



(19) **United States**

(12) **Patent Application Publication**

Rudolph

(10) **Pub. No.: US 2002/0011218 A1**

(43) **Pub. Date: Jan. 31, 2002**

(54) **FREE STALL DIVIDER**

Publication Classification

(76) Inventor: **Joseph L. Rudolph**, Wausau, WI (US)

(51) **Int. Cl.⁷** **A01K 1/00**
(52) **U.S. Cl.** **119/523**

Correspondence Address:
MICHAEL BEST & FRIEDRICH, LLP
100 E WISCONSIN AVENUE
MILWAUKEE, WI 53202 (US)

(21) Appl. No.: **09/858,187**

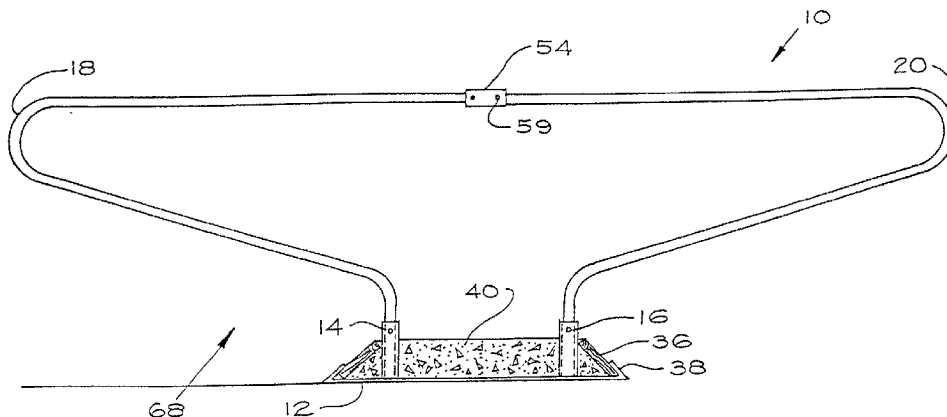
(22) Filed: **May 15, 2001**

Related U.S. Application Data

(63) Continuation of application No. 09/375,654, filed on Aug. 17, 1999, now Pat. No. 6,230,658, which is a continuation of application No. 09/004,467, filed on Jan. 8, 1998, now Pat. No. 5,975,026.

(57) **ABSTRACT**

A free stall divider which eliminates the need for structural elements in front of each free stall, thereby increasing the space in front of each animal and minimizes the structural elements at the side of each animal thoroughly allowing each animal to position its head comfortably to either side while lying in the stall. The free stall divider comprises a base, at least one mounting member, and at least one dividing element. All of the structural elements required to retain the dividing element upright are mounted to the base. When an animal is in a stall, therefore, all of the mounting members are located to the side of the animal. Therefore, no obstructions prevent the animal from moving in a forward direction.



