

No. 647,509.

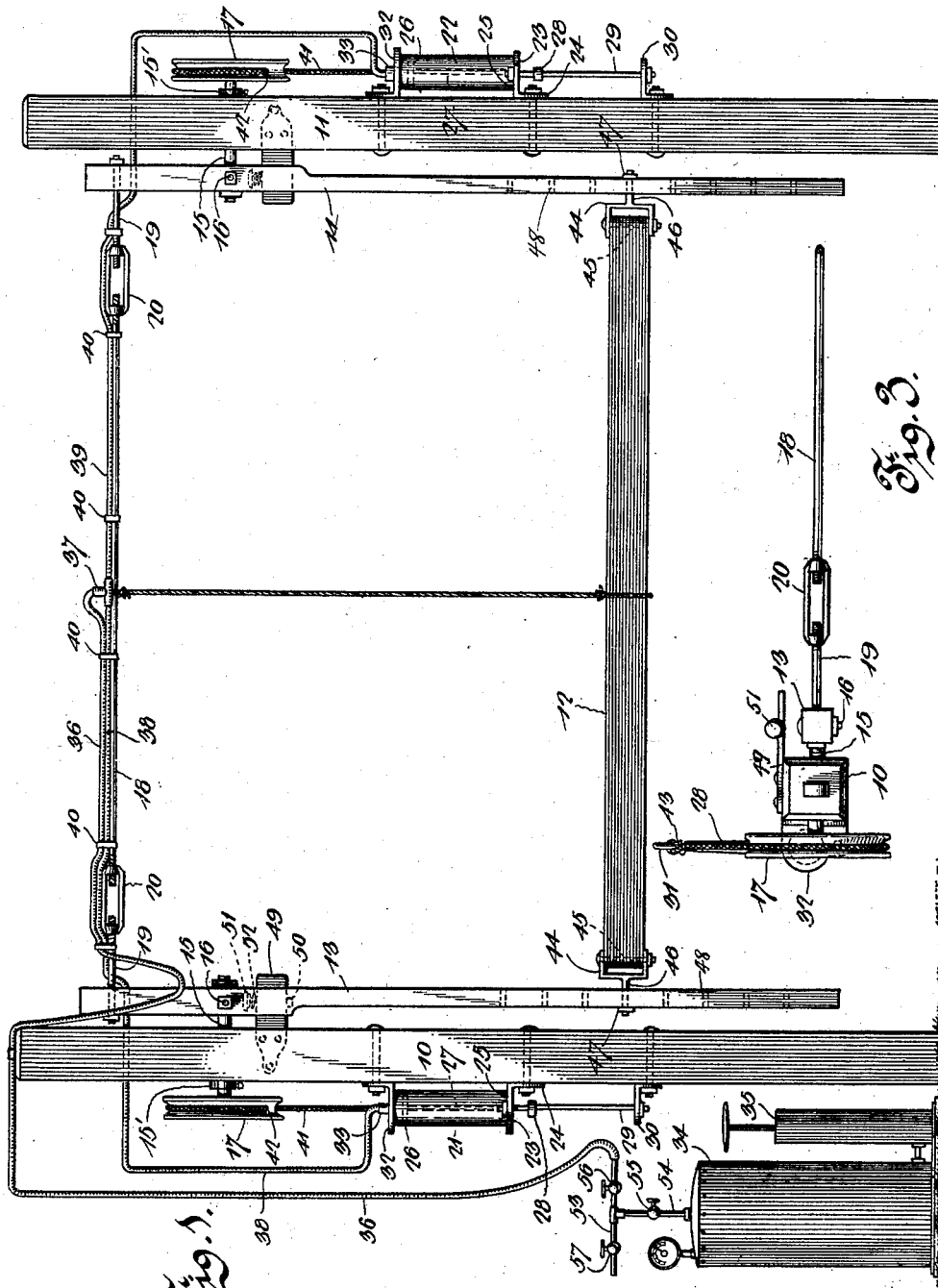
Patented Apr. 17, 1900.

H. McCLEARY.
RACE HORSE STARTER.

(Application filed Dec. 27, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

J. Frank Leubnerwell.

H. J. Benning

By his

Harry McCleary, Inventor.

