands that incorporate dust collection are expensive and time consuming to set up. They also take up a lot of room in the work trucks for storage.

SUMMARY

[0004] An apparatus in accordance with the present detailed description comprises a duct and a skirt. The apparatus may be attached between a five gallon bucket and a power saw so that debris generated by the power saw is collected in the five gallon bucket. The power saw may be one of a plurality of compatible power saws. The duct has an upstream edge, a downstream edge and a duct wall extending between the upstream edge and the downstream edge. The duct wall having an inner surface defining a tube lumen. In one or more embodiments, the duct has a collapsed shape and an extended shape. In one or more embodiments, the duct is repeatedly extendable from the collapsed shape to the extended shape for use with the power saw. The one or more embodiments, the duct is also repeatedly collapsible from the extended shape to the collapsed shape for transportation or storage. The duct has a first length while assuming the collapsed shape and a second length while assuming the extended shape. In one or more embodiments, the second length being greater than the first length. The duct wall comprises an inner sleeve, a support wire disposed along a path about the inner sleeve, and an outer sleeve disposed about both the support wire and the inner sleeve so that the support wire is disposed between the inner sleeve and the outer sleeve. The support wire forms a plurality of turns with each turn encircling the inner sleeve. The duct is self-supporting in maintaining its circular shape and when the upstream edge is attached to the saw with the duct extending initially horizontally, the duct makes a self-supporting 90 degree turn to extend downward by gravity toward the bucket or other receptacle without a reduction in cross sectional interior area.

[0005] The downstream edge of the duct wall defines a downstream opening fluidly communicating with the duct

lumen. The downstream opening and the duct lumen is adapted and dimensioned to receive an upper portion of a five gallon bucket. In one or more embodiments, the inner surface of the duct wall forms a friction fit with the upper portion of the five gallon bucket when upper portion of the bucket is advanced through the downstream opening. The skirt extends in the upstream direction beyond the upstream edge of the duct wall. The skirt comprises a sheet material extending between a forward edge and a rearward edge. The forward edge of the sheet material undulates between a plurality of peaks and valleys so that the sheet material forms a plurality of flaps. Each flap is disposed between a pair of valleys. Each flap having a base portion and a tip portion. Each flap has a width that becomes smaller as the flap extends in an upstream direction from the base portion to the tip portion. Each flap defining a plurality of holes. In one or more embodiments, the skirt is disposed about the upstream edge of the duct wall. In one or more embodiments, the skirt is positioned so that a plane defined by the upstream edge of the duct extends through the sheet material between the forward edge of the skirt and the roots of the peaks so that a margin of unrestricted sheet material extends in the upstream direction beyond the upstream edge of the duct.

[0006] In one or more embodiments, the apparatus or kit includes a debris conduit having an upstream end and a downstream end. The debris conduit comprises a conduit wall extending between the upstream end and the downstream end. The conduit wall defines a debris channel. In one or more embodiments, the apparatus or kit includes retaining element for detachably attaching the upstream end of the debris conduit to the discharge port of the power saw. The retaining element comprises a sheath. The sheath comprises a sheath wall having a first edge and a second edge. The sheath wall extends between the first edge and the second edge. The sheath wall comprises an everted portion, a non-everted portion and a fold disposed between the everted portion and the non-everted portion. The sheath wall is folded back upon itself at the fold. In operation, when the skirt is attached to the power saw and the upstream end of the debris conduit is connected to the discharge port of the power saw, debris thrown by the rotating sawblade passes through the debris channel defined by the conduit wall and falls into the five gallon bucket.

[0007] A feature and advantage of embodiments is a debris collection apparatus for a saw mounted on a stand, the stand elevating the saw above floor level 2 to 4 feet. The saw having a saw head that is pivotal upwardly and downward manually about a horizontal axis for sawing boards. Such saws include miter saws and chop saws and have a rearward debris discharge port. The debris collection apparatus collapsible main duct with a diameter of 8 inches to 20 inches that is attachable to the saw to encompass the rearward debris discharge port. The outlet of the discharge port oriented to extend axially within the main duct. The forward or upstream end of the main duct attachable to the saw by way of at least one elastic member. In embodiments, the elastic member may be a skirt of elastic sheet material circumferentially attached to the duct and extending forward with a plurality of projections to facilitate attachment to the saw. A second smaller duct having a diameter of from 1 1/2 inches to 3 inches is attachable to a discharge outlet of the saw and extends downward substantially axially within the duct a distance greater than 4 inches from the discharge

outlet. In embodiments, a distance of from 4 to 12 inches. In embodiments, a distance of from 6 to 20 inches. In embodiments the second smaller duct is substantially contained within the interior of the first duct. In embodiments the second duct is 100% contained within the interior of the first duct. In embodiments the duct is collapsible axially and resists collapsing radially. In embodiment the duct is configured as a collapsible bellows.

