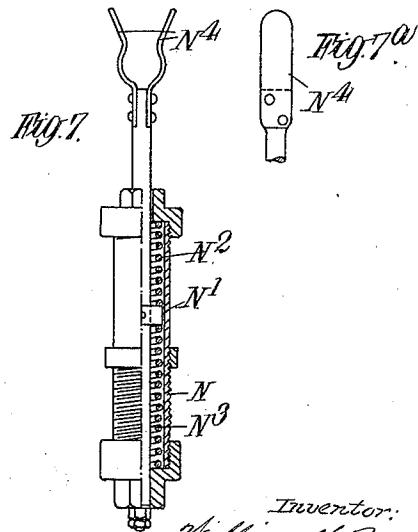
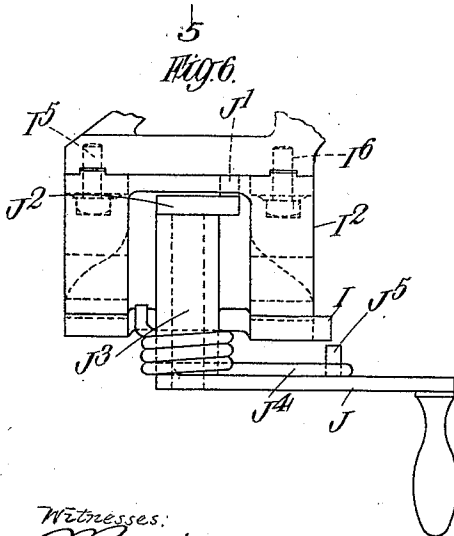
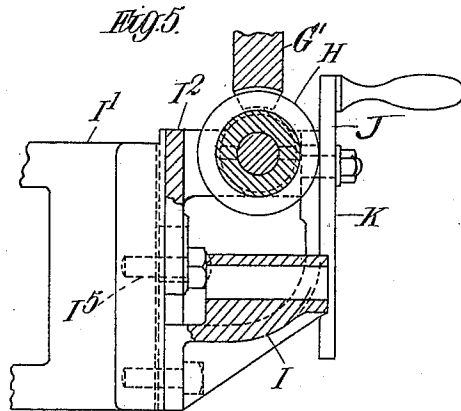
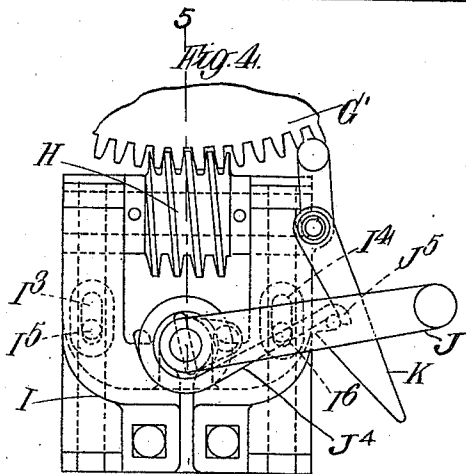
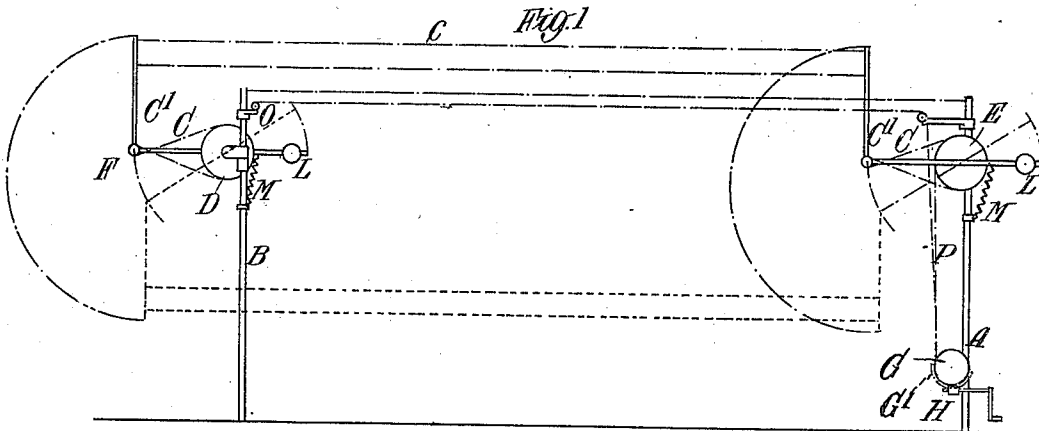


W. H. BRENNER.
STARTING GATE FOR SPORTS.
APPLICATION FILED MAY 4, 1908.

952,503.