Attorneys,

C. A. Snow & Co.

No. 647,509.

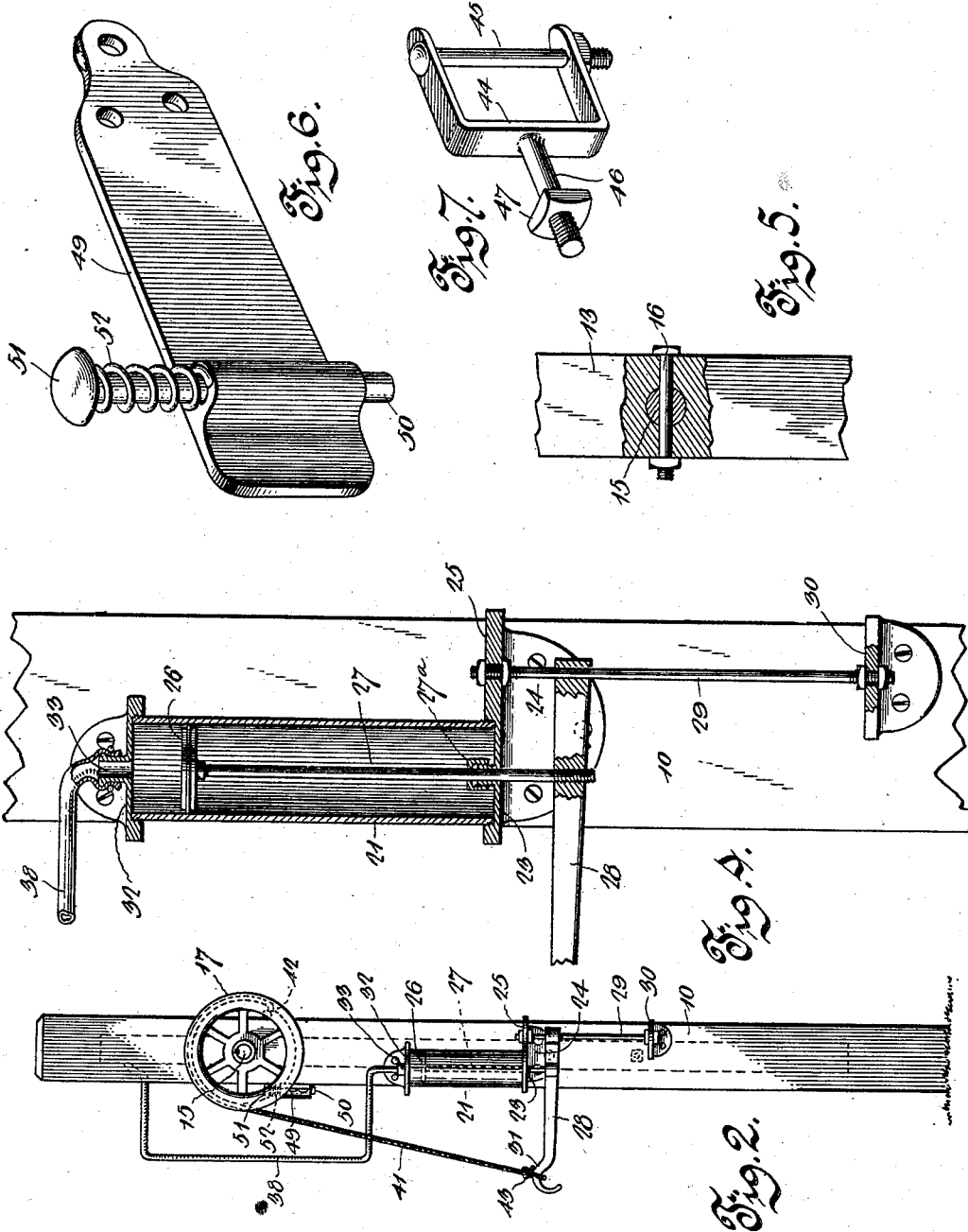
Patented Apr. 17, 1900.

