



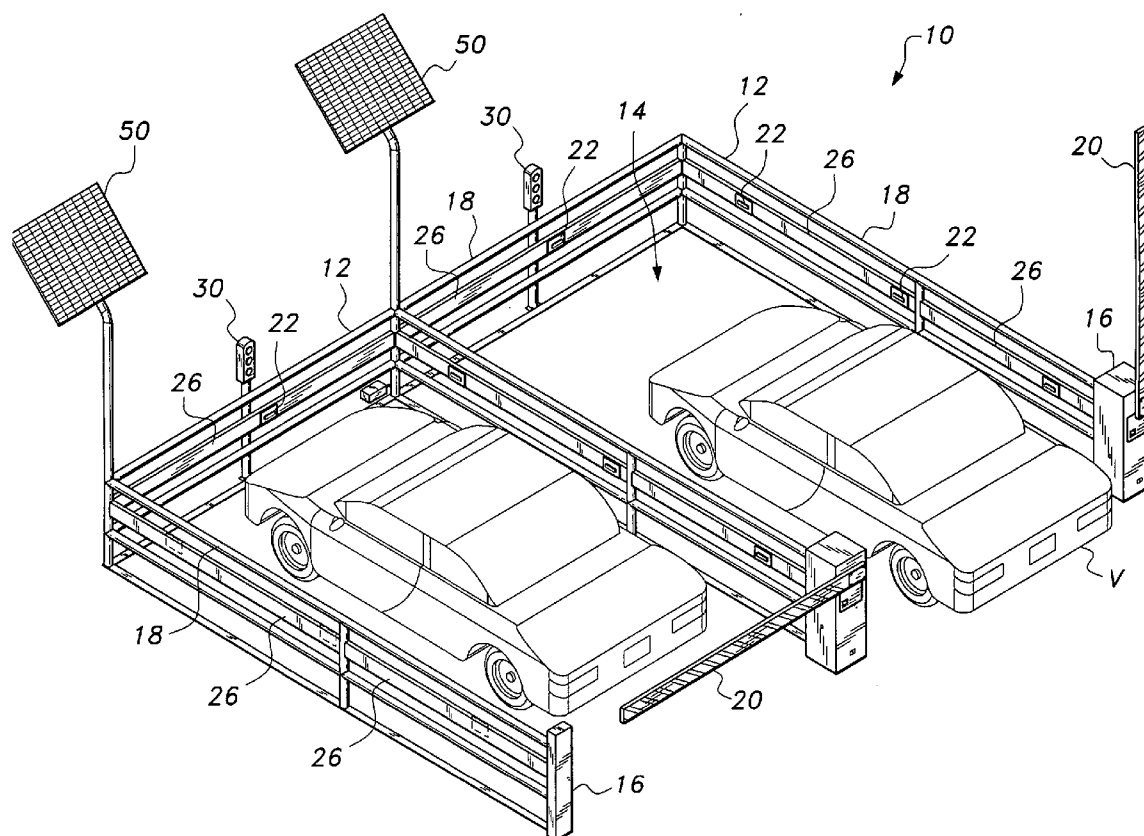
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(19) **United States**(12) **Patent Application Publication****Lewis**(10) **Pub. No.: US 2007/0085067 A1**(43) **Pub. Date: Apr. 19, 2007**(54) **GATED PARKING CORRAL****Publication Classification**(76) Inventor: **John R. Lewis**, South Hawley, TX
(US)(51) **Int. Cl.**
E04H 17/16 (2006.01)(52) **U.S. Cl.** **256/73**Correspondence Address:
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ARLINGTON, VA 22215 (US)(57) **ABSTRACT**

The gated parking corral is a protected parking area designed to be set up in parking lots or fields to protect a vehicle from damage. The gated corral has a fence with vertical posts and horizontal beams attached between the vertical posts to form an enclosure. At the end of the enclosure, a gate arm is pivotally connected to one of the vertical posts. A padded rail is connected between the vertical posts and protects vehicles from dings when the doors are opened. Sensors are affixed along the horizontal beams that determine the presence of a vehicle within the enclosure. Once the sensors detect a vehicle within the enclosure, the gate arm is closed. Upon payment of a certain amount of monies into a coin box connected to the gate arm, the gate arm will operate in an upward direction to allow the vehicle to exit the corral.

