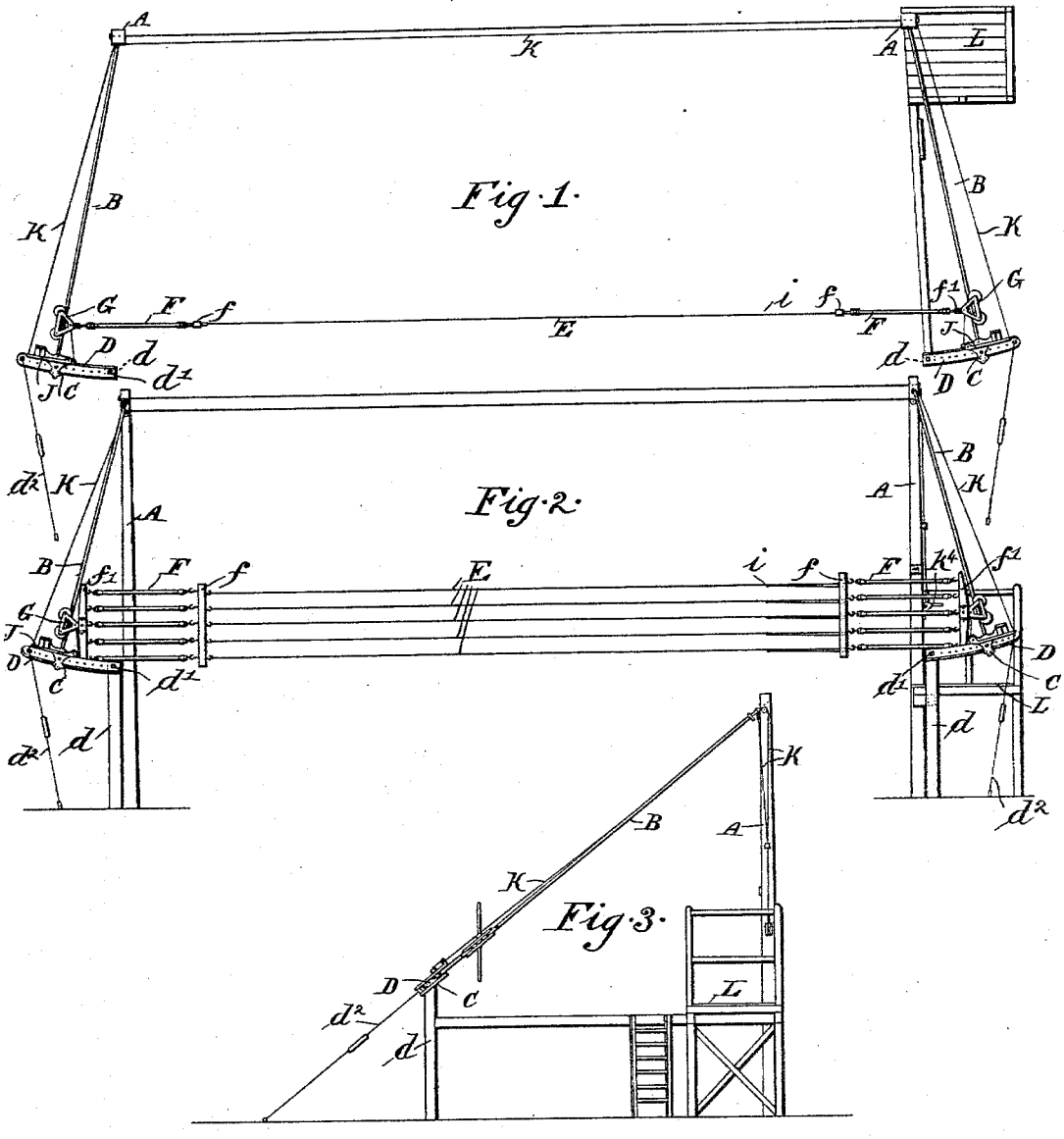
(No Model.) 2 Sheets—Sheet 1.

