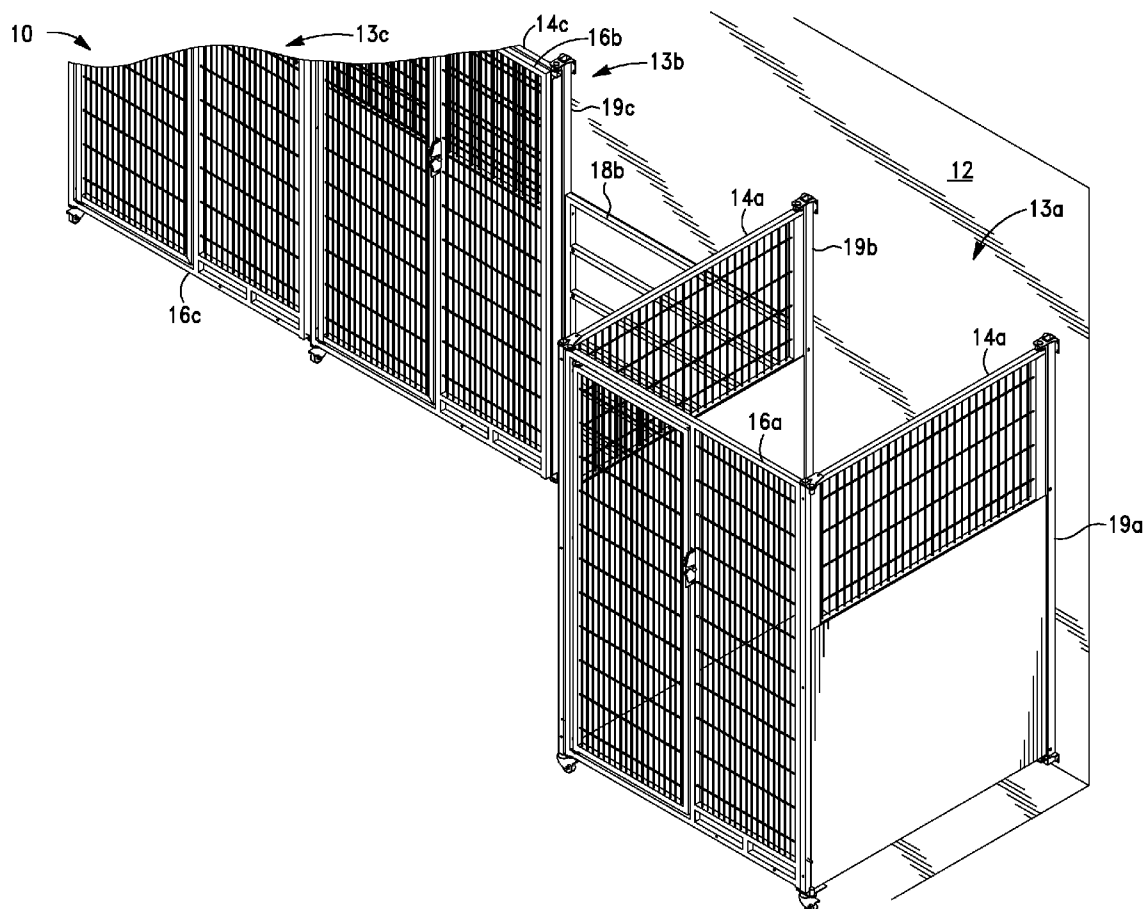




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(19) **United States**(12) **Patent Application Publication**
DONAHUE et al.(10) **Pub. No.: US 2013/0255588 A1**(43) **Pub. Date: Oct. 3, 2013**(54) **COLLAPSIBLE ANIMAL RUN**(71) Applicant: **T KENNEL SYSTEMS, INC.**, Kansas
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KS (US); **LARRY A. MATTHES**,
Sibley, MO (US)(21) Appl. No.: **13/862,557**(22) Filed: **Apr. 15, 2013****Related U.S. Application Data**(63) Continuation of application No. 12/910,307, filed on
Oct. 22, 2010, now Pat. No. 8,438,995.**Publication Classification**(51) **Int. Cl.**
A01K 1/00 (2006.01)(52) **U.S. Cl.**CPC **A01K 1/00** (2013.01)USPC **119/514**(57) **ABSTRACT**

An animal run having a plurality of side panels operable to be pivotally mounted along a central plane. Corresponding front panels are each pivotally coupled with one of the side panels and operable to be detachably coupled to an adjacent side panel. The side panels are moveable between a stored position, in which each side panel is positioned parallel the central plane, and an operational position, in which they extend outward at an angle from the central plane. Each front panel is moveable between a stored position, in which it is positioned parallel the central plane, and an operational position, in which it is positioned at an angle from the side panel to which it is coupled and is detachably coupled with the other side panel. The side panels and front panel are configured to contain a dog or cat when in their operational position.