(21) Appl. No.: **11/582,368**(22) Filed: **Oct. 18, 2006****Related U.S. Application Data**

(60) Provisional application No. 60/727,492, filed on Oct. 18, 2005.



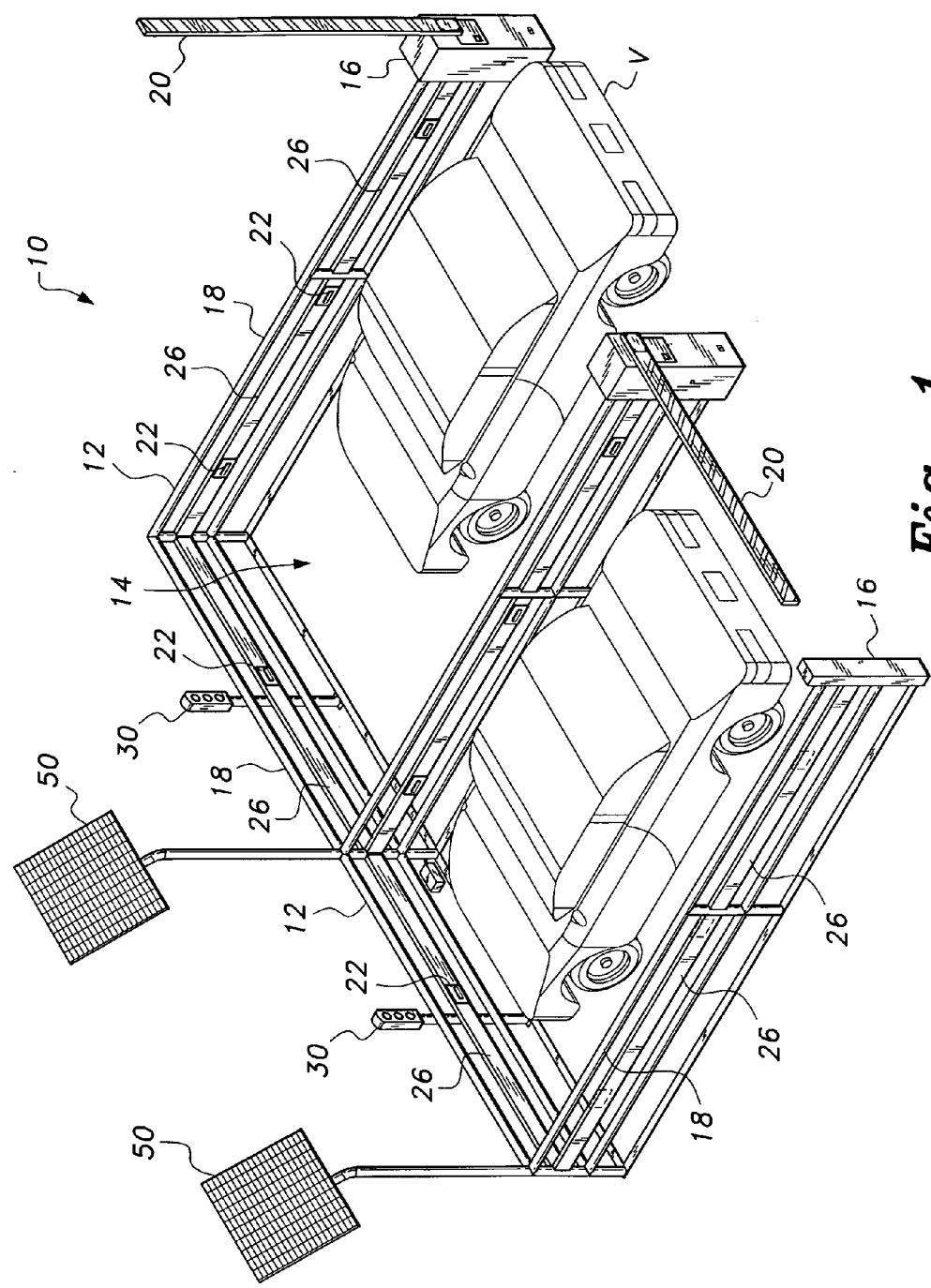


Fig. 1

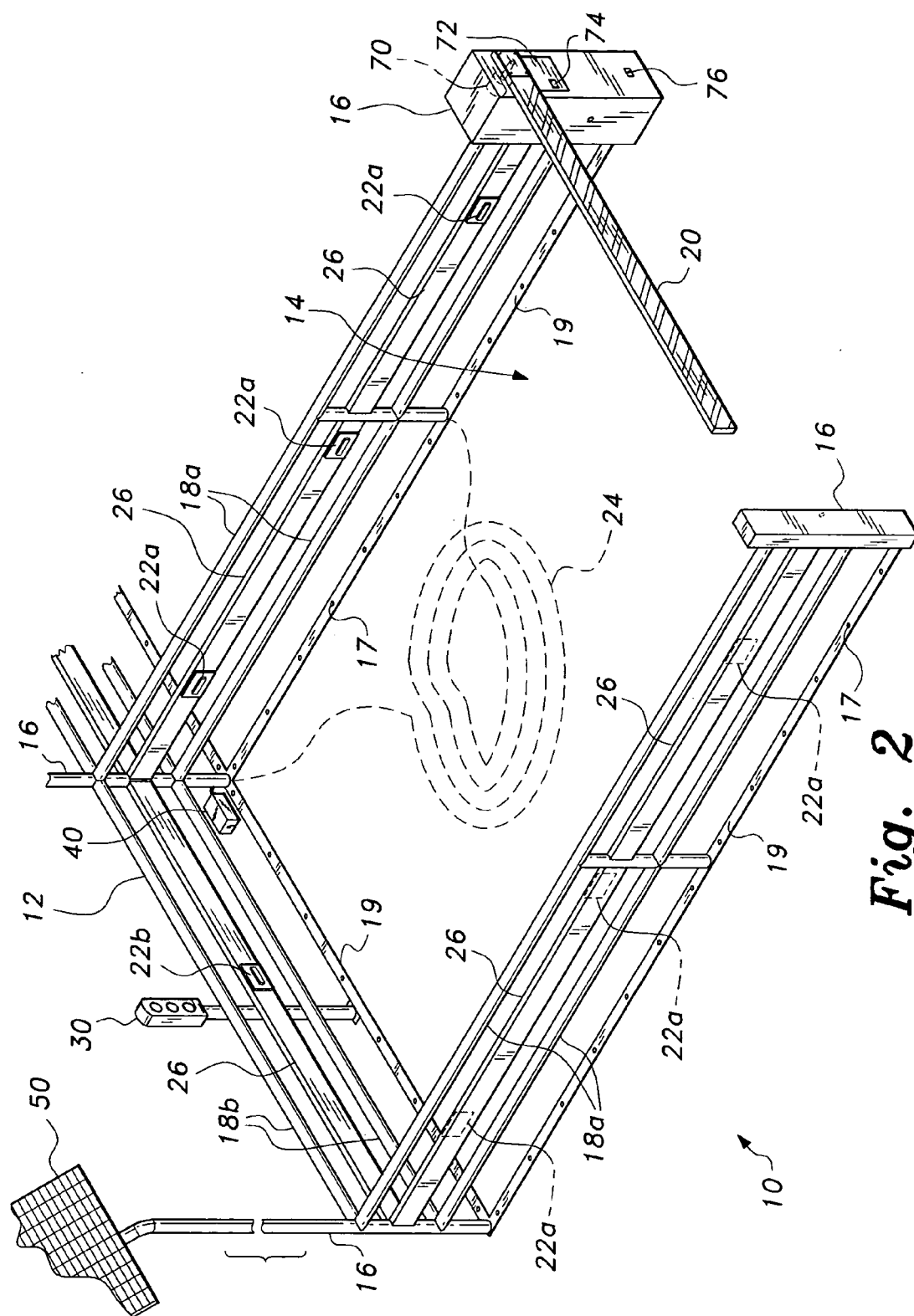


Fig. 2

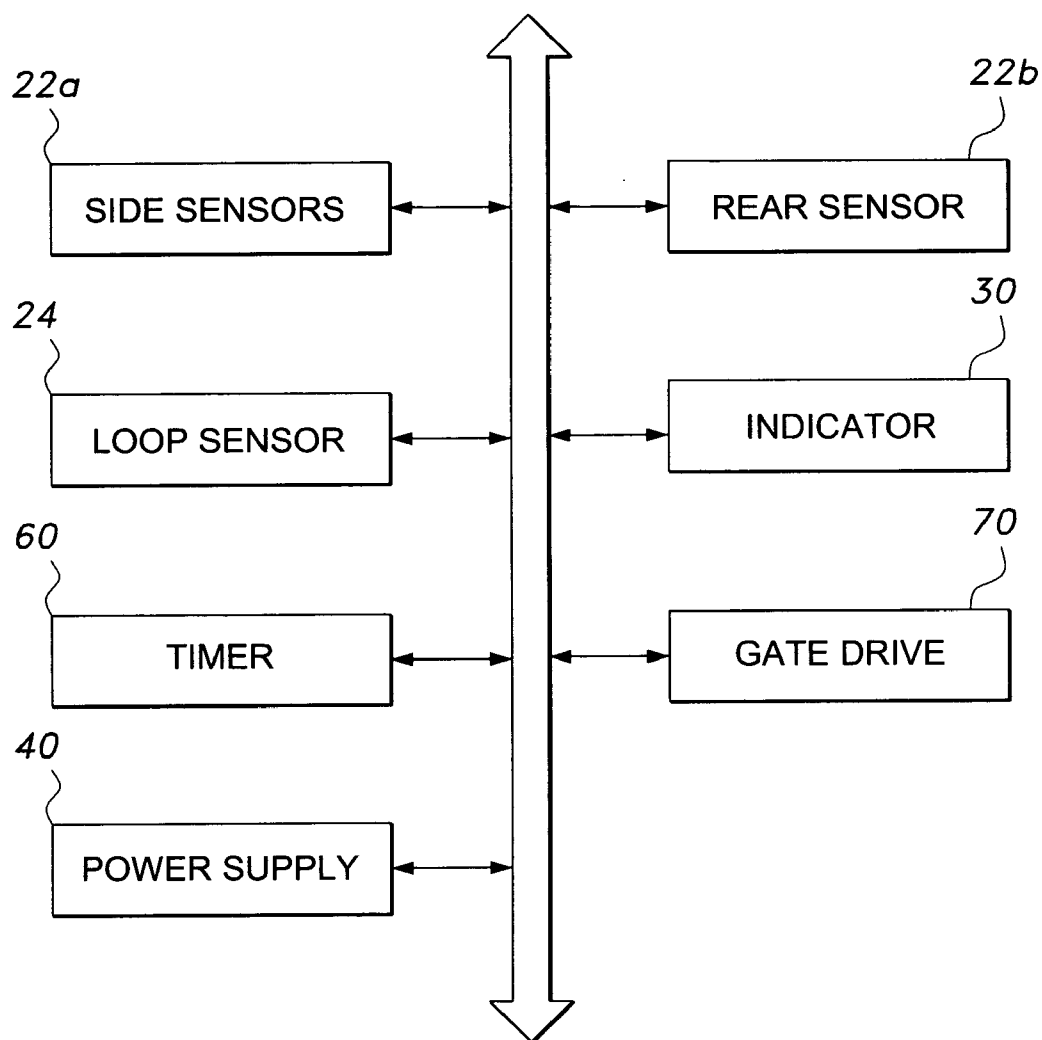


Fig. 3

GATED PARKING CORRAL

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Patent Application Ser. No. 60/727,492, filed Oct. 18, 2005.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to parking space systems, and particularly to a gated parking corral for motor vehicles.

[0004] 2. Description of the Related Art

[0005] Parking lots, outdoor arenas or other spaces are used for keeping vehicles in an ordered placement. Generally, however, these lots do not provide much protection for the users who want to avoid dings, scratches, dents or other destruction to their automobiles. Japanese Patent Nos. 52-54,247, published May 1977; 2-68,700, published March 1990; 7-272,034, published October 1995; 2001-227,187, published August 2001; and 2004-30,084, published January 2004, appear to disclose automated parking lot management and/or parking space management involving stacking vehicles vertically.

