This invention relates to race track accessories and, in particular, to starting gates of the releasable barrier type. An object of the invention is to provide a gate of sectional construction, capable of assembly as a unitary, portable structure that is adaptable to different track widths, and which may be assembled in situ and moved with facility from one starting position in which it extends transversely across a track.

Another object is to provide a starting gate provided with means for maintaining the racing animals in proper starting position and for preventing their interference with one another while awaiting the signal to start; thereby assuring that all are started at the same time.

Still another object is to provide a starting gate having stalls individually adjustable to accommodate animals of various sizes.

A further object is to provide a wheeled, portable, starting gate provided with wheel steering means, and equipped with means engageable with the track surface to support the gate against side sway caused by plunging animals.

Other objects will be readily apparent to those skilled in the art.

While the embodiment of the invention herein disclosed constitutes the preferred means by which the invention is reduced to practice, it is to be understood that the structural details thereof, and the arrangement of parts, may be varied as desired within the limits imposed by the scope of the invention as claimed.

In the accompanying drawings, wherein like characters of reference designate like parts throughout the several views:

Figure 1 is a front elevation of the gate in service position.

Figure 2 is a top plan view thereof.

Figure 3 is an end elevation, from the right side of Figure 1.

Figure 4 is a schematic diagram of the control circuit for the signal means and gate release.

Figure 5 is a horizontal section taken on the line 5—5 of Figure 1.

Figure 6 is an enlarged detail view illustrating an arrangement of gate stop.

Figure 7 is an elevation of a structural unit employed in connecting together the frame sections of the gate.

Figure 8 is a vertical section taken on the line 8—8 of Figure 3.

Figure 9 is a horizontal section taken on the line 9—8 of Figure 1.

Figure 10 is a perspective view of one of the barriers.

Figures 11 and 12 are vertical sections, partly in elevation, illustrating the latched and unlatched positions of the barrier release means and the electrically operated control therefor.

Figure 13 is a horizontal section taken at the rear of one of the gate stalls and illustrating a detail of the pedestal support means and its raising and lowering mechanism.

Figure 14 is a vertical section taken on the line 14—14 of Figure 13.

Figure 15 is a horizontal section taken on the line 15—16 of Figure 1.

Figure 16 is an exploded perspective of a portion of the gate assembly, illustrating its structural organization and arrangement.

In detail, the gate comprises an overhead frame made up of a pair of end sections 17 and 18 connected to opposite ends of an intermediate section 19. Each end section has parallel front and rear beams formed with upper and lower bars 20 and 21, respectively, having their outer ends butt welded or otherwise rigidly secured to end pieces 22, and their inner ends likewise rigidly attached to vertical connecting flange plates 23. The bars 20 and 21 occupy a common vertical plane and are arranged in parallel spaced relation, being connected by diagonal brace rods 24. The rods 24 are themselves braced by vertical struts 25 extending between the rods and the upper bars 20. The intermediate section 19 is of similar openwork construction, having similarly arranged front and rear beams formed with upper and lower bars 26a and 26b, respectively, connected by diagonal brace rods 27a and a vertical strut 28a. The ends of the bars are butt welded to connecting flange plates 29a which are identical to and abut the plates 23. Bolts or other securing elements 26 secure the abutting flange plates rigidly together so that the multiple beam sections become a rigid unit.

The outer ends of the end section beams are connected in parallel spaced relation by end bars 27 that provide frame ends which, together with the end pieces 22, are supported by vertical end posts consisting of spaced vertical bars 30 rigidly secured at their upper ends to head plates 29 that are in turn bolted to foot plates 31 having vertical pintles 32 journalled in frame-carried
bears 33, whereby the frame supporting wheels 34 may be turned on vertical axes that are constant with respect to the frame. Each pair of end wheels 34 is steered by a chain and sprocket drive 35 operated from a hand wheel 36.

