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Kinzli

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(54) **ADJUSTABLE WALL MOUNT RETAINING MEMBER TO ADJUST THE HEIGHT OF A WALL MOUNTED FAN**

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(51) **Int. Cl.**

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F04D 29/64	(2006.01)
F04D 25/08	(2006.01)
F16M 13/02	(2006.01)
F16B 2/12	(2006.01)
A01G 9/24	(2006.01)

(52) **U.S. Cl.**
CPC ***F04D 29/644*** (2013.01); ***A01G 9/246*** (2013.01); ***F04D 25/08*** (2013.01); ***F16B 2/12*** (2013.01); ***F16M 13/022*** (2013.01); *F05D 2260/30* (2013.01)

(58) **Field of Classification Search**
USPC 248/669
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D295,070	S *	4/1988	Shin-Chin	D23/382
5,403,162	A *	4/1995	Chen	F04D 25/166 248/125.1
5,558,501	A *	9/1996	Wang	F04D 29/601 248/159
5,725,356	A *	3/1998	Carter	F04D 25/08 416/240
5,956,861	A *	9/1999	Barnes	A45D 20/12 248/160
D435,899	S *	1/2001	Melwani	D23/382
D542,402	S *	5/2007	Abell	D23/382
7,293,456	B1 *	11/2007	Trogdon	G01D 11/30 73/178 R
7,412,798	B2 *	8/2008	Boxsell	A01G 31/02 47/39
7,857,274	B1 *	12/2010	Parks	A01K 1/0356 248/230.1
8,807,514	B1 *	8/2014	Giauque	A01K 39/02 248/156
2013/0058806	A1 *	3/2013	Lin	F04D 29/601 417/410.1
2014/0112791	A1 *	4/2014	Abell	F04D 25/084 416/159

* cited by examiner

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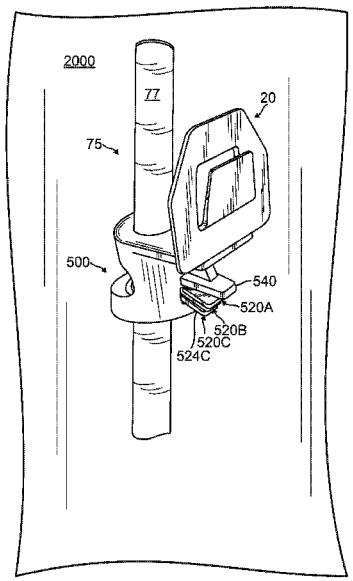
(57) **ABSTRACT**

The present invention is a method for attaching a fan to a wall at various locations using an adjustable mounting plate and support for an adjustable mounting plate. The method disclosed herein allows a user to affix a fan to the adjustable mounting plate on a wall at a multitude of different heights desired by the user and to further re-affix to a new desired height both quickly and easily.