J. L. JOHNSTONE.

MACHINE FOR STARTING RACES.

No. 597,984. Patented Jan. 25, 1898.



Witnesses.
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Robert Everett.

Inventor.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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Fig. 4.

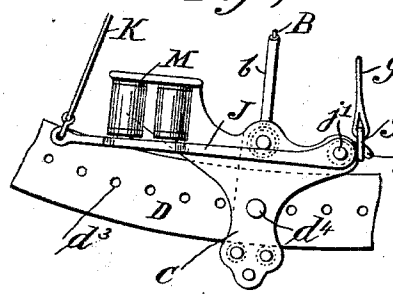
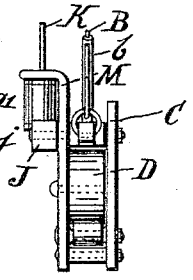


Fig. 5.



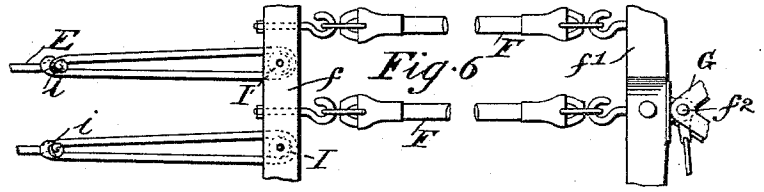


Fig. 7.

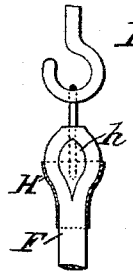


Fig. 8.

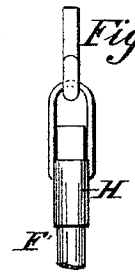


Fig. 9.

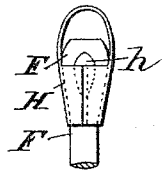


Fig. 10.

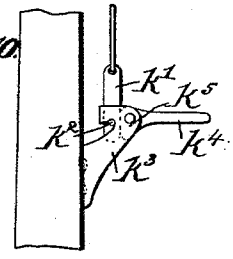
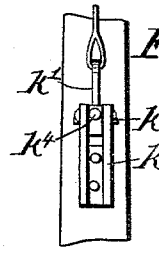


Fig. 11.



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UNITED STATES PATENT OFFICE.

JOHN LAWSON JOHNSTONE, OF FOOTSCRAY, VICTORIA.

MACHINE FOR STARTING RACES.

SPECIFICATION forming part of Letters Patent No. 597,984, dated January 25, 1898.

Application filed September 30, 1897. Serial No. 653,635. (No model.) Patented in Victoria September 11, 1893, No. 10,809; in New South Wales June 7, 1894, No. 5,091; in Queensland November 12, 1894, No. 2,820; in South Australia November 24, 1894, No. 2,825, and in India February 24, 1896, No. 350.

To all whom it may concern:

Be it known that I, JOHN LAWSON JOHNSTONE, engineer, a subject of the Queen of Great Britain, residing at No. 64 Cowper Street, Footscray, near Melbourne, in the British Colony of Victoria, have invented an Improved Machine for Starting Races, (for which I have obtained foreign patents as follows: in Queensland, No. 2,820, dated November 12, 1894; in New South Wales, No. 5,091, dated June 7, 1894; in Victoria, No. 10,809, dated September 11, 1893; in South Australia, No. 2,825, dated November 24, 1894, and in India, No. 350, dated February 24, 1896,) of which the following is a specification.

This invention relates to what are known as "starting-machines"—that is, to those classes of machines which are used for starting horse and other races. Its object is to provide a starting-machine which will not be expensive to construct, but which will be simple and efficient and not liable to get out of order, and one, moreover, which will admit of the barrier being easily removed from one part of the course to another.

The essential feature of this invention consists in the use of an elastic or tensional barrier in combination with converging guides or ways up which said barrier travels automatically on its release.