H. McCLEARY.
RACE HORSE STARTER.

(Application filed Dec. 27, 1899.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses

J. Kauf Culverwell.

W. J. Bernhof

By *his* Attorneys,

Harry McCleary, Inventor.

Chas. Snow & Co.

UNITED STATES PATENT OFFICE.

HARRY McCLEARY, OF FORT MORGAN, ALABAMA.

RACE-HORSE STARTER.

SPECIFICATION forming part of Letters Patent No. 647,509, dated April 17, 1900.

Application filed December 27, 1899. Serial No. 741,746. (No model.)

To all whom it may concern:

Be it known that I, HARRY McCLEARY, a citizen of the United States, residing at Fort Morgan, in the county of Baldwin and State of Alabama, have invented a new and useful Race-Horse Starter, of which the following is a specification.

My invention is a race-horse starter in which I have provided means for the effective operation of a vertically-movable barrier through the agency of a motive fluid under pressure, whereby the speed of ascent or descent is controllable by variation in pressure of the fluid.

A further object in view is the provision of simple means for easily controlling the operation of the apparatus by an attendant known in racing parlance as a "race-starter."

A further object is to insure uniformity in the operation of the fluid-pressure lifting mechanism, and thereby overcome torsional strain on the apparatus.

A further object is to automatically check and cushion the elevation of the barrier, so as to minimize the shock and overcome danger of straining of the parts.

A further object is to provide a yieldable barrier against which the contestants may be alined, and also to vary the tension of the barrier, and also to provide for adjustment of the different parts.

With these ends in view the invention consists in the novel combination of mechanisms and in the construction and arrangement of the various parts for service, as will be hereinafter fully described and claimed.

In the accompanying drawings I have represented a race-horse starter which embodies the several features of my invention in their preferred form, and to these drawings I shall now refer in order to explain more clearly the nature of the invention and the manner in which the same is or may be carried into effect.

Figure 1 is a side elevation of my improved race-horse starter. Fig. 2 is an elevation of one of the posts and the operative devices thereon looking in a direction at right angles to Fig. 1. Fig. 3 is a plan view of a part of my apparatus. Fig. 4 is an enlarged detail sectional view of one of the pressure-cylinders and piston with the parts associated intimately therewith. Fig. 5 is a detail frag-

mentary view of one of the swinging arms, showing the means for firmly fastening the same to its rock-shaft. Fig. 6 is an enlarged detail perspective view of the yieldable buffer which cushions and arrests the swinging movement of one of the arms. Fig. 7 is a detail perspective view, on an enlarged scale, of one of the yokes for adjustably connecting the elastic barrier to one of the pair of swinging arms.

The same numerals of reference are used to indicate like and corresponding parts in each of the several figures of the drawings.

In carrying my invention into practice I employ a pair of vertical posts 10 11, which are firmly planted in the ground at proper distances apart and substantially on opposite sides of a race-course, said posts extending a suitable distance above the ground for the purpose of supporting the operating-mechanisms for the barrier at such a height as to permit the barrier to occupy a position when raised entirely out of the path of the contestants—such, for example, as a horse, sulky, and driver. The contestants are intended to be alined against a barrier 12, which spans the race-course, and with this barrier is associated means by which it may be quickly or instantaneously moved to a raised position through the agency of fluid-actuated mechanism, the pressure of which is controllable to regulate the speed of the ascent or descent of said barrier. The barrier which I prefer to employ is of a yieldable or elastic nature—such, for example, as an extensible strap, against which the contestants may press without distorting or disarranging the working parts of the apparatus.

As one means for supporting the barrier in position for operation, I have shown a pair of swinging arms 13 14, which are pivotally mounted on the respective posts 10 11, so as to be movable in a vertical plane simultaneously, and when the barrier is lowered the arms drop or assume vertical positions in close relation to the opposing sides of the posts; but on the elevation of the barrier the arms are swung through an arc of substantially ninety degrees, so that they assume horizontal positions, thereby raising the barrier above the path of the contestants. Each swinging arm is carried by a short horizontal rock-shaft 15,

which finds a suitable bearing in or near the upper end of the post, and said arm is provided with intersecting openings, through one of which is passed an end portion of one rock-shaft, the other opening receiving a bolt 16, which passes through the arm and through an opening in the rock-shaft, as shown clearly by Fig. 5, for the purpose of fastening the arm and the rock-shaft so firmly together as to prevent movement of one part relatively to the other, whereby the arm will turn with the rock-shaft under all conditions in the service of the apparatus. Collars 15' on the rock-shafts, secured thereto by set-screws, bear against the proximate sides of the posts and secure said rock-shafts against endwise movement.