The end sections of the gate frame are further braced by diagonal tie beams 37 having turnbuckle adjustment whereby the front and rear beams may be held against lateral bending. The spacing of the front and rear beams is substantially the length of a horse stall, and the bottom bars 21, 21A have welded or otherwise rigidly affixed thereto depending post units 38 and 38a, respectively, spaced apart across the front of the frame and defining with the end posts a series of stall spaces 39. These post units are connected by bows 40 and 40a, respectively, and it will be noted that the innermost post units 39 and the units 38a are spaced inwardly from the connecting flange plates of their respective sections. By this arrangement, with the intermediate section 19 removed, the two end sections 17 and 18 may be bolted together to provide a gate having a width of five stalls instead of seven, and conversely, the stall width of the gate may be increased by the addition of one or more intermediate sections. It is a feature of the invention that at the inner end of each end section and at each end of every intermediate section the post units are disposed so as to form a stall width obtained by bringing together adjacent frame section ends. The gate is thus rendered adaptable to tracks of various widths, and, with the knock-down assembly of the sections, a gate is provided which may readily be transported from track to track and used to provide equal starting gate facilities at each, irrespective of local track conditions.

The various post units are provided with foot plates 45c to which are bolted the head plates 41 of stall side posts 42 that depend vertically from the frame superstructure and which terminate at their lower ends well above the track surface T. Each side post 42 is of open-work construction, and consists of a pair of spaced parallel rods 43 connected by transverse bracing 44 and by horizontal plates 45 and 46 arranged as vertically spaced pairs to provide supports for the stall side structure to be described.

To each rod 43, and to the inner bar 28 of each end post at the front of the gate frame, is hinged on vertical pivots an outwardly and forwardly swingable barrier 47. This arrangement provides a pair of barriers at the front of each stall, swinging from each side to meet in the center line as shown in Figures 1 and 2. The barriers are all mounted at the same horizontal level, and when in open position as indicated by the dotted line showing of Figure 5, they engage the inclined faces of substantially triangular barrier stop frames 48 which are bolted to the plates 45 of the side posts and extend forwardly thereof between the stalls.

The side post plates 46 support rearwardly extending stall side frames 49 composed of vertically spaced parallel bars united at their front ends by end pieces 50 arranged for bolting attachment to the side post plates 46. The bars 49 are transversely and vertically braced by suitable connections whereby a rigid stall side structure is provided which extends rearwardly somewhat beyond the vertical plane of the gate rear beams 20. Suitable housings 51 are disposed over the side members.

The stall side members 49 are supported at their rear end portions by bolted connection between transverse plates 52, see Figure 5, rigidly attached to the member bars, and strips 53 rigidly united to and extending transversely between pairs of depending rods 54 carried by the rear beam assembly of the gate frame. Each stall 39 is secured at its rear end by a pair of horizontally swinging closure 55 pivotally supported in the assembly of one side member and having manually operable latch means 56 engageable with the other to secure the closure against swiveling open until manually unlatched.

The stalls are made variable as to length by cap sleeves 57 slidable longitudinally over and upon the rear ends of the stall side members 49. The closure 55 and its latching means are carried by these sleeves. The sleeves 57 may be adjusted longitudinally on the stall sides to increase or decrease the length of individual stalls as desired.

Elastic cables 58, one for each barrier 47, extend longitudinally within the stall side members, being connected at their front ends to the frame of the stall and at their rear ends to transverse braces 60 extending between the side member bars. These cables are trained over sheaves 51 mounted on short vertical support rods 62 which connect the upper and lower barrier stop frames 48 at their outer ends. When the barriers 47 are in closed position across the front of a stall the cables are placed under tension. When the barriers are released the contraction of the cables snaps the barriers quickly back against the stops 48 at each side of the stall.

One barrier of each pair in a stall is provided with a casing 63 rigidly secured thereon and housing a solenoid 64 which has a retractable core 65. When the solenoid is deenergized its core 65 drops down by gravity to seat on a vertically adjustable stop screw 66 mounted in the casing bottom and correspondingly depresses the inner end of a rock lever 67 that is fulcrumed intermediate its ends as at 68 on a wall of the casing.