[0006] Accordingly, there is a need for a gated parking corral that allows owners to maintain their vehicles within semi-confined spaces to avoid dents or scratches to their automobiles. Additionally, there is a need for a gated parking corral that will automatically detect the presence of a vehicle within the enclosure of the corral and automatically fence the vehicle within the enclosure.

[0007] None of the aforementioned patents appear to disclose or suggest either singly or in combination all of the features of the present invention. Thus, a gated parking corral solving the aforementioned problems is desired.

SUMMARY OF THE INVENTION

[0008] The gated parking corral is a protected parking area designed to be set up in parking lots, fields or any type of area that would have need for a secure place in which to protect a vehicle. The gated parking corral may include one or more fenced-in areas that hold an automobile within an enclosure.

[0009] The gated corral has a fence with vertical posts and horizontal beams attached between the vertical posts to form an enclosure. At the end of the enclosure, a gate arm is pivotally connected to one of the vertical posts and serves to prevent vehicles that have entered the corral from leaving before paying. A padded rail is connected between the vertical posts and protects vehicles from dings when the doors are opened.

[0010] Sensors are affixed along the horizontal beams, along the vertical posts or along the padded rail. Side sensors are affixed along horizontal beams that are in parallel relationship to each other across the enclosure, and rear sensors are affixed along horizontal beams that are normal to the side beams in parallel relationship. A loop sensor is installed within the ground under the enclosure in which the

vehicle is to be kept. An indicating light is electrically connected to the side and rear sensors.

[0011] A vehicle may enter the enclosure defined by the fence and as the vehicle comes within close proximity to the side sensors or the loop sensor senses the vehicle, the indicating light turns from "green" to "yellow" to indicate that a vehicle is entering. As the vehicle further enters the enclosure and comes within proximity to the rear sensor, the rear sensor reads that the vehicle is approaching, and the light changes to "red".

[0012] After the vehicle is fully parked within the corral, the sensors have detected the presence of the vehicle, and the light changes to red, a timer electrically connected to the sensors is activated. The timer is preset for a specified amount of time to allow the driver to exit the vehicle and continue out of the corral area. Once the specified time has been reached following the activation of the sensors, the timer will signal to a gate drive situated within one of the vertical posts that the gate arm is to be lowered. The gate drive controls operation of the gate arm. An audible alarm may additionally be connected to the timer, so that when the specified time has elapsed, the alarm sounds notice to the vehicle owner that the gate arm will be closing.

[0013] The vertical posts to which the gate arms are attached can have a coin box affixed to the posts that accepts coins, bills, prepaid payment cards, or other form of payment. Once the vehicle owner wants to leave the corral, the owner puts the requisite amount of money into a slot in the coin box. Following receipt of the correct amount of money into the coin box, the gate drive is activated, which causes the gate arm to pivot in an upward direction to allow the vehicle to leave the enclosure.

[0014] These and other features of the present invention will become readily apparent upon further review of the following specification and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] FIG. 1 is an environmental, perspective view of a gated parking corral according to the present invention.

[0016] FIG. 2 is a detailed perspective view of the gated parking corral according to the present invention.

[0017] FIG. 3 is a block diagram of the gated parking corral according to the present invention.

[0018] Similar reference characters denote corresponding features consistently throughout the attached drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0019] The present invention is a gated parking corral that allows a vehicle to pay for parking in a protected parking area. The gated parking corral, designated generally as **10** in the drawings, may include one or more fenced-in areas in which to keep an automobile. Walkway areas proximate to the corral **10** may be identified by a paint strip or other marking thereon. Additionally, parking boundaries may be identified by a paint strip or other marking around the periphery of the corral **10**. Moreover, a paint strip or other marking may be applied within the corral **10** to assist a driver in properly aligning the vehicle with the corral **10** to avoid parking too close to any of the sides defined by fence **12**.