[0008] In embodiments, a primary duct encompasses a discharge conduit that is connected to the discharge outlet of a miter or chop saw, the axis of the duct at that point is horizontal. The primary duct then bends downward with a substantially 90 degree bend and then has a substantial vertical axis. In embodiments most of the length of the main duct extends downwardly within 15 degrees of vertical. In embodiments, the main duct is sized to a 5 gallon bucket or other receptacle and whereby most of the length of the duct is positioned over the 5 gallon bucket or other receptacle.

[0009] A feature and advantage of embodiments is that the apparatus effectively collects saw debris while minimizing airborne dust and does not utilize blowers or vacuum systems, the apparatus is essentially passive. In embodiments, a relatively smaller debris duct is contained within a larger main duct, as the debris is discharged in a downstream direction to a bucket which may be sealingly engaged with the main duct, the expanded area of the main duct allows the saw dust and debris to substantially fall downward while the discharge air from the saw discharge slowly rises and exits through the front end of the duct attached to the saw. Such exiting is substantially debris free.

[0010] A feature and advantage of one or more embodiments includes providing a universal system that allows a standard five gallon bucket to collect debris from various makes and models of power saw.

[0011] A feature and advantage of one or more embodiments is a system that can be easily removed from a worksite at the end of the day to prevent theft of the power saw and/or power saw dust collection system in contrast to a system that is too difficult and time consuming to set up on a daily basis.

[0012] A feature and advantage of embodiments is a packaged kit with an axially collapsed duct that can have one end attached to a miter or chop saw with the duct radially spaced from and surrounding a debris discharge of the saw, and then allowing the expanded lengthwise duct to gradually turn down toward the floor to a receptacle. In embodiments, the width of the duct remains substantially (within 10%) the same between the collapsed and expanded modes.

[0013] A feature and advantage of embodiments is a duct that opens and turns without sharp corners and maintaining the circular interior wall.

[0014] A feature and advantage of a system for transferring saw debris includes a collapsible duct with a circular periphery of at least 8 inches that collapses axially and that is sized for a receptacle with a like sized mouth. The duct connecting to the receptacle mouth to minimize debris escaping from the duct and/or receptacle. In embodiments, the receptacle is a bucket with a mouth that is a continuation of the receptacle wall that extends to a bucket bottom wall.

[0015] The apparatus disclosed herein provides a very simple, inexpensive solution to various dust collection problems. The collapsible plastic duct attaches onto the back of the saw using adjustable elastic clamps and is expanded to slip directly over a standard 5 gallon pail. A small exhaust

fan may also be attached to the 5 gallon pail to assist in pulling in the dusty air created by the saw.

[0016] This system will adapt to most any chop style saw and will work with most any standard five gallon bucket on the market. The system will significantly reduce the amount of dust and debris that is created at the job site, making clean up faster and easier. The bulk of the sawdust and debris is captured in the attached bucket. The product takes up very little storage space. Set up and break down is fast and easy. Accordingly, a feature and advantage of one or more embodiments is a system that is very compact, quick to set up and very inexpensive as compared to existing dust collection systems on the market.

[0017] This system is a low cost, almost disposable system. Contractors and home owners can use the system anywhere they are working and significantly reduce clean up at the end of the job. The above summary is not intended to describe each illustrated embodiment or every implementation of the present disclosure.

BRIEF DESCRIPTION OF THE FIGURES

[0018] The drawings included in the present application are incorporated into, and form part of, the specification. They illustrate embodiments of the present disclosure and, along with the description, serve to explain the principles of the disclosure. The drawings are only illustrative of certain embodiments and do not limit the disclosure.

[0019] FIG. 1 is an exploded view showing a system for collecting sawdust and other debris from a power saw.

[0020] FIG. 2 is a perspective view showing a power saw and a system for collecting sawdust and other debris from the power saw, the system including a duct and a skirt.