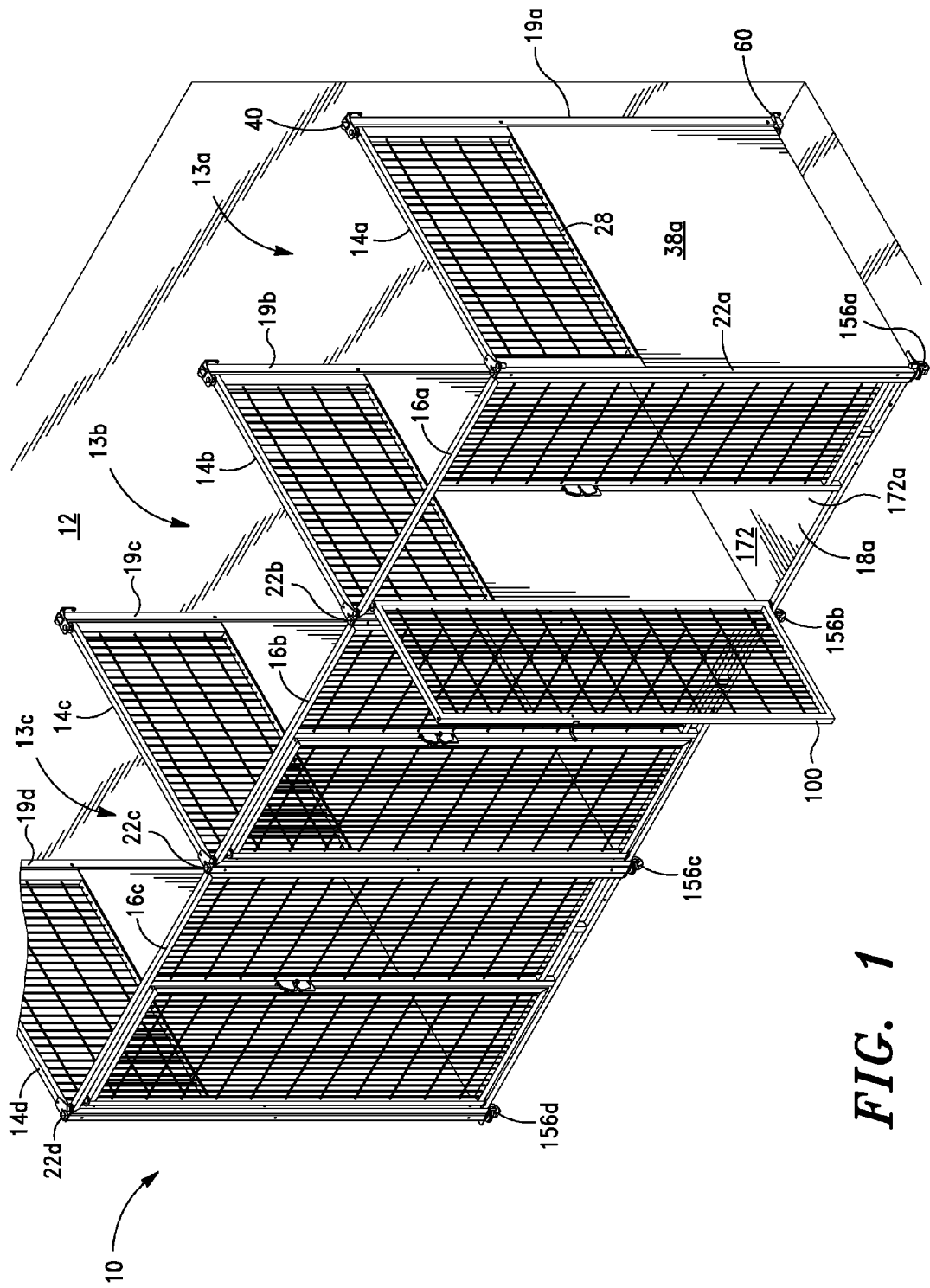


FIG. 1

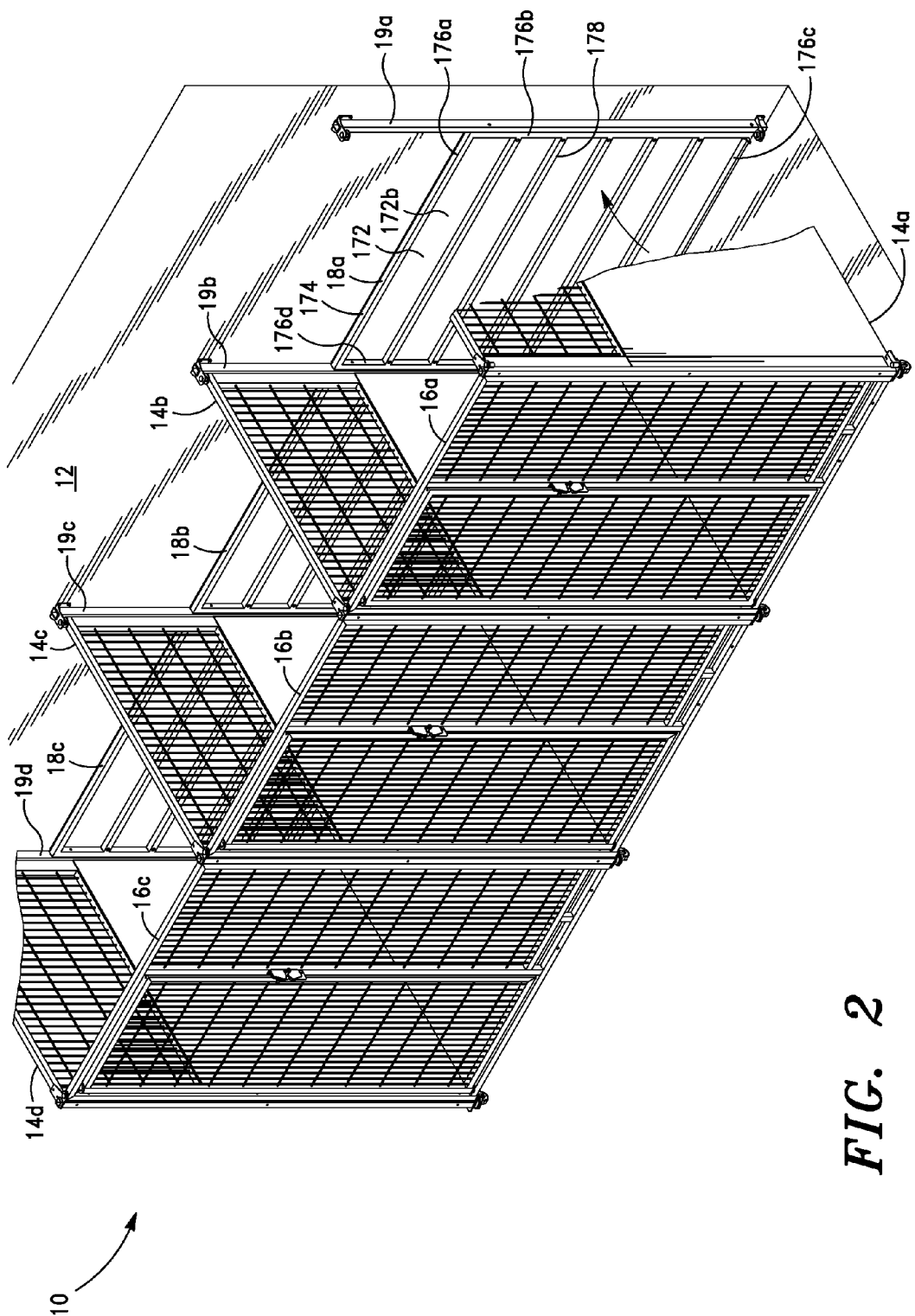


FIG. 2

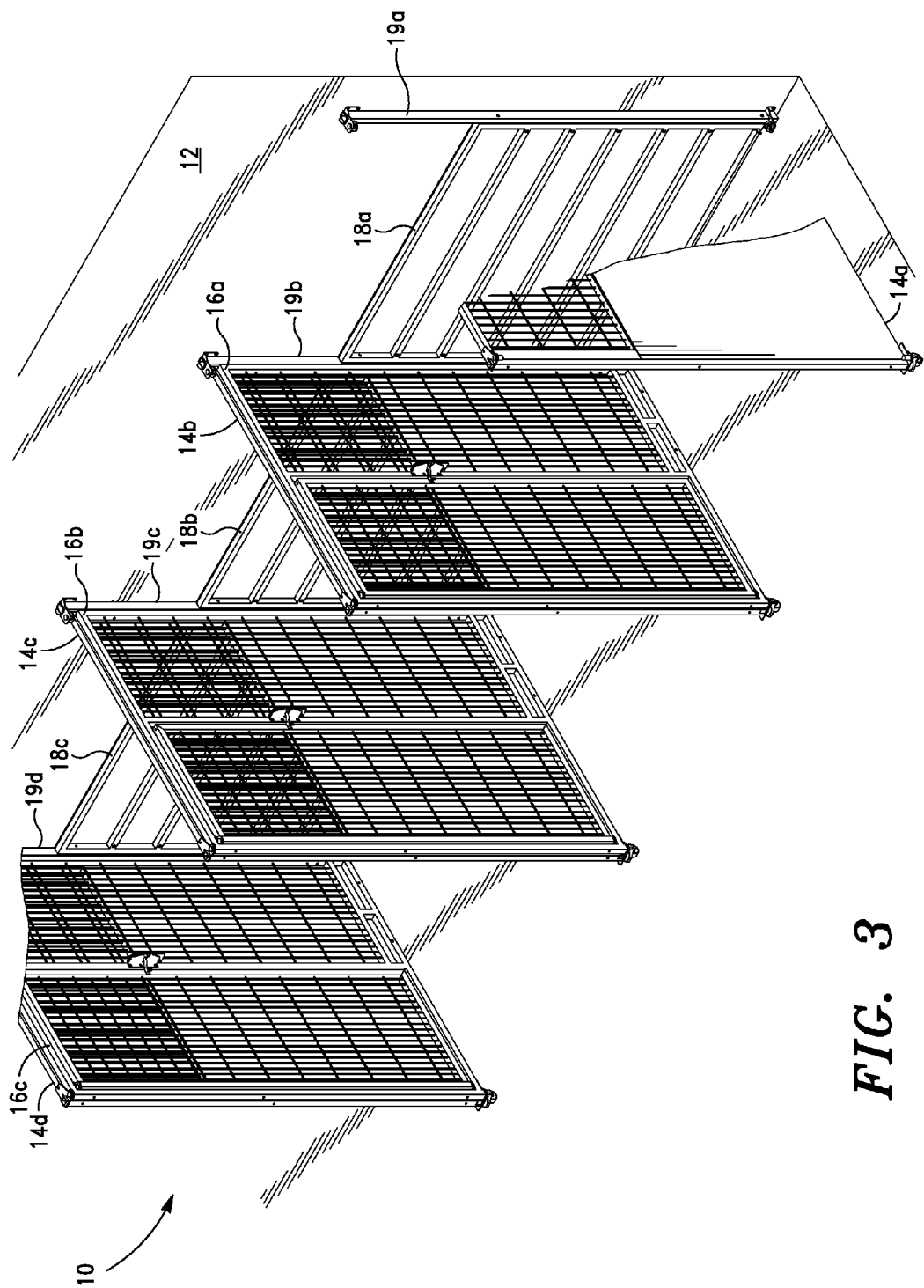


FIG. 3