Patented Mar. 22, 1910.

2 SHEETS—SHEET 1.



Witnesses:
E. C. Schuermann.

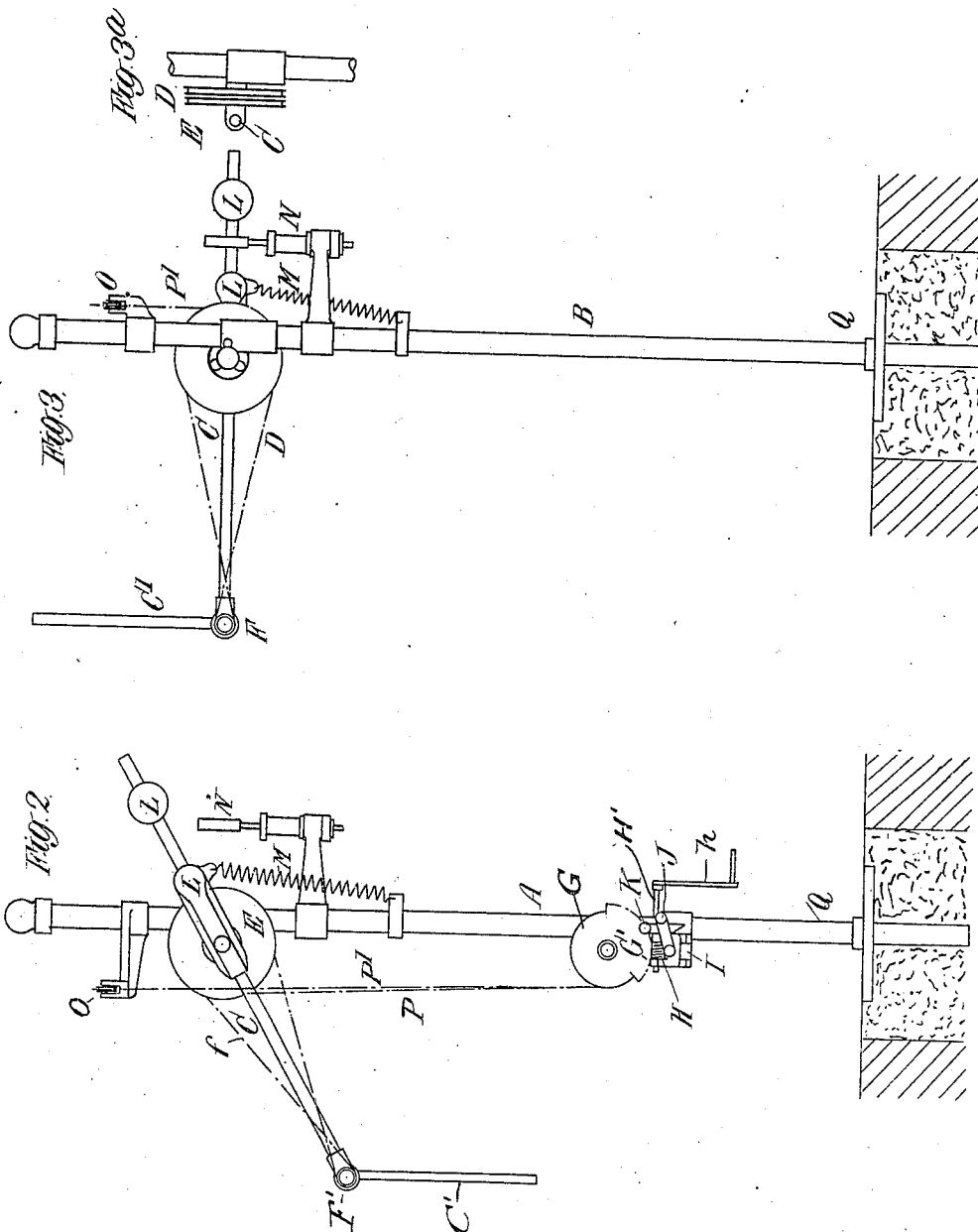
Inventor:
William H. Brenner.
Chas. E. Schuermann, Atty.

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2 SHEETS—SHEET 2.



Witnesses.
E. C. Schulzmann.
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Inventor.
William H. Brenner.
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attys

UNITED STATES PATENT OFFICE.

WILLIAM HERRMAN BRENNER, OF YOKOHAMA, JAPAN.

STARTING-GATE FOR SPORTS.

952,503.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed May 4, 1908. Serial No. 430,736.