[0021] FIG. 3 is an enlarged perspective view showing the duct and the skirt shown in FIG. 2.

[0022] FIG. 4A is a side view showing a duct assuming an expanded shape, the duct having an expanded length while the duct is assuming the expanded shape.

[0023] FIG. 4B is a side view showing a duct assuming a collapsed shape, the duct having a collapsed length while the duct is assuming the collapsed shape.

[0024] FIG. 5 includes a side view showing a duct and an enlarged cross-sectional view further illustrating a portion of the duct.

[0025] FIG. 6A is a perspective view illustrating a support wire.

[0026] FIG. 6B is a perspective view showing an illustrative portion of support wire in accordance with the detailed description.

[0027] FIG. 7 is an additional perspective view further explaining the illustrative portion of support wire shown in FIG. 6B.

[0028] FIG. 8A is a perspective view of an assembly including a skirt disposed about an upstream edge of and a duct.

[0029] FIG. 8B is an exploded perspective view of the assembly shown in FIG. 8A.

[0030] FIG. 9 is an enlarged perspective view of the assembly shown in FIG. 8A.

[0031] FIG. 10 is a plan view of the skirt shown in FIG. 8A and FIG. 8B.

[0032] FIG. 11A is a side view of a debris conduit. The debris conduit is assuming a straight shape in the example embodiment of FIG. 11A.

[0033] FIG. 11B is a side view of a debris conduit. The debris conduit is assuming a curved shape in the example embodiment of FIG. 11B.

[0034] FIG. 12 is an enlarged cross-sectional view showing an upstream portion of the debris conduit shown in FIG. 11A and FIG. 11B.

[0035] FIG. 13 is a stylized cross-sectional view showing a power saw, a debris conduit and a duct.

[0036] FIG. 14 is a perspective view of a packaged kit in accord with embodiments.

[0037] While embodiments of the disclosure are amenable to various modifications and alternative forms, specifics thereof have been shown by way of example in the drawings and will be described in detail. It should be understood, however, that the intention is not to limit the disclosure to the particular embodiments described. On the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the disclosure.

DETAILED DESCRIPTION

[0038] Referring to FIG. 1 through FIG. 13, an apparatus in accordance with the present detailed description comprises a duct 120 and a skirt 160. In FIG. 1, the apparatus 100 is shown attached between a five gallon bucket 20 and a power saw 22 so that debris generated by the power saw 22 is collected in the five gallon bucket 20. The power saw 22 maybe a miter saw or a chop saw or one of a plurality of other compatible power saws. As shown in FIGS. 2 and 13, the power saw 22 includes a saw head 23 with a rotating sawblade 24 and an cutting debris discharge port 26 positioned proximate the rotating sawblade 24. The saw head is manually pivotable about a horizontal axis 2 to move the saw blade upwardly and downwardly for cutting boards. Such saws are typically mounted on stands 25.

[0039] Referring to FIG. 1 through FIG. 14, the duct 120 has an upstream edge 124, a downstream edge 126 and a duct wall 122 extending between the upstream edge 124 and the downstream edge 126. The duct wall 122 having an inner surface 128 defining a tube lumen 130. In one or more embodiments, the duct 120 has a collapsed shape as shown in FIG. 4B and 14, and an extended shape with a length 136 as shown in FIG. 4A. In one or more embodiments, the duct 120 is repeatedly extendable from the collapsed shape 132 to the extended shape 134 for use with the power saw 22. In embodiments, the collapsed length can be less than three inches and the extended length greater than three feet while the width, that is the diameter does not appreciably change, that is the diameter does not vary more than 10% between the extended and collapsed lengths. In embodiments the diameter does not vary more than 20% between the extended and collapsed lengths. In embodiments, the collapsed length can be less than four inches and the extended length greater than four feet. In embodiments, the extended length can be 10 times the collapsed length. In embodiments, the extended length can be 15 times the collapsed length. In one or more embodiments, the duct 120 is also repeatedly collapsible from the extended shape 134 to the collapsed shape 132 for transportation or storage while maintaining its circular tubular shape. The duct 120 has a first length 136 while assuming the collapsed shape 132 and a second length 138 while assuming the extended shape 134. In one or more embodiments, the second length 138 being greater than the first length 136. The duct wall 122 comprises an inner sleeve

140, a support wire 142 disposed along a path about the inner sleeve 140, and an outer sleeve 144 disposed about both the support wire 142 and the inner sleeve 140 so that the support wire 142 is disposed between the inner sleeve 140 and the outer sleeve 144. The support wire 142 forms a plurality of turns 146 with each turn 146 encircling the inner sleeve 140.