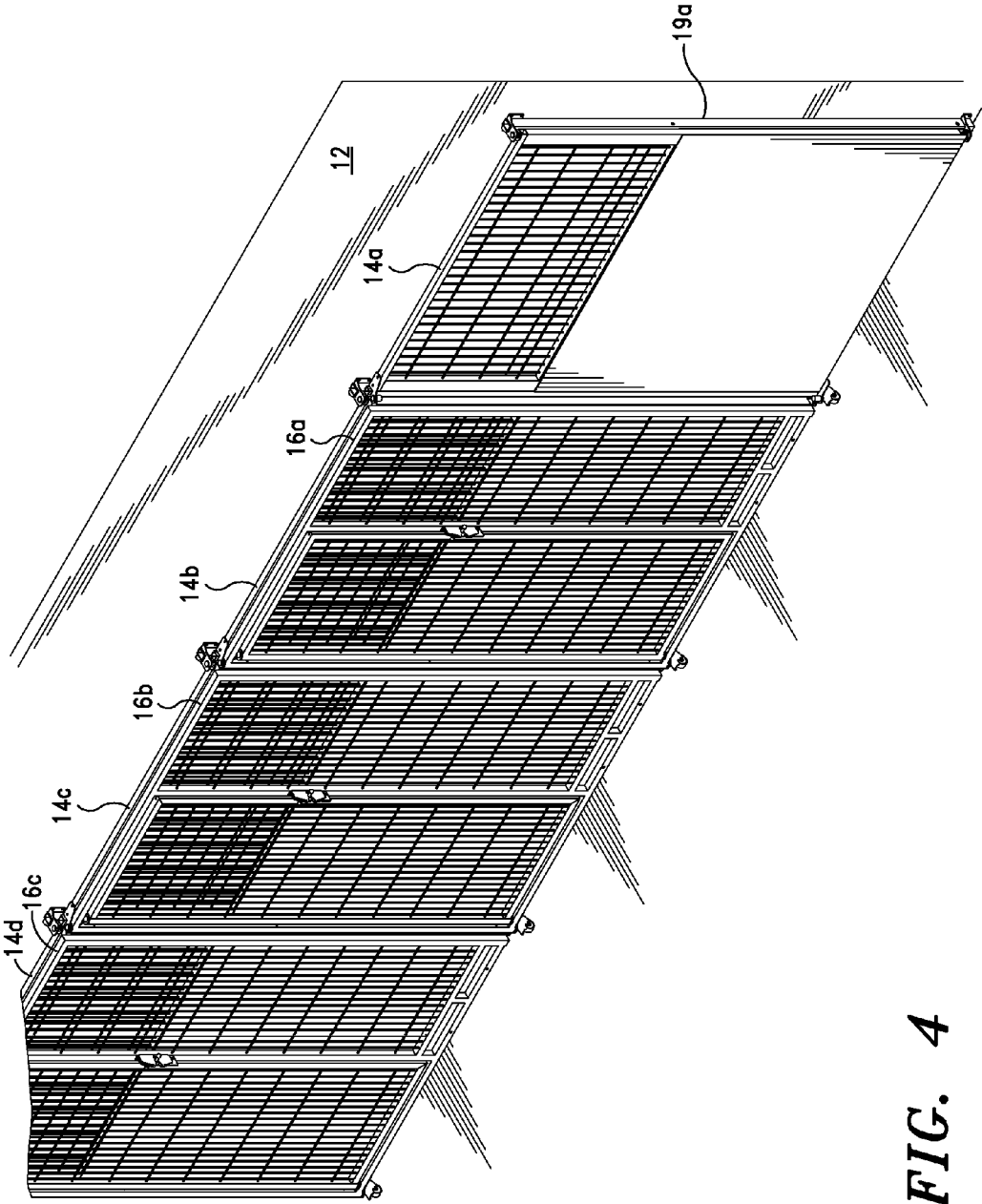


FIG. 4

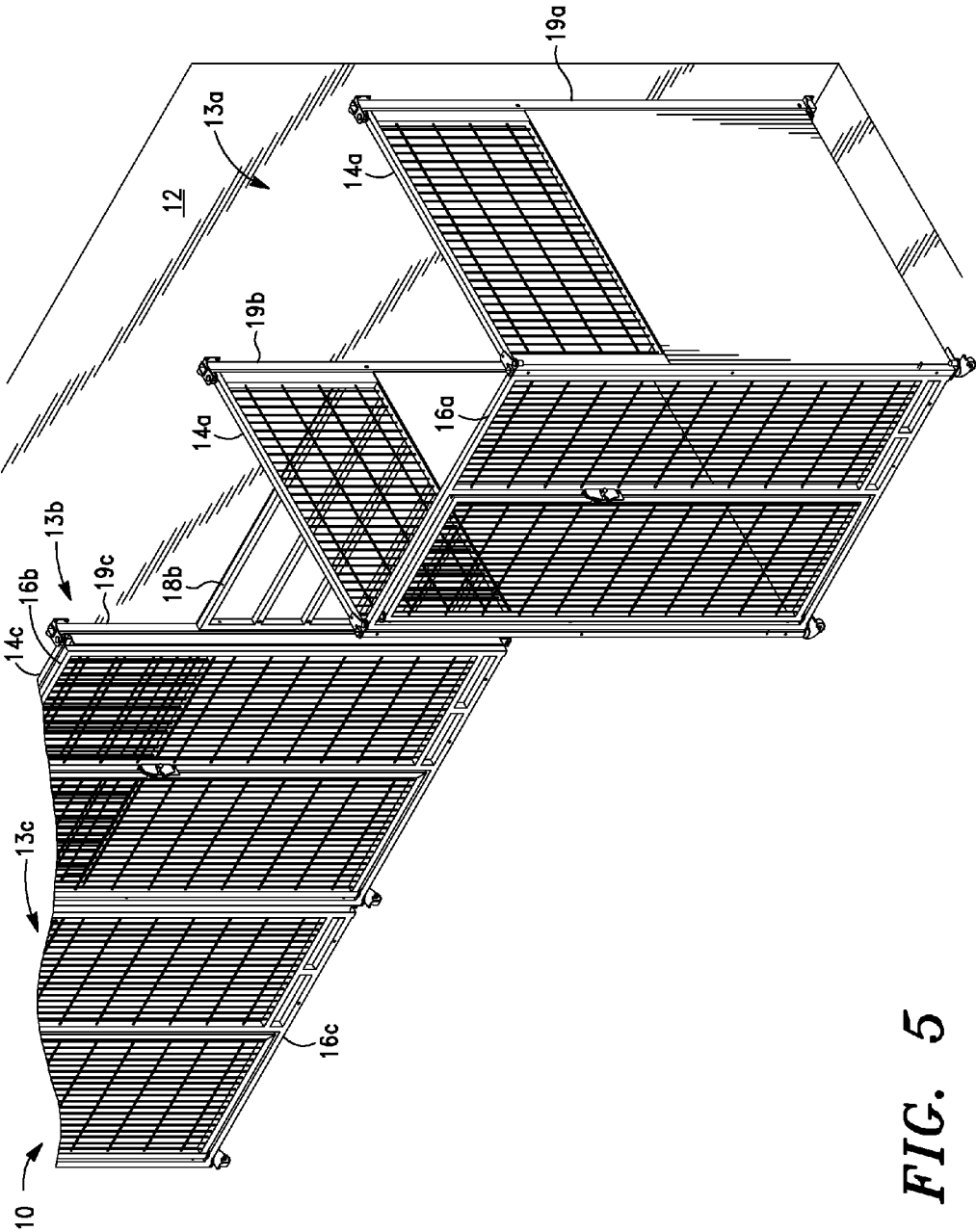
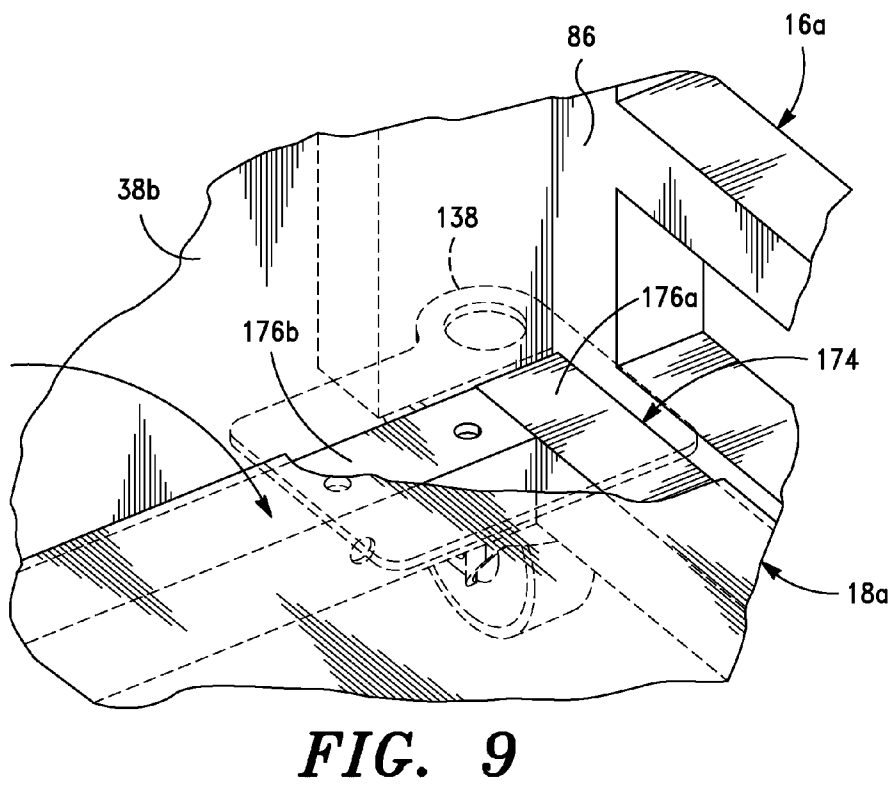
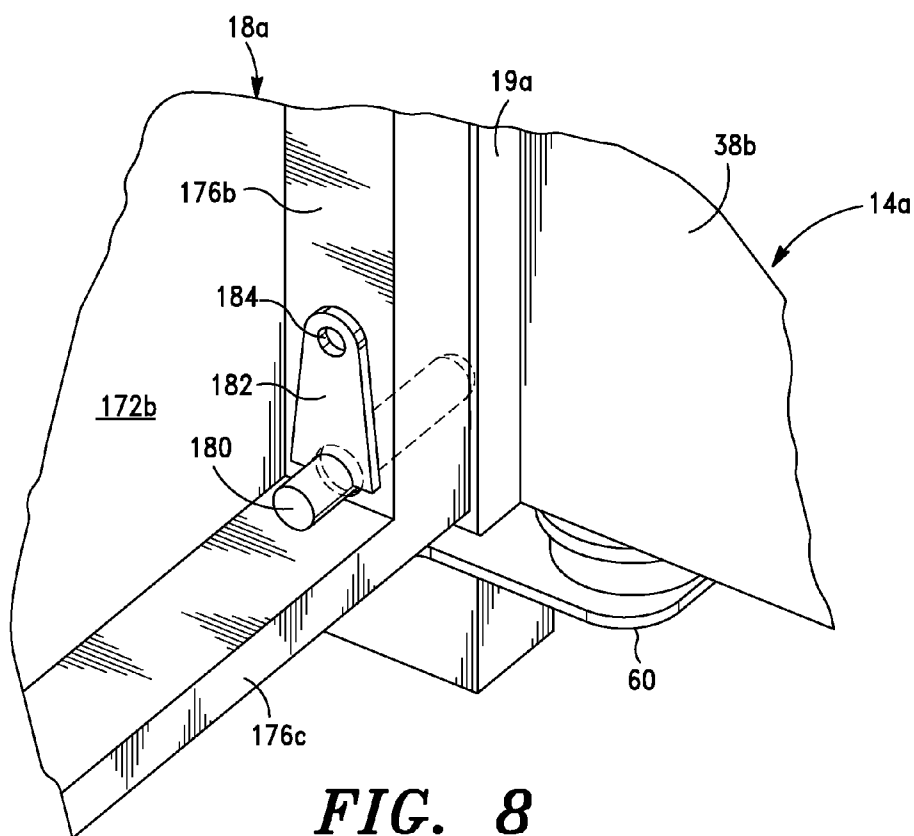