[0020] Turning now to FIG. 1, the gated parking corral 10 is shown having a double enclosure. The gated parking corral 10 includes at least one said fence 12 designed to maintain a vehicle V within the fence 12. More than one fence 12 may be attached, allowing for multiple vehicles to be protected by the fence 12, but defining individual gated enclosures for each vehicle V. Each fence 12 defines a vehicle-receiving enclosure 14 in which the vehicles may park. The vehicle-receiving enclosure 14 is preferably approximately twenty feet long. The fences 12 can be configured to create a vehicle-receiving enclosure 14 that allows for angled or straight-in parking. Additionally, a variety of configurations are contemplated by the present invention in order to provide end-to end vehicle-receiving enclosures 14 as well as side-by-side vehicle-receiving enclosures 14. Each fence 12 includes a plurality of vertical posts 16 and horizontal beams 18 attached to each other. A gate arm 20 is pivotally connected to one of the vertical posts 16. A plurality of sensors 22 are affixed along the horizontal beams 18 and are designed to detect the presence of a vehicle V entering the enclosure 14.

[0021] Turning now to FIGS. 2 and 3, a detailed perspective view of one of the fence sections 12 of the gated parking corral 10 and a block diagram of the electronics of the parking corral 10 are shown, respectively. The fence 12 has a plurality of vertical posts 16 and a plurality of horizontal beams 18 that make up the structure of the fence 12. The vertical posts 16 are mounted to a ground surface and extend upward from the ground surface. The horizontal beams 18 are coupled between the vertical posts 16. At least two horizontal beams 18a are attached between at least two vertical posts 16 in parallel relationship. One horizontal beam 18b is attached between two vertical posts 16 in normal relationship to horizontal beams 18a. The vertical 16 and horizontal 18 posts generally form a rectangular fence 12 defining an enclosure 14. Horizontal beams are omitted between two vertical posts in order to allow space for the vehicle V to enter the enclosure 14. A gate arm 20 is affixed to one of the vertical posts 16 and may pivot in an upward or downward direction. The vertical posts 16 and horizontal beams 18 may be affixed to one another with hinges, pins, inserted fittings or any other means for uniting the vertical 16 and horizontal 18 posts together. A base of the corral may be comprised of a plurality of flat, preferably 3-inch plates 19 that can be attached to the ground or pavement via fasteners, such as lag bolts 17. The plates 19 provide a stable foundation upon which the vertical posts 16 are attached.

[0022] A plurality of fence sensors 22 is disposed along the fence 12. Side sensors 22a are attached to the side beams 18a that are in parallel relationship to each other across the enclosure 14. A rear sensor 22b is affixed to the horizontal beam 18b that is normal to the side beams 18a. The side 22a and rear 22b sensors are connected in series. A loop sensor 24 is installed within the ground under the enclosure 14 in which each vehicle V is to be kept and is electrically connected to the fence sensors 22. The loop sensor 24 detects the presence of a conductive material, such as aluminum or steel, which allows for a determination as to whether or not a vehicle V is present. The fence sensors 22 may be sonar, laser, magnetic, light, reflective, pressure-sensitive, pneumatic, LED, infrared, or any other type of sensor or detection device capable of detecting the presence of a vehicle V within the enclosure 14.

[0023] A padded rail 26 is attached between the vertical posts 16 and disposed in parallel relationship to the horizontal beams 18 connected between the vertical posts 16. The padded rail 26 may be made from plastic, rubber, concrete or any other type of material that will act as a bumper or barrier for the vehicle V. A speed bump or similar barrier (not shown) may be attached to the parking space within the area defined by the enclosure 14 to provide a barrier for the front tires of the vehicle V to rest against in order to keep the vehicle V from continuing forward.

[0024] A light 30 is electrically connected to the sensors 22 and 24. The light 30 may be any type of indicator, but is preferably a three-color stoplight that is able to indicate go, caution and stop. When the vehicle V enters one of the enclosures 14 of the gated corral 10, the side fence sensors 22a are activated as the vehicle V enters and comes within close proximity to the side sensors 22a. As one of the side sensors 22a or the loop sensor 24 is activated, the light 30 changes from the initial "go" indication (generally the color green) to the "caution" indication (generally the color yellow). As the vehicle V moves farther into the enclosure 14, approaching the rear horizontal beam 18b, the rear sensor 22b reads that the vehicle V is approaching. When all of the sensors 22a, 22b and 24 have detected the presence of an automobile within the enclosure 14, the indicating light 30 indicates "stop" (generally by turning red). The light 30 notifies the vehicle driver that the automobile is correctly situated within the corral 10.