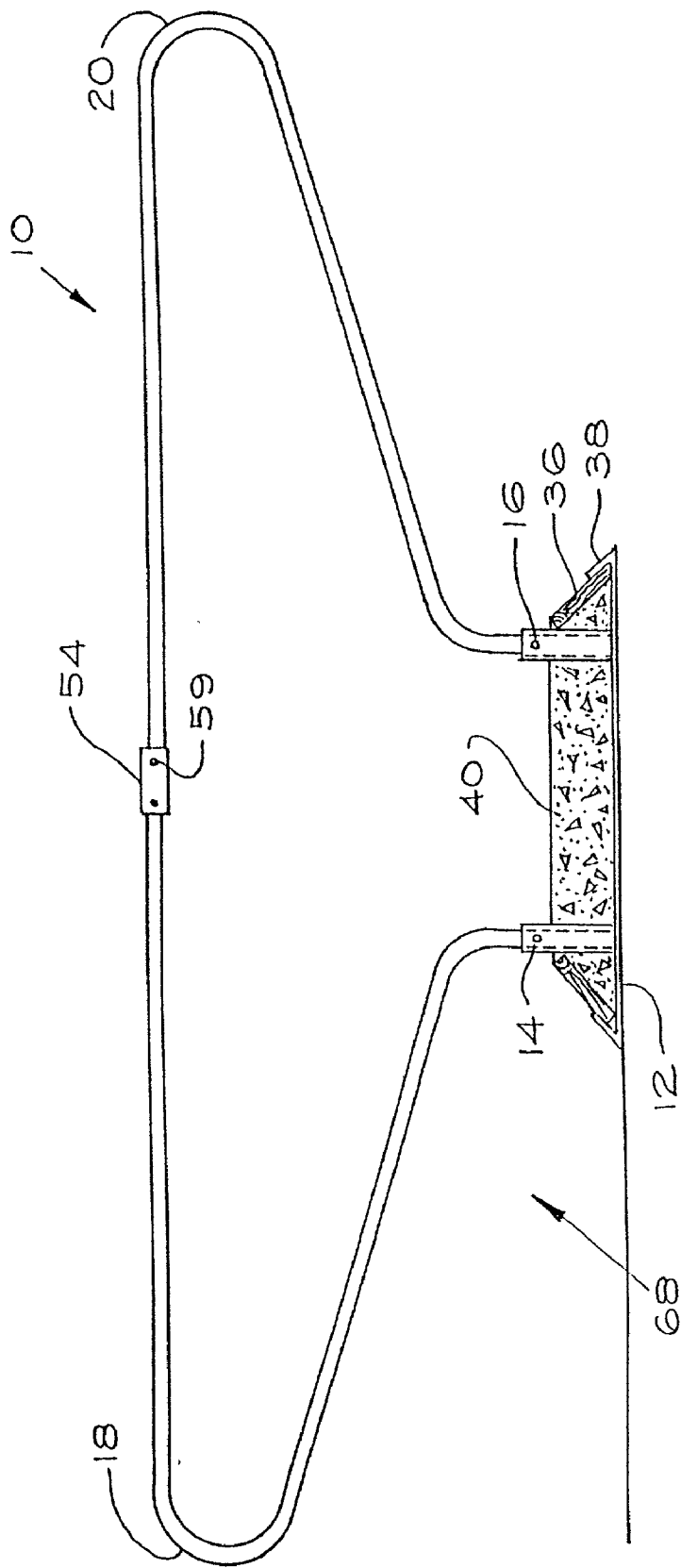


Fig. 1

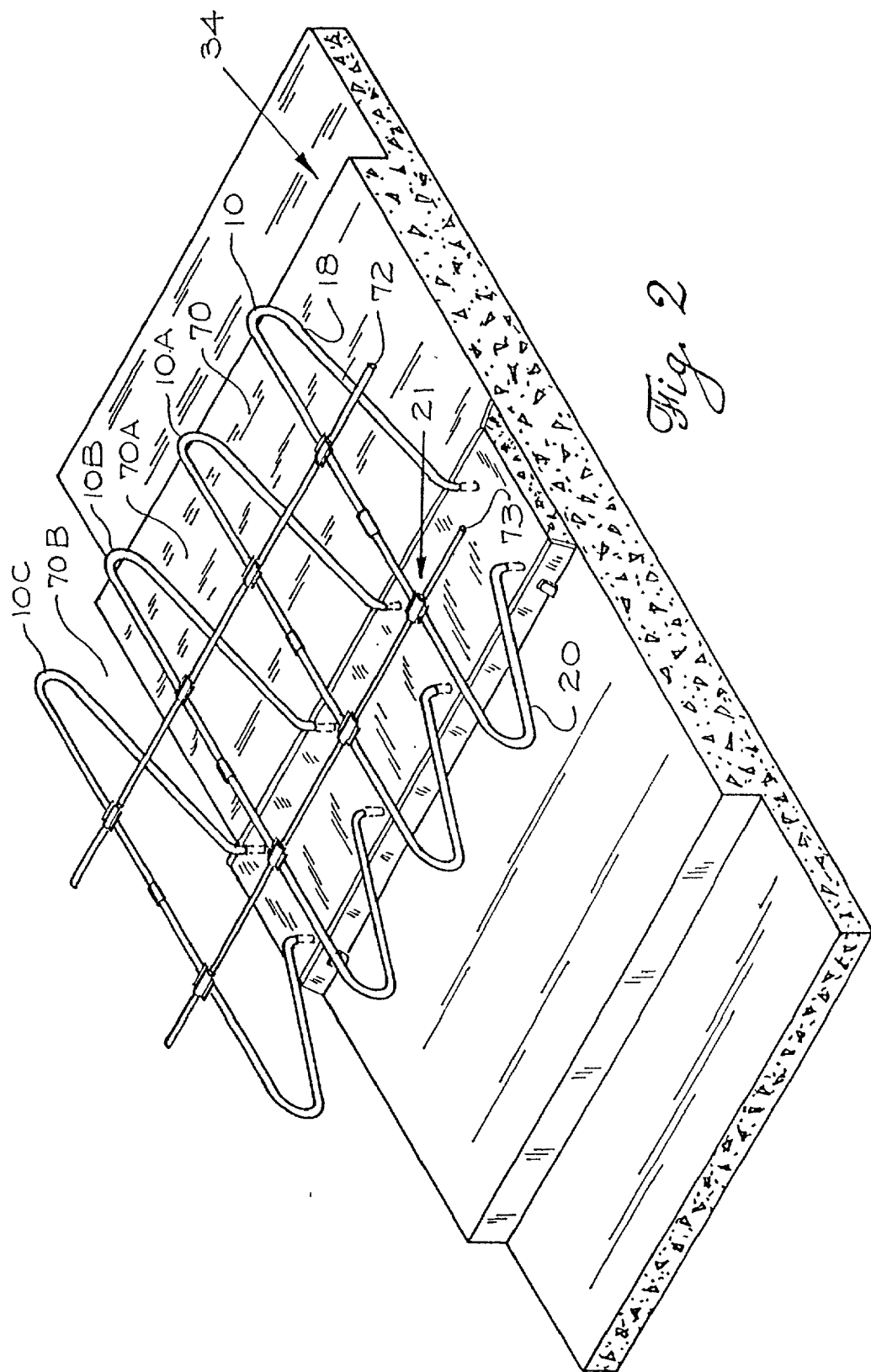
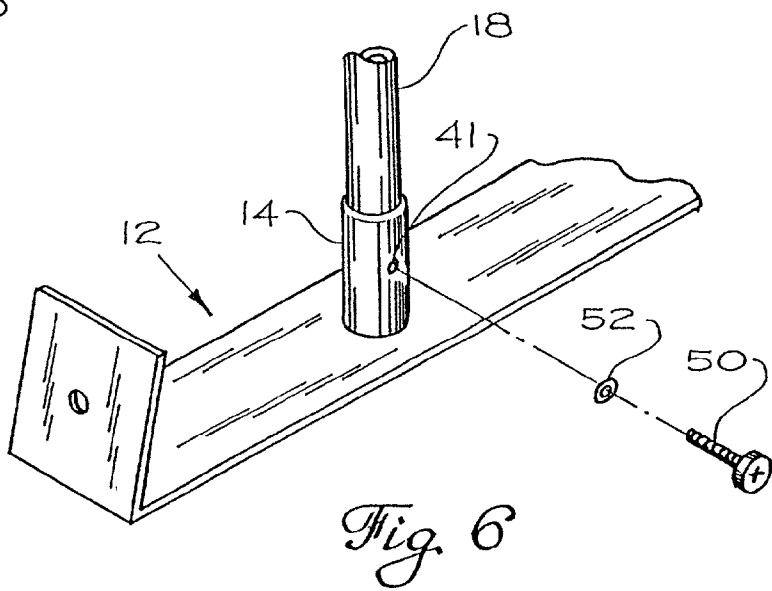
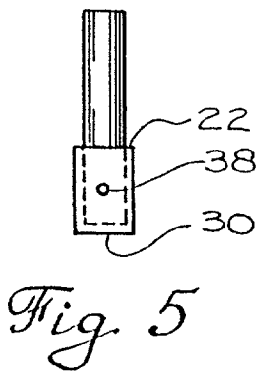
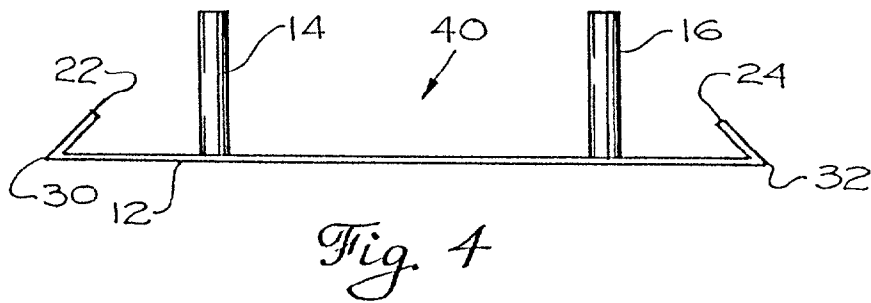
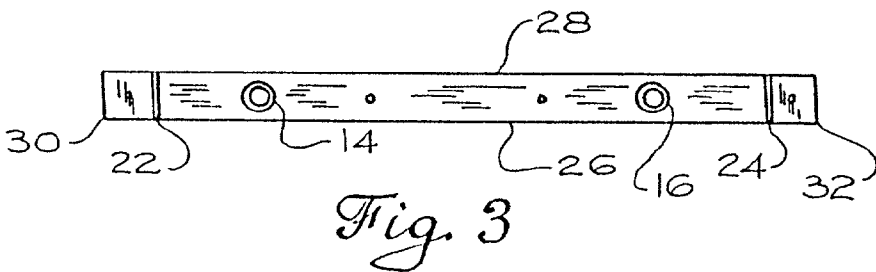