6 Claims, 17 Drawing Sheets



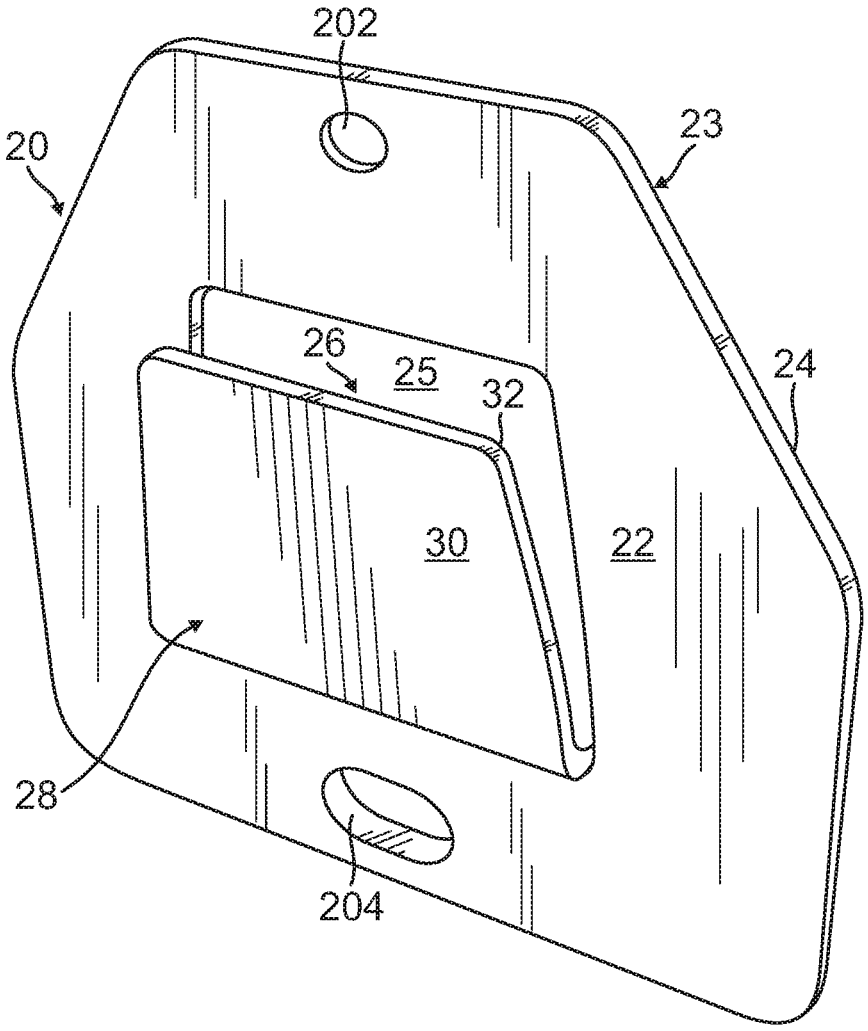


FIG. 1

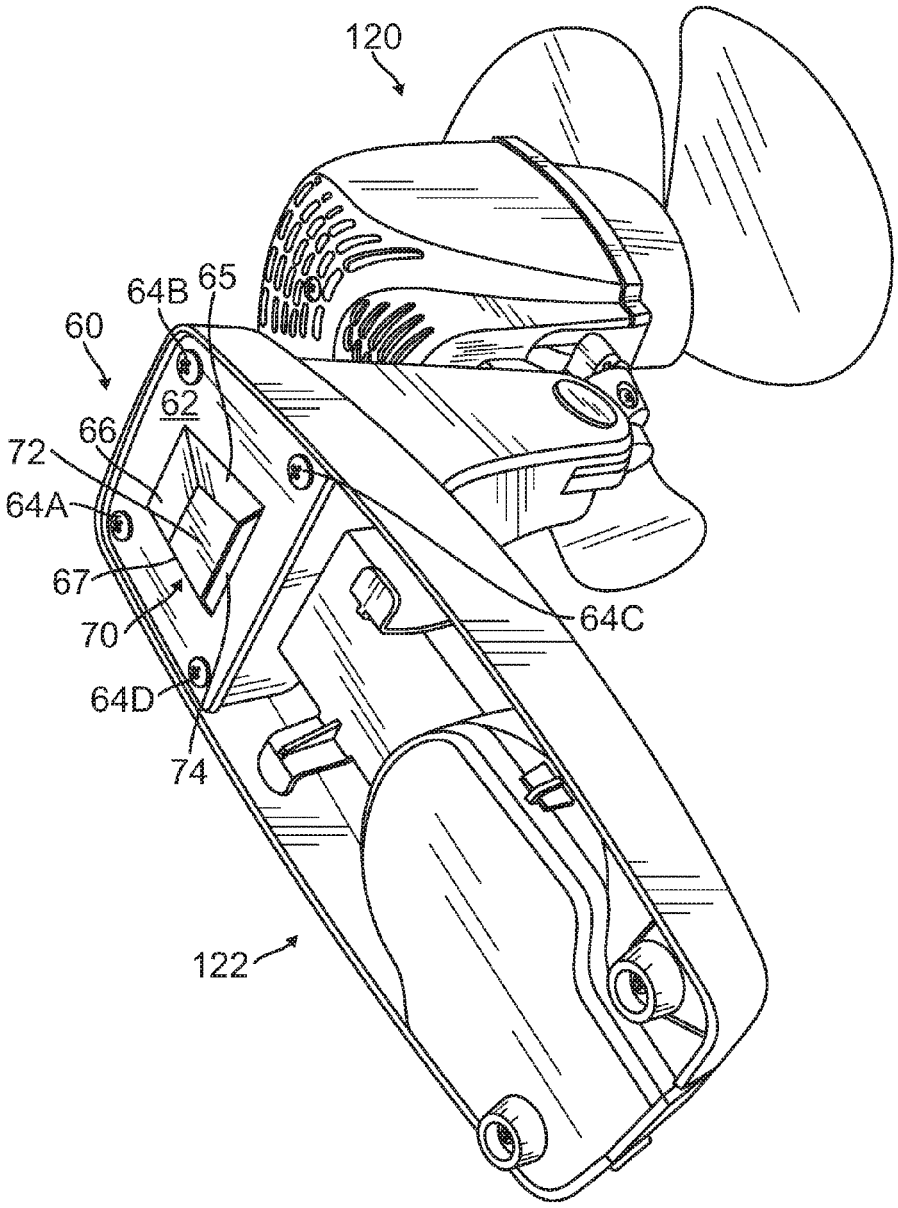


FIG. 2

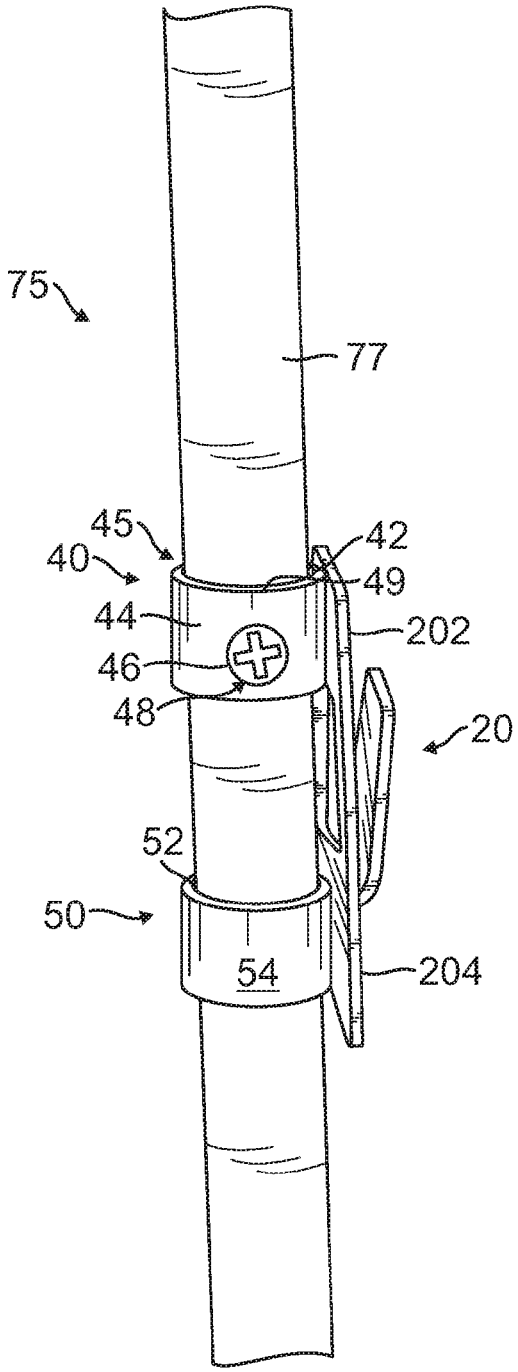


FIG. 3

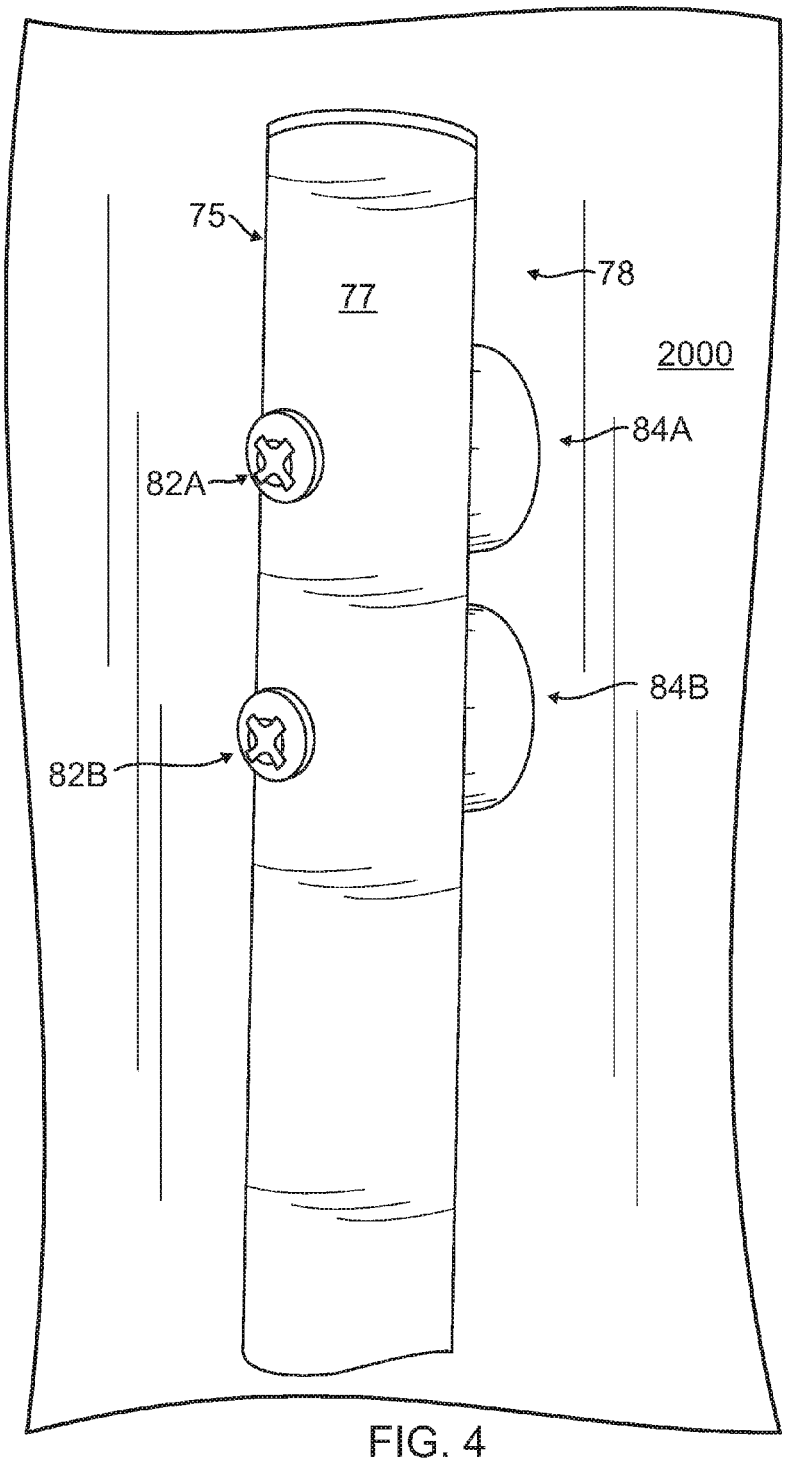


FIG. 4

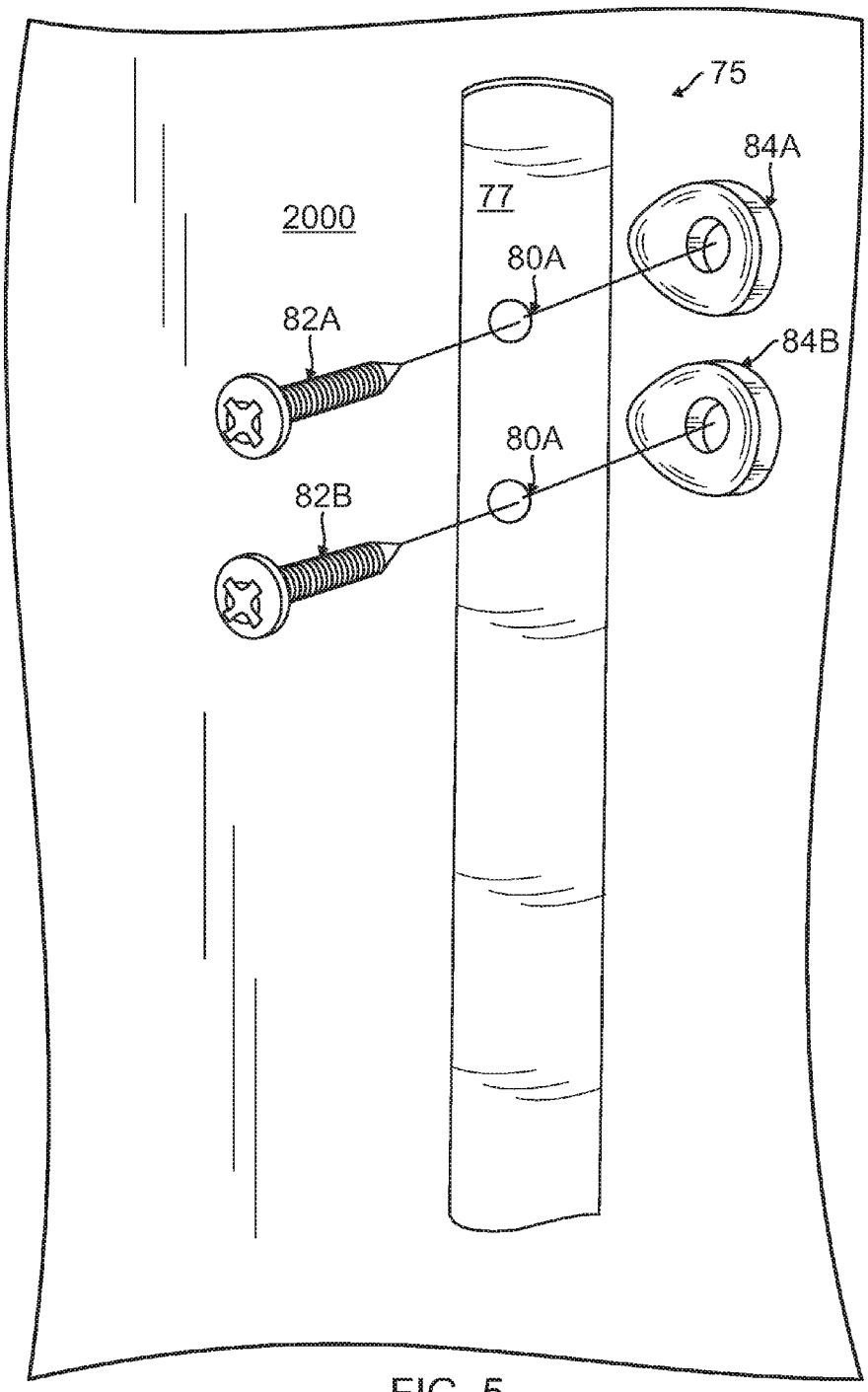


FIG. 5