The inner end of the lever 67 has a pivotal connection with the solenoid core, and at its outer end the lever extends through a vertical slot 69 in the casing. The terminal of the solenoid core externally of the casing has a pivotal connection with a clevis 70 which carries a vertical, upwardly standing pin 71 slidable in a bearing 72 that is rigidly mounted on the barrier. At its upper end the bearing is horizontally slotted to receive one end of a link 73 that is pivotally connected at its other end to the other barrier and upon which it may be swung in a horizontal plane to engage or disengage its keeper slot in the bearing 72. The free end of the link 73 is apertured to receive the pin 71 therethrough, and as shown in Figures 11 and 12, when the barriers are in closed and latched position the pin 71 is projected upwardly through the link to lock the parts against disengagement. When the solenoid is energized, its core 65 is drawn upwardly to rock the lever 67 and depress its outer end to an extent sufficient to release the pin 71 from its engagement with the link 73. Immediately upon release of the latch, the barriers swing somewhat in the influence of the elastic cables 58 as previously described. The latch may be operated manually by manipulation of the clevis 70 when such operation is desired, as when the barriers are initially closed.

The latch release for each stall is rendered
automatic and operative by remote control by including each solenoid 64 in series in a control circuit C which also serially includes the starting signal bells 74. The bells are preferably supported on the front beam assembly of the gate frame; there being at least one to each frame section. The circuit is opened or closed by a switch 75 which may conveniently be located at the judges’ stand. It will be apparent that when the circuit is closed all starting bells will be rung and each stall barrier will be released at the same time, insuring an equal start for each entry.

The presence of the stall side members 49 prevents the annoyance and delay that arises when one or more horses is fractious. Each animal is confined in a separate stall and cannot interfere with the others. Each stall is latched closed at both front and rear and the animals remain confined until the front barriers are swung open at the instant of starting.

In order to prevent side sway of the gate, such as might be caused by plunging of animals against the sides of their stalls, one or more track engageable pedestals 16 having wide feet 71 are provided. As shown best in Figures 2, 13 and 14, certain pairs of the vertical bars 54 which depend from the rear beam sections of the gate are connected at their lower ends by a cross piece 78 which is vertically bored to receive slidably therethrough the tubular stem 79 of a vertical rack bar 80 that is in constant mesh with a pinion 81 fixed to a shaft 82. The shaft is journaled between vertical bearing plates 83 carried by the adjacent cap sleeve 57 mounted on the rear end of the stall side member 48. The sleeve 57 is appropriately apertured as at 84 to accommodate a hand wheel 85 that also is fixed to the shaft 82. The hub portion 86 of the wheel is provided with an annular series of holes 87 for reception of a locking pin 88 passed through an aperture in one of the bearing plates 83 to lock the mechanism when desired. Preferably, the pedestals 15 are detachably connected to the rack bar stems by securing means 89.

The various wheels 85 may be rotated to raise or lower their associated rack bars and correspondingly move the pedestals and feet into or out of track surface bearing engagement. When the feet 71 are engaged with the track they provide stationary supports that prevent sidewise movement of the gate structure and at the same time support the assembly in cooperation with the ground wheels 34.

It is apparent from the foregoing description that the starting gate of this invention is of light, rigid, openwork frame construction throughout. This promotes ease of handling. The various braces, rods, bars, beams and other structural elements may have any form desired and may be made highly ornamental. Figure 1 shows that the elements have been arranged for ornamental effect as well as utility.

I claim:

1. A starting gate comprising a wheeled frame having a superstructure, stall defining posts carried by and depending from said superstructure and terminating at their lower ends well above the ground, stall side members carried by said posts above their lower end portions and having longitudinally extensible rear end portions, ground engageable supports carried by certain of said rear end portions and means on said rear end portions for raising and lowering said supports.

2. A starting gate comprising an overhead frame having intermediate and end sections rigidly connected in detachable engagement, wheeled supports for said end sections, stall partition means depending from said sections and terminating above the ground, said partition means being spaced inwardly from the meeting ends of the sections a distance substantially half the width of a stall space, fixed ground engageable means carried by the stall partition means for preventing sidewise movement of the gate, releasable barriers hinged at the fronts of said partition means for closing the stall spaces, and means for simultaneously releasing all said barriers.

3. A starting gate comprising an overhead frame composed of detachably connected sections, supports for said sections, and stall defining partition means carried by and depending from said sections, and said partition means being spaced inwardly from the adjacent ends of the sections a distance substantially half the width of a stall space.

4. A starting gate comprising an overhead frame composed of detachably connected sections, stall defining partition means detachably secured to and depending from each section, said partition means being spaced inwardly from the meeting ends of the sections a distance substantially half the width of a stall space, a barrier hinged to the front of each partition means at each side thereof, and releasable latch means connecting said barriers in pairs across the front of each stall space.

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