Fig. 2



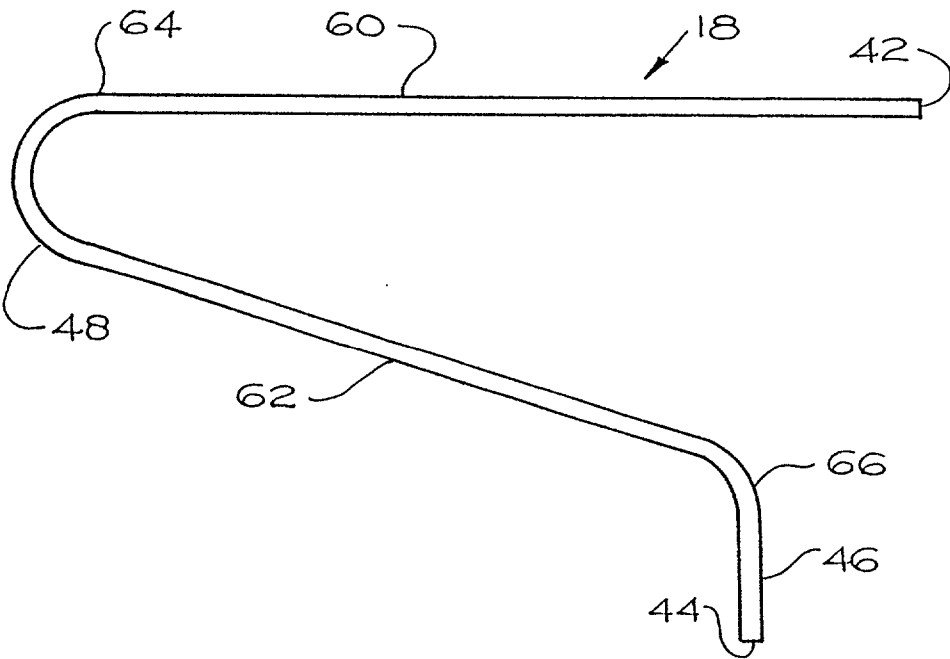


Fig. 7

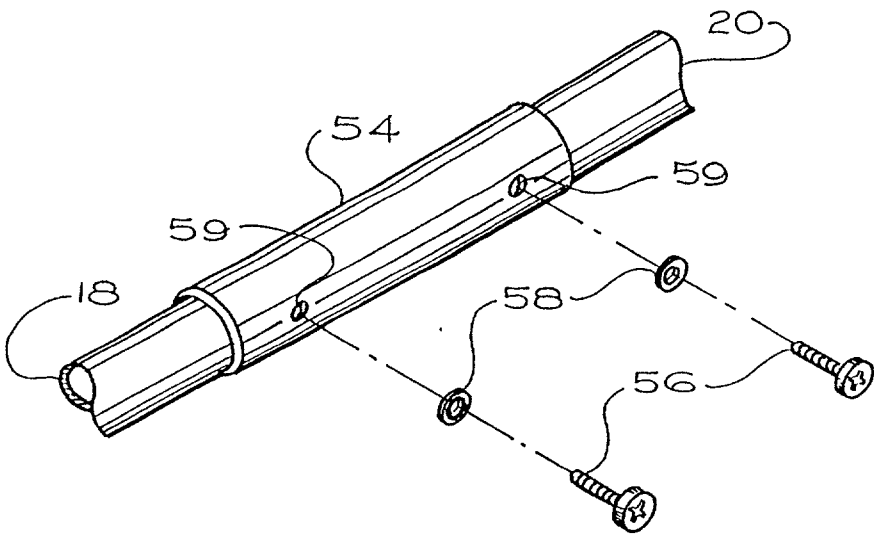
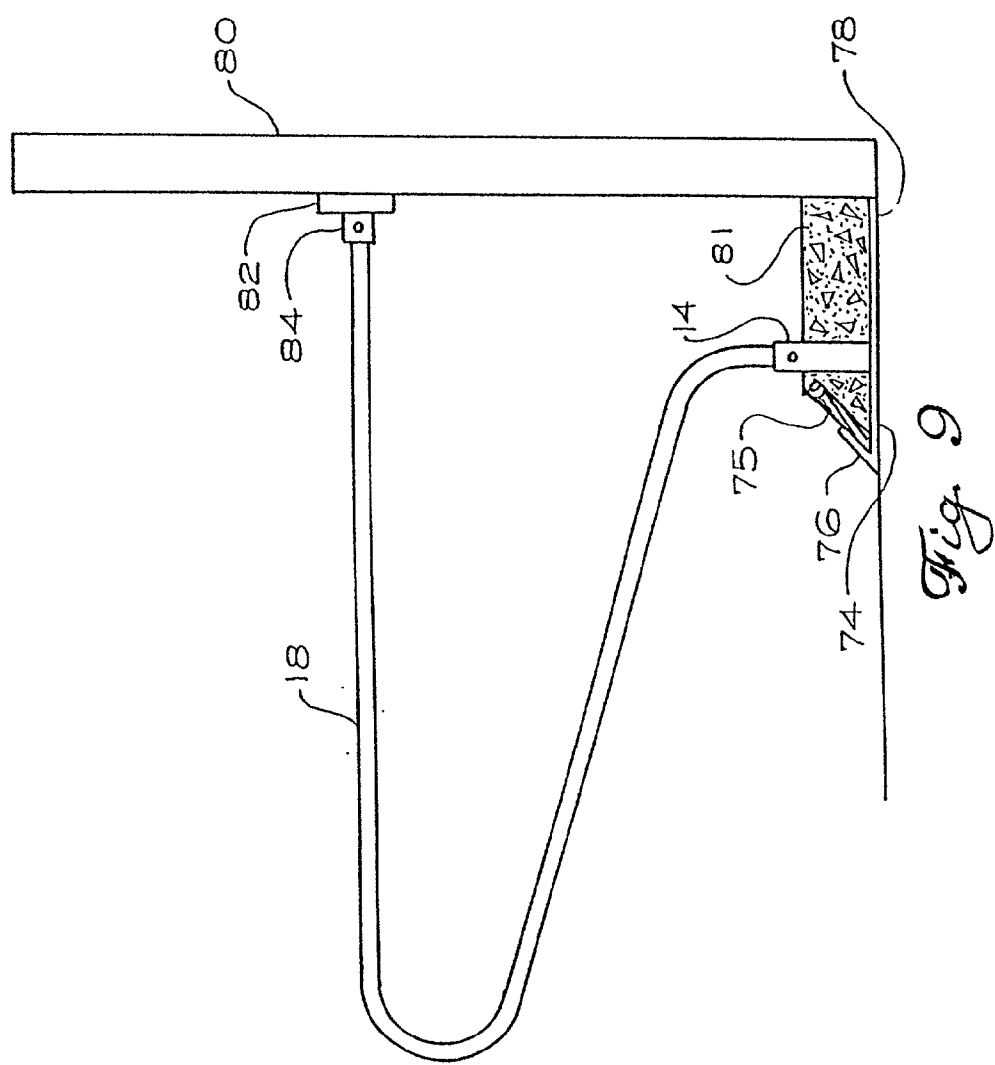
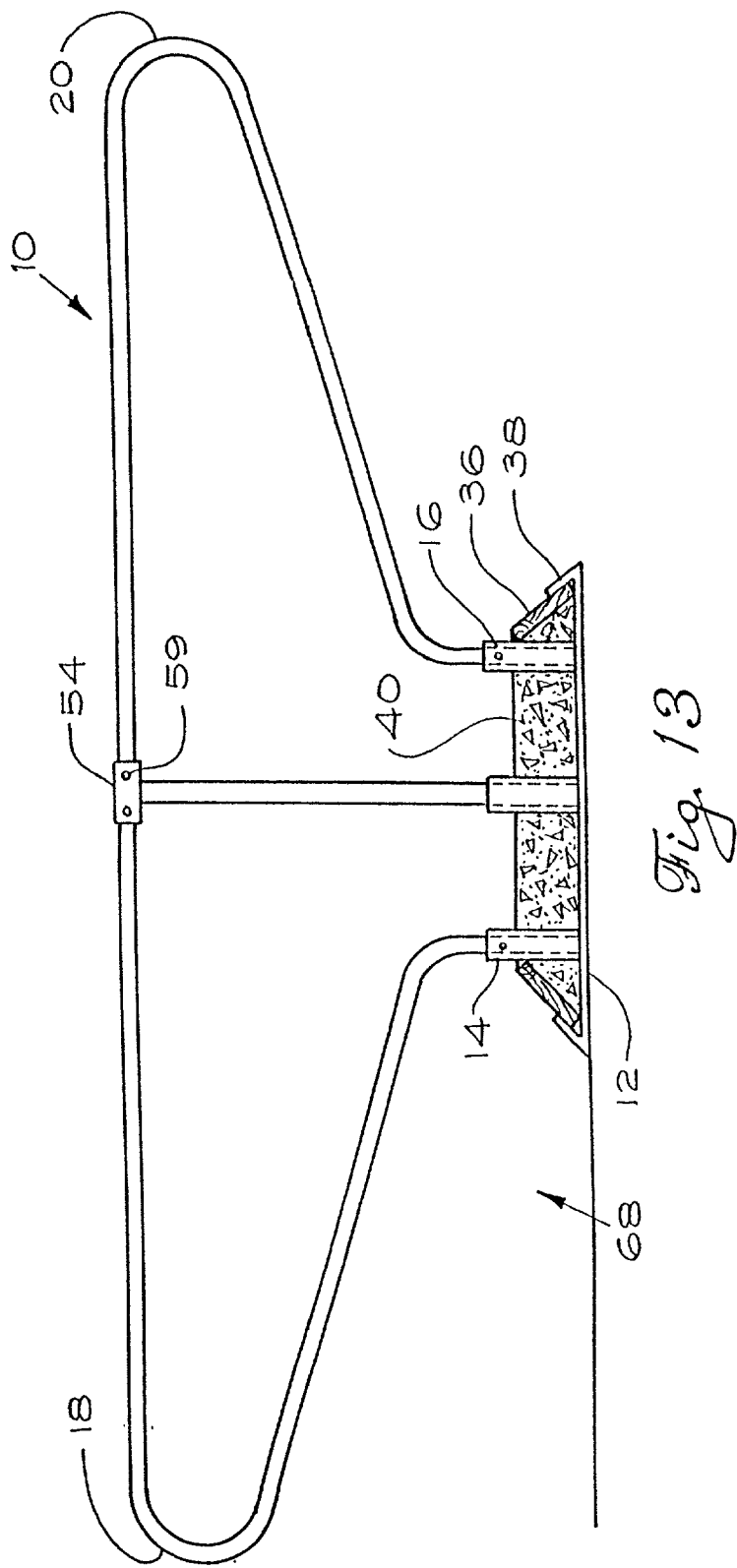


