

(No Model.)

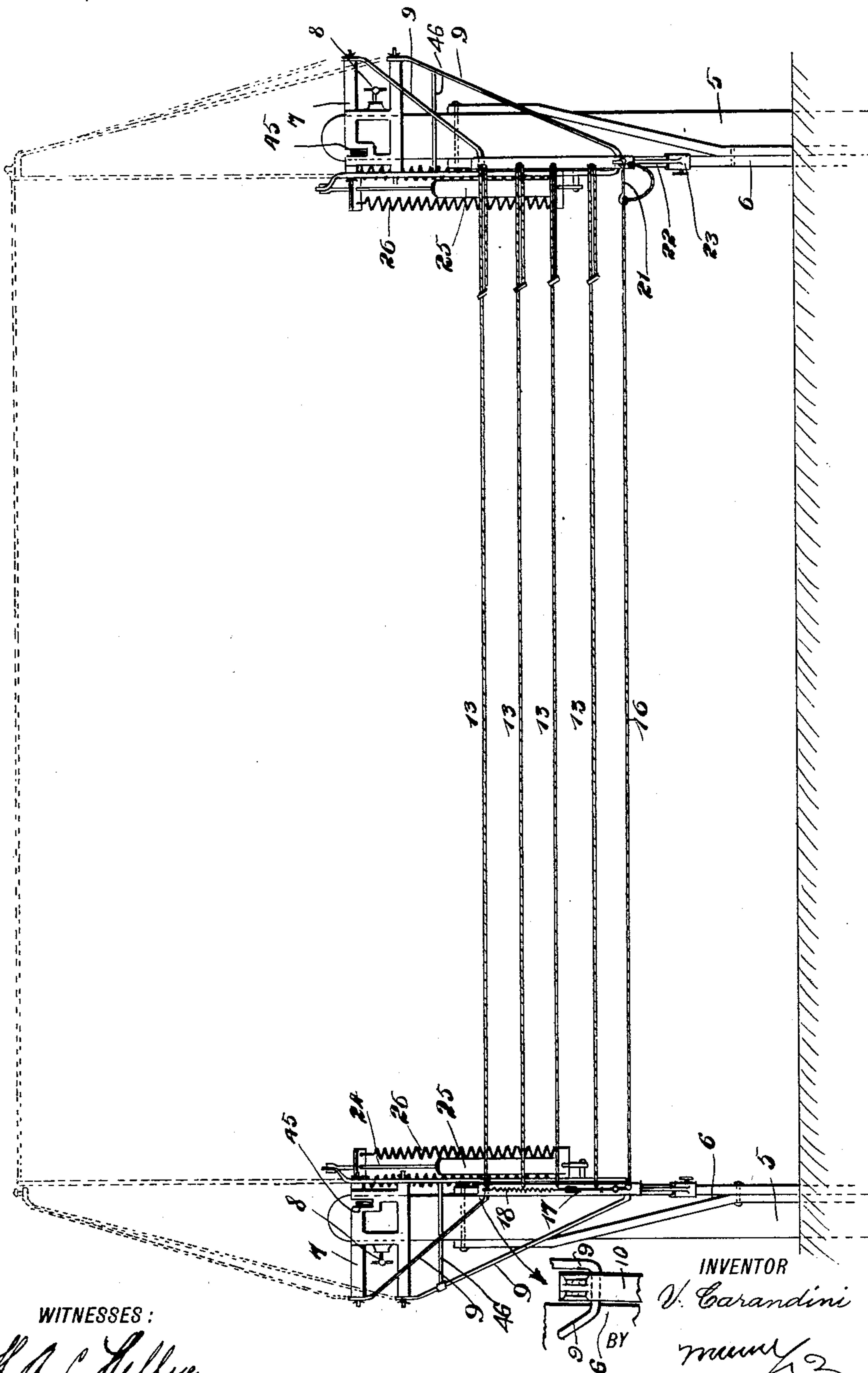
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V. CARANDINI.
RACE STARTING MACHINE.

No. 593,460.

Patented Nov. 9, 1897.