FIG. 6



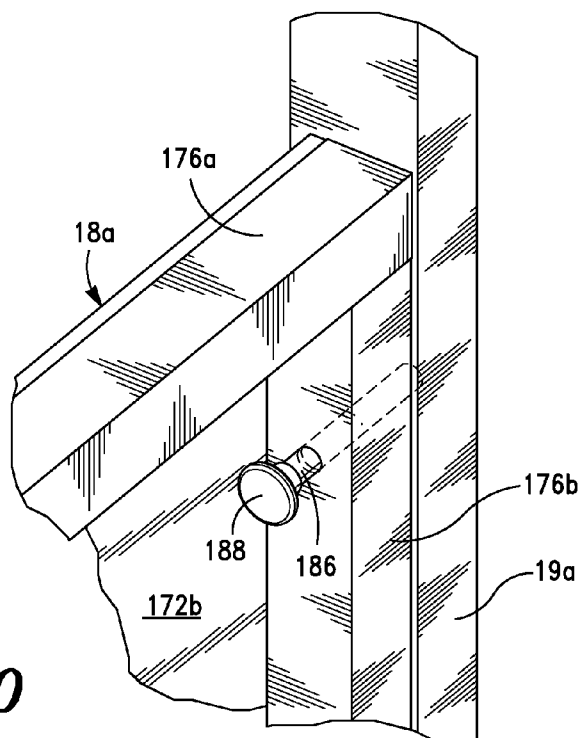


FIG. 10

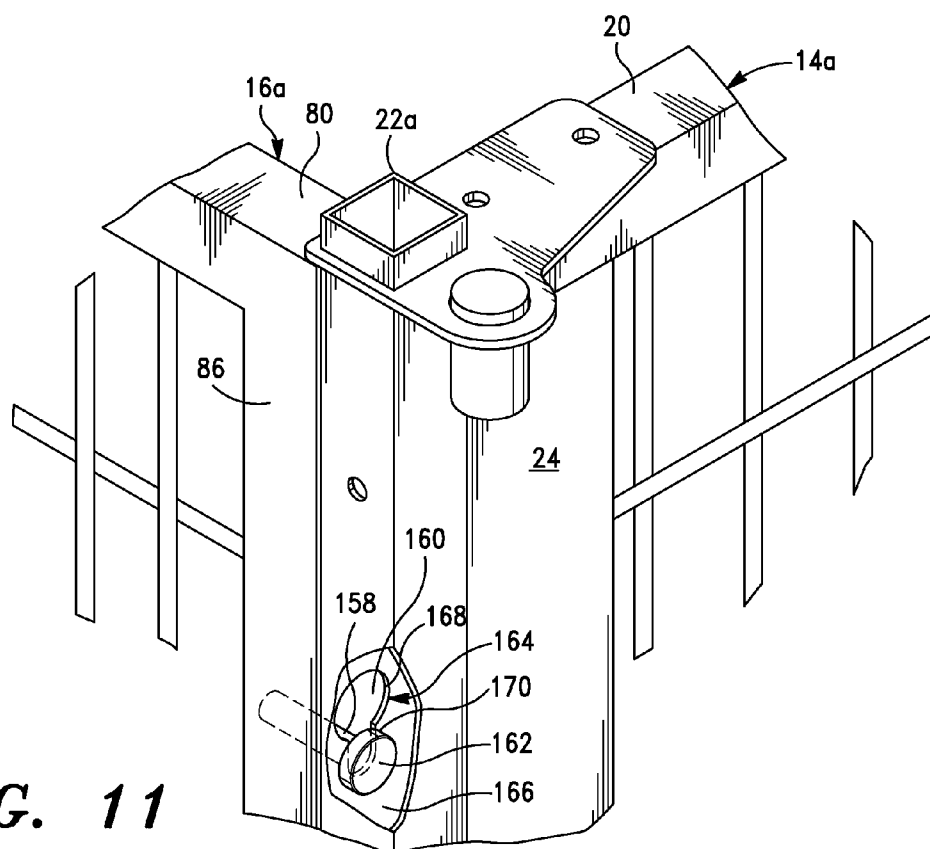


FIG. 11

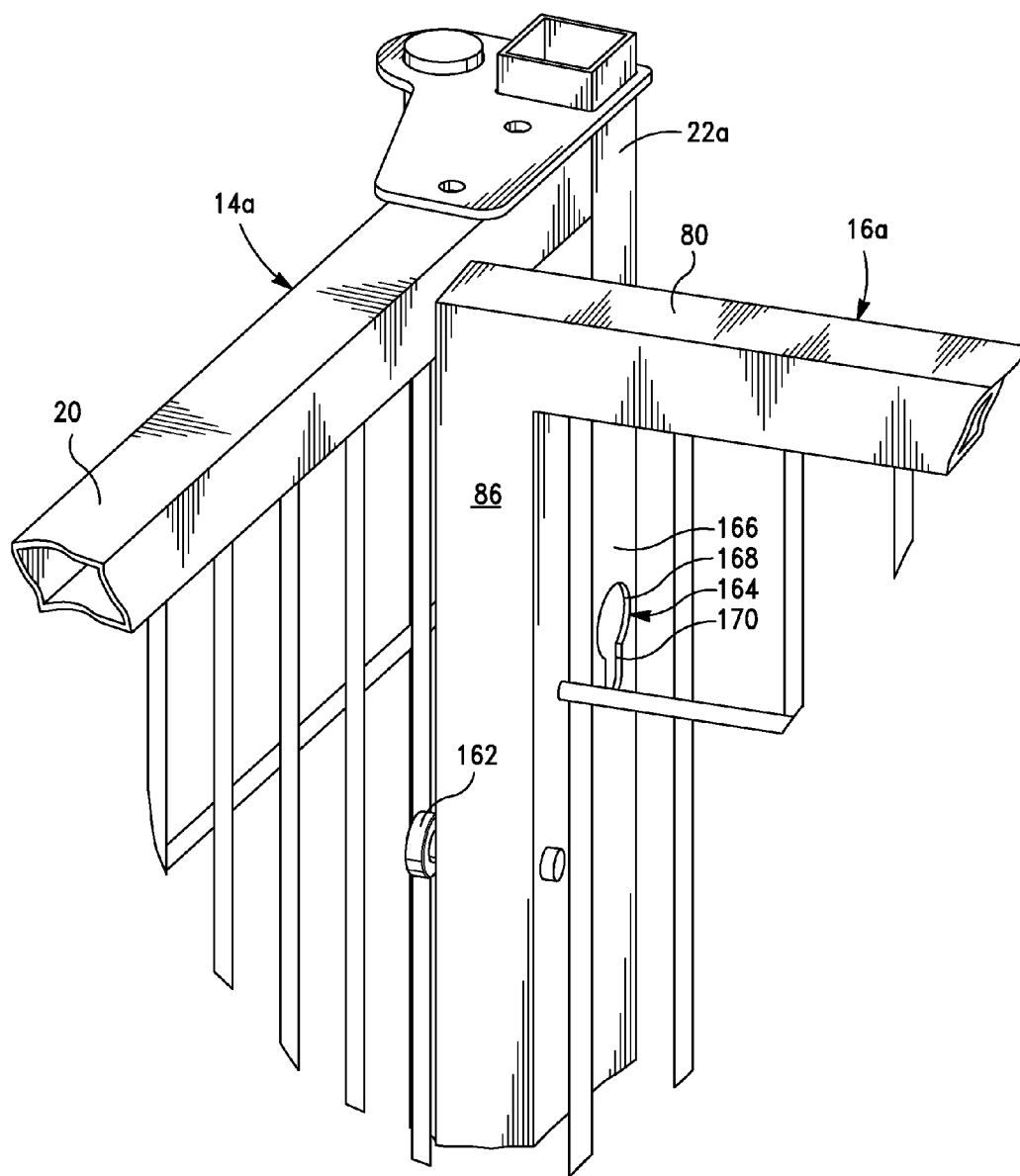


FIG. 11A

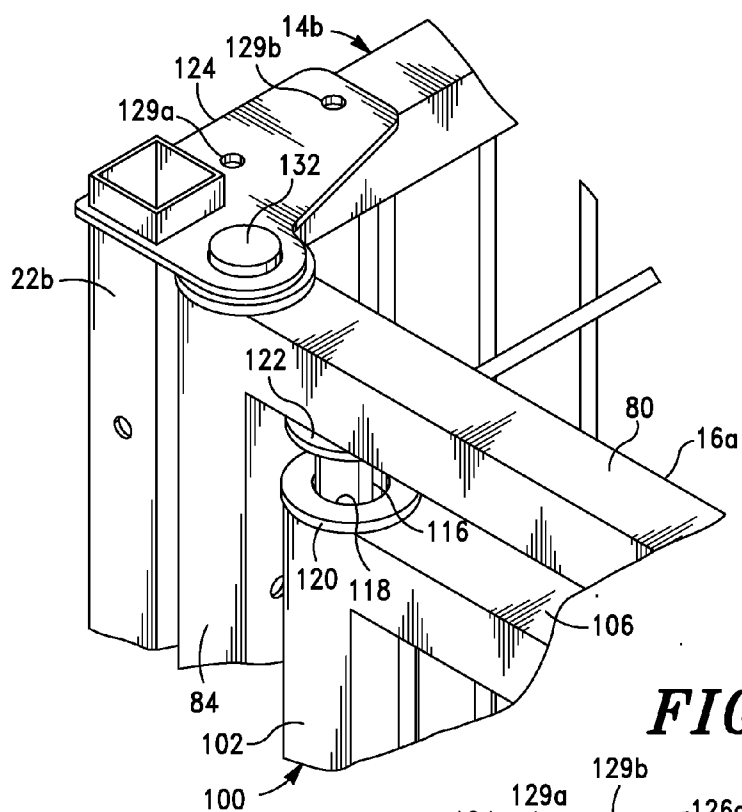


FIG. 12A

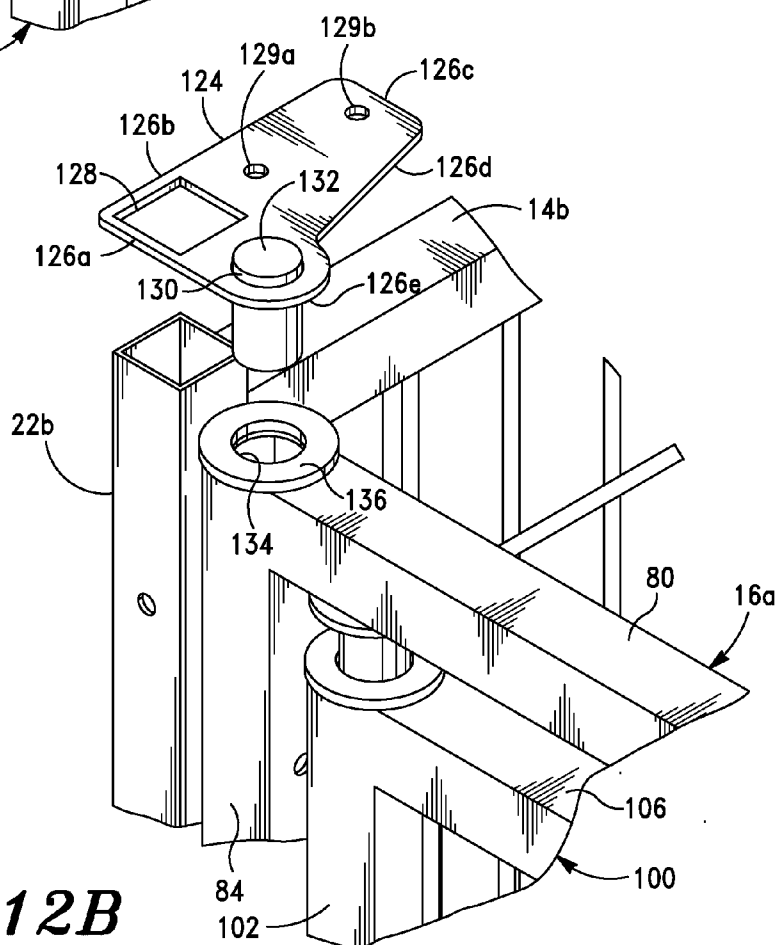


FIG. 12B

FIG. 13B

FIG. 14B

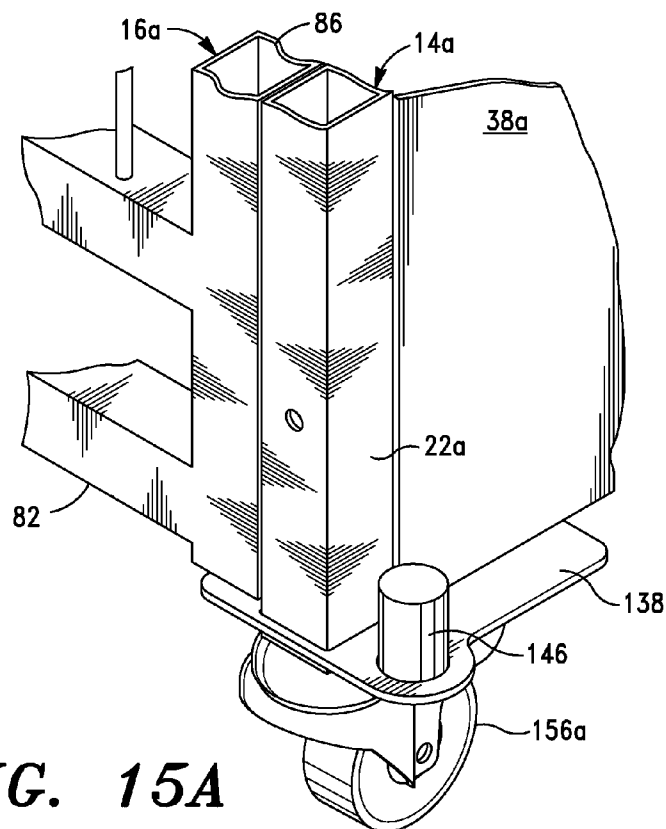


FIG. 15A

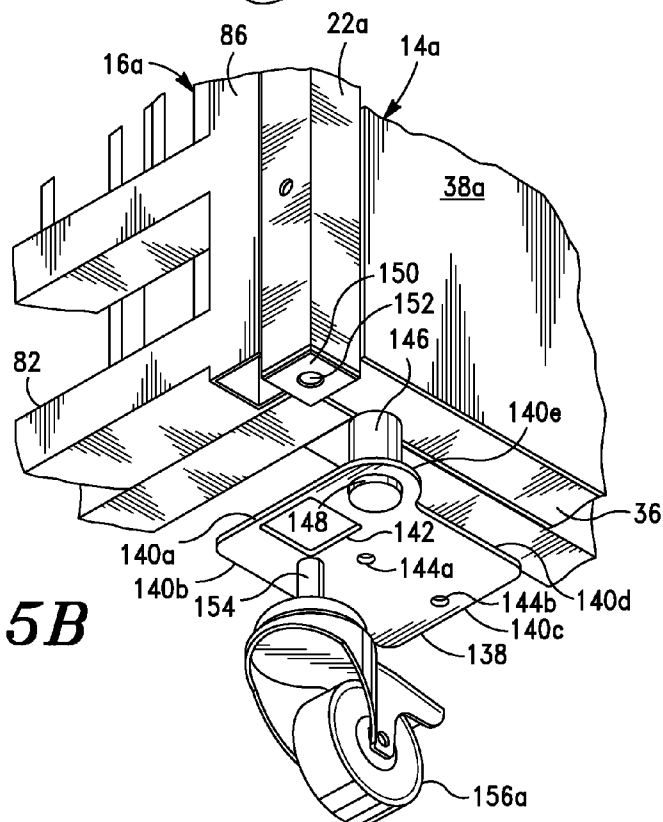


FIG. 15B

COLLAPSIBLE ANIMAL RUN

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a Continuation of U.S. patent application Ser. No. 12/910,307 filed on Oct. 22, 2010 which is incorporated herein by reference in its entirety.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable.

BACKGROUND OF THE INVENTION

[0003] 1. Field of the Invention

[0004] The present invention relates generally to an animal housing device commonly referred to as a run, and more particularly, to a foldable or collapsible run.

[0005] 2. Description of Related Art

[0006] A variety of different devices, such as kennels, pens and runs, are used by animal care professionals to safely house and contain companion animals such as dogs and cats. The devices come in many different shapes and sizes and are constructed out of various materials. Typically, they include a plurality of walls that enclose an interior space and a door to provide access to that space. Some of the devices also have floors and/or top walls.

[0007] The type of housing device that is best suited for a particular application is determined by the number, nature, and size of the animals to be housed within the device, and the kind of care provided to the animal. For example, a larger containment area is desired for housing larger animals or when an animal needs to be housed for an extended period of time. When a larger containment area is desired, runs often are favored over traditional cages because runs are typically wider and longer. While typical runs are approximately three to four feet wide and six to eight feet deep, cages for companion animals are typically no more than six feet wide and approximately two feet deep.

[0008] A typical run is rectangular in shape and has two side panels, a back panel, and a front gate panel. Runs also typically have a floor and sometimes a top panel. The panels are welded or bolted together to create a fixed unit. It is normal for several runs to be deployed side by side and front to back to create a bank. In these situations, the individual runs will share a common side or back panel. In addition, runs are often equipped with internal drain mechanisms or they are positioned to use the drainage system of the facility where they are installed.

[0009] The relative advantages of roominess and comfort offered by runs as compared to other housing alternatives dictate that they have certain characteristics. By their very nature, they tend to be large and occupy a lot of floor space. A single three by six foot run covers approximately eighteen square feet and a bank of five runs nearly 100 square feet. In addition, runs are typically static. Once the various run panels are assembled, there is little opportunity to modify the shape or size of the run. Finally, runs (especially in bank form) are generally stationary. After installation, the space dedicated to a run is permanently allocated to that usage.

[0010] In many applications, the size and structural characteristics of runs are anticipated. Boarding kennels, animal control facilities, and humane societies are often purpose built facilities designed for the use of runs. But for various

other professionals, it can be challenging to incorporate runs into their practice due to insufficient available space or the high cost of permanently devoting floor space to occasionally used runs. These situations are common with professionals that provide services for larger animals (such as veterinarians that do not board and groomers) but do not keep animals at their facilities for extended periods.

[0011] Animal care professionals that do not have the facilities to house large animals clearly face a quandary. They can either decline to provide services or choose to house an animal in a less than optimal manner, such as housing an animal in a smaller cage than needed or using a physical restraint such as a leash or tether. Similar concerns are shared by professionals that have runs for housing large animals but are occasionally faced with excess demand for space such as during holidays and heavy travel periods. In these situations, the professionals must house animals in temporary kenneling that is not designed for long stays, which means that more staff involvement is necessary to exercise and otherwise handle the animals.