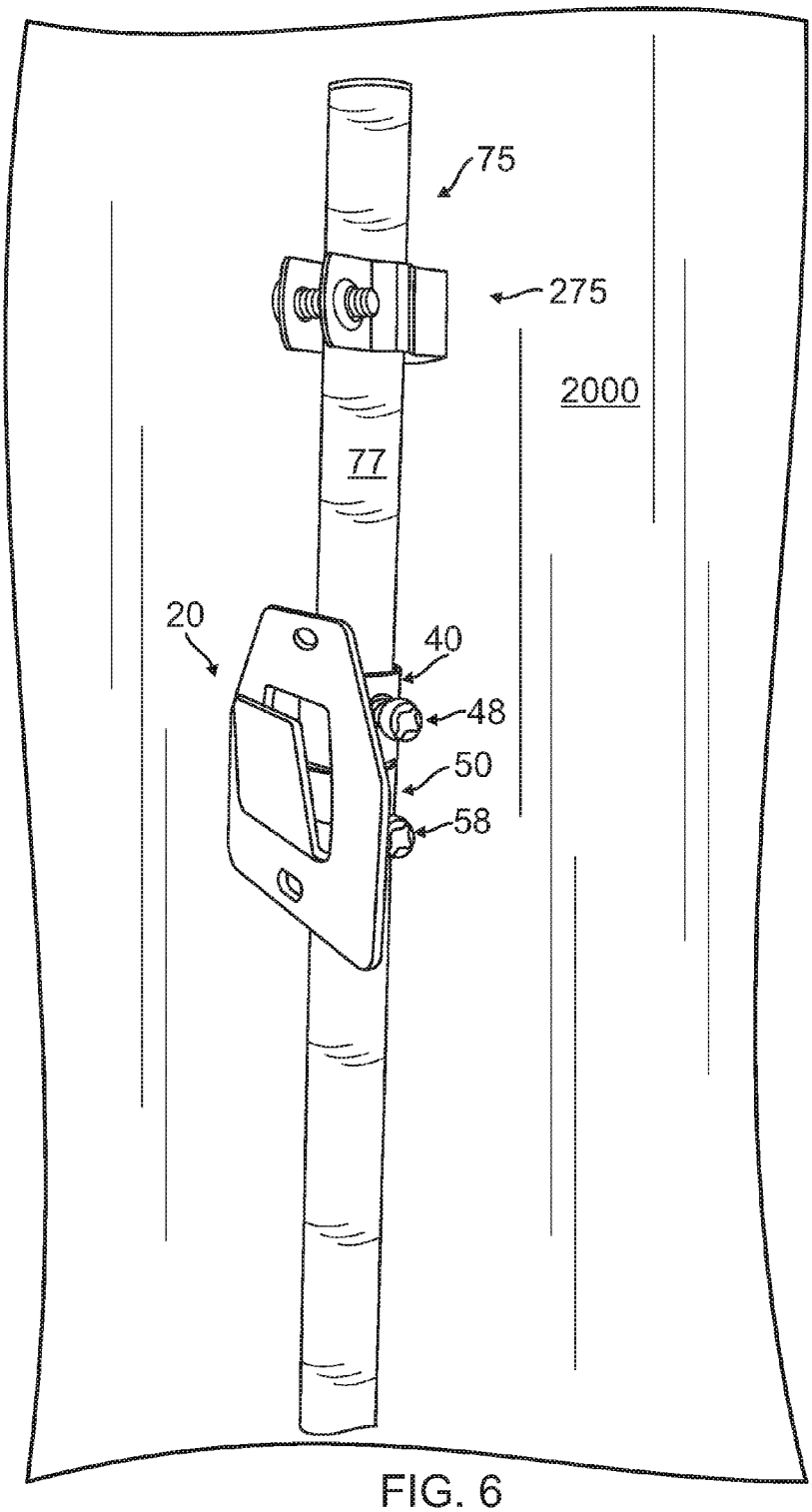


FIG. 6

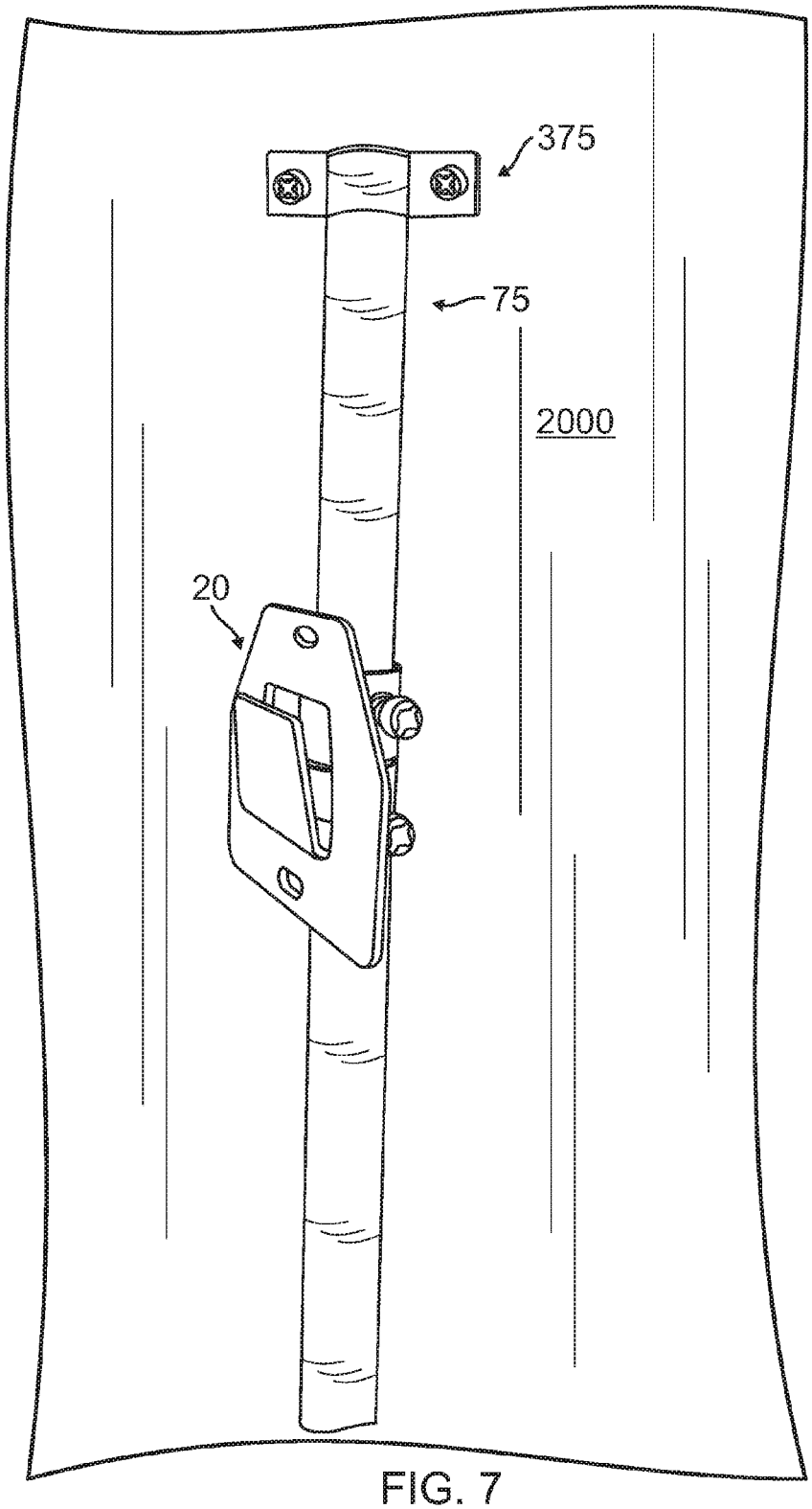


FIG. 7

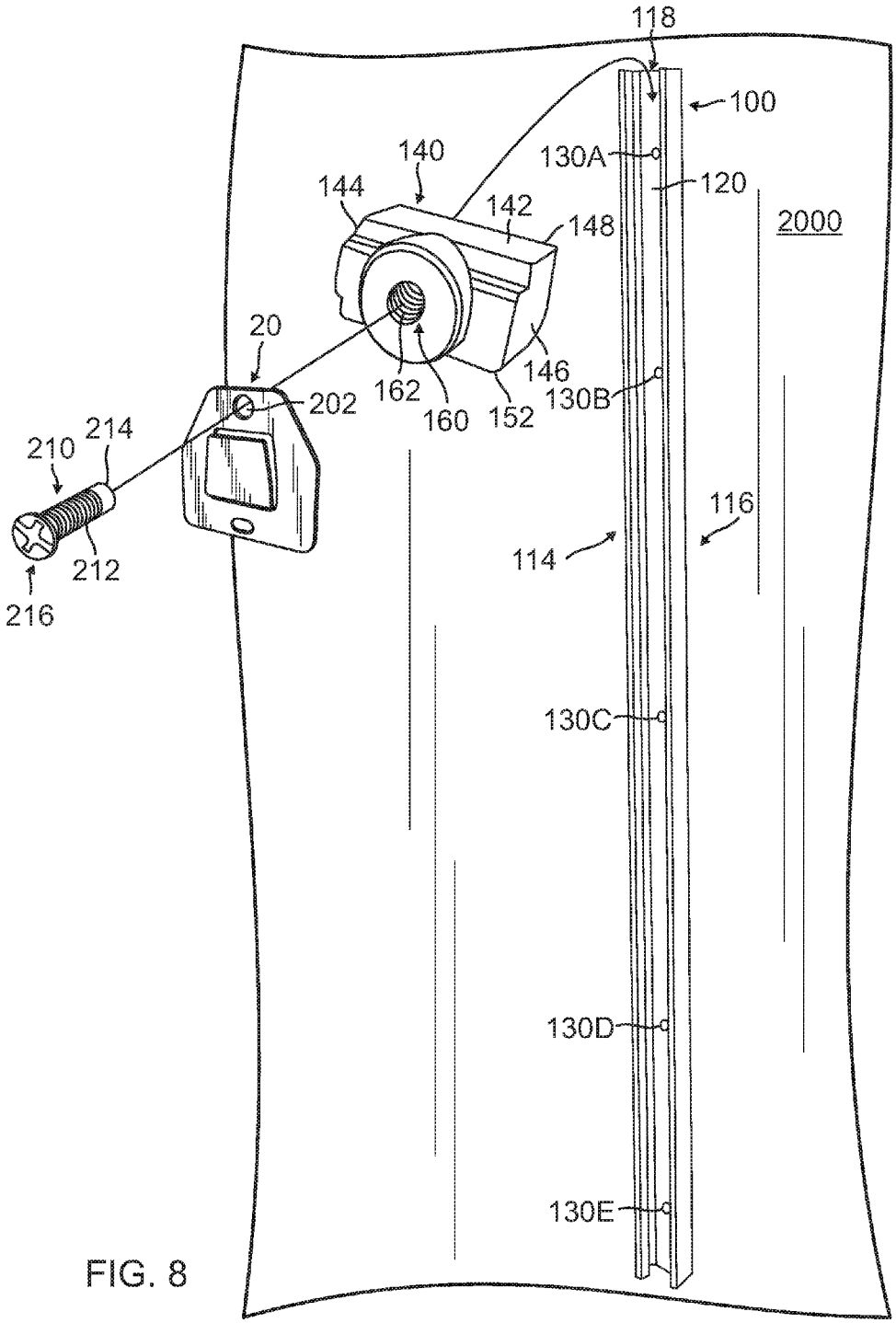

118
100
140
130A
144
120
142
148
2000
20
146
202
162
160
152
130B
210
214
116
114
212
216
130C
130D
130E

FIG. 8

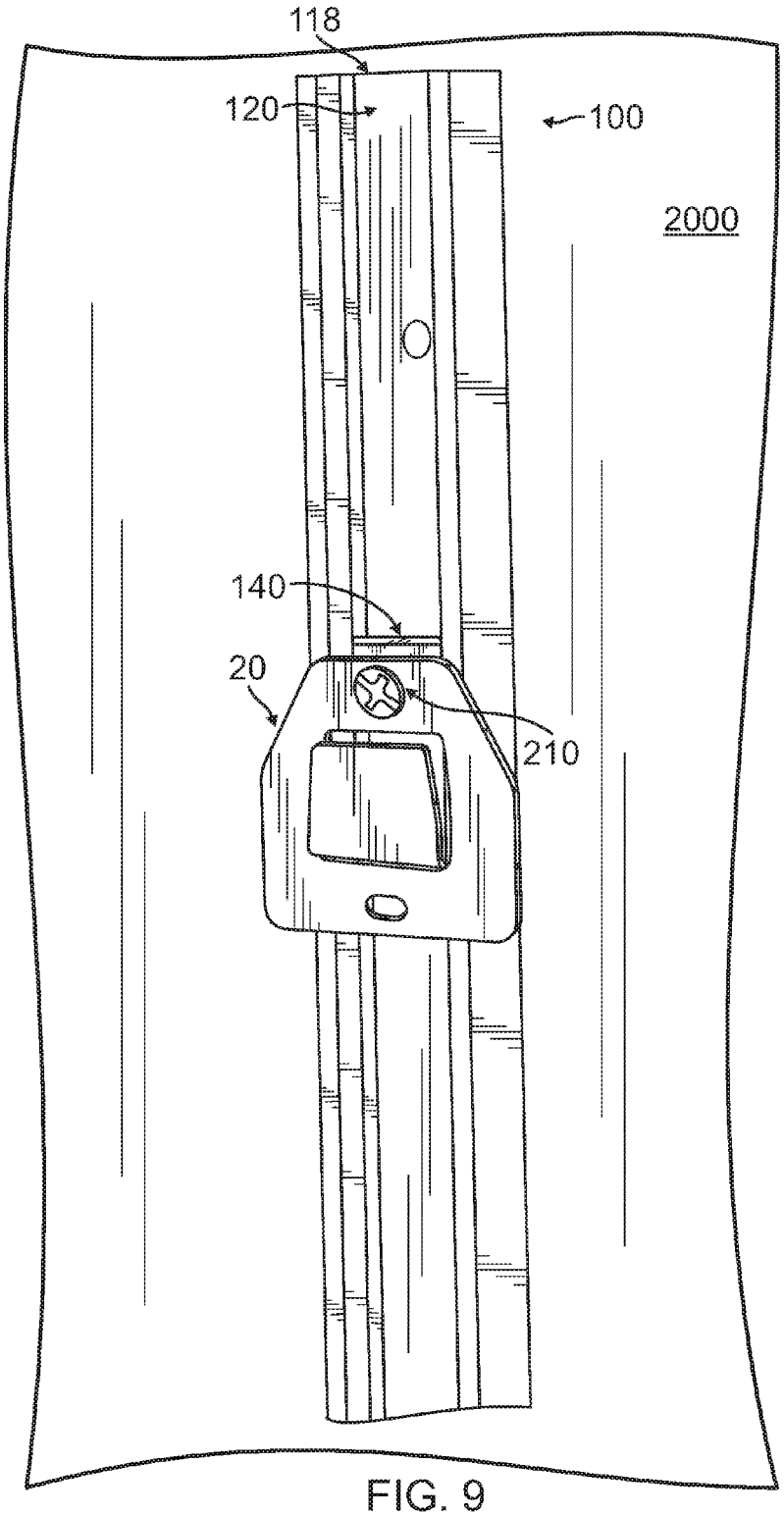