FIG. 1.



WITNESSES:

H. A. C. Kelly.
Samuel B. Pring.

INVENTOR

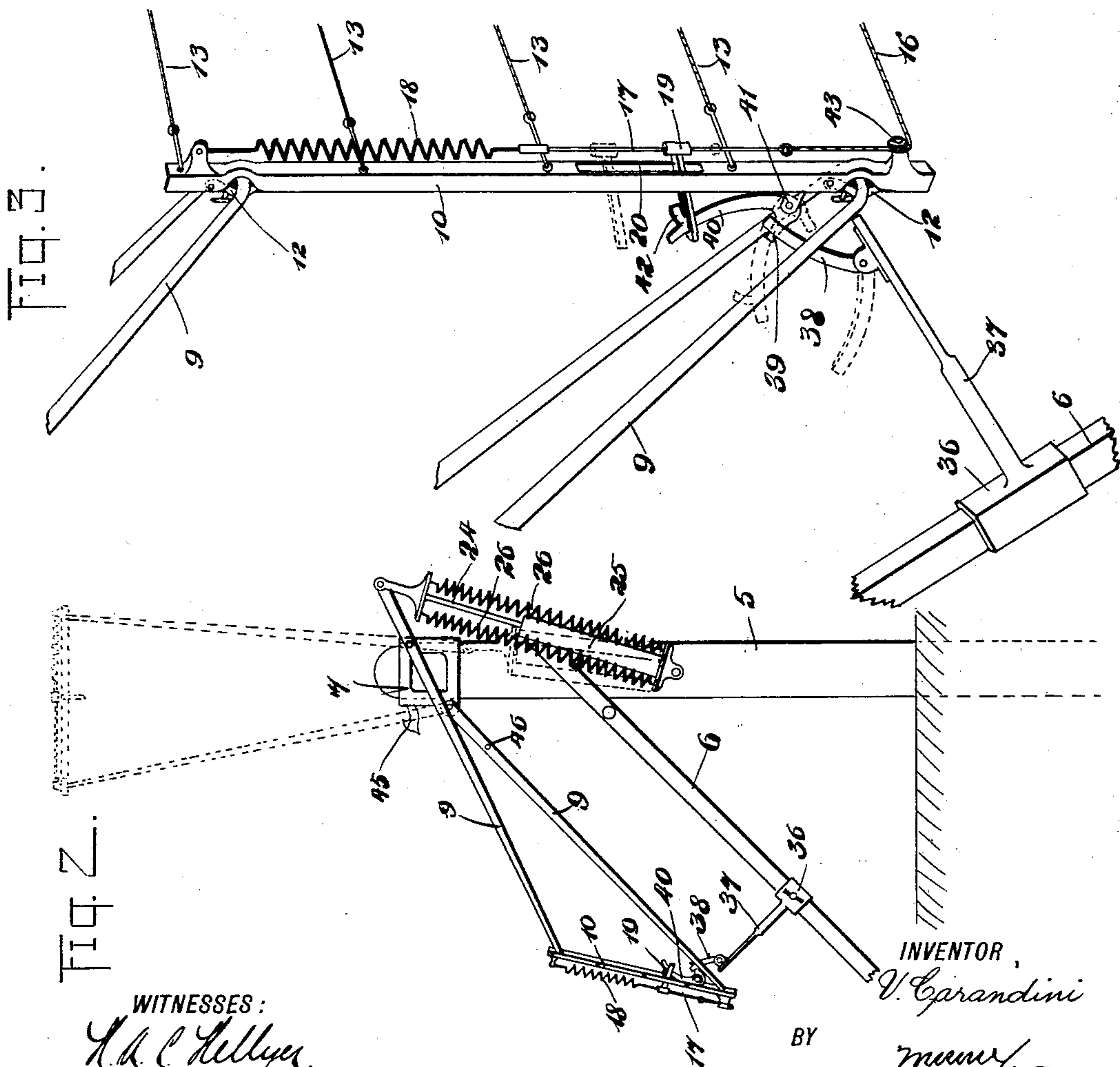
V. Carandini

BY *[Signature]*

ATTORNEYS.