Fig. 8





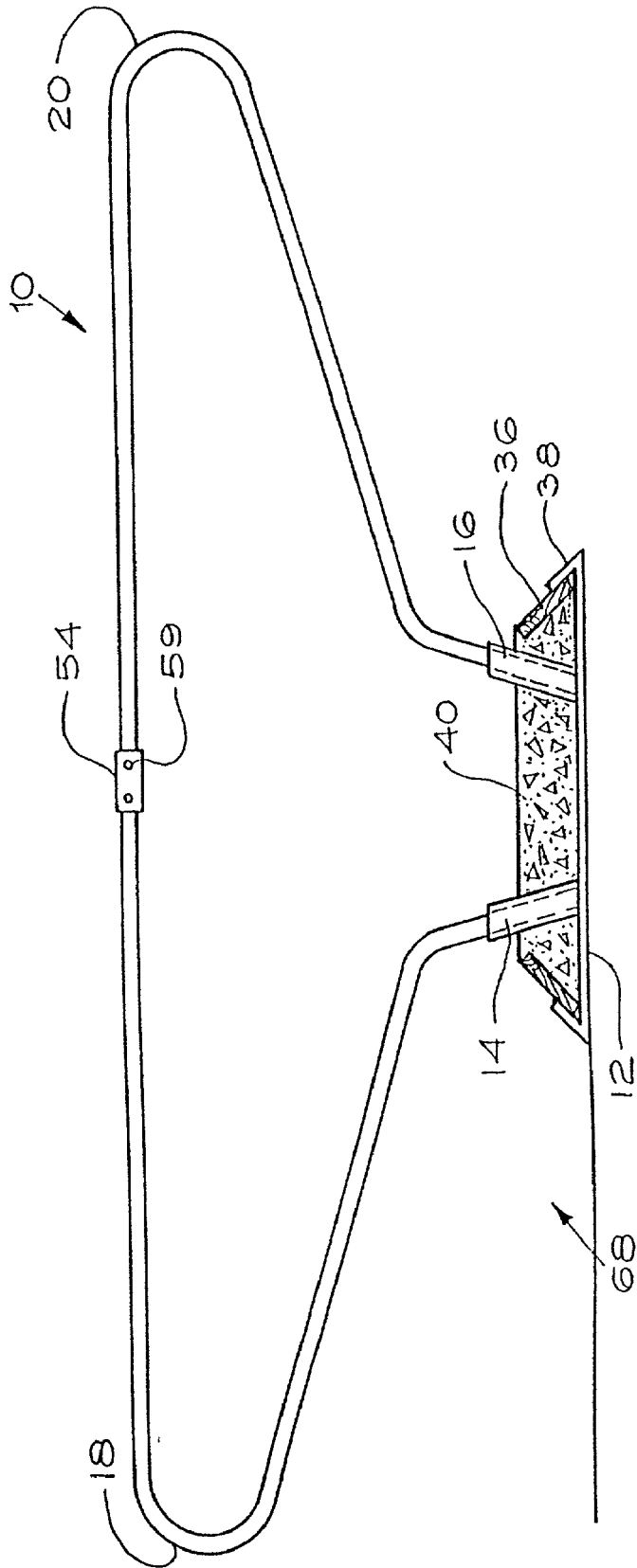


Fig. 14

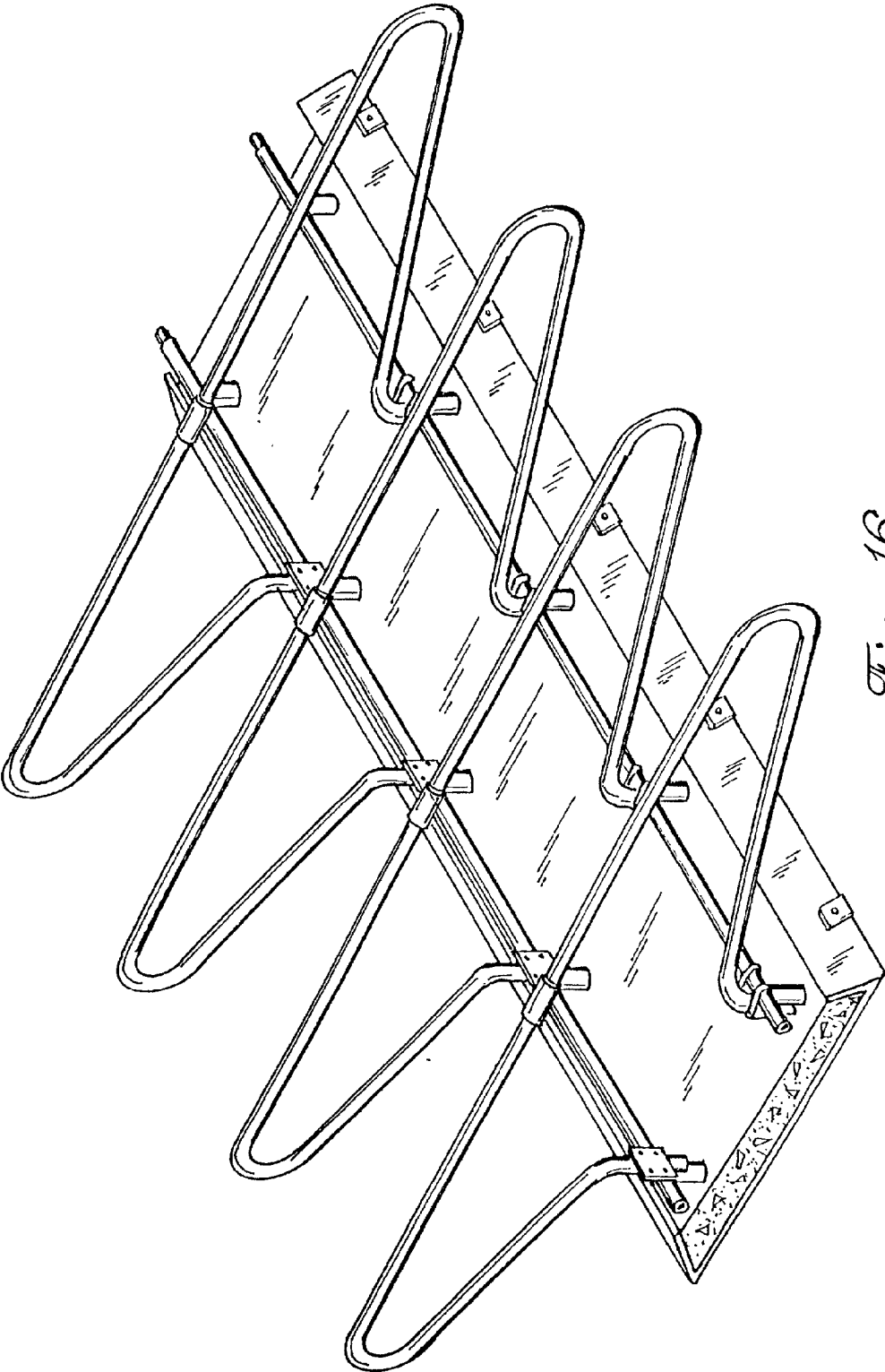


Fig. 16

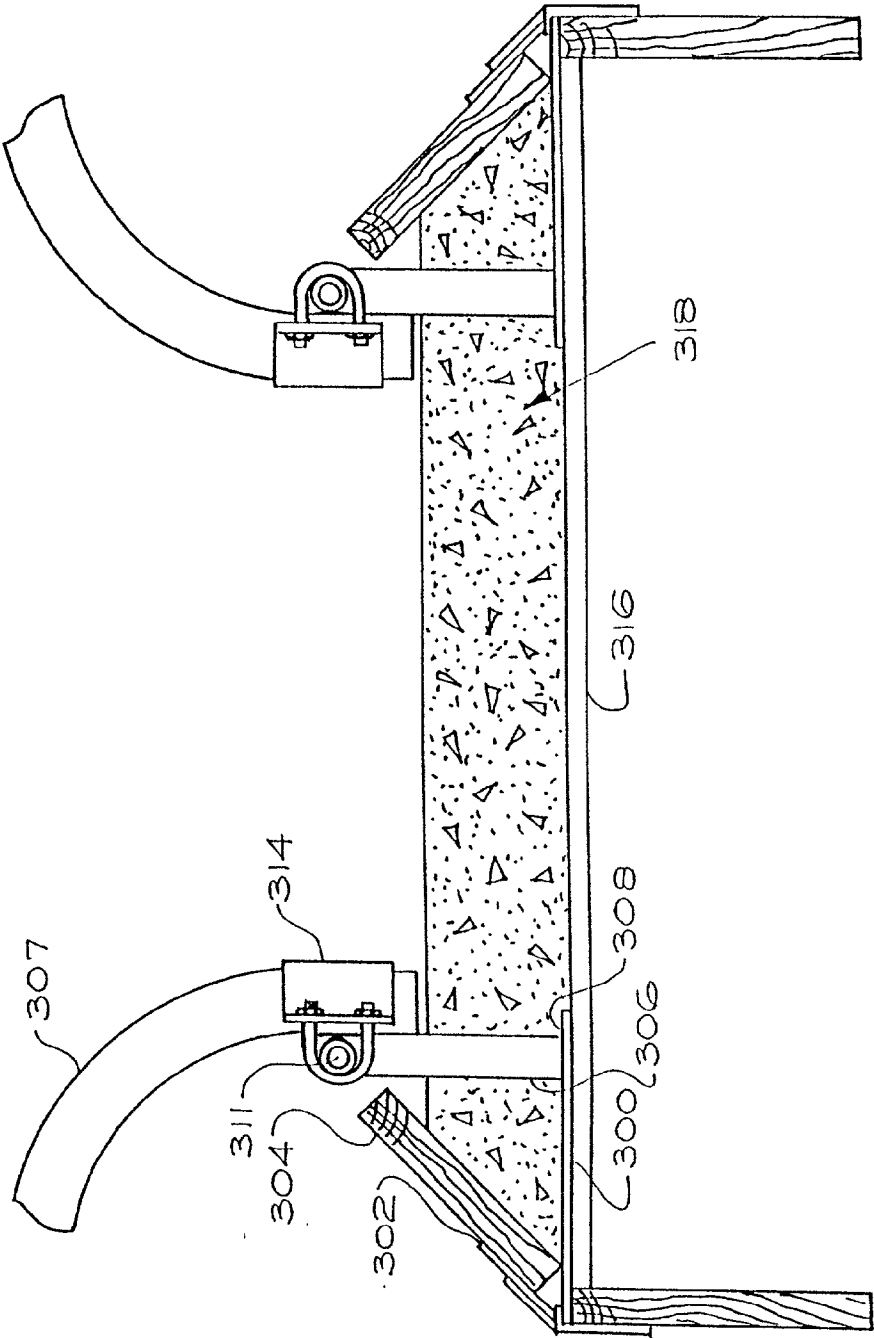
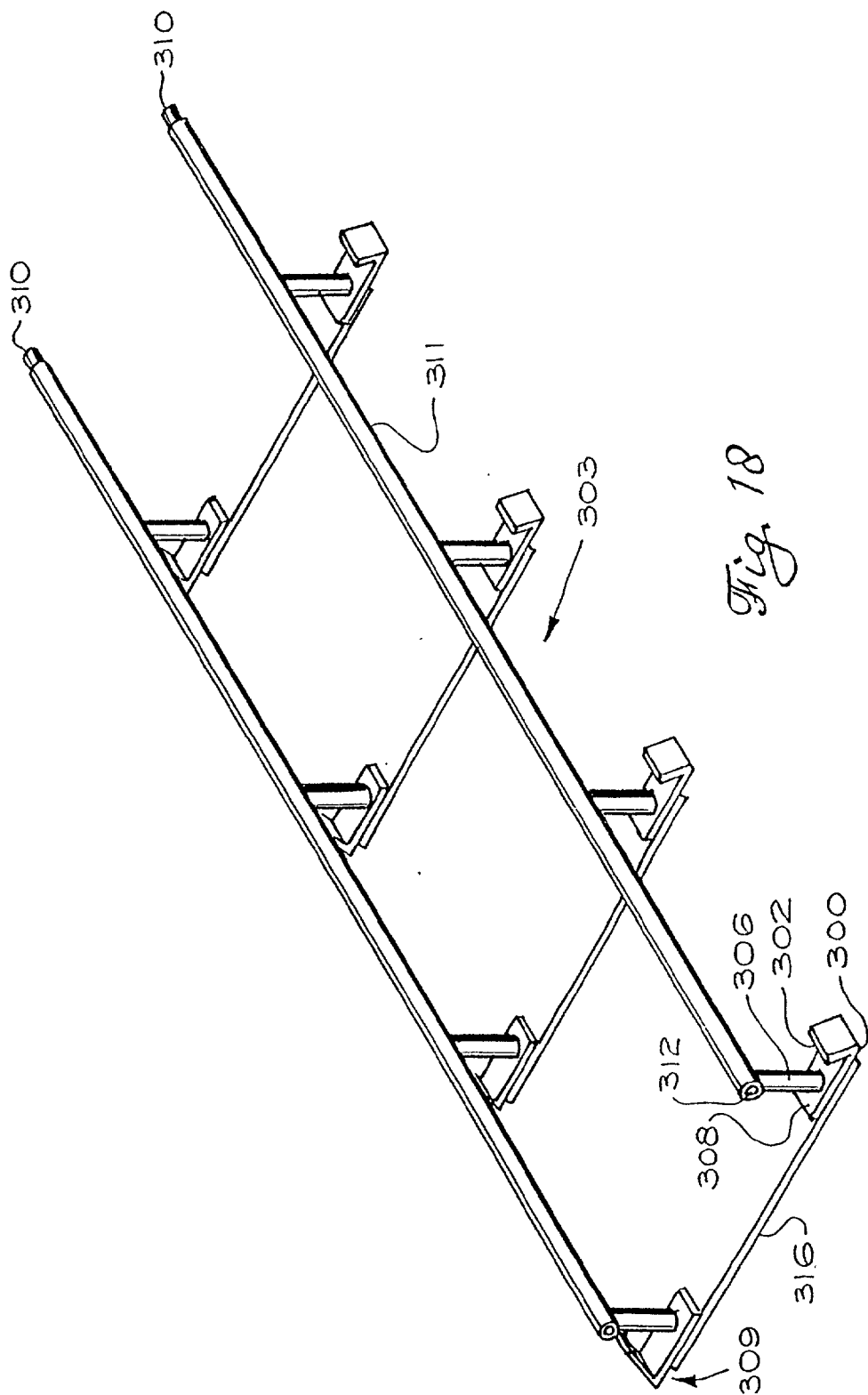