FIG. 9

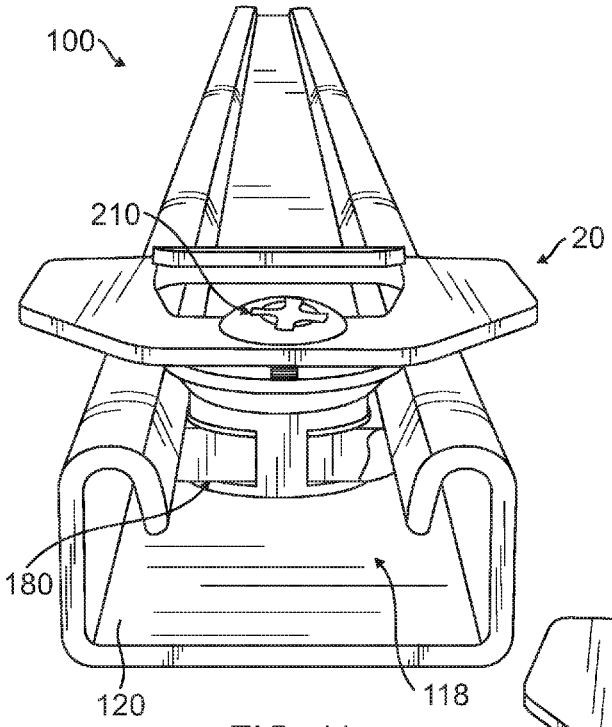


FIG. 11

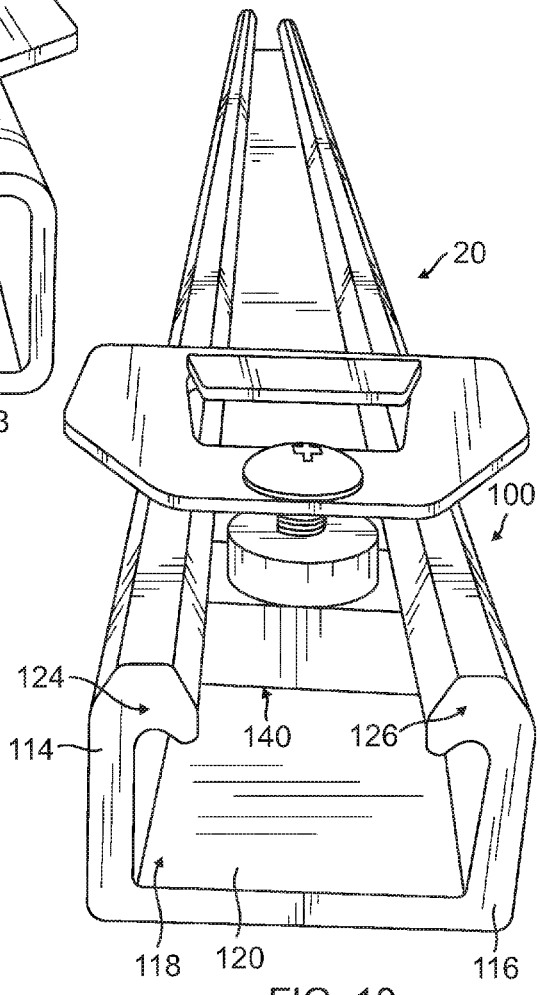


FIG. 10

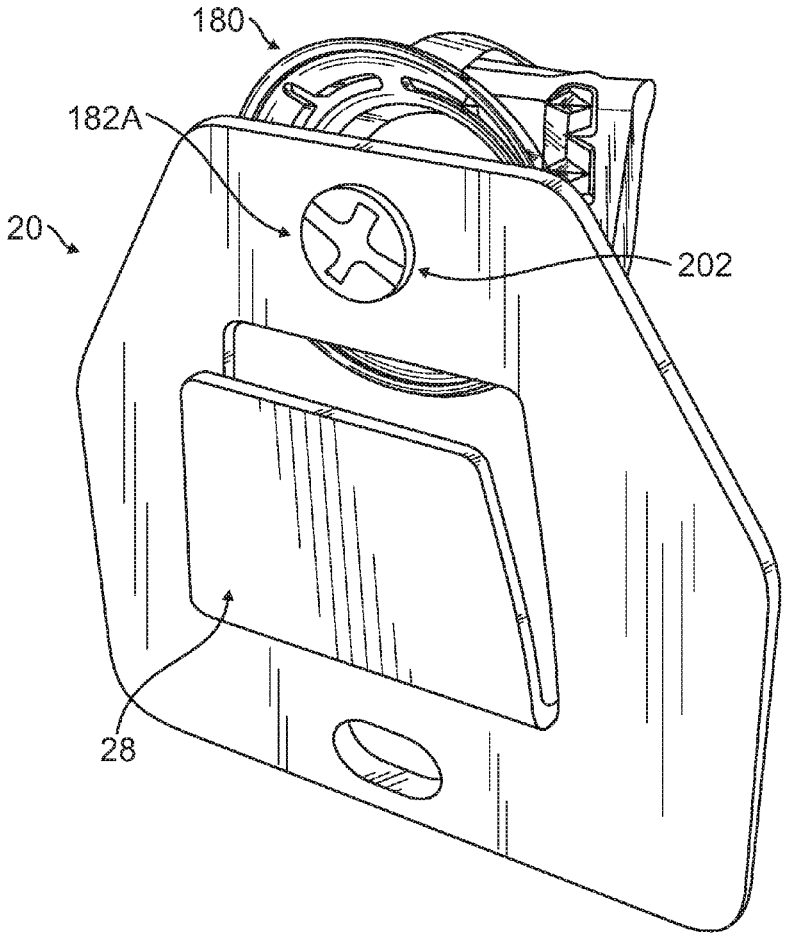


FIG. 12

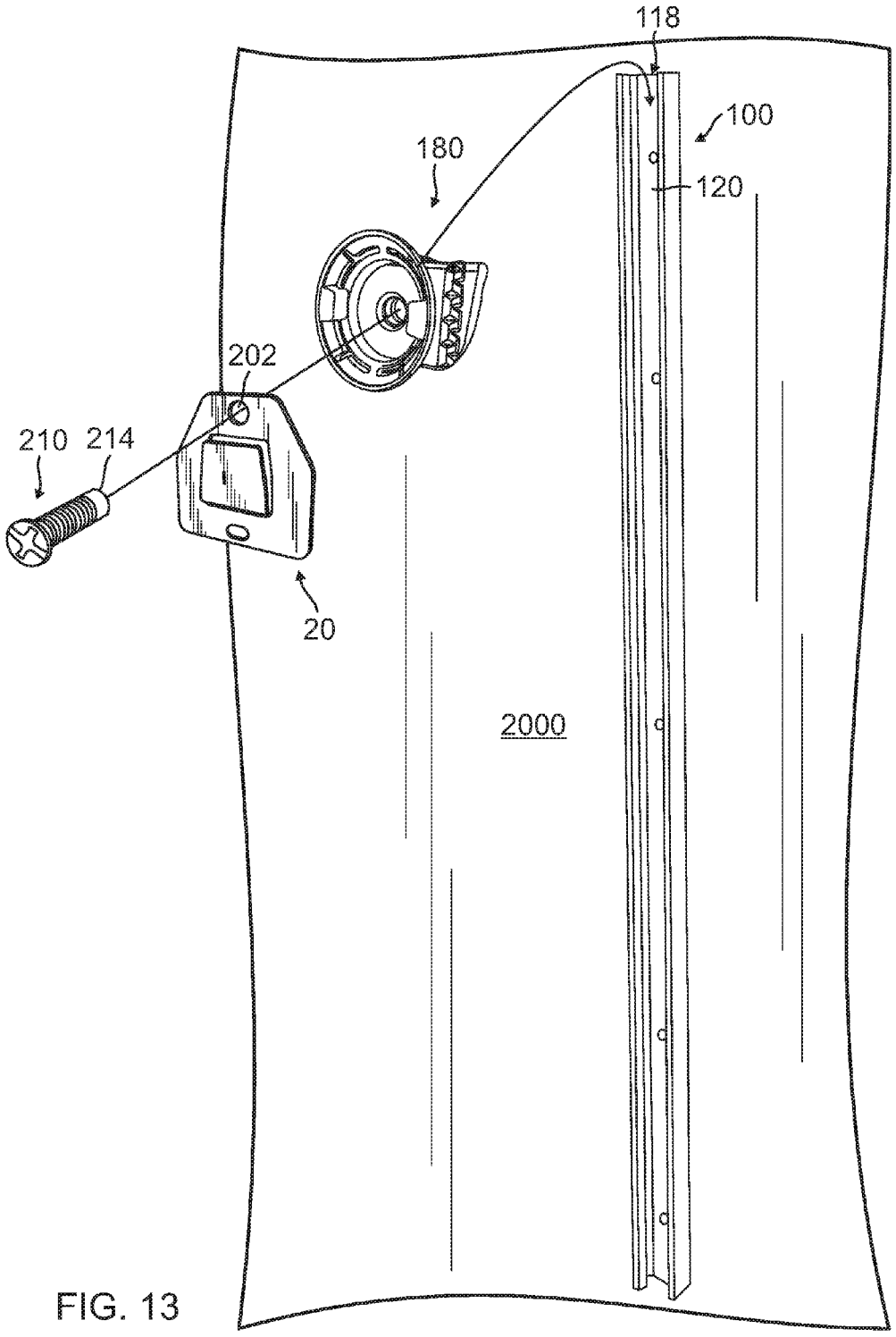


FIG. 13

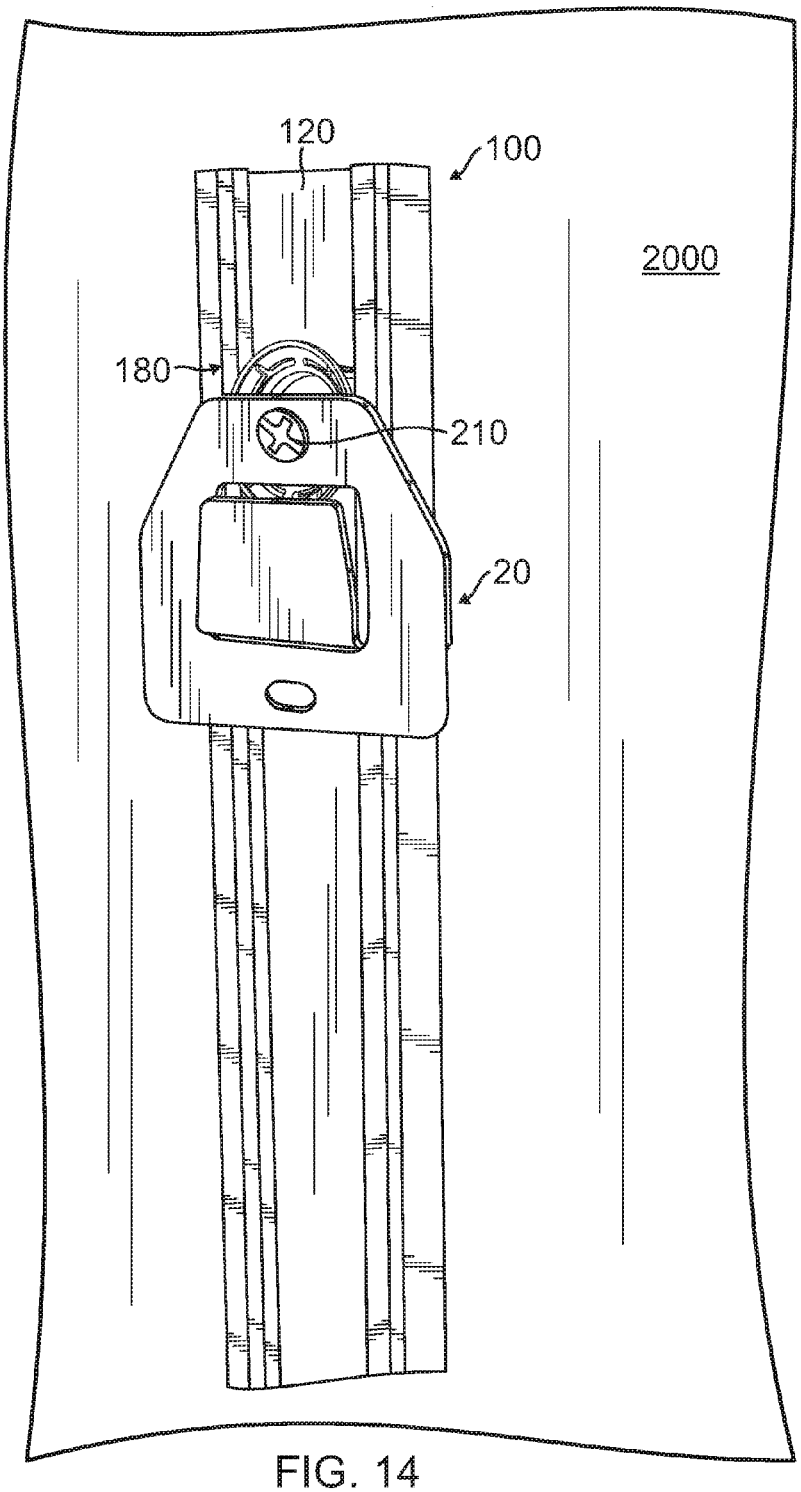
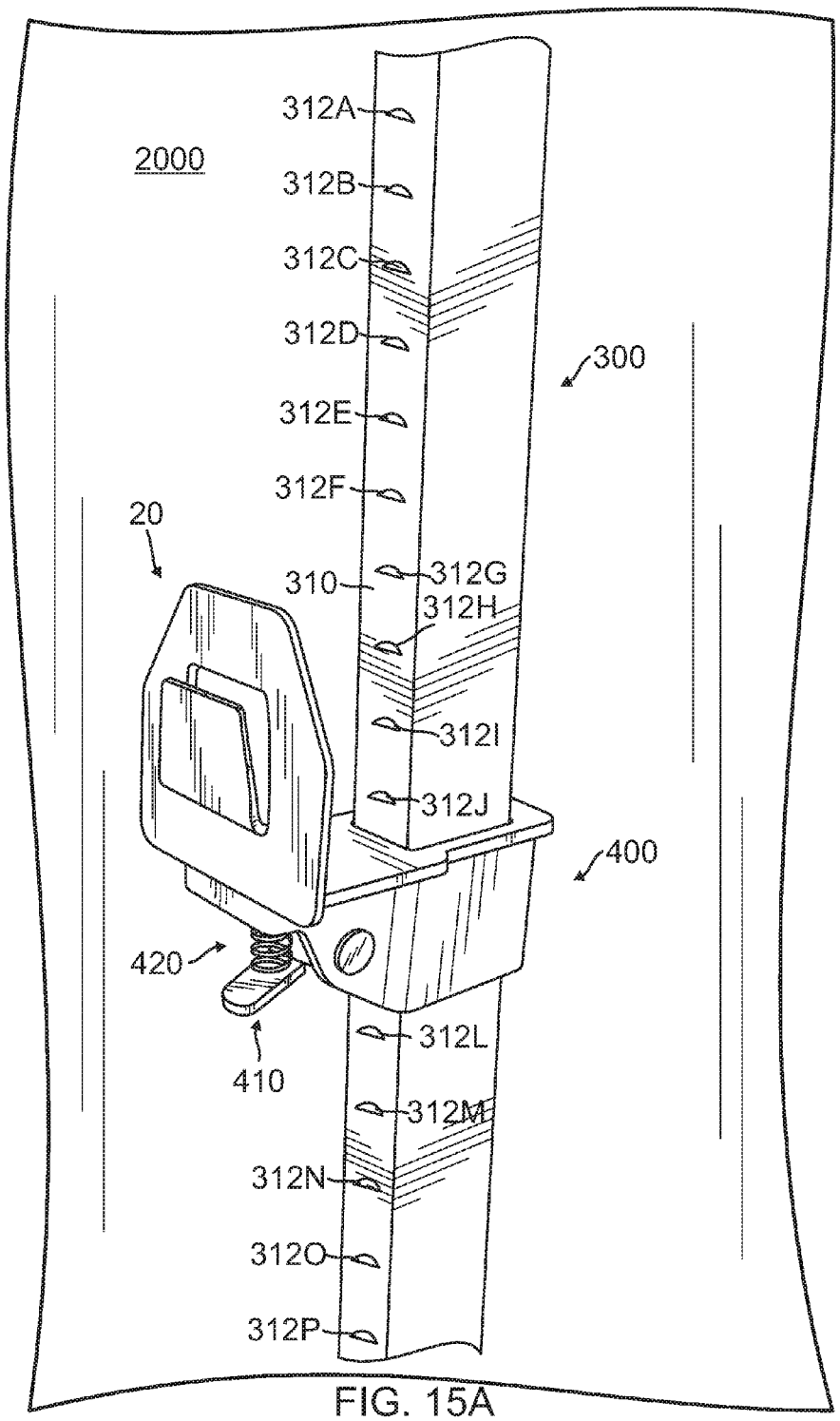


