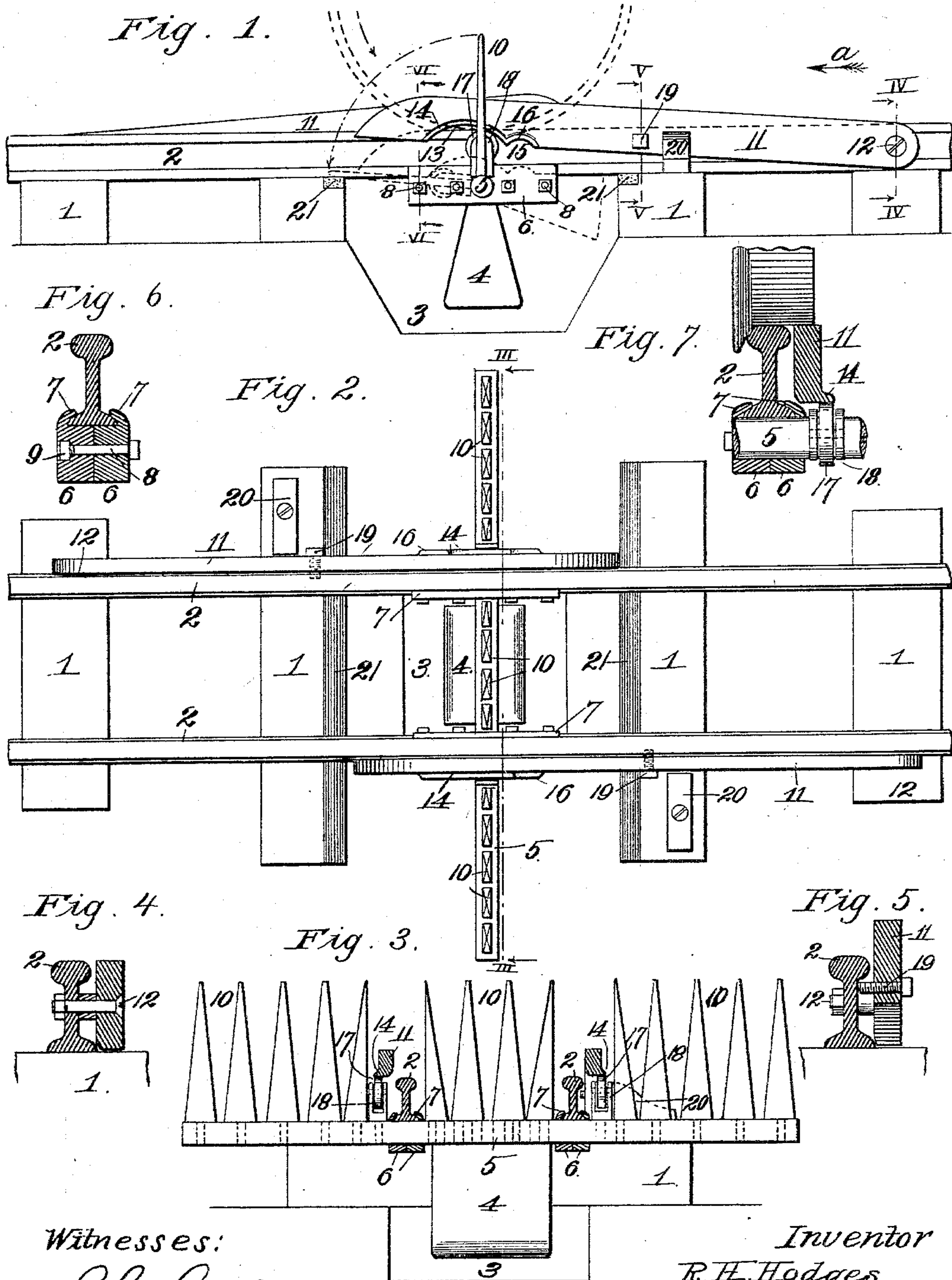


(No Model.)

R. H. HODGES.
CATTLE GUARD.

No. 597,414.

Patented Jan. 18, 1898.



Witnesses:
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UNITED STATES PATENT OFFICE.

ROBERT H. HODGES, OF KANSAS CITY, MISSOURI.

CATTLE-GUARD.

SPECIFICATION forming part of Letters Patent No. 597,414, dated January 18, 1898.

Application filed March 19, 1897. Serial No. 628,305. (No model.)

To all whom it may concern:

Be it known that I, ROBERT H. HODGES, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Cattle-Guards, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to automatic cattle-guards for preventing cattle from straying from a cross-road down a railroad-track and thereby endangering the train and contents, if a freight, and the lives of the occupants, if a passenger-train.

The object of the invention is to produce a device of this character which will reliably prevent cows or other animals from passing a certain point of the track and which will respond quickly and reliably move out of the path of a train and then resume its original position after the train has passed.

With this object in view the invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed; and in order that the invention may be fully understood I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 represents a side elevation of a section of railway-track armed with a cattle-guard embodying my invention. Fig. 2 represents a top plan view of the same. Fig. 3 represents a section taken on the line III III of Fig. 2. Fig. 4 represents a section, on an enlarged scale, taken on the line IV IV of Fig. 1. Fig. 5 represents an enlarged section taken on the line V V of Fig. 1. Fig. 6 represents an enlarged section taken on the line VI VI of Fig. 1, and Fig. 7 represents an enlarged section which illustrates the position of the rock-shaft and the trip-lever under pressure applied by the car-wheels.

In the said drawings, 1 designates the cross-ties, and 2 the rails, of a railway-track.