Fig. 17



FREE STALL DIVIDER

BACKGROUND

[0001] This invention relates generally to devices used to separate animals and, more particularly, to a free stall divider that eliminates various obstructions in each stall, thereby increasing the space available for each animal.

[0002] Free stalls, or stalls which allow animals to move freely within a limited area, are well known in the art. While effective in some circumstances, prior art free stall dividers suffer from several disadvantages. First, traditional free stall dividers must be mounted to barn structural elements such as walls, building columns, or center posts, all of which restrict animal movement in the forward direction. These restrictions make it difficult for animals, and particularly cows, to move in a natural way. When cows lie down or rise from a lying position, they naturally move forward or “lunge,” and can be injured when they strike these obstructions. Second, when cows lie in a stall, they are most comfortable with their heads positioned to one side. The aforementioned structural restrictions can prevent cows from resting their heads in the most comfortable positions. This is particularly important because it has been shown that cows that live in comfortable quarters produce more milk than other cows. Third, because many of these devices depend on structural elements in the barn for mounting, the placement of the stalls is limited by the existing position of these elements in a barn. Other free stall dividers require the permanent installation of mounting members such as center posts or sockets which are cemented directly to the barn floor. Consequently, once these stalls are positioned in the barn, they are difficult or impossible to move, remove or replace. Third, these prior art free stall dividers require numerous parts, which are heavy, expensive to ship, and difficult to install. In addition, prior art free stall designs often require that two legs be cemented to the floor at opposite ends of the stall to provide structure and stabilization. Once these legs are installed, it is difficult to clean under the stalls, especially when using automatic cleaning equipment.

[0003] It is therefore an object of the invention to provide an improved free stall divider which increases the “lunge” room available to animals.

[0004] It is another object of the invention to provide an improved free stall divider which allows a cow to comfortably position its head.

[0005] It is another object of the invention to provide an improved free stall divider which is independent of barn structural elements for mounting.

[0006] It is yet another object of the invention to provide an improved free stall divider which can be readily moved within or removed from a barn.

[0007] It is still another object of the invention to provide an improved free stall divider in which parts can be easily replaced.

[0008] It is a still further object of the invention to provide an improved free stall divider which is easy to install.

[0009] It is a still further object of the invention to provide an improved free stall divider which requires fewer parts.

[0010] It is yet another object of the invention to provide an improved free stall divider which is simple in construction and less costly to ship.

[0011] It is a further object of the invention to provide an improved free stall divider which can be adapted for use in single and double row installations.

[0012] It is yet another object of the invention to provide an improved free stall which is easy to clean.

[0013] The present invention provides a free stall divider comprising a substantially horizontally extending base, at least one mounting member coupled substantially vertically to the base, and at least one dividing element including a substantially vertically extending mounting portion coupled to said one mounting member. The base provides a platform for mounting the dividing elements, thereby eliminating the necessity to mount structural elements directly to the barn floor, walls, or columns. All of the structure necessary to retain the dividing elements upright is provided by the mounting members, which are located on the base. The dividing elements act essentially like walls, and are positioned to the side of the animals in a stall. Therefore, all of the mounting members are positioned to the side of the animal, rather than in front of the animal. The space in front and to the side of the animals is therefore free of obstructions, thereby increasing the “lunge” room and providing additional room for the animals to place their heads at the side of the stall. Moreover, the majority of the free stall divider is elevated above the floor level so that it is easier to clean under than traditional free stall systems.

[0014] Furthermore, because the free stall divider of the present invention is installed independent of the barn structure, it can be readily moved or replaced. In addition, the free stall divider of the present invention can be easily disassembled and is easier to ship than previous devices. The free stall divider of the present invention can also be adapted for use in both single and double rows of stalls, thereby decreasing the number of different parts which must be acquired when assembling a free stall system.

[0015] Other advantages and features of the invention, together with the organization and manner of operation thereof, will become apparent from the following detailed description when taken in conjunction with the accompanying drawings wherein like elements have like numerals throughout the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] FIG. 1 is a side view of a double free stall divider constructed in accordance with the present invention.

[0017] FIG. 2 is an isometric view of a series of double free stalls provided in accordance with the present invention.

[0018] FIG. 3 is a plan view of the base shown in FIG. 1.

[0019] FIG. 4 is a side view of the base shown in FIG. 1.

[0020] FIG. 5 is an end view of the base shown in FIG. 1.

[0021] FIG. 6 is a fragmentary side view of a portion of the dividing element shown in FIG. 1 shown coupled to the mounting member shown in FIG. 1.

[0022] FIG. 7 is a side view of the dividing element shown in FIG. 1.

[0023] FIG. 8 is a fragmentary side view of two dividing elements shown in FIG. 1 coupled to a tubular coupling element.

[0024] FIG. 9 illustrates a side view of a single free stall constructed in accordance with the present invention.

[0025] FIG. 10A illustrates a side view of an alternative embodiment of a double free stall provided in accordance with the present invention.

[0026] FIG. 10B illustrates a side view of an alternative embodiment of a double free stall provided in accordance with the present invention.

[0027] FIG. 11 illustrates a side view of an alternative embodiment of a double free stall provided in accordance with the present invention.

[0028] FIG. 12 illustrates a side view of an alternative embodiment of a double free stall provided in accordance with the present invention.

[0029] FIG. 13 illustrates a side view of an alternative embodiment of a double free stall provided in accordance with the present invention.

[0030] FIG. 14 illustrates a side view of an alternative embodiment of a double free stall provided in accordance with the present invention.

[0031] FIG. 15 illustrates a plan view of an alternative embodiment of the base shown in FIG. 1.

[0032] FIG. 16 illustrates an isometric view of a rail mount free stall system in accordance with the present invention.