BRIEF SUMMARY OF THE INVENTION

[0012] The present invention is directed toward a collapsible animal run or cage that can be folded and stored when not in use. When deployed, the invention is similar in form and function to a traditional run in that it provides a fixed area to house animals. The collapsible run has panels that are attached to one another in a manner that allows an unoccupied run to be collapsed into a closed position. The collapsible run benefits animal care professionals that face space constraints, have only intermittent needs for larger housing units, or occasionally face excess demand for such housing units.

[0013] A collapsible animal run according to one embodiment of the present invention includes first and second side panels that each pivot relative to a fixed pivot point such that each side panel is pivotable between a stored position and an operational position. A front panel is pivotally coupled with one of the side panels and configured to be detachably coupled to the other side panel when in the operational position. The pivot points for the side panels are aligned along a central plane. When in the stored position, the front panel is positioned parallel the side panel to which it is pivotally coupled and is detached from the other side panel. In addition, the side and front panels are all positioned substantially parallel the central plane. When in the operational position, the side panels are pivoted outward and positioned at an angle from the central plane, preferably at a right angle. The front panel is also pivoted outward and positioned at an angle, preferably at a right angle, from the side panel to which it is pivotally coupled and is detachably coupled with the other side panel. The side panels and front panel together define an interior space for receiving an animal when the panels are in their operational position.

[0014] In a preferred embodiment, the first and second side panels are pivotally mounted to a support structure wherein the support structure extends within a central plane. The support structure preferably comprises a vertically extending wall that can also serve to enclose the interior space. The side panels are mounted a distance apart along the length of the wall and the panels are collapsible against and parallel the wall to free up floor space when in the stored position. Alternatively, the side panels are mounted to a floor at pivot points positioned along the central plane adjacent a vertically extending wall that serves to enclose the interior space. In

another embodiment, the support structure comprises two or more vertically extending posts that are aligned in a central plane with the first and second side panels mounted to the first and second posts respectively. In yet another embodiment, the support structure can comprise a rear panel that serves to enclose the interior space when each of the side panels and the front panel is in its operational position. The side panels may be directly pivotally mounted to the support structure or indirectly pivotally mounted using mounts that are preferably fixedly attached to the support structure and may be integrally formed with the side panels.

[0015] The animal run may additionally include a floor that pivots relative to one or more fixed pivot points along the central plane. The floor is moveable between a stored position in which the upper surface of the floor is aligned substantially parallel the central plane, and an operational position in which a front edge of the floor is positioned adjacent a bottom edge of the front panel.

[0016] The animal run may comprise a single interior space for housing one or more animals together within that single space, or may comprise a plurality of interior spaces positioned adjacent one another in a row so as to separately house one or more animals in each space. For a run having a plurality of interior spaces, additional side panels, front panels and optionally rear panels and/or floors are included in series, with each of the side panels pivoting relative to a fixed pivot point aligned along the central plane.