[0040] The downstream edge 126 of the duct wall 122 defines a downstream opening 148 fluidly communicating with the duct lumen 130. The downstream opening 148 and the duct lumen 130 is adapted and dimensioned to receive an upper portion of a five gallon bucket 20. In one or more embodiments, the inner surface 128 of the duct wall 122 forms a friction fit with the upper portion of the five gallon bucket 20 when upper portion of the bucket 20 is advanced through the downstream opening 148. The skirt 160 extends in the upstream direction beyond the upstream edge 124 of the duct wall 122. The skirt 160 comprises a sheet material 162 extending between a forward edge 164 and a rearward edge 166. The forward edge 164 of the sheet material 162 undulates between a plurality of peaks 168 and valleys 170 so that the sheet material 162 forms a plurality of flaps 172. Each flap 172 is disposed between a pair of valleys 170. Each flap 172 having a base portion 174 and a tip portion 176. Each flap 172 has a width 170 that becomes smaller as the flap 172 extends in an upstream direction from the base portion 174 to the tip portion 176. Each flap 172 defining a plurality of holes 180. In one or more embodiments, the skirt 160 is disposed about the upstream edge 124 of the duct wall. In one or more embodiments, the skirt 160 is positioned so that a plane defined by the upstream edge 124 of the duct 120 extends through the sheet material between the forward edge of the skirt and the roots of the peaks so that a margin of unrestricted sheet material 158 extends in the upstream direction beyond the upstream edge 124 of the duct.

[0041] The holes in each flap may be used to attach the duct to the saw, for example, by removing a threaded fastener on the saw, inserting the threaded fastener through one of the holes in the flap, and replacing the threaded fastener. Alternatively, the holes can receive S-shaped hooks or mini elastic bungee cords with the opposite ends of the hooks or bungee cords attached to appropriate places on the saw. Suitably, strips 181 of elastic material, which may be the same material as the skirt material, may be included in the kit for use in attaching the skirt to the saw. This is particularly suitable for horizontally sliding saw heads of certain miter saws. The strips may be threaded through holes in the flaps and attached to suitable locations on the saw. The strips may be configured as loops, for example, rubber bands, or strips with two ends and with a plurality of holes.

[0042] In one or more embodiments, the apparatus or kit includes a debris conduit 220 having an upstream end 224 and a downstream end 226. The debris conduit 220 comprises a conduit wall 222 extending between the upstream end 224 and the downstream end 226. The conduit wall 222 defines a debris channel 230. In one or more embodiments, the apparatus or kit includes retaining element 300 for detachably attaching the upstream end 224 of the debris conduit 220 to the discharge port 26 of the power saw 22. The retaining element 300 comprises a sheath 320. The sheath 320 comprises a sheath wall 322 having a first edge 324 and a second edge 326. The sheath wall 322 extends between the first edge 324 and the second edge 326. The

sheath wall **322** comprises an everted portion **328**, a non-everted portion **328** and a fold **332** disposed between the everted portion **328** and the non-everted portion **328**. The sheath wall **322** is folded back upon itself at the fold **332**. In operation, when the skirt **160** is attached to the power saw **22** and the upstream end **224** of the debris conduit **220** is connected to the discharge port **26** of the power saw **22**, debris thrown by the rotating sawblade **24** passes through the debris channel **230** defined by the conduit wall **222** and falls into the five gallon bucket **20**.