FIG. 14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312A
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312C
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FIG. 15A

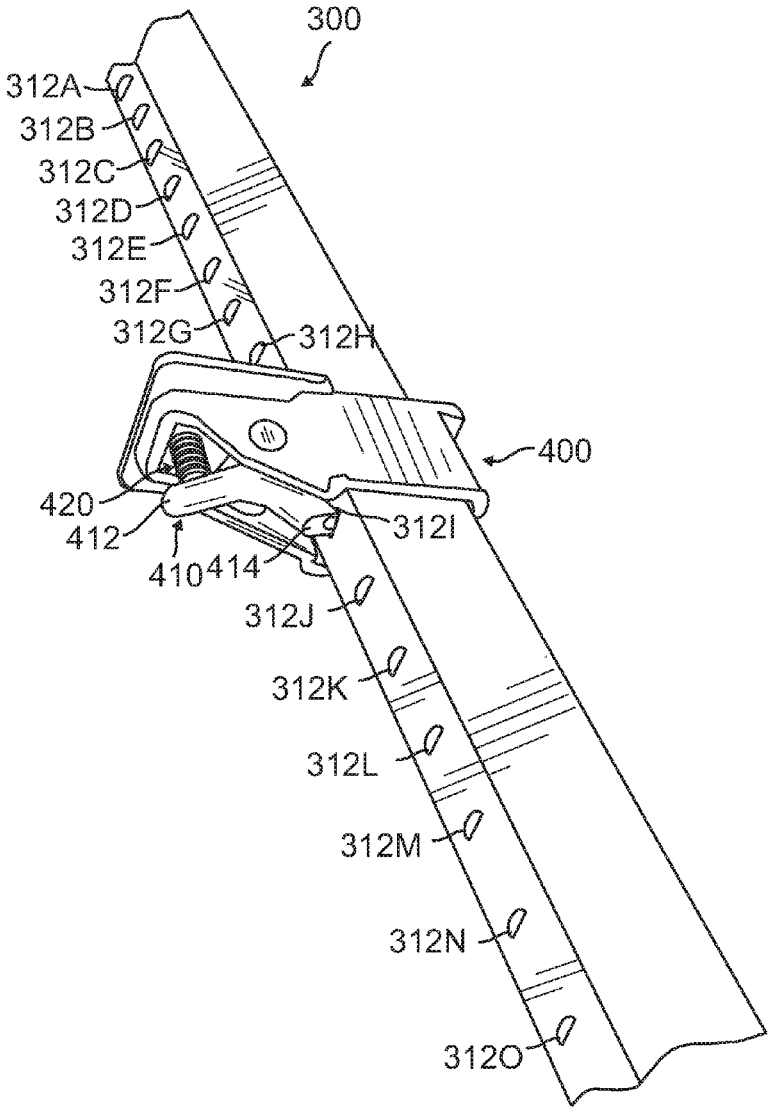
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FIG. 15B