[0017] Additional aspects of the invention, together with the advantages and novel features appurtenant thereto, will be set forth in part in the description which follows, and in part will become apparent to those skilled in the art upon examination of the following, or may be learned from the practice of the invention. The objects and advantages of the invention may be realized and attained by means of the instrumentalities and combinations particularly pointed out in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] FIG. 1 is a perspective view of a bank of animal runs in accordance with the present invention;

[0019] FIG. 2 is a perspective view of the run bank of FIG. 1 showing floor panels in a stored position;

[0020] FIG. 3 is a perspective view of the run bank of FIG. 1 showing front panels folded against side panels;

[0021] FIG. 4 is a perspective view of the run bank of FIG. 1 showing front and side panels folded against a support structure;

[0022] FIG. 5 is a perspective view of the run bank of FIG. 1 showing one of the runs in an operational position;

[0023] FIG. 6 is a front elevational view of one of the front panels;

[0024] FIG. 7 is a side elevational view of one of the side panels;

[0025] FIG. 8 is a detail view of a connection between a floor panel and a mounting post;

[0026] FIG. 9 is a detail view of the floor panel supported by a bracket on the bottom of a side panel;

[0027] FIG. 10 is a detail view of a removable pin securing the floor panel to the mounting post;

[0028] FIG. 11 is a detail view of a detachable connection between the front and side panels;

[0029] FIG. 11A is a detail view showing the front and side panels detached;

[0030] FIG. 12A is a detail view of a pivotal connection between front and side panels;

[0031] FIG. 12B is a partially exploded view of the pivotal connection between front and side panels;

[0032] FIG. 13A is a detail view of a pivotal connection between the top of the mounting post and the side panel;

[0033] FIG. 13B is a partially exploded view of the pivotal connection between the top of the mounting post and the side panel;

[0034] FIG. 14A is a detail view of a pivotal connection between the bottom of the mounting post and the side panel;

[0035] FIG. 14B is a partially exploded view of the pivotal connection between the bottom of the mounting post and the side panel;

[0036] FIG. 15A is a detail view of a bottom side panel bracket and wheel; and

[0037] FIG. 15B is a partially exploded view of the bottom side panel bracket and wheel.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0038] Referring now to FIG. 1, a bank of animal cages or runs in accordance with an embodiment of the present invention is shown generally as 10. The rear of the run bank 10 is secured to a wall 12. The run bank 10 includes three cages or runs 13a, 13b, and 13c that are formed from four side panels 14a-d, three front panels 16a-c, and three floor panels 18a-c, which are shown in FIG. 2. Side panels 14a-d are pivotally mounted to wall 12 via mounting posts 19a-d, front panels 16a-c are pivotally mounted to side panels 14b-d, respectively, and each floor panel 18a-c is pivotally mounted to a pair of adjacent posts 19a-d. Run 13a is formed from side panels 14a and 14b, front panel 16a and floor panel 18a, run 13b is formed from side panels 14b and 14c, front panel 16b and floor panel 18b, and run 13c is formed from side panels 14c and 14d, front panel 16c and floor panel 18c. The panels that form each of the runs 13a-c, along with wall 12, define an enclosed space for housing animals. Although run bank 10 is shown with three runs 13a-c, it is within the scope of the invention for the run bank 10 to have any number of runs by adding additional side, front, and floor panels and mounting posts. Further, although run bank 10 is shown mounted to wall 12, it is possible for run bank 10 to be mounted to any support structure capable of supporting the run bank.

[0039] As shown in FIG. 4, the run bank 10 can be folded and stored against wall 12 when not in use. The steps for folding run bank 10 against wall 12 for storage are shown in FIGS. 1-4. FIG. 1 shows the run bank 10 in an operational position in which the side panels 14a-d extend outward from wall 12, each of front panels 16a-c extends between a pair of adjacent side panels 14a-d, and floor panels 18a-c extend outward from wall 12 to front panels 16a-c, respectively. The first step in collapsing run bank 10 is shown in FIG. 2. In FIG. 2 the floor panels 18a-c are folded up against wall 12 in a position where each panel is positioned between a pair of adjacent posts 19a-d. FIG. 3 shows the next step in which front panels 16a-c are folded adjacent to side panels 14b-d, respectively. FIG. 4 shows the last step in which side and front panels 14a-d and 16a-c are folded adjacent to wall 12 for storage in a position where each panel is positioned between a pair of adjacent posts 19a-d. Thus, as shown in FIG. 4, an operator of the run bank 10 can fold the runs against wall 12 in order to clear floor space when the run bank 10 is not in use. It is possible for any number of the runs 13a-c making up run

bank 10 to be in an operational position while the remainder are in a stored position. FIG. 5 shows one such example where run 13a is operational while runs 13b and 13c are stored adjacent wall 12.

[0040] Side panel 14a is described in detail herein with reference to FIG. 7. Because each of the side panels 14a-d has a similar construction, only side panel 14a is described in detail herein. Side panel 14a is pivotably joined to post 19a such that a rear edge of the side panel 14a is adjacent to post 19a and a front edge of the side panel is adjacent to front panel 16a. Side panel 14a has a horizontal top frame bar 20 that is joined with vertical outer and inner front frame bars 22a and 24 and a vertical rear frame bar 26. A horizontal intermediate frame bar 28 is joined with and extends between frame bars 24 and 26. A wire grid 30 consisting of a plurality of interconnected vertical rods 32 and horizontal rods 34 is positioned in the area between frame bars 20, 24, 26, and 28. Vertical rods 32 are joined with and extend between frame bars 20 and 28, and horizontal rods 34 are joined with and extend between frame bars 24 and 26. Side panel 14a also has a bottom frame bar 36 that is joined with and extends between frame bars 22a and 26. Panels 38a and 38b, which are parallel to wire grid 30, are joined to opposite sides of frame bars 24, 26, 28, and 36. Frame bars 20, 22a, 24, 26, 28, and 36 are preferably hollow, rectangular bars constructed from metal, such as stainless steel or aluminum, or plastic. Wire grid 30 is preferably constructed from metal or plastic, and panels 38a and 38b are preferably constructed from metal, plastic, or glass.

[0041] FIGS. 13A and B show the pivotal connection between the rear edge of side panel 14a and an upper mounting bracket 40 joined to post 19a. Bracket 40 comprises a sheet of material with a right angle bend 40a that forms a vertical section 40b and a horizontal section 40c. Vertical section 40b is generally rectangular and includes four holes 42a-d for receiving fasteners (not shown) to secure the bracket 40 to wall 12. Horizontal section 40c is a sheet of material with opposing side edges 44a and 44b extending outward from bend 40a and a front edge 44c extending between the side edges 44a and b opposite bend 40a. Side edges 44a and b are a mirror image of each other; accordingly, only side edge 44a is described in detail herein. Side edge 44a includes a first, linear section 46a that extends outward from bend 40a perpendicular to vertical section 40b. Linear section 46a transitions into a second, tapered section 46b as the width of the horizontal section 40c decreases. Tapered section 46b transitions into a linear section 46c that is parallel with section 46a and is joined with front edge 44c. The horizontal section 40c has a rectangular opening 48 (FIG. 13B) that extends outward from bend 40a to a position that is near where tapered section 46b transitions into linear section 46c. The horizontal section 40c also has a circular opening 50 that is positioned adjacent front edge 44c. Opening 50 receives a cylindrical pin 52 that is joined to bracket 40 preferably by welding.

[0042] Rectangular opening 48 receives an upper portion of mounting post 19a and is joined to the mounting post 19a preferably by welding. An opening 56 in the top frame member 20 of side panel 14a receives the bottom of pin 52 to pivotably connect the top of side panel 14a to bracket 40 and mounting post 19a. There is also a washer 58 joined to top frame member 20 that is aligned with opening 56 for receiving pin 52.

[0043] FIGS. 14A and 14B show the pivotal connection between side panel 14a and a lower mounting bracket 60 joined to post 19a. Bracket 60 comprises a sheet of material with a right angle bend 60a that forms a vertical section 60b and a horizontal section 60c. Vertical section 60b is generally rectangular and includes two holes 62a and 62b for receiving fasteners (not shown) to secure the bracket 60 to wall 12. Horizontal section 60c is a sheet of material with opposing side edges 64a and 64b (FIG. 14B) extending outward from bend 60a and a front edge 64c extending between the side edges 64a,b opposite bend 60a. Side edges 64a,b are mirror images of each other; accordingly, only side edge 64a is described in detail herein. Side edge 64a includes a first, linear section 66a (FIG. 14A) that extends outward from bend 60a perpendicular to vertical section 60b. First section 66a transitions into a second, tapered section 66b as the width of the horizontal section 60c decreases. Tapered section 66b transitions into a linear section 66c that is parallel with section 66a and is joined with front edge 64c. The horizontal section 60c has a rectangular opening 68 (FIG. 14B) that extends outward from bend 60a to a position that is near where tapered section 66b transitions into linear section 66c. The horizontal section 60c also has a circular opening 70 that is positioned adjacent front edge 64c. Opening 70 receives a cylindrical pin 72 that is joined to bracket 60 preferably by welding.

[0044] Rectangular opening 68 receives a lower portion of mounting post 19a and is joined to the mounting post 19a preferably by welding. An opening 74 in the bottom frame member 36 of side panel 14a receives the top of pin 72 to pivotably connect the bottom of side panel 14a to bracket 60 and mounting post 19a. A spacer 76 is positioned around pin 72 between bottom frame member 36 and horizontal section 60c. A washer 78 is joined to bottom frame member 36. Washer 78 has an opening that is aligned with opening 74 for receiving pin 72.

[0045] Each of posts 19b-d has upper and lower mounting brackets for mounting side panels 14b-d to wall 12 in the same manner as described above with respect to side panel 14a. Accordingly, the pivotal mounting connections between side panels 14b-d and posts 19b-d are not described in detail herein.

[0046] Front panel 16a is described herein with reference to FIG. 6. Because each of the front panels 16a-c has a similar construction, only front panel 16a is described in detail herein. Front panel 16a has a rectangular outer frame consisting of horizontal upper and lower frame bars 80 and 82 that are joined with opposing vertical side frame bars 84 and 86, which form first and second side edges of the front panel 16a. A vertical intermediate frame bar 88 is joined with and extends between upper and lower frame bars 80 and 82. Intermediate frame bar 88 is spaced approximately equidistant from side frame bars 84 and 86. The frame of front panel 16a is further subdivided by a horizontal frame bar 90 that extends between vertical frame bars 86 and 88 at the lower right corner of the front panel 16a, and a vertical frame bar 92 that extends between the lower frame bar 82 and frame bar 90. Frame bar 92 is spaced approximately equidistant from vertical frame bars 86 and 88.

[0047] A wire grid 94 consisting of a plurality of interconnected vertical rods 96 and horizontal rods 98 encloses the area between upper frame bar 80, side frame bar 86, intermediate frame bar 88, and frame bar 90. Vertical rods 96 are

joined with and extend between frame bars **80** and **90**, and horizontal rods **98** are joined with and extend between frame bars **86** and **88**.