[0043] FIG. 7 is a perspective view showing an illustrative portion of support wire **142** in accordance with this detailed description. With reference to FIG. 7, it will be appreciated that the support wire **142** extends through three mutually orthogonal planes: a first plane xy, a second plane xz, and a third plane yz. First plane xy is defined by an X-axis and a Y-axis. Second plane xz is defined by the X-axis and a Z-axis. Third plane yz is defined by the Y-axis and the Z-axis. The support wire **142** includes a number of turns **146** that wrap loosely about the Z-axis shown in FIG. 7. With reference to FIG. 7, it will be appreciated that the support wire **142** does not lie completely on any one of the three planes shown in FIG. 7 (i.e., first plane xy, second plane xz, and third plane yz). The support wire **142** has a proximal end P, a distal end D, and an intermediate portion that extends between the proximal end and the distal end. With reference to FIG. 7, it will be appreciated that the support wire **142** spirals in a clockwise direction CW as it extends in a distal direction from the proximal end P to the distal end D. However, in other embodiments, the support wire can spiral in the counterclockwise direction CCW as it extends in the distal direction from the proximal end P to the distal end D. In the embodiment of FIG. 7, the support wire **142** has a pitch T. Pitch T may be defined as the distance between the centers of adjacent turns **146** of the support wire **142**. In one more embodiments, the pitch T may become smaller as a duct including the support wire **142** is compressed toward a compressed state and the pitch T may become larger as a duct including the support wire **142** is expanded toward an expanded state. In the embodiment of FIG. 7, the support wire **142** has a radius R that is substantially constant throughout the rotation of the support wire **142**. In the embodiment of FIG. 7, it will be appreciated that the support wire **142** forms a helix. It will also be appreciated, however, that some three dimensionally shaped curves do not form helices. Additionally, it will be appreciated that three dimensionally shaped curves are possible which have a radius that varies through the rotation of the three dimensionally shaped curve unlike the support wire **142** shown in FIG. 7. In the embodiment of FIG. 7, the support wire **142** completes three complete revolutions. Each of these revolutions has an angular span of three hundred and sixty degrees.

[0044] Referring to FIG. 14, when the duct **120** has a bellows configuration, it may be readily collapsed with the debris conduit **220**, and strips **181** within the interior of the duct and may include instructions **360** and packaging **366**. Such kit **370** provides a compact assembly very suitable for retail sales and shipping.

[0045] The following United States patents are hereby incorporated by reference herein:

[0046] U.S. Pat. No. 3,945,281, U.S. Pat. No. 4,255,995, U.S. Pat. No. 4,576,072, U.S. Pat. No. 4,934,233, U.S. Pat. No. 5,782,153, U.S. Pat. No. 5,819,619, U.S. Pat. No. 5,931,072, U.S. Pat. No. 6,421,040, U.S. Pat. No. 6,427,570,

U.S. Pat. No. 6,470,778, U.S. Pat. No. 6,470,778, U.S. Pat. No. 6,510,772, U.S. Pat. No. 6,742,425, U.S. Pat. No. 6,783,563, U.S. Pat. No. 6,827,640, U.S. Pat. No. 6,935,939, U.S. Pat. No. 6,988,435, U.S. Pat. No. 7,013,884, U.S. Pat. No. 7,204,178, U.S. Pat. No. 7,216,572, U.S. Pat. No. 7,559,268, U.S. Pat. No. 7,654,181, U.S. Pat. No. 7,789,003, U.S. Pat. No. 7,802,505, U.S. Pat. No. 7,980,163, U.S. Pat. No. 8,061,044, U.S. Pat. No. 8,061,250, U.S. Pat. No. 8,069,761, U.S. Pat. No. 8,161,858, U.S. Pat. No. 8,161,858, U.S. Pat. No. 8,272,303, U.S. Pat. No. 8,272,304, U.S. Pat. No. 8,459,158, U.S. Pat. No. 8,459,158, U.S. Pat. No. 8,522,656, U.S. Pat. No. 8,726,774, U.S. Pat. No. 8,869,786, U.S. Pat. No. 9,149,951, and U.S. Pat. No. 9,221,110.

[0047] The above references in all sections of this application are herein incorporated by references in their entirety for all purposes. Components illustrated in such patents may be utilized with embodiments herein. Incorporation by reference is discussed, for example, in MPEP section 2163.07 (B).

[0048] All of the features disclosed in this specification (including the references incorporated by reference, including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

[0049] Each feature disclosed in this specification (including references incorporated by reference, any accompanying claims, abstract and drawings) may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

[0050] The invention is not restricted to the details of the foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any incorporated by reference references, any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed. The above references in all sections of this application are herein incorporated by references in their entirety for all purposes.

[0051] Although specific examples have been illustrated and described herein, it will be appreciated by those of ordinary skill in the art that any arrangement calculated to achieve the same purpose could be substituted for the specific examples shown. This application is intended to cover adaptations or variations of the present subject matter. Therefore, it is intended that the invention be defined by the attached claims and their legal equivalents, as well as the following illustrative aspects. The above described aspects embodiments of the invention are merely descriptive of its principles and are not to be considered limiting. Further modifications of the invention herein disclosed will occur to those skilled in the respective arts and all such modifications are deemed to be within the scope of the invention.