[0025] A battery 40 or other power source is connected to the sensors 22 and 24 and the light indicator 30 in order to provide electrical current to operate the sensors 22 and 24 and the light 30. A charger (not shown) may be included to charge the battery 40 from an external power source. A solar panel 50 may optionally be connected to the battery 40 to supply power, i.e., charging current to the battery 40.

[0026] After the vehicle V is fully parked within the corral 10 and the sensors 22 and 24 have detected the presence of the vehicle, a timer 60 is activated. The timer 60 electrically communicates with the sensors 22 and 24 in order to determine that all of the sensors 22 and 24 have detected the automobile. The timer 60 may be preset for a specified amount of time to allow the driver to exit the vehicle V and continue out of the corral area 10. Once the specified time has been reached following the activation of the sensors 22 and 24, the timer 60 will signal to a gate drive 70 situated within one of the vertical posts 16 that the gate arm 20 is to be lowered. The gate drive 70 controls operation of the gate arm 20. An audible alarm may also be connected to the timer 60, so that when the specified time has elapsed, the alarm sounds notice to the vehicle owner that the gate arm 20 will be closing. If the driver chooses to exit the gated corral 10 before the specified time period has elapsed, the sensors 22 and 24 will be deactivated and the gate arm 20 will remain in an upward position. The gate arm 20 may be constructed from any of a number of materials, including fiberglass, plastic, wood, aluminum, etc.

[0027] The gate drive 70 may be a chain drive, gear drive, screw drive or hydraulic cylinder, and may be operated using AC or DC voltage. The gate drive 70 may be solid state or mechanical limit switches, relays or contacts. A full service controller having the capability of being in operable communication with, to control and accept inputs from, a remote

entry device, such as a telephone. The controller is also in operable communication with, controls, and accept inputs from loop detectors, sensors, card readers, push buttons, alternative remote control devices, bar code scanners, money acceptors, gate drives, and the like. Control functions of the controller may be located in or distributed among any of the sensors **22a**, **22b**, **24**, timer **60**, indicator **30**, gate drive **70**, and the like.

[0028] The position of the gate arm **20** is adjustable, or may be pre-positioned, and is limited by magnetic or proximity sensors, and may also be designed with a pressure-sensitive switch. If the vehicle **V** is not fully in the corral, or if there is any obstruction in the path of the gate arm **20**, the magnetic or proximity sensors, or pressure-sensitive switch can detect the obstruction to keep or return the gate arm **20** to the open position. The gate arm **20** is preferably approximately nine feet long, while the corral **10** is preferably approximately thirteen feet wide, thereby allowing approximately four feet for a person or persons to exit or enter the corral **10** with shopping carts, strollers and the like, even when the gate arm **20** is in a closed position. The gate arm **20** may be attached with a breakaway device. Optionally, the gate arm **20** can be color-striped and/or outfitted with a flashing light (not shown) at the end of the gate arm **20** that is activated when the gate arm **20** is in the up or open position to alert customers of availability of the corral **10**. Preferably, the gate arm **20** is covered with a non-scratch type surface or paint.

[0029] The side **22a**, rear **22b** and loop sensors **24**, indicating light **30**, power supply **40**, timer **60** and gate drive **70** are electrically connected to the each other and may be connected to the solar panel **50**. The wiring to electrically connect the gated vehicle corral **10** may be built into a conduit in the padded rail **26**, built along the ground or built into the horizontal beams **18**. Preferably, the wiring is comprised of at least one wiring harness having connectors that can be removably attached to facilitate construction and dismantling of the corral **10**.

[0030] The vertical posts **16** to which the gate arms **20** are attached have a coin box **72** affixed to the posts **16**. The coin box **72** accepts coins, bills, prepaid parking cards, or other form of payment. When the vehicle owner wants to leave the corral **10**, the owner puts the requisite amount of money into a slot **74** in the coin box **72**. The coin box **72** is configured to only accept money when the gate arm **20** is in the down or closed position. Following the receipt of the correct amount of money in the coin box **72**, the gate drive **70** is activated, which causes the gate arm **20** to pivot in an upward direction. The coin box **72** may accept cash, credit cards, bar codes connected to monetary units, debit cards, tokens, tickets or any other form of monetary means.