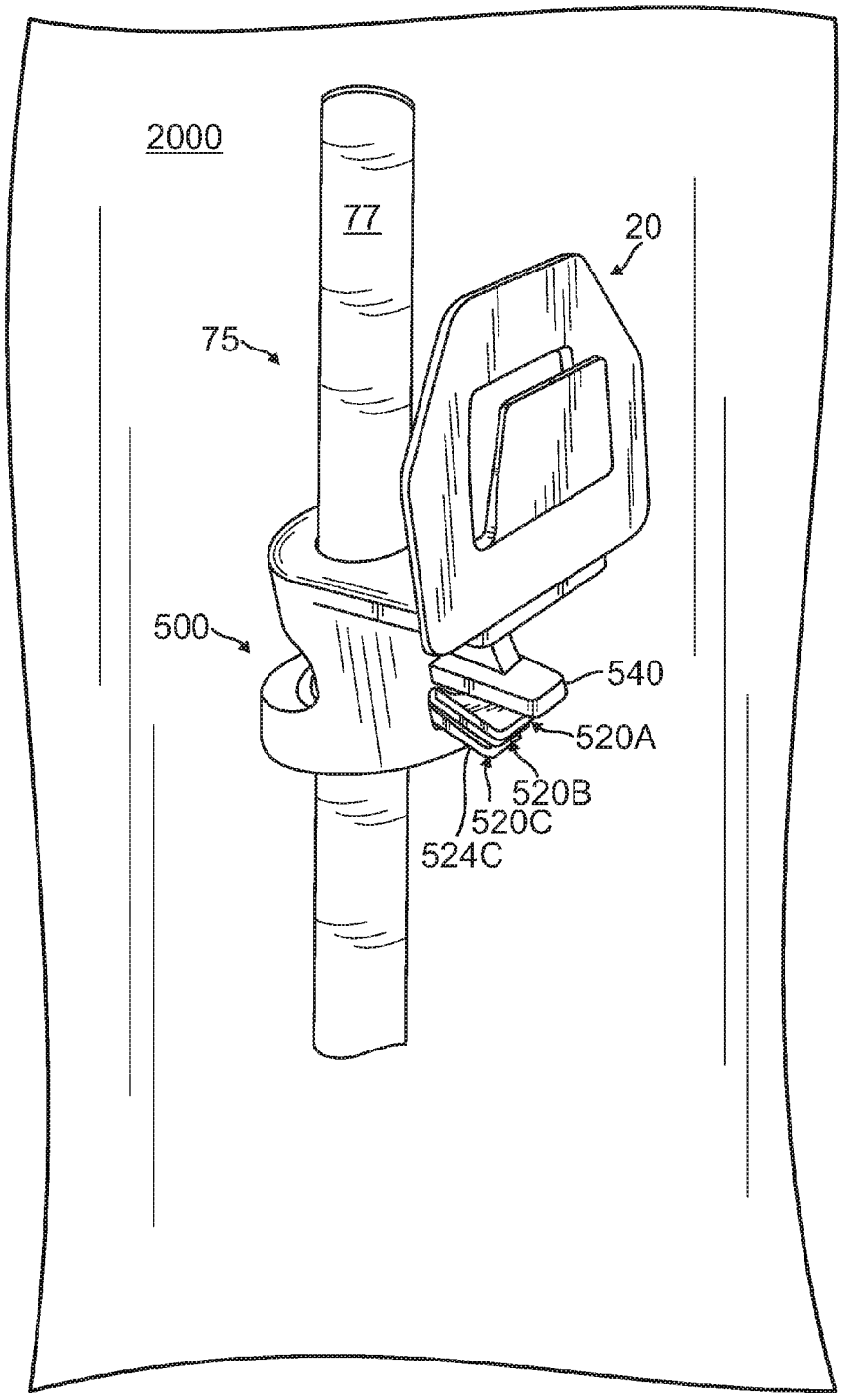

FIG. 16A

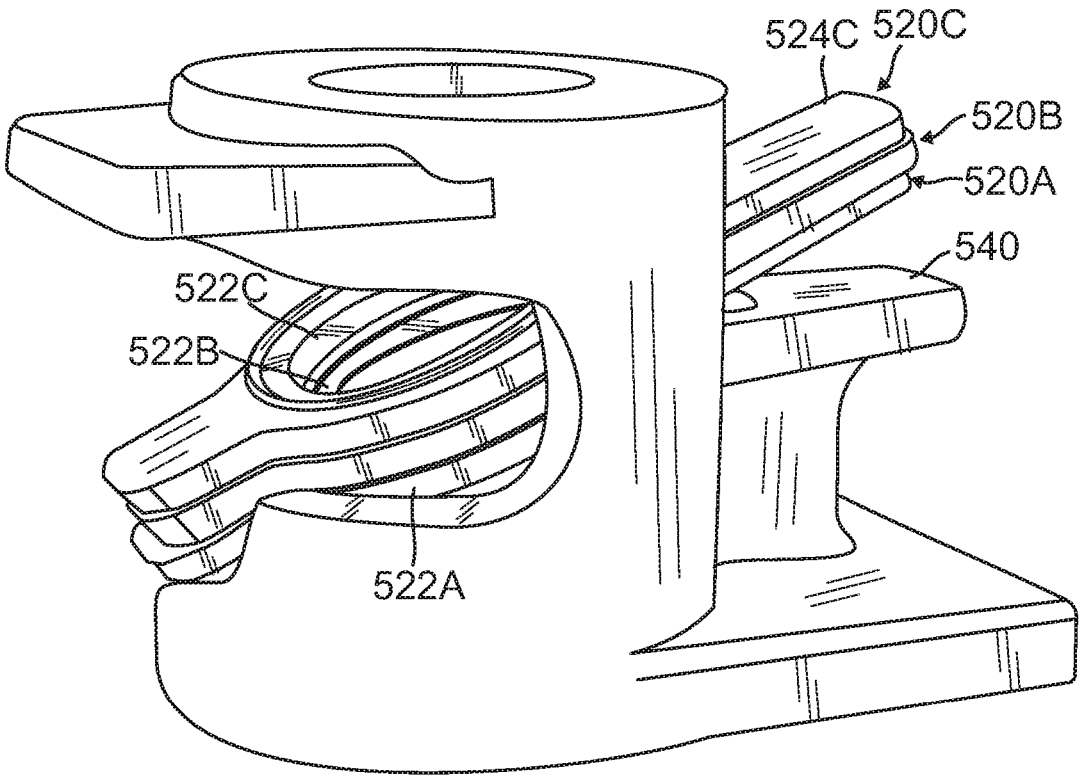

FIG. 16B

ADJUSTABLE WALL MOUNT RETAINING MEMBER TO ADJUST THE HEIGHT OF A WALL MOUNTED FAN

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to the field of air circulation systems. Specifically, this invention relates to air circulation fans used in conjunction with a mounting structure.

2. Description of the Prior Art

To the best of the present inventor's knowledge, there are no prior patents that disclose the present invention.

There is significant need for an improved adjustable mounting bracket method to affix a fan to a multitude of different elevations along a wall mounted structure.

SUMMARY OF THE NVENTION

The present invention is at least one adjustable mounting bracket and channel mounting assembly affixed to an interior wall of an enclosure in a structure to provide a vertical channel member to which the mounting bracket is removably affixed to enable the mounting bracket to be positioned along different vertical heights. The mounting bracket retains a cooling and air circulation member selected from the group consisting of a fan, an oscillating fan, and a cooling tower. The ability to adjust the vertical location of the mounting bracket along the vertical channel facilitates adjusting the vertical height location of the cooling and air circulation member.

Specifically, this invention relates to an adjustable mounting bracket which retains a fan and works in conjunction with a structure that is affixed to a wall or mounting surface. The adjustable mounting bracket used in conjunction with the structure allows the mounting bracket to be affixed at various elevations along a wall for purposes of affixing a fan to the adjustable mounting bracket. This allows a fan to be affixed at any desired elevational along the wall.

The present invention is a method for attaching a fan to a wall at various locations using an adjustable mounting plate and support for an adjustable mounting plate. The method disclosed herein allows a user to affix a fan to the adjustable mounting plate on a wall at a multitude of different heights desired by the user and to further quickly and easily re-affix the fan to a new desired height.

Horticulture is the branch of agriculture that deals with the art, science, technology, and business of growing plants. It includes the cultivation of plants, fruits, vegetables, nuts, seeds, herbs, sprouts, mushrooms, algae, flowers, seaweeds and non-food crops such as grass and ornamental trees and plants. It also includes plant conservation, landscape restoration, landscape and garden design, construction, and maintenance, and arboriculture. Inside agriculture, horticulture contrasts with extensive field farming as well as animal husbandry.

Horticulturists apply their knowledge, skills, and technologies used to grow intensively produced plants for human food and non-food uses and for personal or social needs. Their work involves plant propagation and cultivation with the aim of improving plant growth, yields, quality, nutritional value, and resistance to insects, diseases, and environmental stresses. Horticulturists have found that the cultivation or growing of plants indoors has numerous benefits. First, the horticulturist has greater control over the internal atmospheric conditions that affect the growth of the plant. These conditions that can be set to optimum conditions for growth include but are not limited to temperature, humidity, amount of light, amount of oxygen, and amount of carbon dioxide. A major factor in the growing of plants indoors is the amount of air circulation and more specifically the amount of oxygen and carbon dioxide that a plant is receiving. As the plant grows, the height of the air cooling and air circulation member such as the fan must be adjusted so that the fan is at least level with or above the height of the plants.

To effectively control the amount of air that a plant is receiving when growing indoors, it is beneficial to raise or lower the height of a fan to correspond to a plants or group of plants height that is being grown. It is an object of the present invention to provide a method for raising or lowering the vertical position of a fan along a wall in an easy manner. This method disclosed herein includes affixing a structure to a wall and an adjustable mount affixed to the structure which adjustable mount retains a fan and a method and apparatus to quickly and easily raise or lower the vertical location of the mount.