What is claimed is:

1. A debris collection apparatus for use with a bucket and a power saw so that debris generated by the power saw is collected in the bucket, the power saw being one of a plurality of compatible power saws, the power saw including a rotating sawblade and an discharge port positioned proximate the rotating sawblade, the apparatus comprising:

- a duct having an upstream edge, a downstream edge and a duct wall extending between the upstream edge and the downstream edge, the duct wall having an inner surface defining a tube lumen,
 - the duct having a collapsed shape and an extended shape, the duct being repeatedly extendable from the collapsed shape to the extended shape for use with the power saw, the duct also being repeatedly collapsible from the extended shape to the collapsed shape for transportation or storage, the duct having a first length while assuming the collapsed shape and a second length while assuming the extended shape, the second length being greater than the first length;
 - the downstream edge of the duct wall defining a downstream opening fluidly communicating with the duct lumen, the downstream opening and the duct lumen being adapted and dimensioned to receive an upper portion of a five gallon bucket, the inner surface of the duct wall forming a friction fit with the upper portion of the five gallon bucket when upper portion is advanced through the downstream opening;
 - a skirt extending in the upstream direction beyond the upstream edge of the duct wall, the skirt comprising a sheet material extending between a forward edge and a rearward edge, the forward edge undulating between a plurality of peaks and valleys so that the sheet material forms a plurality of flaps, each flap being disposed between a pair of valleys, each flap having a base portion and a tip portion, each flap having a width, the width of each flap becoming smaller as the flap extends in an upstream direction from the base portion to the tip portion, each flap defining a plurality of holes;
 - the being skirt disposed about the upstream edge of the duct wall and the skirt being positioned so that a plane defined by the upstream edge of the duct wall extends through the sheet material between the forward edge of the skirt and the roots of the peaks so that a margin of unrestricted sheet material extends in the upstream direction beyond the upstream end of the duct;
 - a debris conduit having an upstream end and a downstream end, the debris conduit comprising a conduit wall extending between the upstream end and the downstream end, the conduit wall defining a debris channel
 - a retaining element for detachably attaching the upstream end of the debris conduit to the discharge port of the power saw, the retaining element comprising a hose, the hose comprising a hose wall having a first edge and a second edge, the hose wall extending between the first edge and the second edge, the hose wall comprising an everted portion, a non-inverted portion and a fold disposed between the everted portion and the non-inverted portion, the hose wall folding back upon itself at the fold;
- wherein, when the skirt is attached to the power saw and the upstream end of the debris conduit is connected to the discharge port of the power saw, debris thrown by the rotating sawblade passes through the debris channel defined by the conduit wall and falls into the five gallon bucket.
2. The apparatus of claim 1, wherein an inner diameter of the duct is between about 10 inches and about 14 inches.
 3. The debris collection apparatus of claim 1 wherein the duct is has a collapsible bellows configuration.
 4. The debris collection apparatus of claim 1 wherein the duct wall comprises an inner sleeve, a support wire disposed about the inner sleeve, and an outer sleeve disposed about both the support wire and the inner sleeve so that the support wire is disposed between the inner sleeve and the outer sleeve, the support wire forming a plurality of turns, each turn encircling the inner sleeve.
 5. The debris collection apparatus of claim 1, wherein the sheet material comprises an elastomeric material.
 6. The debris collection apparatus of claim 1 wherein the duct is sized for use with a 5 gallon bucket.
 7. The debris collection apparatus of claim 1, in combination with a miter or chop saw and whereby when the duct is attached to the saw the duct extends horizontally and then substantially vertically by gravity.
 8. The debris collection apparatus of claim 1, wherein the first length is less than 12 inches and the second length is greater than 36 inches.
 9. The debris collection apparatus of claim 1, wherein the first sleeve and the second sleeve of the duct comprise polymeric film.
 10. The debris collection apparatus of claim 1, wherein the duct is collapsed in contained in packaging with the debris conduit and with instructions for use.
 11. An kit for use with a bucket and a miter or chop saw mounted on a stand so that debris generated by the miter or chop saw is collected in the bucket, the power saw including a saw head with a rotating sawblade, the saw head pivotal about a horizontal axis, and an discharge port positioned proximate the rotating sawblade, the kit comprising:
 - a duct having an upstream edge, a downstream edge and a duct wall extending between the upstream edge and the downstream edge, the duct wall having an inner surface defining a interior,
 - the duct having a collapsed shape and an extended shape, the duct being repeatedly extendable from the collapsed shape to the extended shape for use with the power saw, the duct also being repeatedly collapsible from the extended shape to the collapsed shape for transportation or storage, the duct having a first length while assuming the collapsed shape and a second length while assuming the extended shape, the second length being greater than the first length;
 - the duct wall comprising an inner sleeve, a support wire disposed about the inner sleeve, and an outer sleeve disposed about both the support wire and the inner sleeve so that the support wire is disposed between the inner sleeve and the outer sleeve, the support wire forming a plurality of turns, each turn encircling the inner sleeve;
 - the downstream edge of the duct wall defining a downstream opening fluidly communicating with the duct lumen, the downstream opening and the duct lumen being adapted and dimensioned to receive an upper portion of a five gallon bucket, the inner surface of the duct wall forming a friction fit with the upper portion of the five gallon bucket when upper portion is advanced through the downstream opening;
 - a skirt extending in the upstream direction beyond the upstream edge of the duct wall, the skirt comprising a sheet material extending between a forward edge and a rearward edge, the forward edge undulating between a plurality of peaks and valleys so that the sheet material forms a plurality of flaps, each flap being disposed