To all whom it may concern:

Be it known that I, WILLIAM HERRMAN BRENNER, a citizen of the United States of America, residing at No. 1 Isogo, Biyobugaura, Kuraki-Gori, Kanagawa Ken, Yokohama, in the Empire of Japan, have invented certain new and useful Improvements in Starting-Gates for Sports, of which the following is a specification.

10 This invention relates to apparatus for use in connection with sports, such as races, and comprises an improved starting gate adapted for being worked by one operator; the object being to provide apparatus where-
15 by the gate may be set in the desired position so as to obstruct the passage of the racers and moved out of such position without giving any preliminary indication to the individuals concerned in the actual race.

20 The improved gate is particularly adapted for "horse racing" the horses being lined up for the race at a convenient distance from the starting point, and started simultaneously at a time determined upon by the
25 starting official. The gate is raised without giving any intimation to the riders and thus the riders nearest the starter cannot gain time over those situated remote from the starter; moreover the gate cannot be inter-
30 fered with by anyone except the official starter thus obviating accidents to riders and horses.

35 In order that the said invention may be clearly understood and readily carried into effect I will proceed to describe the same with reference to the accompanying drawings in which:—

40 Figure 1 is a front view showing the gate in the starting position, Fig. 2 is a front elevation of the upright of the gate situated near the starter, showing the barrier in position for obstructing the course, Fig. 3 is a front elevation of the upright situated remote from the starter or at the opposite side
45 of the course, the barrier being raised, Fig. 3^a is a partial side view of this upright, Fig. 4 is a detail view of the operating and releasing mechanism, Fig. 5 is a vertical section on the line 5—5 of Fig. 4, Fig. 6 is a
50 plan view of Figs. 4 and 5, with the worm and worm sector removed, and Figs. 7 and 7^a are detail views of the buffer on the gate.

55 A and B are two uprights placed on each side of the race course. To these uprights are pivoted compound arms C which carry a barrier *c* of tape or any other suitable ma-

terial adapted to extend across the course between the arms. When the arms C are down the gate is set ready for the horses to line up; the raising of the arms has the effect of rendering the course clear and of indicating or signaling for the riders to start the race.

60 A is the upright nearest the starter, B is the upright on the opposite side of the course; C are the compound arms on the uprights A and B.

70 D and E are wheels or sheaves mounted on a common shaft on the uprights and adapted the one E to rotate on the shaft and the other D to remain stationary on the said shaft, the former actuating the arms C as a whole and the latter the outer member C' of the said arms.

75 F and F' are wheels fixed to the outer members C' of the arms C.

G is a wheel or disk which is mounted on the upright A and provided with a worm-wheel sector G' in gear with a worm H carried by the shaft H', a detachable actuating
80 handle *h* being provided for use in rotating the worm H. I is a bracket and guide for supporting the said worm and shaft and J is a lever for raising and lowering the worm H into and out of mesh with the worm wheel
85 sector G'. The bracket I (Figs. 4 to 6) is secured to a member I' carried on the upright A of the gate and is provided with a slide I² which is capable of vertical movement relatively to said bracket. This slide I²
90 is provided with two slots I³, I⁴ engaging with two pins I⁵, I⁶ carried by the bracket I and which serve to guide the slide in its vertical movements. Movement is imparted to the slide I² by the pin J' of the crank J²
95 which is mounted on the shaft J³ carried by the bracket I and actuated by the lever J. The shaft J³ is provided with a spring J⁴ which tends normally to keep the lever J in its lowered position so as to disengage the
100 worm H from the worm wheel G. In order to engage the worm H with the worm wheel G it is necessary to raise the lever J into the position shown in Fig. 4 against the action of the spring J⁴, and the lever J is retained
105 in this position by the trigger K which is brought into engagement with a pin J⁵ on said lever.

110 L, L are counterweights carried by the compound arms, and M are springs co-acting with and assisting said counterweights in their action.

N are buffers each comprising a plunger N' which is arranged between the two springs N², N³, the upper extremity N⁴ of the plunger being forked to receive the arm C when it has been raised to a predetermined point.

O are guide wheels, P P' are wire ropes and Q are members securely attached to the uprights and let into the foundation to prevent said uprights from turning. The wire ropes P, P' are secured to the sheaves E and the wheel G in any suitable manner, but are so arranged that the ropes are wound around the sheaves when the gate is in its raised position; a pull on the rope owing to the operation of the wheel G thus serving to impart the rotary motion to the sheaves E to lower the gate and obstruct the course.