In order that this invention may be clearly understood, it will be described with the aid of the accompanying drawings, in which—

Figure 1 is a plan, Fig. 2 a front elevation, and Fig. 3 a side elevation, of a starting-machine constructed according to this invention, while Figs. 4 to 11 are various views illustrating details of the machine.

The same letters of reference indicate the same parts throughout the drawings.

A A represent two start-posts or uprights which are arranged one on each side of the course, while B B represent the converging guides or ways, which consist, preferably, of stout wires or wire rope, which are preferably inclined away from the horses. They extend from the upper ends of the uprights A down to (by preference) a laterally-adjustable support—such, for instance, as the carriage C—and they are by preference covered with lengths of rubber tubing *b* or other noise-preventing material, as illustrated in Figs. 4 and 5, which represent a side and an end view of said carriage and part of the arm upon which it is adjustable. This arm D projects outwardly from a short post *d*, secured in the ground sufficiently far behind the uprights A to give the preferred inclination to the guides B. Said arm D may be bolted rigidly to its post *d* or it may be pivotally connected thereto by a bolt or stud d', as shown, while its outer end is held in position by a stay d^2, fitted with a screw-tightener, as shown.

The arm D is curved to correspond to the radius of a circle struck from the top of the upright A, so that the carriage C can be moved along it for the purpose of adjusting the angle of convergence of the two inclined guides or ways B, the barrier having previously been raised to the upper end of said guides or ways. In order that said carriage may be held in any desired position upon said arm, the latter is provided with a number of holes d^3, through which a pin, such as d^4, can be passed.

The elastic or tensional barrier is constructed, preferably, of a number of coir ropes E, the ends of which are connected to a number of lengths F of rubber or other elastic material or springs through the medium of stretcher-bars *f* and hooks or other connections. The outer ends of the elastic lengths are connected to cross-arms f', provided with travelers G, arranged to run up the inclined guides B. These travelers are pivotally connected to said cross-arms, as illustrated at f^2. The way in which the lengths of elastic F are secured to the stretcher-bars *f* and cross-arms f' is clearly illustrated in Figs. 6, 7, 8, and 9—that is, each end of said lengths of rubber is fitted with a cap or socket H, which may be constructed of metal, as illustrated in Figs. 7 and 8, or of a piece of leather sewed together, as shown in Fig. 9. In either case this socket is made to taper, and the end of the length F of rubber having been passed through it and having had a slit or cut formed through it near its extreme end the wedge *h* may be passed through this cut and will serve to securely jam the end of the rubber in the socket H.

It is necessary to shorten the ropes E some-

times to suit differences in the weather, to take up slack, or to adjust to different widths. For this purpose one end of each rope is passed around a pulley I in one of the stretcher-bars *f* and a knot *i* is tied in the end of such rope, which is then passed around itself and secured with a half-hitch, as illustrated in Fig. 6. This method of securing the ropes is an exceedingly useful one, not only because it allows of the slack of the ropes being readily taken up by pulling on the free end and sliding the knot *i* farther away from the stretcher-bar *f*, but because in case of accident—as, for instance, in the event of a horse jumping into the barrier—the ropes can be let go instantly and the horse released before any damage can be done.

Each of the travelers G, to which the ends of the barrier are connected, is provided with a short length of wire or a link *g*, fitted at its lower end with a ring or loop *g'*, adapted to be placed in engagment (when the barrier has been drawn down) with the short projecting arms *j* of a pair of firing-levers J, which are fulcrumed, as illustrated at *j'*, upon the carriage C. These firing-levers may either be held in their operative positions by mechanical or electrical means. If it is preferred to employ a mechanical firing-gear, then wires, such as K, are connected to the free end of each of said levers and led over suitably-arranged pulleys to some convenient position alongside the starter's stand L. Here the two wires K are joined together and may either be held in the hand and simply let go when the barrier is to be released or they can be fitted with a catch-plate, such as is illustrated at *k'* in Figs. 10 and 11, said plate being provided with projecting pins k^2, engaging with hook-shaped ends of two fixed cheek-plates k^3, which are secured upon any convenient support—as, for instance, upon the back of one of the uprights A. The firing trigger or handle k^4 is also pivoted or mounted between these cheeks k^3 and is constructed with a projecting nose-piece k^5, which is so arranged that when the handle k^4 is depressed it will force the plate *k'* out of engagement with the hook-shaped cheeks k^3 and will thus release same, the effect being that the firing-levers J J will be released and will allow the barrier to ascend and at the same time move forward in the same direction as the horses, if preferred, although the guides might be set so that said barrier could be made to travel in any desired direction. It will be readily understood that the strain of the barrier on the short arms of the firing-levers J J will, when said levers are released, turn them around, so that they will set said barrier free and allow it to travel clear of the horses.