between a pair of valleys, each flap having a base portion and a tip portion, each flap having a width, the width of each flap becoming smaller as the flap extends in an upstream direction from the base portion to the tip portion, each flap defining a plurality of holes;

the being skirt disposed about the upstream edge of the duct wall and the skirt being positioned so that a plane defined by the upstream edge of the duct wall extends through the sheet material between the forward edge of the skirt and the roots of the peaks so that a margin of unrestricted sheet material extends in the upstream direction beyond the upstream end of the duct;

a debris conduit having an upstream end and a downstream end, the debris conduit comprising a conduit wall extending between the upstream end and the downstream end, the conduit wall defining a debris channel;

packaging enclosing the duct with the skirt and the debris conduit, the packaging including instructions for attaching the apparatus to a saw.

12. The kit of claim **11**, further comprising:

a retaining element for detachably attaching the upstream end of the debris conduit to the discharge port of the power saw, the retaining element comprising a hose, the hose comprising a hose wall having a first edge and a second edge, the hose wall extending between the first edge and the second edge, the hose wall comprising an everted portion, a non-inverted portion and a fold disposed between the everted portion and the non-inverted portion, the hose wall folding back upon itself at the fold.

13. The kit of claim **12**, wherein, when the skirt is attached to the power saw and the upstream end of the debris conduit is connected to the discharge port of the power saw, debris thrown by the rotating sawblade passes through the debris channel defined by the conduit wall and falls into the five gallon bucket.

14. The kit of claim **11**, wherein the duct is has a collapsible bellows configuration.

15. The kit of claim **11**, wherein the duct is sized for use with a 5 gallon bucket.

16. The kit of claim **11**, wherein the sheet material comprises an elastomeric material.

17. The kit of claim **11**, wherein the first sleeve and the second sleeve of the duct comprise polymeric film.

18. A debris collection apparatus for a saw mounted on a stand, the stand elevating the saw above floor level 2 to 4 feet, the saw having a saw head that is pivotal upwardly and downward manually about a horizontal axis for sawing boards, the saw having a rearward debris discharge port, the apparatus comprising:

a collapsible main duct with a diameter of 8 inches to 20 inches that is attachable to the saw to encompass the rearward debris discharge port, the collapsible main duct having a bellows configuration;

a debris conduit having an upstream end and a downstream end, the debris conduit comprising a conduit wall extending between the upstream end and the downstream end, the conduit wall defining a debris channel, the upstream end of the debris conduit connectable to the rearward debris discharge port, the debris conduit having a diameter of from 1 1/2 inches to 4 inches.

19. The debris collection apparatus of claim **18** wherein an upstream end of the main duct is attachable to the saw by way of an elastic skirt extending from the upstream end.

20. The debris collection apparatus of claim **18** in combination with a saw and a debris collection receptacle, the main duct attached to the saw and the majority of the main duct extending substantially vertically and position over the receptacle.

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