The rock-shaft extends through the posts 10 11 for suitable distances, as shown by Fig. 1, and on the extended portions of these shafts are fitted the grooved sheaves or wheels 17, each wheel being firmly secured to the shaft in any suitable way, so as to make the shaft turn therewith at all times.

The swinging arms 13 14 extend for short distances beyond the rock-shafts 15, and said extended ends of the arms are connected adjustably by an intermediate tension-rod 18, that serves to strain the arm against the pull of the extensible or elastic barrier 12, whereby undue strain on the rock-shafts is obviated. This tension-rod is connected with the extended ends of the swinging arms through the medium of the threaded links 19 and the revoluble swivels or turnbuckles 20. The links are fastened to the arms in any suitable way, and said links and the rod are screw-threaded in opposite directions in order that the turnbuckles may engage therewith for the purpose of adjustment, so as to vary the tension on the swinging arms.

For the simultaneous operation of the pair of swinging arms which carry the yieldable barrier I employ two sets of pressure-operated devices, which are mounted on the respective posts and are adapted to be supplied with the motive fluid under uniform pressure from a single pressure-reservoir. These pressure-operated mechanisms include as elements thereof the pressure-cylinders 21 22, each cylinder being fastened in any suitable way at its lower end to the bottom head 23. (See Fig. 4.) This bottom head is integral with a bracket-plate 24, that is firmly fastened by screws or otherwise to one side of a post, and said head is furthermore provided with an outwardly-extending flange 25, the latter being perforated for the reception of a guide-stem, as will presently appear. A piston 26 lies within the pressure-cylinder, and to said piston-head is fastened the upper end of the piston-rod 27, the lower part of which is adapted to play in a suitable stuffing-box 27^a. The protruding end of the piston-rod is fastened to a reciprocating and vertically-movable cross-head 28, the latter being slidably fitted on the guide-stem 29. This guide-stem is sup-

ported in place below and to one side of the piston-cylinder by fastening its upper end to the flange 25 of the lower cylinder-head, the lower end of said guide-stem being attached to a suitable bracket 30, which is fastened to the side of the post, all as clearly shown by Fig. 4. The upper end of the cylinder is closed by a head 32, which is also fastened to the post, and thus the cylinder is held firmly in place by and between the two heads, which are secured individually to said post. The upper cylinder-head is furnished with a nipple 33, which provides a connection for a flexible hose or pipe to the piston-cylinder. The cross-head 28 is adapted to travel with the piston and its rod, and at its free end said cross-head is fashioned into a hook 31 (see Fig. 2) for the attachment of one end of a cable or chain thereto.

The motive fluid which I prefer to employ for the operation of the mechanism that raises the swinging arms and barriers simultaneously is compressed air, which is designed to be stored under pressure in a suitable reservoir 34, the latter having an ordinary pressure indicator or gage, as shown by Fig. 1. The reservoir may be charged by any suitable means—such, for example, as the pump 35—which is connected with the reservoir and is equipped with a handle on the piston-rod, so that the pump may be operated by hand. It is evident, however, that other means may be resorted to for charging the reservoir. From this reservoir leads a flexible hose or pipe 36, which is carried over one of the posts and is extended along the tension-rod 18 to the middle thereof, a T connection 37 being provided at the free end of this hose or pipe. The communication between the T connection and the pressure-cylinders is effected through the medium of branch pipes or flexible tubes 38 39, the contiguous ends of which are fastened to the connection 37, while the other ends thereof are attached to the nipples 33 on the upper heads of the pressure-cylinders. The arrangement of the pressure-supply pipes or tubes between the pressure-reservoir and the pressure-cylinders is shown quite clearly by Fig. 1, from which it will be seen that the T connection 37 is arranged centrally on the carrier between the swinging arms, whereby the motive fluid under pressure is distributed under uniform pressure to the pressure-cylinders. It is thus apparent that the pistons will be operated on uniformly by the motive fluid, so that the pistons will be caused to travel at a uniform speed, and thus the two arms 13 14 will be actuated by individual pressure devices, which, however, are exposed to the motive fluid from a single source of supply, thus actuating the arms simultaneously and equally for the proper elevation of the barrier. The flexible pipes or tubes are fastened to the tie-rod 18 by any suitable means, such as the fasteners 40, which may be either cords or clips, but this is immate-