[0033] FIG. 17 is a side view of the base of FIG. 16.

[0034] FIG. 18 is a side view of the coupling rail of FIG. 16.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0035] Referring to the Figures, and more particularly to FIGS. 1 and 2, a free stall divider constructed in accordance with one preferred embodiment of the invention is illustrated at 10. A free stall divider is a device for dividing an open area into separate "free" stalls for animals wherein the animals are free to move, and are not locked to a stanchion. Single free stalls provide living space for a single animal, while double free stalls provide living space for two animals facing each other head-to-head. Typically, a plurality of free stalls are arranged in a substantially parallel space relationship to one another forming a free stall system which provides living space for a plurality of animals, as shown in FIG. 2.

[0036] In accordance with one preferred embodiment of the invention, each free stall divider 10 comprises five primary parts: a base 12; a pair of mounting members 14 and 16; and a pair of dividing elements 18 and 20. When assembled, the mounting members 14 and 16 are coupled preferably substantially vertically to the substantially horizontally extending base 12. The dividing elements 18 and 20 are coupled preferably substantially vertically to the mounting members 14 and 16, respectively. Together, these five primary components form a double free stall divider for separating animals wherein the dividing elements 18 and 20 act essentially like a wall between two adjacent stalls. When in the stall, the animals stand parallel to the dividing elements 18 and 20, and can face each other head-to-head.

Because the dividing elements 18 and 20 are mounted only to the base 12, and require no additional mounting devices, the area 21 directly in front of the animal is not obstructed.

[0037] Referring now to FIGS. 3-5, the base 12 is preferably rectangular in shape, comprising ends 22 and 24, sides 26 and 28, and bends 30 and 32. The base 12 is designed to be placed on the floor of a barn or other location, and to lie essentially parallel to the ground, preferably on a stall platform 34. The length of the base 12 from one end 22 to the other end 24 is sufficient to cover the center lunge room of the stall platform 34, as can be seen in FIG. 2.

[0038] Referring to FIG. 1, the ends 22 and 24 of the base 12 are adapted to accommodate the installation of parallel brisket boards 36. To this end, the ends 22 and 24 are bent, formed or welded upward at an angle to form the bends 30 and 32. One or more holes 38 are drilled near each end 22 and 24 to receive screws or other coupling devices for retaining the brisket boards 36 in place. The base 12 in combination with the brisket boards 36 defines a cavity 40 for receiving concrete or other moldable materials for forming a brisket. Forming the concrete brisket in the cavity 40 obviates the need for a permanent concrete brisket poured on the barn floor, and eliminates the time-consuming task of building concrete forms.

[0039] The mounting members 14 and 16 are preferably hollow tubular members having an inner diameter that is larger than the outer diameter of the dividing element 18 and 20, such that the mounting ends of the dividing elements 18 and 20 can be inserted into the mounting members 14 and 16 (FIG. 1). However, the mounting members 14 and 16 can be of any shape which will accommodate the dividing elements 18 and 20 of any desired shape. The mounting member 14 is positioned on the base 12 near the end 22, and the mounting member 16 is positioned on the base 12 near the opposite end 24, as can be seen in FIGS. 3 and 4. Both mounting members 14 and 16 are positioned on the base at a location substantially centered between the sides 26 and 28. The mounting members 14 and 16 preferably extend in a direction perpendicular to the base 12, but can extend in any direction which is substantially vertical, or at an angle, as can be seen in FIG. 14. The direction in which the mounting members extend is limited only by their ability to support the dividing elements 18 and 20 in a generally upright orientation. The mounting members 14 and 16 can be formed as part of the base 12, welded to the base 12, or secured by screws, bolts, or other securing devices. In addition, one or more holes 41 can be drilled in the mounting members 14 and 16 to aid in the installation of screws or other securing devices for retaining the dividing elements 18 and 20 upright. Although two mounting members 14 and 16 are shown, a plurality of pairs of mounting members can be positioned on a single base 12, thereby providing a free stall system mounted on a single base. Furthermore, a single mounting member 14 can also be used to support a divider.

[0040] The dividing elements 18 and 20 are identical in construction, and will be described with reference to dividing element 18, shown in FIG. 7. Generally, the dividing element 18 comprises two ends, 42 and 44, wherein the end 44 comprises a substantially vertical mounting portion 46, and the end 42 provides a location for coupling a second dividing element. A joining portion 48 joins the end 42 to the mounting portion 46. Preferably, the joining portion 48

comprises horizontal and arcuate sections, but can comprise any shape which joins the ends **42** and **44** together. The dividing element **18** preferably comprises tubular metal, but can comprise other materials such as plastic rubber, or wood.

[0041] When assembled, the end **42** is positioned above the approximate center of the base **12**. The end **44** is received by the mounting element **14**. Preferably, the mounting portion **46** of the dividing element **18** is secured to the mounting member **14** with self-tapping screws **50** and, in some embodiments, neoprene gaskets **52**, as is shown in FIG. 6. The self-tapping screws **50** simplify installation by eliminating the necessity to align holes located in both the mounting member **14** and the dividing element **18**. However, the dividing element **18** can be welded to the mounting member **14**, or secured to the mounting member with any type of screw, bolt, or other securing device or method. The joining portion **48** extends a distance horizontally from the end **42** past the first end of the base **22**, while remaining vertically elevated above the ground, thereby forming an arch before joining the end **42** to the mounting portion **46**.

[0042] As mentioned above, the dividing element **20** is constructed in an identical manner to the dividing element **18**. When assembled, the dividing element **20** forms the mirror image of the dividing element **18**, extending in an identical manner in the opposite direction horizontally from the center of the base **12**. The dividing elements **18** and **20** preferably meet at a location that is substantially above the center of the base **12**. When assembled, therefore, the two dividing elements form a loop which extends horizontally beyond both ends **22** and **24** of the base **12**. The dividing elements **18** and **20** are preferably coupled together by means of a tubular coupling element **54**, self-tapping screws **56**, and, in some embodiments, neoprene gaskets **58**, as is shown in FIG. 8. One or more holes **59** can be drilled in the coupling element **54** to simplify the insertion of coupling devices. However, the dividing elements **18** and **20** can be welded or fastened by bolts, screws, or other coupling devices, or can form one continuous piece.

[0043] In one preferred embodiment of a free stall divider that is especially sized for cows, the joining portion **48** further comprises a substantially horizontal section **60** and an arcuate section **62** which joins the substantially horizontal section **60** to the substantially vertical mounting portion **46**. One end **42** of the dividing element **18** is positioned approximately forty-four inches vertically above the center of the base. From this position, the horizontal section **60** extends horizontally from the center of the base **12** to the horizontal endpoint **64** at a location approximately seventy-eight inches horizontally and forty-two inches vertically from the center of the base **12**. The mounting portion **46** is coupled to the mounting member **14**, which is in turn coupled to the base **12** at a location approximately fourteen inches horizontally from the center of the base and is centered between the sides **26** and **28** of the base **12**. Starting from the base **12** the mounting portion **46** extends substantially vertically to a vertical endpoint **66** at a height of approximately forty-two to forty-eight inches. The arcuate section **62** extends from the vertical endpoint **66** of the mounting portion **46** to the horizontal endpoint **64**, making a 180° turn and forming an arch. Again, the dividing element **20** provides a mirror image of the dividing element **18**, extending horizontally in the opposite direction. The divid-

ing elements **18** and **20** are coupled together at a height of forty-two inches above the approximate center of the base.

[0044] In this preferred embodiment, the bends **30** and **32** in the base **12** are located approximately twenty-five inches in each direction horizontally from the center of the base **12**. The horizontal section **60**, however, extends to a location approximately seventy-eight inches horizontally from the center of the base **12**. Therefore, approximately two-thirds of the dividing element **18** extends past the end of the base **12** while it is elevated above ground level. An open space **68** that is positioned between the arcuate section **62** and the ground simplifies cleaning, because cleaning equipment can be easily moved through the open space **68**. This is particularly beneficial when automated cleaning equipment is used.

[0045] Referring again to FIG. 2, a typical free stall system comprising a plurality of free stall dividers **10** positioned in a parallel relationship to each other is shown. The free stall dividers **10**, **10A**, **10B**, and **10C** are spaced apart a sufficient distance to form free stalls **70**, **70A**, and **70B**. Each stall **70**, **70A**, and **70B** provides living space for two cows facing each other head-to-head. The center portion **21** of each stall is free from structural elements, thereby providing increased lunge room over traditional free stall systems. Furthermore, because the free stall dividers **10** are substantially loop-shaped, the side of each stall **70**, **70A**, and **70B** is substantially free from structural elements. The open area within each loop provides a head rest area **23** for the cow to rest its head when in a lying position. The increased lunge room of the invention coupled with the loop's open area can allow the cow to stand up from the lying position with its head to the side. In this embodiment, cross bars **72** and **73** extend substantially perpendicular to the dividing elements **18** and **20** and interconnect the horizontal sections **60** of adjacent free stall dividers **10** to provide additional stability to the free stall system. The height of cross bars **72** and **73** is sufficient to allow the cow to lunge forward without touching cross bars **72** and **73**.