[0031] A key access hole **74** may be built into the vertical posts **16** to which the gate arms **20** are attached. The key access hole **74** will allow an employee to override the gate drive **70** to manually manipulate the gate arm **20** in an upward or downward direction.

[0032] The gate arm **20** of the gated vehicle corral **10** may be activated by remote control, and, optionally, solely by remote control. A battery backup may be built into either the vertical **16** or the horizontal **18** posts. In the event of AC mains power failure, the backup battery power has the capability to provide power to put the gate arm **20** in an open

position. Preferably, the corral **10** can be located close to building entrances for security reasons, inclement weather, and to assist the physically impaired.

[0033] It is to be understood that the present invention is not limited to the embodiment described above, but encompasses any and all embodiments within the scope of the following claims.

I claim:

1. A gated parking corral, comprising:

a fence having a plurality of vertical posts and a plurality of horizontal beams coupled between the vertical posts, the vertical posts and horizontal beams defining a vehicle-receiving enclosure;

a gate arm pivotally connected to at least one of the vertical posts, the gate arm being pivotal in an upward and a downward direction;

a plurality of sensors disposed along the fence, the sensors being designed to detect the presence of a vehicle in the enclosure; and

means for operating the gate arm, said means for operating the gate arm being electrically connected to the sensors;

wherein upon detection of the presence of a vehicle in the enclosure by the sensors, the gate arm is pivoted in the downward direction, confining the vehicle within the enclosure.

2. The gated parking corral according to claim 1, further comprising padding material affixed along the fence.

3. The gated parking corral according to claim 1, further comprising a base, said vertical posts being attached to the base.

4. The gated parking corral according to claim 3, wherein the base comprises a plurality of flat 3-inch plates attachable to a support surface.

5. The gated parking corral according to claim 1, wherein the vehicle-receiving enclosure is approximately twenty feet long.

6. The gated parking corral according to claim 1, wherein the enclosure is approximately thirteen feet wide.

7. The gated parking corral according to claim 1, wherein the gate arm is approximately nine feet long.

8. The gated parking corral according to claim 1, wherein the fences are configured for angled parking.

9. The gated parking corral according to claim 1, wherein the fences are configured for straight-in parking.

10. The gated parking corral according to claim 1, wherein said fences define multiple vehicle-receiving enclosures configured end-to-end.

11. The gated parking corral according to claim 1, wherein said fences define multiple vehicle-receiving enclosures configured side-by-side.

12. The gated parking corral according to claim 1, wherein the sensors are affixed along the horizontal beams.

13. The gated parking corral according to claim 12, wherein side sensors are affixed along side horizontal beams and rear sensors are affixed along a horizontal beam in a normal relationship to the side horizontal beams.

14. The gated parking corral according to claim 13, wherein the side and rear sensors are connected in series.

15. The gated parking corral according to claim 1, further comprising: a loop sensor disposed within the ground under

the enclosure; the loop sensor being electrically connected to the fence sensors, the loop sensor having the capability to detect whether a vehicle is present.

16. The gated parking corral according to claim 1, further comprising: a padded rail attached between the vertical posts and disposed in parallel relationship to the horizontal beams connected between the vertical posts.

17. The gated parking corral according to claim 1, further comprising: a parking status indicator light having the capability to indicate go, caution and stop in sequence as a vehicle approaches the vehicle-receiving enclosure, is partially inside the enclosure, and is completely inside the enclosure, respectively.

18. The gated parking corral according to claim 1, further comprising:

an electrical power source connected to the sensors and the means for operating the gate arm; and

a solar panel connected to the power source for charging the electrical power source.

19. The gated parking corral according to claim 1, further comprising a timer programmable to delay closure of the gate arm for a predetermined time period after a vehicle has entered the vehicle-receiving enclosure.

20. The gated parking corral according to claim 1, further comprising a payment box attached to said fence, the payment box having means for receiving payment in multiple forms, the payment box being configured to only accept payment when the gate arm is in a closed position, the payment box having means for signaling the gate arm to open once a required payment amount is received by the payment box.

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