rial. The connection between the piston-actuated cross-heads 28 and the grooved wheels 17 is obtained by the cords or ropes 41, each of which is passed part-way around the grooved wheel, so as to have one end fastened securely thereto at 42, as indicated by dotted lines in Fig. 2, the other end of the cable or chain being attached at 43 to the hook 31 of the cross-head.

10 It is my practice to adjustably fasten the extensible or elastic barrier to the swinging arms, so that the barrier may be supported at different heights on said arms, while at the same time the barrier is movable vertically 15 with the arms to be quickly moved out of the path of the contestants. The adjustable attachment of the barrier to the arms enables said barrier to be placed in advantageous positions for service—such, for example, as to 20 occupy a low position on the arms for the breasts of the horses to bear against the barrier, or the latter may be raised on the arms to the level of the horses' heads. A yoke 44 embraces each end of the barrier for supporting the bolt 45, that fastens the parts securely 25 together, and said yoke is furthermore provided with a threaded stem 46, which may be passed through either one of the series of holes 48 provided in each of the arms, as 30 shown by dotted lines in Fig. 1, a nut 47 being screwed on the threaded stem 46. It is evident that the yokes are fastened securely to the arms in order to properly support the barrier thereon, and the nuts may be re- 35 moved for the purpose of removing and adjusting the yokes, so as to support the barrier at different heights on the arms, the nuts being reapplied to hold the yokes securely in place.

40 It is to be understood that the swinging arms and the barrier are moved quickly to their raised positions by the pressure of the motive fluid, and the impulse imparted to the arms and the barrier may be sufficient under 45 high pressure of the motive fluid to carry the barrier clear over to a reverse position, or at any rate beyond a proper point of elevation. To overcome this objection and to cushion the upward movement of the arms, so as to 50 minimize the strain on the working parts, I have provided yieldable buffers, which are disposed in the path of the short ends of the swinging arms. Each buffer consists of a suitable plate or other support 49, which is 55 fastened in a secure manner to a side of each post in order to lie in the path of the short end of the arm. This plate is provided with a suitable hollow guide-head 49^a, as shown by Fig. 6, to receive the buffer-spindle 50, which is slidably fitted in the guide-head. 60 The upper end of this spindle is formed with an enlarged head 51, against which the arm on its elevation may engage, and the thrust or movement of the spindle is cushioned by a coiled spring 52, the latter being seated against the buffer-plate and the spindle-head, as shown. The spring normally sustains the

spindle in an elevated position; but when the spindle is depressed by the impact of the arm said spring is compressed to prevent the buffer-head from striking the plate, and thereby 70 affording a yielding support for the spindle.

The supply pipe or hose 36 is fastened at its lower end to a branch pipe 53, one end of which is open to the atmosphere. This branch 75 pipe communicates with a short length of pipe 54, that is fastened to the pressure-reservoir 34. Said pipe 54 is provided with the cock 55, and in the pipe 53 are provided the stop-cocks 56 57, the latter being disposed on opposite sides of the point of communication between the two pipes 53 54. 80