[0046] In another embodiment, shown in FIG. 13, a center dividing element **19** is coupled to an additional mounting member **15** which is generally centered on the base **12**. The center dividing element **19** extends substantially vertically from the mounting member **15** and is coupled to the dividing members **18** and **20** at a location substantially centered above the base **12**. The center dividing element **19** can be coupled to either member **18** or **20** or to the tubular coupling element **54**. While this embodiment does not afford the lunge and head room advantages of the embodiment of FIG. 1, this embodiment provides all of the same advantages with respect to ease of installation and cleaning. In addition, the center dividing member **19** provides an advantage in that it prevents animals from becoming entangled under the free stall divider. While in FIG. 13, the center dividing element **19** is shown extending from the mounting member **15** to the tubular coupling element **54**, it is understood that the center dividing element **19** can extend only a portion of the distance between the mounting member **15** and the tubular coupling element **54**. Furthermore, the center dividing element **19** can extend downward from the tubular coupling element **54** toward the base, or form an integral part of the dividing element **18** or **20**.

[0047] In another preferred embodiment, the dividing element **20** is replaced by a structural element which extends

horizontally to a position above the mounting member 16, and then makes approximately a 90° turn. The structural element, therefore, does not extend horizontally beyond the base 12 to function as a dividing element between animals, but rather serves as a structural element to maintain the dividing element 18 upright. In this embodiment, therefore, a single stall is formed.

[0048] In another preferred embodiment shown in FIG. 9, the free stall of the present invention is configured to provide a single stall which can be mounted to a center post or wall, in the manner of traditional free stalls, but which is constructed using one or more of the dividing elements 18 and 20 that are used to form the double free stall. In this embodiment, the free stall comprises a base 74, a single mounting member 14, and a dividing element 18. The base 74 is preferably rectangular, comprising two ends 76 and 78. The mounting member 14 is coupled to the base in a position near one end 76. The end 76 of the base 74 is preferably adapted to receive a brisket board 75. The other end 78 preferably abuts a wall or column 80 of the barn. The base, in conjunction with the brisket board 75 and the wall or column 80, defines a cavity 81 in which concrete or other moldable material can be received for forming a brisket. A dividing element 18, is coupled to the mounting member 14. A square tube 82 and tubular coupling device 84 is preferably mounted to the wall or barn column 80 to removably receive the end 42 of the dividing element 18. However, the end 42 can be welded to the coupling device 84, or fastened with bolts, screws or other fastening devices.

[0049] Two alternative embodiments, shown in FIGS. 10A and 10B, comprise basically the same primary parts as the embodiment shown in FIG. 1. However, in the alternative embodiments, the dividing elements 18 and 20 are coupled to the mounting member 90 in a different way. In the same manner as the embodiment of FIG. 1, the dividing elements 18 and 20 include a first end, 42, a second end 44, and a joining portion 48 which joins the first end 42 to the second end 44. In these embodiments, however, a substantially horizontal mounting portion 86 is substituted for the substantially vertical mounting portion 46 on each of the dividing elements 18 and 20. The substantially horizontal mounting portions 86 of the two dividing elements meet at a location substantially above the center of the base 12, and are coupled together by a second tubular coupling element 88. The tubular coupling element 88 is then coupled to the mounting member 90, as shown in FIGS. 10 and 11. The tubular coupling element 88 can form a continuous substantially T-shaped bracket, as is seen in FIG. 10B. Alternatively, the tubular coupling element 88 can be welded or otherwise connected, as is shown in FIG. 10A. The substantially horizontal mounting portions 86 are removably coupled to the tubular coupling element by self-tapping screws 50 and, in some cases, neoprene gaskets 52, as described above. Alternatively, the mounting portions 86 can be welded to the tubular coupling element 88 or coupled in other known ways.

[0050] Another alternative embodiment is shown in FIG. 11. In this embodiment, the free stall divider comprises a base 12, mounting elements 14 and 16, dividing elements 18 and 20, first, second, and third tubular coupling elements 100, 102, 104, and a divider joining member 106 which completes the loop between the first dividing element 18 and second dividing element 20. In this embodiment, the first

ends 42 of each dividing element meet in a position substantially above the center of the base 12 and are coupled together with the first tubular coupling element 100, one or more self-tapping screw, 50, and, in some applications, neoprene gaskets 52.

[0051] The mounting members 14 and 16 are positioned on the base 12 in positions substantially equidistant from the center of the base 12. The second end 44 of each dividing element 18 and 20 is inserted into a tubular coupling element 102 and 104, respectively. The divider joining member 106 is inserted into the opposite end of each coupling element 102 and 104, and extends in a substantially horizontal direction above the base 12. The mounting members 14 and 16 are coupled to the tubular coupling elements by self-tapping screws 50 and neoprene gaskets 52, as described above, or can be welded or coupled in other known ways. In some applications, the tubular coupling elements 102 and 104 can be substantially T-shaped, as is shown in FIG. 10B.

[0052] Another preferred embodiment is shown in FIG. 12. In this embodiment, the dividing elements 18 and 20 and associated tubular coupling element are replaced by a continuous tubular loop 92. Two mounting members 14 and 16 extend from the lower horizontally extending portion 94 of the loop 92. These mounting members 14 and 16 are coupled to the continuous tubular loop 92 through welds or other known coupling methods. The mounting members 14 and 16 can extend in a substantially perpendicular direction to the horizontally extending portion 94 of the loop 92 or can extend at an angle as shown in FIG. 12. In other cases, the continuous loop 92 and mounting members 14 and 16 can form one continuous loop. While the continuous loop 92 is shown coupled directly to mounting members, it is apparent that the continuous loop can be coupled to mounting members with tubular coupling elements or other devices. Furthermore, it is also apparent that the mounting members can be coupled to a base 12 as described above.

[0053] An alternative embodiment of the free stall 10, particularly useful for easily installing a series of parallel free stalls 10 in a single location, includes a base 200 for mounting a plurality of free stalls in a parallel space relationship. A base 200 for this alternative embodiment is shown in FIG. 15. The base 200 comprises a plurality of mounting members 14 coupled to a generally rectangular base plate 202, the length 204 of which extends the width of a plurality of free stalls 10. The mounting members 14 are coupled to the base in opposed pairs, across the width of the base 206. Preferably, the ends 214 and 216 of the base plate 202 are bent upward at an angle to form bends 208 and 210. Threaded studs 212 are coupled near the ends 214 and 216 and along the entire length 204 of the base plate 202. The threaded studs 212 accommodate the installation of brisket boards 218. Preferably, holes dimensioned to receive the threaded studs are drilled into the brisket boards 218. Each brisket board 218 is then positioned over the threaded studs 212 and locked into place by a matching washer and nut or other coupling device 220. While the base plate 202 is shown to comprise a single piece with bends at opposing ends, the ends 214 and 216 could comprise an additional piece coupled or welded to the base plate. Furthermore, it will be apparent that a similar result could be achieved by welding or otherwise coupling a series of bases 12 to a single base plate 202.

[0054] Another embodiment, particularly useful for providing an easy-to-install free stall divider system **301** in which the width of each independent free stall can be easily varied to accommodate different sizes and types of cows is shown in FIGS. 16-18. To provide double free stalls, as shown, the free stall system **301** comprises at least two rail mounting systems **303**, shown in FIG. 18, along with a plurality of dividing elements **307**, as shown in FIG. 16. Each rail mounting system comprises at least one coupling rail **311** and a plurality of base units **309**. The plurality of dividing elements **307** are removably coupled to the coupling rails **311** to separate an open area into stalls.

[0055] Each base unit **309** comprises a base plate **300** and a mounting member **306**. The base plates **300** are generally rectangular, and one end **302** of each base plate **300** is bent, formed or welded upward to accommodate the installation of a brisket board **304**, as shown in FIG. 17. The mounting member **306** is coupled to each base plate **300** near the end **308** directly opposite the end **302**. Preferably, the mounting member **306** is welded to the base plate **300**, but the mounting member may be coupled in other conventional ways. One or more holes may be drilled near the end **302** to receive screws or coupling devices for retaining the brisket boards, as described with reference to base **12** above.

[0056] To form the free stall system **301**, a plurality of base units **309** are arranged in a parallel space relationship with the ends **302** aligned on one side, and the ends **308** aligned on the opposite side. The coupling rail **311**, which is preferably tubular in shape, is coupled to each mounting member **306**, at a height slightly greater than the height of the installed brisket board **304**, thereby forming a rail mounting system **303**. The outer diameter of one end **310** of the coupling rail **311** is preferably of a reduced diameter relative to the opposite end **312**. This difference in outside diameters allows the end **310** from one rail mounting system **303** to be slid onto the end **312** of a second rail mounting system **303**, thereby simplifying multiple installations.