2 Sheets—Sheet 2.

Patented Nov. 9, 1897.



WITNESSES :

Isaac B. Muzzey.

INVENTOR,
W. Carandini

BY

Mann 12
ATTORNEYS.

UNITED STATES PATENT OFFICE.

VICTOR CARANDINI, OF CALCUTTA, INDIA.

RACE-STARTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 593,460, dated November 9, 1897.

Application filed October 7, 1896. Serial No. 608,158. (No model.)

To all whom it may concern:

Be it known that I, VICTOR CARANDINI, residing at Calcutta, India, have invented new and useful Improvements in Race-Starting Machines, of which the following is a full, clear, and exact description.

The invention relates to that class of race-starting machines in which a fence or barrier is mounted transversely to the track and associated with means for raising and lowering it, so that upon raising the barrier the horses may pass.

The invention will be described hereinafter, and defined in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of the invention. Fig. 2 is an elevation looking from the center of the apparatus to one inner side. Fig. 3 is a fragmentary perspective view illustrating the restraining-catch at one side of the barrier, and Fig. 4 is a similar view illustrating the restraining-catch at the other side of the barrier.

The two posts 5 are planted, respectively, at each side of the track, as best shown in Fig. 1. Each post is provided with a strut 6, consisting of two sections, the upper ends of which are secured to the sides of the posts 5 and the lower ends of which project downwardly and forwardly and after being joined to each other are planted in the ground.

Fixed to the upper end of each post 5 is a frame 7. Each frame has two parallel rearwardly-extending portions respectively lying against sides of its corresponding post 5. The frames are removably clamped in position by set-screws 8, one for each frame. Each frame is provided with four laterally-projecting arms. The arms are arranged in two pairs on each frame. The members of each pair are in longitudinal alinement with each other, and the pairs are arranged in planes one above the other. The lower pair of arms on each frame is arranged at the front of the frame and the upper pair of arms on each frame is arranged at the rear of the frame. On each frame the upper pair of arms has respectively pivoted thereto the end portions of the rods forming the swinging arms 9. The lower

pair of arms on each frame has respectively pivoted thereto the ends of the rods forming the swinging arms 9^a. The swinging arms 9 and 9^a on each post 5 normally project forwardly from the posts. The arms 9 and 9^a of each post have the bars 10 and 11, respectively, pivotally connected thereto by clips 12, the connection being effected at the front extremities of the arms 9 and 9^a or that point which is formed by the bending of the rods composing the arms 9 and 9^a. Extending across between the bars 10 and 11 are ropes or cords 13, each rope or cord having one end fixed to the bar 10 and the other portion passing around a pulley 14, fixed to the bar 11. The ropes are capable of having their tension adjusted by suitable locking devices 15. In addition to the ropes 13 a rope 16 is connected at one end to a rope 17, actuated by a retractile spring 18 and carrying an arm 19, movable through a slot 20 in the bar 10. The rope 16 is passed around a pulley 43 on the bar 10, and is provided near its other end with a link 21, having an eye adapted to receive the pointed end of an arm 22, rigidly carried on a clip 23, adjustably secured to the inner member of one of the struts 6. The pointed end of the arm 22 passes through an opening in the bar 11 when the parts are in the position shown in Fig. 4. The end of the rope 16, which is adjacent to the link 21, is permanently secured to the lower end of the bar 11. Each of the two rods that forms the swinging arms 9^a has its inner end extended beyond the frame-arm to which it is pivoted and pivotally connected with a rod 24, which rods work respectively in cylinders 25, the rods having pistons and the cylinders being pivoted to the inner sides of the respective posts 5. Springs 26 are connected to the outer portions of the rods 24 and cylinders 25, and these springs serve to draw the rod 24 downward, while the operation of an air-cushion within the cylinder 25 prevents any shock that might be detrimental to the machine. By this construction it will be seen that the barrier composed of the ropes 13 and 16 and the bars 10 and 11 may be lowered to an approximately vertical position across the track, so as to prevent the horses from starting, and also that upon the tripping of certain restraining mechanism, hereinafter described,

the springs 26 will operate to raise the barrier to the position shown by dotted lines in Figs. 1 and 2 and allow the horses to pass.