The operation is as follows: The pressure-reservoir is charged with motive fluid from any suitable source. In their normal positions the swinging arms are lowered so as to 85 support the barrier across the race-course, with the pistons in their raised positions within the pressure-cylinders. To start the race, the attendant opens the valves 55 56, 90 the valve 57 being closed, thereby admitting motive fluid from the reservoir 34 into the hose or pipe 36, which, through the branches 38 39, supplies said motive fluid simultaneously to the pressure-cylinders. The expansion 95 of the motive fluid acts against the pistons to force the latter downward, thereby depressing the piston-rods and the cross-heads 28, and these cross-heads pull on the chains or cables 41 in directions to turn the sheaves 100 17 and the shafts 15, whereby the pair of arms and the barrier attached thereto may be quickly raised, the barrier swinging in a direction away and upward from the contestants. The swinging movement of the arms 105 causes the short ends thereof to strike against the spring-supported buffers, thereby cushioning and arresting the arms. The barrier and the arms may be maintained in their raised position by the pressure of the motive 110 fluid; but to lower the apparatus the valve 55 is closed and the valve 57 is opened, thus permitting the motive fluid to escape through the flexible tubes and the pipe 53, whereupon the gravity of the arms and the barrier returns said parts to their lowered positions. 115 The rapidity of movement in the elevation of the parts may be governed by the pressure of the motive fluid; but the descent of the parts to their normal positions is regulated 120 by adjustment of the cock or valve 57.

From the foregoing description it will be seen that I have constructed the several parts of the apparatus in a very simple manner and that they are mounted detachably on the 125 posts. This is an important consideration, because the parts may be removed from one set of posts at one point in the race-course and applied to another set of posts at another point of the race-course, thus adapting the 130 starting apparatus to races over courses which vary in length.

Changes within the scope of the appended claims may be made in the form and propor-

tion of some of the parts, while their essential features are retained and the spirit of the invention is embodied. Hence I do not desire to be limited to the precise form of all the parts as shown, reserving the right to vary therefrom.

Having thus described the invention, what I claim is—

1. In a race-starter, the combination of a post, a rock-shaft mounted upon the post and provided with a sheave, a pressure-cylinder supported upon the post, a piston in the cylinder, a cross-head connected with the cylinder-piston and having operative connection with said sheave, an arm fast with the rock-shaft, a barrier connected with the arm, and means for supplying motive fluid to the cylinder to move the barrier.

2. In a race-starter, the combination with opposite posts, of a vertically-movable barrier mounted upon the posts, fluid-pressure operating devices carried by the respective posts and operatively connected to the adjacent ends of the barrier, a pressure-reservoir, a supply-pipe, and a branch pipe connected to the operating devices and supported upon the barrier, the supply-pipe being connected to the branch pipe at a point midway between the opposite operating devices.

3. In a race-starter, the combination with opposite posts, of swinging supports mounted upon the posts, a barrier connecting respective ends of the supports, a tension device connecting the opposite ends of the supports, fluid-pressure operating devices supported by the posts and operatively connected to the respective supports, a pressure-reservoir, a supply-pipe, and a flexible branch pipe supported partly by the tension device and also connected to the respective operating devices,

the supply-pipe being connected at an intermediate point to the branch pipe.

4. In a race-starter, the combination of posts, rock-shafts mounted on said posts and provided with sheaves or wheels, pressure-cylinders supported on the posts, cross-heads connected with the cylinder-pistons and having operative connections with said sheaves or wheels, arms fast with said rock-shafts, a barrier carried by the arms, and means for supplying motive fluid simultaneously to the cylinders, substantially as described.

5. In a race-starter, the combination with posts, and swinging supports mounted thereon and carrying a barrier, of pressure-cylinders fastened to the posts, the pistons having the rods, the fixed guides adjacent to the path of said rods, cross-heads attached to the piston-rods and fitted slidably to the guides, wheels turning with the swinging supports, and flexible connections between the cross-heads and said wheels, substantially as described.

6. In a race-starter, the combination with opposite posts, of swinging supports mounted upon the posts and provided with a plurality of corresponding perforations, opposite yokes, having threaded stems for adjustable engagement with any of the perforations in the respective supports, nuts for the stems, removable bolts connecting the ends of the respective yokes, and a barrier having its opposite ends connected to the respective bolts.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HARRY McCLEARY.

Witnesses:

JOHN H. HARRIS,

CHARLES K. CROFTS.