It is also an object of the present invention to have different support structure embodiments. These embodiments for the support structure include a circular tube, a rectangular shaped tube, and a channel bracket that is affixed to the wall by means of screws, bolts, or mount screws. It is also within the spirit and scope of this invention to have tube end plugs, saddle spacers, and tube wall screws used in the support structure. Further, the tube maybe one piece or multiple pieces that can fit together by means of press fitting, threaded ends, or other standard affixable means.

It is an additional object of the present invention to provide different embodiments for the retaining members that affix the adjustable mounting plate to the structure. Working in conjunction with the elongated or circular tube are retaining cylinders that traverse vertically up and down along the tube which can be either affixed to the adjustable mounting plate or affixed by additional screws. The adjustable mounting plate may also be affixed to the tube by means of a clutch.

It is a further object of the present invention for a channel nut to fit inside and work in conjunction with the channel bracket, machine screws, and the adjustable mounting plate to allow a user to affix a fan at any vertical location along the channel bracket with the channel bracket traversing vertically up and down a wall. For installation purposes, the flange must be in the up position when affixed to the wall and the top of the structure should be affixed first.

It is still a further object of the present invention to provide a method for affixing an adjustable fan to a wall and allow a user to quickly and easily adjust the vertical height of the fan from a first height or location to a second and different height or location. The methods contained herein disclose multiple embodiments for both the structure along the wall and the means by which the location of the fan is adjusted. What is consistent throughout is the means by which the fan base is attached to the mounting bracket. There is a female receptacle located on the base of the fan which receives a male retaining member on the mounting plate and allows the male retaining member to interlock with the female retaining member.

Further novel features and other objects of the present invention will become apparent from the following detailed description, discussion and the appended claims, taken in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Referring particularly to the drawings for the purpose of illustration only and not limitation, there is illustrated:

FIG. **1** is a front elevational view of a male mounting plate;

FIG. **2** is a rear elevational perspective view of a female mounting plate affixed to the back of a fan (with the protective around the fan blade removed);

FIG. **3** is a side elevational view of a male mounting plate affixed to retaining cylinders that are adjustable affixed to a circular tube;

FIG. **4** is a front elevational perspective view of a circular tube being affixed to a wall by use of tube wall screws and spacers;

FIG. **5** is an exploded front elevational view of a circular tube being affixed to a wall by use of tube wall screws and spacers;

FIG. **6** is front elevational perspective view of the male mounting plate affixed to retaining cylinders that are adjustably affixed to a circular tube with the circular tube affixed to a wall using a clamp;

FIG. **7** is front elevational perspective view of a male mounting plate affixed to retaining cylinders that are adjustably affixed to a circular tube with the circular tube affixed to a wall using a saddle clamp;

FIG. **8** is a front elevational exploded view of a threaded bolt, male mounting plate, channel nut, channel bracket, and wall;

FIG. **9** is a front elevational perspective view of the adjustable male mounting plate affixed by channel nut and threaded bolt to a channel bracket on a wall;

FIG. **10** is a cross sectional view of the adjustable male mounting plate affixed to a channel bracket by channel nut and threaded bolt;

FIG. **11** is a cross sectional view of the adjustable male mounting plate affixed to a channel bracket by circular spacer channel nut and threaded bolt;

FIG. **12** is an enlarged perspective view of the adjustable male mounting plate, circular spacer channel nut, and threaded bolt;

FIG. **13** is a front elevational perspective exploded view of a threaded bolt, male mounting plate, circular spacer channel nut, channel bracket, and wall;

FIG. **14** is a front elevational perspective view of the male mounting plate affixed by threaded bolt and adjustable channel nut with aligner to a channel bracket on a wall;

FIG. **15**A is a front elevational perspective view of the male mounting plate affixed by an adjustable rectangular clutch to a rectangular tube;

FIG. **15**B is a bottom elevational perspective view of the adjustable rectangular clutch without the male mounting plate showing trigger pin and release contact end of adjustable rectangular clutch;

FIG. **16**A is a front elevational perspective view of the adjustable male mounting plate affixed by a circular clutch to a circular tube; and

FIG. **16**B is an inverted side perspective view of the adjustable circular clutch with bottom facing up to expose clutch discs inside of circular clutch.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE

PRESENT INVENTION

Although specific embodiments of the present invention will now be described with reference to the drawings, it should be understood that such embodiments are by way of example only and merely illustrative of but a small number of the many possible specific embodiments which can represent applications of the principles of the present invention. Various changes and modifications obvious to one skilled in the art to which the present invention pertains are deemed to be within the spirit, scope and contemplation of the present invention as further defined in the appended claims.

Referring to FIG. **1**, there is illustrated a male mounting plate **20** having a main male vertical plate **23** which has a first male front surface **22**, a first male rear surface **24**, a top hole **202**, a bottom hole **204**, a male retaining member **28** formed from a second male front surface **30** and a second male rear surface **32** extending away from first male front surface **22** at angle θ, a central open chamber **26** formed from first male front surface **22** and second male rear surface **32**. The main male vertical plate **23** includes a cut out opening **25** in one embodiment, the cut out opening **25** is sized to conform to the shape of male retaining member **28**.

Referring to FIG. **2**, there is illustrated a female mounting plate **60** which attaches to fan bottom **122** of fan **120**. Not shown in this Figure is the protective fan cage which surrounds the blades of these fans. Female mounting plate **60** has a first female vertical surface **62** and a female retaining member **70** which is formed from a first trapezoidal shaped wall **65**, a second trapezoidal shaped wall **66**, and a third trapezoidal shaped wall **67** that extend outward from first female vertical surface **72** and adjoin a second female vertical surface **72** forming an interior chamber **74** where male retaining member **28** can be inserted and retained.

Referring to FIG. **3**, there is illustrated a male mounting plate **20** affixed to a top retaining cylinder **40** and affixed to a bottom retaining cylinder **50**. The means of affixing male mounting plate **20** to top retaining cylinder **40** and bottom retaining cylinder **50** is by means of welding or spot welding. Top retaining cylinder **40** has an interior cylindrical wall **42**, an exterior cylindrical wall **44**, and cylindrical chamber **45** by which top retaining cylinder and bottom retaining cylinder can slide vertically along elongated tube **75**. Further illustrated in FIG. **3**, is a top cylinder hole **46** that passes through interior cylindrical wall **42** and exterior cylindrical wall **44**. Top affixing member **48** can then be used in conjunction with top cylinder hole **46** and elongated tube **75** to removably affix top retaining cylinder **40** to a desired vertical height along elongated tube **75** (and thereby affixing as well bottom retaining cylinder and male mounting plate **20** to relatively the same vertical height because these pieces are affixed together). Top affixing member **48** can be tightened so that a top distal end **49** of top affixing member **48** comes in contact and presses against exterior circumferential sidewall **77** of elongated tube **75**. The tightening force applied to top affixing member **48** retains top retaining cylinder **40**, bottom retaining cylinder **50**, and male mounting plate **20** affixed along elongated tube **75**. Similarly, top affixing member **48** can be loosened to allow top retaining cylinder **40**, bottom retaining cylinder **50**, and male mounting plate **20** to slide vertically along elongated tube **75** to a new desired location and then be affixed by tightening top affixing member **48**. By way of example, top affixing member **48** is selected from the group consisting of a threaded bolt, a press fit bolt, set screw and a threaded screw.

Referring to FIGS. **4** and **5**, there is illustrated a top portion **78** of elongated tube **75** that is affixed to mounting surface or wall **2000** (this term will be called out as wall **2000** however mounting surface is within the spirit and scope of this invention) by means of screws **82**A and **82**B and spacers **84**A and **84**B. Screws **82**A and **82**B fit respectively through holes **80**A and **80**B of elongated tube **75** and then through holes in center of spacers **84**A and **84**B.

Spacers **84**A and **84**B aid in retaining elongated tube **75** to wall **2000** by providing a transition from a flat surface to a curved surface. Not shown in FIGS. **4** and **5** is the bottom of elongated tube **75** which contain affixing screws, holes, and spacers identical to top portion **78** of elongated tube **75**.

Referring to FIG. **6**, there is illustrated an alternative means to affix elongated tube **75** to wall **2000**. In this embodiment tube mounting clamp A **275** is used to affix elongated tube **75** to wall **2000**. Two tube mounting clamps would be used (one at the top and one at the bottom of elongated tube **75**). Further shown in FIG. **6** is top retaining cylinder **40** and bottom retaining cylinder **50**. Similar to the first embodiment, top retaining cylinder **40** is affixed (this could be done by spot welding but is not limited to this affixation method) to male mounting plate **20**. This embodiment though also includes a bottom retaining cylinder **50** which is also affixed male mounting plate **20**. Working in conjunction with elongated tube **75** male mounting plate **20** is moveably affixed to elongated tube **75** by tightening or loosening top affixing member **48** and bottom affixing member **58**. Further shown in FIG. **6** is tube mounting clamp A **275** which may be used to affix elongated tube **75** to wall **2000**.

Referring to FIG. **7**, there is illustrated another embodiment of a means to affix elongated tube **75** to wall **2000**. Shown in FIG. **7** is tube mounting clamp B which also can be used to affix elongated tube **75** to wall **2000**. Two tube mounting clamps would be used (one at the top and one at the bottom of elongated tube **75**).

FIGS. **8**, **9**, and **10** illustrate another embodiment of the present invention showing male mounting plate **20** working in conjunction with channel nut **140** and male mounting plate **20** being moveably affixed to a channel bracket **100** with channel bracket **100** being affixed to wall **2000**.

Referring to FIG. **8**, there is illustrated an embodiment with a channel nut **140** working in conjunction with channel bracket **100** that is affixed to wall **2000**. Channel bracket **100** has a rear surface **120** which has a multiplicity of openings such as **130**A, **130**B, **130**C, **130**D, **130**E, etc., with at least one opening on the top of channel bracket **100** and one opening on the bottom of channel bracket **100** which are used to affix channel bracket **100** to wall **2000** by affixing members such as screws, bolts, or other similar fastening members. The screws can be one way screws, metal screws, or wood screws, but should be designed to accommodate the wall the channel bracket that it is being affixed to.

Further referring to FIG. **8**, channel nut **140** has a nut first sidewall **144**, a nut second sidewall **146**, a nut top wall **142**, a nut bottom wall **152**, a nut rear wall **148**, and a threaded hole **160**. When channel nut **140** is placed inside of interior chamber **118** of channel bracket **100**, nut first sidewall **144** is adjacent and slides against first sidewall **114**, nut second sidewall **146** is adjacent and slides against second sidewall **116**, and nut rear wall **148** is adjacent and slides against rear surface **120** of channel bracket **100**.