The arm 22 is provided in its outer portion with a slot through which the lower end of a hook 27 is slidable, such lower end being provided with a nut for holding it within the slot. A retractile spring 44 draws the hook 27 outward. A rod 28 is connected to the hook 27 and slidably held by a bearing 29 on the arm 22. Connected to the rod 28 and passing around a pulley 30 is a cord 31, by means of which the restraining devices are tripped in the act of releasing the barrier. Pivoted to a bearing 32, carried by the outer end of the arm 22, is an arc-shaped link 33, which is normally held in the position shown in Fig. 4 by means of the hook 27. When, however, the hook 27 is moved to the position shown by dotted lines in said figure, the link 33 will be free to swing outward, as also shown by dotted lines in said figure. The link 33 normally holds an orificed arm 34, pivoted to a projection 35, running rearward from the lower portion of the bar 11. It will thus be seen that upon the sliding of the rod 28 the link 33 and arm 34 will be disengaged and the means for restraining the upward movement of the bar 11 will be rendered inactive.

The inner member of the strut 6 not having the clip 23 is provided with an adjustable clip 36, similar to the clip 23, and having an arm 37 running outward therefrom. Pivoted to this arm 37 is an orificed arm 38, normally receiving the end 39 of the lever 40. The lever 40 is bent, as shown, and fulcrumed at its bent end to a projection 41 running rearward from the lower portion of the bar 10. The arm 19 is longitudinally slotted and receives the upper end of the lever 40, permitting said upper end to move through the slot of the arm. The upper end of the lever 40 is provided with a hook 42, which may serve, when the lever is not engaged with the arm 38, to engage the arm 19 at the forward extremity of the slot thereof, for a purpose fully described hereinafter. When the link 38 is in connection with the end 39 of the lever 40, the lever 40 is thrown to the position shown by full lines in Fig. 3. The rope 16 prevents the spring 18 from moving upward at this time, since the rope is connected to the bar 11 by the link 21.

Upon the movement of the cord 31 the hook 27 will be caused to operate and release the restraining device for the bar 11. This bar has a movement slightly independent of the bar 10, and when the restraining device for the bar 11 is released that bar will move slightly and in doing so will push the link 21 from connection with the outer end of the arm 22, causing the normally slack portion of the rope 16, which slack portion is adjacent to the link 21, to become taut under the influence of the retractile spring 18. As the spring 18 contracts it raises the arm 19 to the position

shown by dotted lines in Fig. 3, thereby releasing the lever 40. The parts 38 and 40 are now free to be disengaged by the stress of the springs 26, which actuate the arm 9, that is connected to the bar 10. The barrier is now released, and the springs 26 will operate to throw the same upward in a most rapid manner. It will be understood that the air-cushions within the cylinders 25 serve to prevent a jar or shock to the apparatus which would be a strain on its construction.

A hook 45 is carried by each frame 7 and serves to hold the barrier in the upper position by means of pins 46, respectively carried by the lowermost of each pair of arms, as shown with reference to one arm in Fig. 2 and with reference to both arms in Fig. 1.

In readjusting the apparatus for a second operation the hooks 45 are manually released, and the barrier, composed of the bars 10 and 11 and the ropes 13 and 16, is drawn downward manually. Then it is preferred to draw the arm 19 down far enough to allow the hook 42 to engage the arm at the forward end of the slot therein and to hold the arm in this position. By these means the parts are put into position for more easily readjusting them when a second operation is to be performed, owing to the fact that the force of the spring 18 is more conveniently overcome by drawing directly downward on the rod 17 as contradistinguished from drawing horizontally on the rope 16 at the bar 11. Then when the link 21 is to be connected with the rod 22 but a very slight additional movement of the rod 17 will be necessary, which additional movement may be conveniently effected by drawing on the end of the rope 16 at the bar 11. The orificed arm 34 is formed connected to the link 33, which in turn is held by the hook 27. The link 21 will have been previously disconnected from the outer end of the arm 22. It is next necessary to draw up the rope 16 a very short distance and connect the link 21 with the arm 22, as shown in Fig. 4. This will move the arm 19 a short distance downward in the slot 21. Upon this operation the strain on the hook 42 will be released, and the arm 38 may be swung outward to receive the end 39 of the lever 40. The barrier will now be held across the track (see Figs. 1 and 2) in position to restrain the passage of the horse.