[0048] A door **100** is pivotably mounted to upper and lower frame bars **80** and **82** for selectively allowing entrance into the space shown in FIG. 1 defined by side panels **14a** and **14b**, front panel **16a**, wall **12**, and floor panel **18a**. Door **100** has a rectangular outer frame consisting of a pair of vertical frame bars **102** and **104** that are each joined with upper and lower frame bars **106** and **108**. A wire grid **110** consisting of a plurality of interconnected vertical rods **112** and horizontal rods **114** encloses the area between the frame bars **102**, **104**, **106**, and **108**. Vertical rods **112** are joined with and extend between frame bars **106** and **108**, and horizontal rods **114** are joined with and extend between frame bars **102** and **104**. The frame bars and wire grids of front panel **16a** are preferably constructed from metal, such as stainless steel or aluminum, or plastic. Door **100** also has a latch bar **115a** mounted to frame bar **104** that is received by a latch keep **115b** mounted on intermediate frame bar **88** when door **100** is in its closed position, as shown in FIG. 6.

[0049] The pivotal connection between door **100** and upper frame bar **80** of front panel **16a** is described herein with reference to FIG. 12A. A cylindrical pin **116** is received by an opening **118** in upper frame bar **106** of door **100** and an opening (not shown) in upper frame bar **80** of front panel **16a**. Washers **120** and **122** are joined to frame bars **106** and **80**, respectively, and have openings that receive pin **116** and are aligned with the openings in the frame bars **106** and **80**. Referring now to FIG. 6, the lower frame bar **108** of door **100** is pivotally connected to the lower frame bar **82** of front panel **16a** in the same manner as the pivotal connection between the upper frame bar **106** of door **100** and the upper frame bar **80** of front panel **16a** that is described herein and shown in FIG. 12A.

[0050] Referring now to FIGS. 12A and 12B, the pivotal connection between upper sections of side panel **14b** and front panel **16a** is described herein. It should be understood that the connection between side panel **14c** and front panel **16b** and the connection between side panel **14d** and front panel **16c** is the same as that described herein with reference to side panel **14b** and front panel **16a**. Further, while side panel **14a** is not shown as being pivotally connected to a front panel, it is within the scope of the invention for side panel **14a** to be pivotally connected to a front panel in the same manner as described herein with respect to side panel **14b** in order to add additional runs to the run bank **10**.

[0051] Side panel **14b** is pivotally connected to front panel **16a** with an upper mounting bracket **124**. Mounting bracket **124** is a flat plate with a shape that is defined by four linear side edges **126a-d** (FIG. 12B) and an arcuate semi-circular edge **126e** that joins edges **126a** and **126d**. Edges **126a** and **126b** and edges **126b** and **126c** are generally perpendicular to each other, while edges **126c** and **126d** are positioned at an obtuse angle with respect to each other. There is a rectangular hole **128** in bracket **124** adjacent to the corner where edges **126a** and **126b** meet. Hole **128** receives a top portion of the vertical frame bar **22b** of side panel **14b**. Preferably, bracket **124** is welded to frame bar **22b** around the perimeter of hole **128**. There are also two holes **129a** and **129b** in bracket **124** that are configured to receive fasteners (not shown) for joining bracket **124** to side panel **14b**. There is a circular hole **130** in bracket **124** adjacent to arcuate edge **126e**. Hole **130** receives a cylindrical pin **132** that is welded to bracket **124**

around the perimeter of hole **130**. There is an opening **134** in the upper frame bar **80** of front panel **16a** that receives pin **132**. A washer **136** is joined to frame bar **80** and has an opening that is aligned with opening **134** for receiving pin **132**.

[0052] Referring now to FIGS. 15A and 15B, a bracket **138** that is joined to vertical frame bar **22a** of side panel **14a** is discussed in detail herein. Bracket **138** has four linear side edges **140a-d** (FIG. 15B) and an arcuate edge **140e** joining edges **140a** and **140d**. Edges **140a** and **140b**, edges **140b** and **140c**, and edges **140c** and **140d** are generally perpendicular to each other. Bracket **138** has a rectangular opening **142** that receives a lower portion of vertical frame bar **22a** and is welded to the frame bar **22a** around a perimeter of opening **142**. Further, there are two holes **144a** and **144b** in bracket **138** for receiving fasteners to connect bracket **138** to the bottom frame bar **36** of side panel **14a**. A cylindrical pin **146** is received by an opening **148** in bracket **138** adjacent to arcuate edge **140e**. Pin **146** is preferably welded to bracket **138** around the perimeter of opening **148**. Although side panel **14a** is not pivotably connected to a front panel, if it was pivotably connected to a front panel as described above, pin **146** would be received by an opening in the bottom section of the front panel to make the pivotal connection. Because side panel **14a** is not pivotably connected to a front panel, it can alternatively be described as an end panel of run bank **10**.

[0053] There is a bracket identical to bracket **138** that is joined to the bottom of each vertical frame post **22b**, **22c**, and **22d** (FIG. 1) of side panels **14b**, **14c**, and **14d** in the same manner as described above with reference to bracket **138**. Each of these brackets includes a pin like pin **146** on bracket **138** that is received by an opening in the bottom of one of front panels **14b**, **14c**, and **14d** for pivotally connecting the bottom sections of the side and front panels.

[0054] Referring to FIG. 15B, a cap **150** that is connected to the bottom of vertical frame bar **22a** has an opening **152** that receives a post **154** extending upward from the frame of a caster wheel **156a**. Caster wheel **156a** allows side panel **14a** to pivot from the position shown in FIG. 1 to the position shown in FIG. 4, in which it is adjacent to wall **12**. As shown in FIG. 1, there are additional caster wheels **156b-d** that extend downward from side panels **14b-d**, respectively, for allowing side panels **14b-d** to pivot between the positions shown in FIGS. 1 and 4.

[0055] The detachable connection between front panel **16a** and side panel **14a** is shown in detail in FIGS. 11 and 11A. A cylindrical pin **158** (FIG. 11) extends outward from a side edge **160** of vertical frame bar **86** of front panel **16a**. A round disc **162** with a diameter that is greater than pin **158** extends outward from the end of the pin **158**. There is a slot **164** in a side edge **166** of the vertical frame bar **22a** for receiving pin **158** and disc **162**. Slot **164** has a shape defined by a circular opening **168** and a narrower, elongate opening **170** extending downward from opening **168**. Circular opening **168** has a diameter that is slightly greater than the diameter of disc **162** for receiving the disc **162**. Likewise, elongate opening **170** has a width that is slightly greater than the diameter of pin **158** for receiving the pin **158**. Opening **170** has a width that is smaller than the diameter of disc **162** for retaining disc **162** within slot **164** as shown in FIG. 11. To detachably join front panel **16a** and side panel **14a**, the vertical frame bar **86** of front panel **16a** is raised slightly upward until disc **162** aligns with circular opening **168** in vertical frame bar **22a** of side panel **14a**. The disc **162** is inserted through circular opening

168 and the upward force on front panel 16a is released so that pin 158 slides down into elongate opening 170. In this position, front panel 16a is restrained from pivoting with respect to side panel 14a until front panel 16a is raised to release disc 162 from slot 164.

[0056] There is another pin and slot on front panel 16a and side panel 14a, respectively, that are vertically spaced downward from pin 158 and slot 164 for detachably joining front panel 16a and side panel 14a. There are also a pair of pins on front panel 16b for reception by a pair of slots on side panel 14b and a pair of pins on front panel 16c for reception by a pair of slots on side panel 14c.

[0057] Referring to FIG. 2, floor panel 18a is formed from a planar sheet 172 that is supported by a frame 174. Sheet 172 has a top side 172a, shown in FIG. 1, and a bottom side 172b, shown in FIG. 2. Frame 174 comprises a rectangular base formed from four bars 176a-d, and a plurality of cross-members, one of which is identified as 178, extending between bars 176b and 176d. Referring now to FIG. 8, floor panel 18a is pivotably connected to mounting post 19a via a cylindrical hinge pin 180 that is received by aligned openings in frame bar 176b of floor panel frame 174 and mounting post 19a. Hinge pin 180 is joined to a tab 182 that is joined to frame bar 176b with a fastener (not shown) received by an opening 184 in tab 182. There is a similar hinge pin (not shown) that pivotably connects the frame bar 176d of floor panel frame 174 (FIG. 2) to mounting post 19b. Sheet 172 and frame 174 may be constructed from any suitable material including metal, plastic, or in the case of sheet 172, glass. Floor panels 18b and 18c are pivotably mounted to posts 19b-d in a similar manner as that described herein with respect to floor panel 18a.

[0058] Referring now to FIG. 10, there is a cylindrical locking pin 186 that secures floor panel 18a to mounting post 19a when the floor panel 18a is in the stored position shown in FIGS. 2 and 10. Locking pin 186 is received by aligned openings in frame bar 176b of floor panel frame 174 and mounting post 19a to secure floor panel 18a to post 19a. A knob 188 is joined to an end of pin 186 so that an operator can easily grasp the knob 188 for removing or inserting the pin 186. There is a similar locking pin (not shown) that secures the frame bar 176d (FIG. 2) of floor panel frame 174 to mounting post 19b. There are also a pair of locking pins that operate to secure floor panels 18b and 18c to posts 19b-d in a similar manner as described herein with respect to floor panel 18a.

[0059] Floor panel 18a is moveable between the stored position shown in FIG. 2 and the operational position shown in FIG. 1 in which it extends outward from wall 12 to front panel 16a. Referring now to FIG. 9, when floor panel 18a is in its operational position, the corner of floor panel frame 174 where frame bars 176a and 176b meet is supported by bracket 138. Bracket 138 supports floor panel 18a in a position where floor panel 18a is substantially horizontal and perpendicular to wall 12, side panels 14a and 14b, and front panel 16a. The corner of floor panel 18a where frame bars 176a and 176d meet is supported by a bracket similar to bracket 138 that is mounted to the bottom of post 22b (FIG. 1). The corners of floor panels 18b and 18c are supported in a similar manner by brackets mounted on posts 14b-14d.