Referring to FIG. **8** through **10**, rear surface **120** of channel bracket **100** connects to a pair of oppositely disposed sidewalls: first sidewall **114** and a second sidewall **116**. First sidewall **114** and second sidewall **116** extend and then curve approximately 180 degrees at a distal end to form a first flange **124** and a second flange **126** respectively. First flange **124** and second flange **126** curve inward toward the center of channel bracket **100** forming an interior chamber **118** that channel nut **140** can slide within.

Referring to FIGS. **8** and **10**, there is illustrated male mounting plate **20** with top hole **202** that is retained to channel nut **140** by channel nut bolt **210**. Channel nut bolt **210** fits through top hole **202** and then affixes to channel nut **140** when exterior threads **212** are screwed into interior threads **162** of channel nut **140**. Male mounting plate **20** can then be moved vertically within interior chamber **118** of channel bracket **100** until a desired vertical height is reached as shown in FIG. **10**. Once a desired vertical height is reached, channel nut bolt **210** can be used to retain male mounting plate **20** at the desired height by rotating head **216** of channel nut bolt **210** with a screw driver until threaded bolt end **214** has passed entirely through top hole **210** and threaded hole **160**. Then male mounting plate **20** may be retained by tightening channel nut bolt **210** until a force greater than the weight of the mounting bracket and fan is being applied to rear surface **120** by threaded bolt end **214**. The user then has the ability to raise or lower the fan simply by loosening channel nut bolt **210** to release some of the pressure being applied by threaded bolt end **214** and move the mounting plate to the new desired location and tighten channel nut bolt **210**.

FIGS. **11**, **12**, **13**, and **14** illustrate male mounting plate **20** working in conjunction with channel nut with circular aligner **180** and male mounting plate **20** which are moveably affixed to channel bracket **100** with channel bracket **100** being affixed to wall **2000**.

Referring to FIG. **11** there is illustrated a cross sectional view of channel bracket **100** working in conjunction with circular spacer channel nut **180** and male mounting plate **20**. Further illustrated in FIG. **11** is circular spacer channel nut **180** placed inside of interior chamber **118** of channel bracket **100**. Also shown in this figure is channel nut bolt **210** which can be tightened to affix male mounting plate **20** to a desired vertical location along channel bracket **100**.

Referring to FIG. **12**, there is illustrated an enlarged view of male mounting plate **20** with male retaining member **28** being affixed to circular spacer channel nut **180** by channel nut bolt **210** fitting through top hole **202** of male mounting plate **20**.

Referring to FIG. **13**, there is illustrated an exploded view of how male mounting plate **20** is affixed to a desired location along channel bracket **100** by use of channel nut bolt **210**, circular spacer channel nut **180**, and wall **2000**. Similar to previously disclosed embodiment in FIG. **8**, male mounting plate **20** can be affixed to a desired elevation (or location if the channel bracket is affixed horizontally along a wall) along channel bracket **100** which is affixed to wall **2000** as shown in FIG. **14**.

Referring to FIGS. **15**A and **15**B, there is illustrated a rectangular tube **300** that is working in conjunction with a rectangular clutch **400**. Also illustrated are dimple notches **312**A, **312**B, **312**C, **312**D, **312**E, **312**F, **312**G, **312**H, **3121**, **312**J, **312**K, **312**L, **312**M, **312**N, **312**O, and **312**P located on rectangular exterior surface **310** of rectangular tube **300**. Rectangular clutch **400** is rigidly affixed to male mounting plate **20**. A user can raise or lower rectangular clutch **400** and male mounting plate **20** along rectangular tube **300** by pressing trigger pin **410**. When the desired location or elevation is selected, trigger pin **410** can be released. Trigger pin **410** has a handle **412** that when pressed causes compression spring **420** to compress and release contact end **414** of clutch **400** to be released and no longer in contact with rectangular exterior surface **310** of rectangular tube **300**. Release contact end **414** is designed to fit into dimple notches **312** A through **312** P.

When trigger pin **410** is pressed rectangular clutch **400** and male mounting plate **20** can move freely move along rectangular tube **300**. When the new location is selected,

trigger pin is released and release contact end is positioned to rest within one of the above disclose dimple notches (**312** A through **312** P).

Referring to FIGS. **16**A and **16**B there is illustrated circular tube **75** that works in conjunction with a circular clutch or [Clutch-discs (end spring)]**500**, male mounting plate **20**, and wall **2000**. Circular clutch **500** is rigidly affixed to male mounting plate **20**. A user can raise or lower circular clutch **500** and male mounting plate **20** along circular tube **75** by use of three circular clutch-discs (**520**A, **520**B, and **520**C). When top end **524**A of clutch-disc **520**A is pressed, clutch-discs (**520**A, **520**B, and **520**C) move together in unison and the angle between the clutch-discs (**520**A, **520**B, and **520**C) and clutch platform **540** is decreased or made closer to zero. This allows circumferential endwalls **522**A, **522**B, and **522**C respectively on clutch-discs (**520**A, **520**B, and **520**C) to become closer to having the angle between the circumferential endwalls and clutch platform be equal to 90 degrees. As this angle becomes closer to 90 degrees the smaller the friction force that is applied to circular tube **75** from circumferential endwalls **522**A, **522**B, and **522**C.

In the initial resting condition without pressing circular clutch **500** can move freely upwards but not downwards along circular tube **75**. When top end **524**A of clutch-disc **520**A is pressed, as discussed in more detail in the previous paragraph, circular clutch **500** can move freely both upwards and downwards along circular tube **75**. When the desired location or elevation is selected then bottom end **524**C of clutch-disc **520**C is released and circular clutch **500** is prevented from moving downwards by the force from circumferential endwalls **522**A, **522**B, and **522**C respectively on exterior circumferential sidewall **77** which causes male mounting plate **20** to be affixed to a new location along circular tube **75**.

The embodiments for the present invention for the adjustable male mounting plate **20** working in conjunction with wall mounted structures: channel bracket **100**, circular tube **75**, or rectangular tube **300** and each wall mounted structure's respective level adjusting member, all perform the same end function of adjustably retaining female mounting plate **60** and fan **120** to a multitude of locations along a wall or mounting surface. The different embodiments disclosed herein though have different methods for the level adjusting members (top retaining cylinder **40** and bottom retaining cylinder **50**, rectangular clutch **400**, and circular clutch **500**) and the wall mounted structures (channel bracket **100**, circular tube **75**, and rectangular tube **300**). Nevertheless, every embodiment disclosed has female retaining member **70** of female mounting plate **60** and male retaining member **28** of male mounting plate **20** used to adjoin male retaining member **28** to female retaining member **70**.

Of course the present invention is not intended to be restricted to any particular form or arrangement, or any specific embodiment, or any specific use, disclosed herein, since the same may be modified in various particulars or relations without departing from the spirit or scope of the claimed invention hereinabove shown and described of which the apparatus or method shown is intended only for illustration and disclosure of an operative embodiment and not to show all of the various forms or modifications in which this invention might be embodied or operated.

What is claimed is:

1. An apparatus to provide air circulation through a fan mounted to a base having a female retaining member, the apparatus retained in an enclosed area housing growing plants, one plant having an associated height, the apparatus comprising:

a. a structure mounted to a mounting surface, wherein said structure is an elongated tube with an associated height;

b. a male mounting plate having a main male vertical plate which has a first male front surface, a first male rear surface, a cut out opening, only one male retaining member having a second male front surface and a second male rear surface extending away from said first male front surface at a given oblique angle relative to the main male vertical plate to create a central open chamber between said first male front surface of said main male vertical plate and said second male rear surface of said male retaining member;

c. a level adjusting member affixed to the male mounting plate, the level adjusting member having an adjustable retaining member to enable the level adjusting member to be positioned at any desired location along the height of said structure;

d. said male mounting plate and the affixed level adjusting member are moved to a location along the height of the elongated tube to cause the fan to be approximately above the height of the one plant;

e. said fan including a female mounting plate having, a first female vertical surface, and only one female retaining member formed from a first trapezoidal shaped wall, a second trapezoidal shaped wall, and a third trapezoidal shaped wall that extend outward from said first female vertical surface and adjoin a second female vertical surface forming an interior chamber;

f. said male retaining member is inserted into said interior chamber of said female vertical surface so that the female mounting plate is partially retained within said interior chamber and partially extends into said central open chamber and said female retaining member is placed over the male retaining member allowing the male retaining member to be inserted into the female retaining member to retain the fan at said location along the height of the elongated tube.

2. The apparatus to provide air circulation in accordance with claim **1**, further comprising: said structure is a channel bracket having a rear surface, a first sidewall and a second sidewall oppositely disposed of said first wall with said first sidewall extending away from said rear surface and then curving approximately 180 degrees at a distal end to form a first flange and second sidewall extending away from said rear surface and then curving approximately 180 degrees at a distal end to form a second flange.

3. The apparatus to provide air circulation in accordance with claim **2**, further comprising: a channel nut bolt passes through a top hole and a threaded hole of a channel nut bolt to moveably retain said male mounting plate to said channel.

4. The apparatus to provide air circulation in accordance with claim **1** wherein:

a. the elongated tube is circular in cross section; and,

b. the level adjusting member is a circular clutch with a platform wherein said male mounting plate is rigidly affixed to said platform;

c. the adjustable retaining member is defined by three circular clutch-discs, each defined by a top end and a circumferential endwall, wherein the three circular clutch-discs are positioned at an initial angle that is greater than zero relative to the platform so that the circumferential end walls of the three circular clutch-discs are out of alignment;

d. the elongated tube is provided through the circular clutch so that the elongated tube is in restrictive abutment with the endwalls of the three circular clutch discs when the end walls are out of alignment; and,

e. said movement of said male mounting plate and the affixed level adjusting member to the location along the height of the elongated tube to cause the fan to be approximately above the height of the one plant is accomplished via use of the three circular clutch-discs wherein

i. pressing a top end of the first clutch disc so that

(1) the three clutch-discs move together in unison to establish a second angle between the three clutch discs and platform, wherein second angle is decreased or made closer to zero relative to the initial angle and

(2) the endwalls of the three clutch discs align to release said restrictive abutment of the end walls and the elongated tube; and

ii. releasing the top end of the first clutch disc to move the endwalls of the three circular clutch discs out of alignment to reestablish the restrictive abutment of the elongated tube and the three clutch discs at the location.

5. The apparatus to provide air circulation in accordance with claim **4** wherein the circular clutch is configured such that the level adjusting member can move freely upward but not downward along the elongated tube without pressing the top end of the first of the three clutch discs.

6. A method of using the apparatus of claim **5** to provide air circulation, said method comprising the steps of:

locating the apparatus retained in an enclosed area housing growing plants;

allowing the level adjusting member to move freely upward along the elongated tube without pressing the top end of the first of the three clutch discs; and,

operating the fan to circulate air.

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