To set or lower the gate, the handle h is placed on the shaft H, the lever J is raised to throw the worm H into mesh with the worm wheel G, and the trigger K is moved into locking position. The handle is then turned and communicates its motion to the worm H and worm wheel sector G'. The wheel G carrying the worm wheel sector is mechanically connected to the wheel E and communicates motion to it; this wheel being secured to the arm C and rotatably mounted on the upright A thus depresses the arm C against the action of the spring A. The wheel D being secured to the upright and mechanically connected with the wheel F by means of the rope f, causes the said wheel to revolve and so effect the depression of the outer member C' of the arm C. Owing to the wheel D being of larger diameter than the wheel F an increased rotary motion is imparted to the said wheel F and to the member C' of the compound arm to which it is secured with the result that it is rapidly depressed and assumes the position shown in Fig. 2. The wire rope P' attached to the wheel G is led over the guide pulleys O on the upright A, thence overhead to the guide pulley O on the opposite upright B, and attached to the wheel E on this upright. Any motion imparted to the wheel E on the upright A is therefore simultaneously imparted to the wheel E on the upright B. The gate when set assumes the position shown in broken lines in Fig. 1.

To raise the gate, the trigger K is withdrawn in any suitable or convenient manner as for example by hand or by a mechanical or electrical device; the bracket I and worm H are then free to fall out of mesh with the worm wheel sector G', said worm and sector being assisted in their disengagement by the spring J⁴. The counter weights L and springs M may then rapidly raise the arms C and C' and impart an accelerated motion thereto. The outer arms C' are connected to the arms C so that their relative rates of angular movement are proportional, the arms C'

moving faster in the ratio of the diameters of the actuating pulleys. The tapes constituting the barrier being attached to the outer members, rise rapidly and thus remove the temporary barrier from the course. The handle h can then be removed from the worm shaft H' so as to render it impossible to lower or reset the gate. The gate when raised assumes the position shown in full lines in Fig. 1.

What I claim and desire to secure by Letters Patent of the United States is:—

1. In a starting gate, the combination of uprights, compound arms on said uprights, comprising inner and outer members, a barrier carried by the outer members of said compound arms and adapted to be placed across or removed from the course, and means for imparting a greater angular velocity to the outer members than the inner members of said compound arms during the raising and lowering of the barrier.

2. In a starting gate, the combination of uprights, compound counterbalanced arms on said uprights, comprising inner and outer members, a barrier carried by the outer members of said compound arms, means for bringing the said barrier across the course, means for removing said barrier from the course, means for starting said lifting means, and means for imparting a greater angular velocity to the outer members than the inner members of said compound arms.

3. In a starting gate, the combination of uprights, compound counterbalanced arms carried by said uprights, comprising inner and outer members, a barrier carried by the outer members of said compound arms, gearing for bringing said barrier across the course, a trigger, means for removing said barrier from the course when said trigger is actuated, and means for imparting a greater angular velocity to the outer members than the inner members of said compound arms when the latter are moved.

4. In a starting gate, the combination of uprights, compound counterbalanced arms on said uprights, a barrier carried by the outer members of said compound arms, a bracket arranged on one of said uprights, a worm carried by said bracket, a worm wheel sector arranged on the same upright as said bracket, means for engaging said worm with the worm wheel sector, means for actuating said worm, and means for retaining said bracket in its raised position and for disengaging said worm and worm wheel sector.

5. In a starting gate, the combination of uprights, compound counterbalanced arms on said uprights, a barrier carried by the outer members of said compound arms, a bracket arranged on one of said uprights, a worm carried by said bracket, a worm wheel sector arranged on the same upright as said bracket, means for engaging said worm with

the worm wheel sector, and a trigger adapted to retain said bracket in its raised position and on actuation to disengage said worm and worm wheel sector.

5 6. In a starting gate, the combination of uprights, inner arms pivoted to said uprights, sheaves on said arms, outer arms pivoted to one extremity of said inner arms, sheaves on said outer arms, mechanical connections between said sheaves and stationary
10 sheaves coaxial with the pivots of said inner arms, and means for actuating said arms.

15 7. In a starting gate, the combination of uprights, means for securing said uprights in position, compound arms pivoted to said uprights, comprising inner and outer mem-

bers, a barrier carried by the outer members of said compound arms, counterweights on said arms, springs secured to said arms and uprights and adapted to raise the barrier
20 clear of the course, means for imparting a greater angular velocity to the outer members than the inner members of said compound arms, buffers adapted to limit the motion of said arms, and means for lowering
25 the barrier to obstruct the course.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM HERRMAN BRENNER.

Witnesses:

LOUIS BELROSE,

F. MUNROE ENDICOTT.