[0060] Although not shown in the drawings, it is within the scope of the invention for the run bank 10 to have a rear panel that extends between side panels 14a and 14b. Preferably, a rear panel is included with run bank 10 when it is desirable to

protect wall 12 from damage. The optional rear panel is adjacent to wall 12 and perpendicular to side panels 14a and 14b. The rear panel could be mounted to posts 19a and b, or the rear panel could be mounted directly to wall 12. The rear panel could be permanently joined with posts 19a and b or it could be detachably joined to the posts for easy installation and removal. The rear panel could be similar in construction to side panel 14a with a frame that mounts a planar sheet and a wire grid, or the rear panel could comprise a frame that mounts either a planar sheet or a wire grid. It is also within the scope of the invention for the run bank 10 to have similar optional rear panels that extend between side panels 14b and 14c and side panels 14c and 14d adjacent to wall 12.

[0061] It is also within the scope of the invention for the run bank to have a top panel (not shown) that extends outward from wall 12 and encloses the top of the volume defined by wall 12, side panels 14a and 14b, front panel 16a, and floor panel 18a. Preferably, the optional top panel is parallel to floor panel 18a and has an underside that is supported by one or more of side panels 14a and 14b, front panel 16a, or a support extending from wall 12. The optional top panel could be pivotably mounted to wall 12 via mounts that are attached to wall 12, or the top panel could be pivotably mounted to one of side panels 14a and 14b and front panel 16a. If mounted to wall 12, the top panel is preferably pivotable between a stored position, in which it is adjacent and parallel to wall 12, and an extended position, in which it extends outward from wall 12 and is supported by the upper edge of front panel 16a. If mounted to one of side panels 14a and 14b, the top panel is preferably pivotable between a stored position, in which it is adjacent and parallel to the side panel 14a or 14b to which it is mounted, and an extended position, in which it extends outward from the side panel 14a or 14b to which it is mounted and is supported by the upper edge of the other side panel 14a or 14b. If mounted to front panel 16a, the top panel is preferably pivotable between a stored position, in which it is adjacent and parallel to front panel 16a, and an extended position, in which it extends outward from front panel 16a and is supported by the top edge of either of side panels 14a and 14b or a support structure extending outward from wall 12. The top panel could also be placed on top of side panels 14a and 14b and front panel 16a after those panels are connected in the manner shown in FIG. 1. In this configuration, the top panel could be removed from the tops of the panels 14a, 14b, and 16a before the panels are pivoted into the position shown in FIG. 3 for storage. The run bank 10 could also include similar top panels over runs 13b and 13c.

[0062] In operation, the mounting posts 19a-d of run bank 10 are mounted to wall 12 with brackets 40 and 60 and the side panels 14a-d, front panels 16a-c, and floor panels 18a-c are assembled in the manner shown in FIG. 1. Door 100 can be opened and closed to place animals within run 13a. Likewise, the doors on runs 13b and 13c can also be opened and closed to place animals within the run bank 10.

[0063] Run bank 10 can be folded against wall 12 if the operator of the run bank 10 does not need it to house animals in order to decrease the space that the run bank 10 occupies. To fold the run bank 10 against wall 12, first, floor panels 18a, 18b, and 18c are pivoted from the position shown in FIG. 1 to the position shown in FIG. 2, in which they are adjacent wall 12. Pin 186 (FIG. 10) is then inserted through the aligned openings of the floor panel 18a and mounting post 19a, and another pin like pin 186 is inserted through aligned openings in floor panel 18a and mounting post 19b to secure floor panel

18a to posts 19a and b. Likewise, pins like pin 186 are inserted through aligned openings in floor panels 18b and 18c and mounting posts 19b, 19c, and 19d to secure floor panels 18b and 18c to mounting posts 19b-d.

[0064] Next, front panel 16a is detached from side panel 14a by raising the side of front panel 16a adjacent side panel 14a upward so that disc 162, shown in FIGS. 11 and 11A, can be removed from slot 164 through opening 168. Front panels 16b and 16c are raised upward in a similar manner to detach them from side panels 14b and 14c, respectively. Then, front panels 16a-c are rotated with respect to side panels 14b-d, respectively, until the front panels 16a-c are adjacent to the respective side panel 14b-d as shown in FIG. 3. Side panels 14a-d are then pivoted with respect to posts 19a-d from the position shown in FIG. 3 to the position shown in FIG. 4, in which they are adjacent to wall 12. In order to move the run bank 10 back to its operational position, the steps above are followed in reverse.

[0065] As shown in FIG. 5, it is also within the scope of the present invention for some of the side and front panels 14a-d and 16a-c to be stored adjacent to wall 12 and some of the panels to remain in an operational position. FIG. 5 shows side panels 14a and 14b extending outward from wall 12 and front panel 16a connected to panel 14a so that animals may be housed in the space enclosed by wall 12, side panels 14a and 14b and front panel 16a. Floor panel 18b is rotated adjacent to wall 12 where it is secured to posts 19b and 19c. Further, side panels 14c and 14d along with front panels 16b and 16c are rotated adjacent to wall 12 in their stored position. It should be appreciated that it is within the scope of the present invention for only side panel 14d and front panel 16c to be positioned adjacent to wall 12 while side panel 14c extends outward from wall 12 and front panel 16b is connected to side panel 14b. Further, it is within the scope of the invention for any of the runs 13a-c to be operational while the remaining runs 13a-c are in their stored position.

[0066] From the foregoing it will be seen that this invention is one well adapted to attain all ends and objectives hereinabove set forth, together with the other advantages which are obvious and which are inherent to the invention.

[0067] Since many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matters herein set forth or shown in the accompanying drawings are to be interpreted as illustrative, and not in a limiting sense.

[0068] While specific embodiments have been shown and discussed, various modifications may of course be made, and the invention is not limited to the specific forms or arrangement of parts and steps described herein, except insofar as such limitations are included in the following claims. Further, it will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

What is claimed and desired to be secured by Letters Patent is as follows:

1. An animal run, comprising:

a plurality of side panels mounted in series along the length of a non-movable support structure, wherein each said side panel extends vertically from a bottom edge positioned adjacent the ground or floor on which said animal run is supported to a top edge positioned a distance above said ground or floor, and wherein each said side panel is moveable between a stored position in which

said side panel is positioned substantially parallel said support structure and an operational position in which said side panel extends outward at an angle substantially perpendicular from said support structure; and

a plurality of front panels, wherein each said front panel extends vertically from a bottom edge positioned adjacent the ground or floor on which said animal run is supported to a top edge positioned a distance above said ground or floor, wherein each said front panel is pivotally coupled with one of said side panels and operable to be detachably coupled with an adjacent one of said side panels, each said front panel being moveable between a stored position in which it is substantially parallel said side panels and an operational position in which it is detachably coupled with said adjacent one of said side panels, wherein each said front panel and the adjacent side panels to which it is coupled define an interior space and are configured to contain a dog or cat within said interior space when the panels are in the operational position.

2. The animal run of claim 1, wherein said non-movable support structure comprises a vertically extending wall and said side panels are mounted a distance apart one another along the length of said wall.

3. The animal run of claim 2, wherein said vertically extending wall serves to enclose said interior space when each of said side panels and said front panel is in its operational position.

4. The animal run of claim 1, wherein said non-movable support structure comprises a plurality of vertically extending posts wherein the posts are aligned in said first plane and wherein the side panels are mounted to a corresponding post.

5. The animal run of claim 4, wherein said animal run additionally comprises one or more rear panels that serve to enclose said interior space when each of said side panels and said front panel is in its operational position.

6. The animal run of claim 1, wherein said non-movable support structure comprises one or more rear panels, wherein said one or more rear panels serve to enclose said interior space when each of said side panels and said front panel is in its operational position.

7. The animal run of claim 1, wherein said side panels are directly pivotally mounted to said support structure.

8. The animal run of claim 1 wherein said first and second side panels are indirectly pivotally mounted to said support structure via first and second mounts respectively.

9. The animal run of claim 8, wherein said mounts are fixedly attached to said support structure.

10. The animal run of claim 9, wherein said mounts are integrally formed with said side panels.

11. The animal run of claim 1, wherein each said front panel comprises a frame that is pivotally coupled with one of said side panels and operable to be detachably coupled with the other one of said side panels, said frame mounting a door moveable between a closed position in which it is positioned within said frame and an open position to provide access to said interior space when said side panels and said front panel are in the operational position.

12. The animal run of claim 1, further comprising wheels mounted to the bottom edge of one or more side panels.

13. The animal run of claim 1, wherein said side panels are positioned substantially parallel one another when in the

operational position and said front panels are positioned substantially parallel said support structure when in the operational position.

14. The animal run of claim **13**, wherein said side panels are positioned at a substantially right angle from said first plane when in the operational position.

15. An animal run of claim **1**, wherein each said front panel has an inner surface that is positioned in abutting engagement facing a surface of the side panel to which it is pivotally coupled when in the stored position.

16. An animal run comprising:

a plurality of side panels that extend vertically from a bottom edge positioned adjacent the ground or floor on which said animal run is supported to a top edge positioned a distance above said ground or floor, wherein each said side panel pivots relative to a fixed pivot point between a stored position and an operational position, wherein each said pivot point is non-movably aligned along a first plane and wherein said side panels are positioned substantially parallel the first plane in the stored position and are positioned at an angle from the first plane in the operational position;

a plurality of front panels pivotally coupled with one of said side panels wherein each said front panel extends vertically from a bottom edge positioned adjacent the ground or floor on which said animal run is supported to a top edge positioned a distance above said ground or floor, wherein each said front panel is configured to be

detachably coupled to the other said side panel when in the operational position, wherein the front panel is positioned parallel the side panel to which it is pivotally coupled and is detached from the other side panel in the stored position, and wherein the front panel is positioned at an angle from the side panel to which it is pivotally coupled and is detachably coupled with the other side panel in the operational position, the side panels and front panels are configured to define an interior space for containing a dog or a cat when the panels are in their operational position.

17. The animal run of claim **16**, wherein each said front panel comprises a frame that is pivotally coupled with one of said side panels and operable to be detachably coupled with the other one of said side panels, said frame mounting a door moveable between a closed position in which it is positioned within said frame and an open position to provide access to said interior space when said side panels and said front panel are in the operational position.

18. The animal run of claim **16**, further comprising wheels mounted to the bottom edge of one or more side panels.

19. The animal run of claim **16**, wherein each said side panel is mounted to the ground or floor at said fixed pivot points.

20. The animal run of claim **16**, wherein each said side panel is mounted adjacent a vertically extending wall, wherein said wall encloses said interior space.

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