When it is desired that the horses shall start, the starter draws on the cord 31, and this will move the hook 27 against the tension of its spring 44, causing the arm 34 to be disengaged from the link 33. This movement will cause the disconnection of the link 21 from the arm 22, and upon the action of the spring 18 the arm 19 will move upward and disengage the lever 40, thereby releasing the bar 10 from its connection with the arm 37. The barrier will now start upward, and the race may be on.

It is not absolutely essential that the hook 42 be connected with the arm 19, as described.

The arm 19 and lever 40 may, if desired, be left in the position shown by dotted lines in Fig. 3 until it is desired to readjust the parts for another operation. In this event the hook 42 performs no function.

In practical operation it will be desirable to plant the posts 5 and struts 6 at many places throughout the length of a course or track, but it will not be necessary to provide more than one starting apparatus proper. This apparatus may be readily transported and connected with the proper posts when desired. For this purpose the clips 23 and 36 and the frame 7 are provided with removable connections in the form of set-screws. The cylinders 25 are also removably connected with the posts 5.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a race-starting machine, the combination of a barrier having two bars and a flexible connection between the bars, a spring tending to raise each bar, a lever fulcrumed on one of the bars, a spring-actuated sliding arm normally holding the lever, a rigid arm, an orificed arm fulcrumed to the rigid arm and normally engaging the lever, whereby the bar to which the lever is fulcrumed is restrained, a second rigid arm, a hook sliding on the said second rigid arm, a link pivoted to the said second rigid arm and normally held by the hook, an orificed arm pivoted to the remaining bar and normally receiving the link, a flexible connection attached to the said sliding arm and serving to hold the same normally engaged with the lever, and a link attached to the connection and normally connected with the second-named rigid arm, and disengaged from the said arm upon the sliding of the hook, substantially as described.

2. In a race-starting machine, the combination of a spring-actuated barrier, an orificed arm pivoted to the barrier, a stationary arm, a link pivoted to the stationary arm and normally holding the orificed arm, and a hook sliding on the stationary arm and restraining the link, substantially as described.

3. In a race-starting machine, the combina-

tion of a spring-actuated barrier, an orificed arm pivoted to the barrier, a stationary arm, a link pivoted to the stationary arm, a hook having a sliding connection with a slot in the stationary arm, a slidable rod connected to the hook, and a spring acting to draw the hook toward the link, substantially as described.

4. In a race-starting machine, the combination of a spring-actuated barrier having a slotted bar, a spring-actuated arm movable through the slot in the bar, a lever fulcrumed to the bar, and normally restrained by the lever, a stationary arm, an orificed arm pivoted to the stationary arm and normally connected with the lever, and means for normally holding the sliding arm in connection with the lever, substantially as described.

5. A race-starting apparatus having a barrier formed of two bars with flexible connections and slight independent movement, a restraining device for each bar, means tending to lift each bar, and a flexible connection attached to the one bar and to the restraining device for the second bar, the flexible connection being capable of tripping the restraining device for the said second bar when the said first bar moves upon being released by the restraining device for the said first bar, substantially as described.

6. A race-starting apparatus having a barrier with two sections capable of slight independent movement, means tending to lift each section, a restraining device for each section, and a connection attached to the one section and to the restraining device of the second section, the said connection being capable of tripping the restraining device for the said second section as the said first section moves upon being released by the restraining device therefor, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 27th day of August, 1896.

VICTOR CARANDINI.

Witnesses:

R. E. MAY,

H. A. PORTER.