[0057] To form the free stall system **301**, first and second rail mounting systems **303** are positioned substantially parallel to each other, with the ends **302** of the two rail mounting systems pointing away from each other, and the ends **306** pointing toward each other. Preferably, the base units **300** are positioned at opposite ends of a plate comprising rebar **316** or other materials, such that a cavity is formed for concrete **318** between the two ends **302** as shown in FIG. 17 and corresponding brisket boards **304**. The dividing members **307** are substantially similar in shape to the dividing members **18** and **20** described above, but are removably coupled to the coupling rail **311** with a clamp **314**. Preferably, the clamp **314** is a U-shaped clamp, but any suitable clamp can be used. The dividing members **307**, therefore, can be clamped into position anywhere along the coupling rail **311**. This is particularly important because different types of cows can require particular spacing. For example, most Jersey cows require a stall of only about forty inches in width, while Holsteins can require as much as forty-eight inches. In some embodiments, the clamp **314** can also be used to raise or lower the height of the dividing member **307**.

[0058] While the free stall system **301** is shown as a double free stall, it is apparent that a single free stall could also be provided in a similar way. Furthermore, it is apparent

that single base units including two mounting members and two ends adapted to receive brisket boards can be used in place of the single base units **309**. Although many of the embodiments are shown only in side views, in the most preferred embodiments, the dividing elements are in a planar space relationship similar to the embodiment shown in FIG. 2. However, in some cases, portions of the dividing elements can be bent toward one another if desired. Furthermore, it will be apparent that any of the bases, mounting members and dividing elements shown can be interchanged with any other bases, mounting members or dividing elements shown to provide a variety of free stalls.

[0059] While preferred embodiments have been illustrated and described, it should be understood that changes and modifications can be made thereto without departing from the invention in its broader aspects. Various features of the invention are defined in the following claims.

We claim:

1. A free stall divider for dividing an open area into separate stalls for animals, comprising:

a substantially horizontally extending base;

at least one mounting member positioned substantially vertically on said base; and

at least one dividing element including a mounting portion coupled to said one mounting member.

2. The free stall divider of claim 1, wherein said mounting portion of said dividing element is removably coupled to said one mounting member.

3. The free stall divider of claim 1, including a self-tapping screw, wherein said mounting portion of said dividing element is removably coupled to said mounting member with said self-tapping screw.

4. The free stall divider of claim 1, wherein said mounting member comprises a tubular socket to which said mounting portion of said dividing element is removably coupled.

5. The free stall divider of claim 1, wherein said base includes first and second ends adapted to receive and secure first and second brisket boards, respectively, with the first and second brisket boards extending in a parallel space relationship to one another, thereby forming a cavity between said first and second brisket boards.

6. The free stall divider of claim 1, wherein said dividing element comprises first and second ends and a joining portion, said first end being substantially centered above said base, said second end comprising said mounting portion, and said joining portion joining said first end to said mounting portion.

7. The free stall divider of claim 6, wherein said joining element comprises a substantially horizontal section and an arcuate section, said horizontal section extending vertically above and horizontally beyond an end of said base, and said arcuate section joining said horizontal section to said mounting portion.

8. The free stall divider of claim 1, wherein said mounting member is welded to said base.

9. The free stall divider of claim 1, wherein said mounting member is removably coupled to said base.

10. The free stall divider of claim 1, wherein said mounting member is formed integrally with said base.

11. A free stall divider for dividing an open area into separate stalls for animals, comprising:

a substantially horizontally extending base;

first and second mounting members positioned substantially vertically on said base; and

first and second dividing elements, wherein said first and second dividing elements include first and second mounting portions, respectively, and wherein said first and second mounting portions are coupled to said first and second mounting members, respectively.

12. The free stall divider of claim 11, wherein said mounting portions of said first and second dividing elements are removably coupled to said first and second mounting members, respectively.

13. The free stall divider of claim 11, including first and second self-tapping screws for removably coupling said first and second dividing elements to said first and second mounting members, respectively.

14. The free stall divider of claim 11, wherein said base includes first and second ends, and said first mounting member is mounted on said base near said first end, and said second mounting member is mounted on said base near said second end.

15. The free stall divider of claim 11, wherein each of said dividing elements includes first and second ends and a joining portion, said first end of each dividing element being substantially centered above said base, said second ends of said dividing elements comprising said first and second mounting portions, and said joining portion of each dividing element joining said first end to said second end.

16. The free stall divider of claim 11, wherein said first dividing element extends horizontally beyond an end of said base in one direction, and said second dividing element extends horizontally beyond an end of said base in the opposite direction, and wherein said first ends of said first and second dividing elements meet substantially above the center of said base, forming a loop such that said loop is longer than said base horizontally and is substantially centered around said base.

17. The free stall divider of claim 16, including at least one self-tapping screw, and a tubular coupling element, wherein said first and second dividing elements are coupled together with said tubular coupling member and said self-tapping screw.

18. The free stall divider of claim 11 wherein said first and second dividing elements are identical in size and shape.

19. The free stall divider of claim 11, wherein said first and second dividing elements comprise one continuous piece.

20. The free stall divider of claim 11, wherein first and second free stall dividers are positioned in a parallel space relationship, thereby forming a free stall providing living space for two animals head-to-head between said first and second free stall dividers.

21. The free stall divider of claim 11, wherein a plurality of free stall dividers are positioned in a parallel space relationship, thereby forming a plurality of free stalls, each of said free stalls providing a space for two animals head-to-head between adjacent free stall dividers.

22. The free stall divider of claim 21, wherein a cross bar interconnects adjacent free stall dividers to provide additional structure, said cross bar being substantially perpendicular to said free stall dividers.

23. The free stall divider of claim 1, wherein said mounting portion extends substantially vertically to said base.

24. The free stall divider of claim 11, wherein said first and second mounting portions extend substantially vertically to said base.

25. The free stall divider of claim 16, including at least one self-tapping screw, at least one neoprene gasket, and a tubular coupling element, wherein said first and second dividing elements are coupled together with said tubular coupling member, said self-tapping screw, and said neoprene gasket.

26. The free stall divider of claim 11 wherein said first and second mounting portions extend substantially horizontally.

27. The free stall divider of claim 26 wherein said first mounting portions are removably coupled to said second mounting portion.

28. The free stall divider of claim 26, including a tubular coupling element and wherein said first mounting portion is removably coupled to said second mounting portion with said tubular coupling element.

29. The free stall divider of claim 1 wherein said at least one dividing element comprises first and second ends and a joining portion wherein said first and second ends are substantially centered above said base and said joining portion joins said first end to said second end.

30. The free stall divider of claim 29, comprising first and second dividing elements, each having a first end and a second end, wherein the first end of the first dividing element is removably coupled to the first end of the second dividing element, and the second end of the first dividing element is similarly coupled to the second end of the second dividing element.

31. The free stall divider of claim 30, wherein said first end of said first dividing element is removably coupled to the first end of the second dividing element with at least a self-tapping screw and a divider tubular coupling element.

32. The free stall divider of claim 30, wherein said second end of said first dividing element and said second end of said second dividing element are removably coupled, together with at least a self-tapping screw and a tubular coupling element.

33. The free stall divider of claim 32, wherein said tubular coupling element is welded to said mounting member.

34. The free stall divider of claim 32, wherein said tubular coupling element is substantially T-shaped.

35. The free stall divider of claim 16, further comprising a divider joining member, a first tubular coupling element, a second tubular coupling element, and a third tubular coupling element, wherein said first dividing element is removably coupled to said second dividing element with said first tubular coupling element, the second end of said first dividing element is removably coupled to said first mounting member with said second tubular coupling element, the second end of said second coupling member is removably coupled to the second mounting member with said third tubular coupling element, and said divider joining member is coupled between said second tubular coupling element and said third tubular coupling element.

36. A method for dividing an open area into separate free stalls for animals comprising:

providing a substantially horizontally extending base;

positioning first and second substantially vertically extending mounting elements on said base;

coupling first and second dividing elements to said first and second mounting elements, respectively; and

coupling said first and second dividing elements to each other to form a continuous loop.

37. A free stall system for dividing an open area into separate stalls for cows, said free stall system comprising: at least first and second substantially loop-shaped free stall dividers, wherein said first free stall divider is positioned in a parallel space relationship to said second free stall divider to define a stall for two cows facing each other head-to-head, a center portion of the stall being substantially free of structural elements to provide a lunge area in front of each cow which is substantially free from obstructions, and each side of the stall being substantially free from structural elements to provide a head rest area on each side of each cow, the head rest areas being substantially free of obstructions to each cow's head when the cow is lying down.

38. A free stall divider system for providing stalls of varying widths comprising:

a plurality of substantially horizontally extending base units, the base units arranged in a parallel spaced relationship to each other;

a plurality of mounting members, wherein each mounting member is coupled substantially vertically to a different base unit;

a coupling rail, dimensioned to extend the width of a plurality of stalls, the rail coupled substantially perpendicularly to said mounting members, and extending horizontally from mounting member to mounting member;

a plurality of dividing members, the dividing members being removably coupled to the coupling rail.

* * * * *