In lieu of this mechanical arrangement electromagnets, such as M, may be provided upon each carriage C and be arranged to attract the free end of the firing-levers J, and they may be coupled up in circuit with a battery and a switch arranged near the starter's stand L, so that the starter can by operating said switch break the circuit through said magnets and thus release the firing-levers J. The same electric current can also be used to sound a gong on any part of the course, start a stop-watch or a chronometer in the judge's box, and, if desired, release a flag on the course. The cores of the magnets are preferably fitted with slightly-projecting brass pins to prevent the firing-levers sticking to them after the current has been cut off.

When in use, the guides B are curved as the barrier ascends, the result being that at the commencement the angle of convergence is greater, and thus the effect on the barrier will be greatest at the commencement of its travel, whereas toward the end the curves are the other way, and thus the guides act as brakes to bring the barrier gradually to a standstill.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a machine for starting races, the combination with guides or ways, one at each side of the track, converging toward each other and inclined upward in the direction of the track, of an elastic barrier extending across the track between such guides or ways and having its ends slidably supported thereon, said barrier being normally held under tension in a lowered position on such guides or ways, whereby, in the operation of the device, when the barrier is released the retraction of its elastic members will cause said barrier to slide upward on the guides or ways, substantially as described.

2. In a machine for starting races, the combination with guides or ways, one at each side of the track, converging toward each other, and having their lower ends laterally adjustable, of a barrier slidably supported on said guides or ways, substantially as described.

3. In a machine for starting races, the combination with guides or ways at opposite sides of the track and suitable supports therefor, of arms secured to the supports at one end of each guide or way having a carriage mounted thereon to which one end of each guide or way is attached, and an elastic or tensional barrier slidably supported on said guides or ways, substantially as described.

4. In a machine for starting races, the combination with a long and a short upright at each side of the track, of a laterally-projecting arm secured to each short upright, a carriage adjustably mounted thereon, guides or ways secured at their upper ends to said long uprights and at their lower ends to said carriages, and an elastic or tensional barrier slidably supported on said guides or ways, substantially as described.

5. In a machine for starting races, the combination with rubber-covered guides or ways, one at each side of the track, of a barrier extending across the track and having at its

ends wheels adapted to run on said guides or ways, whereby the operation of the device is rendered practically noiseless, substantially as described.

6. In a machine, for starting races, the combination with guides or ways, one at each side of the track, converging toward each other, and supports therefor, of an elastic or tensional barrier slidably supported in said guides or ways, and holding and releasing mechanism for said barrier comprising levers pivotally mounted on the supports at one end of the guides or ways, arms carried by the barrier detachably connected, respectively, to one end of each of said levers, pulleys mounted on a suitable support, wires connected to the other ends of said levers and extended over said pulleys and having their ends joined, catch-plates secured to said last-named support, a wire connected to the joined ends of said wires and having at its ends a catch engaging said catch-plates, and a handle pivoted in said catch-plates having a cam-surface engaging said catch and operating, when the handle is depressed, to release said catch from engagement with the catch-plates, substantially as described.

JOHN LAWSON JOHNSTONE.

Witnesses:
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WALTER SMYTHE BAYSTON.