At a point adjacent to the railway-crossing where it is desired to place my improved cattle-guard a trench 3 is dug in the ground, said trench being of sufficient width and length to accommodate the swing or movement of a weight 4, pendent from a shaft 5,

extending transversely of and below the track. Said shaft finds a bearing in a couple of bearing-blocks, one secured to each rail, and said blocks each comprise two sections 6 6, which abut against each other and against the base of the rail and are provided with curved flanges 7 at their upper ends, which overlap the base-flanges of the rail. Said blocks are clamped firmly together, so as to form, in effect, an integral whole, by means of the bolts 8 and the clamping-nuts 9, the latter of which by preference are set in recesses in their corresponding bearing-blocks. Projecting upwardly from said shaft to a suitable height above the rails are the pointed fingers or guard-arms 10, said arms being secured rigidly to the shaft within and without the track in any suitable manner. They are held normally in a vertical position, due to the weight being secured pendently to the shaft, as shown clearly in Figs. 1 and 3. The shaft thus armed is of sufficient length to prevent cows or other animals from passing at the sides of the track, the device being adapted for location, as usual, between two fences or hedges at opposite sides of the track.

In order that the guard may be swung out of the way or depressed in a direction always away from an approaching and actuating train, I provide the following mechanism:

11 designates a pair of trip-levers, which must be of greater length than the distance between any pair of adjacent wheels of a car or of two cars coupled together, for a reason which will hereinafter be made clear. These trip-levers are pivoted, by means of bolts 12 or their equivalents, to the outer sides of the track-rails and at opposite sides of the guard, as shown clearly in Fig. 2. They are arranged parallel and almost in contact with said rails and have their inner ends projecting some distance beyond or across said rock-shaft, as also shown clearly in Figs. 1 and 2. Each trip-lever is provided with a segmental recess 13 in its under side, and at the outer margins of said recess is preferably flanged outwardly, as shown at 14, to increase the width of the trip-levers at these points. Just in rear or inward (with respect to the pivotal points) of said recesses 13 the levers are provided with the auxiliary recesses 15, which also at their

outer side margins are bounded by flanges 16, which practically form continuations of the flanges 14. This increase in width of the trip-levers at these points is made in order that they may obtain a firm and reliable bearing upon the antifriction-rollers 17, journaled in bifurcated brackets 18, secured rigidly to and projecting radially from the rock-shaft, said brackets forming, in effect, arms which occupy the same plane as the guard arms or fingers 10. It is obvious, of course, that by further increasing the width of said trip-levers they could be caused to bear firmly upon said rollers without flanging them, as shown. They must, however, in the proportions in which the device is illustrated, be of considerable width, comparatively speaking, owing to the fact that the bifurcated roller-carrying brackets or arms 18 are and must be situated a slight distance from the sides of the rails in order to permit the bearing-brackets to embrace the flanges of the latter. The weight, when not resisted by a greater force, holds said arms, like the guard, vertically upward, and by reason of the fact that the antifriction-rollers bear against the concave surfaces 13 of said trip-levers the latter at their free ends are held with a yielding pressure in the elevated position, (shown clearly in Figs. 1 and 3)—that is to say, with their tread-surfaces at such ends occupying a higher plane than the tread-surfaces of the rails and sloping gradually down to the plane of the surfaces of said rails at their pivoted ends, as shown. In order to limit their upward movement, said trip-levers are each provided with a stop-pin or set-screw 19, which in the operation of the levers plays up and down between the flanges and the heads or balls of the rails, and which by contact with the under side of the latter, as shown clearly in Fig. 5, prevents them from rising beyond a certain point. In order to guard against lateral pressure which may be applied upon said trip-levers, I provide the guard-blocks 20, which are secured to certain of the cross-ties at the outer sides and adjacent to the said levers. Said guard-blocks are of sufficient depth or thickness to provide firm bearings for the trip-levers, whether elevated or depressed, and consequently will relieve their pivots practically of all lateral strain which may be imposed upon them.

In practice as a train approaches in one direction or the other—for instance, in the direction indicated by the arrow *a*—one of its front pair of wheels will roll upon the trip-lever 11 at the corresponding side of the shaft, owing to the fact that the car-wheels always overhang or project some distance beyond the outer margins of the tracks. Immediately this pressure is applied upon said lever and before the advance end of the locomotive reaches the guard said lever is depressed, and owing to its relation to one of the rigid antifriction-roller-carrying brackets the latter is swung forwardly and downwardly to the po-

sition shown in dotted lines in Fig. 1, and the shaft is of course rocked or oscillated to raise the weight to the position shown. This depression of course trips the lever at the opposite side and permits it by gravity to swing downwardly to the same position. Owing to the fact, however, that both roller-carrying arms are swung forward or away from the advancing train, it is obvious that the roller of the bracket at the opposite side of the track when depressed occupies the recess 15 of the corresponding trip-lever, these recesses being provided to permit the trip-levers to be depressed the required distance—that is, to a point where their tread-surfaces shall not project beyond the tread-surfaces of the rails.

It is obvious, of course, that inward of the recesses 13 the trip-levers may be cut away materially instead of simply recessing them, as shown at 15; but this would tend to weaken them in an undesirable degree. It is obvious also that said trip-levers must be of such length that when one is depressed by an approaching train the other shall have ample time to gravitate out of the way of such train, so as to preclude any possibility of such train coming in contact with the abrupt surface presented by the elevated end of such other trip-lever. As the depression of said trip-levers will be very quick or sudden, it is clear that the oscillatory motion of the rock-shaft must be positively limited. Otherwise the weight may be thrown through a space exceeding forty-five or fifty degrees, and consequently project into the path of the train and wreck both the train and the cattle-guard. In order to prevent this, I have arranged the adjacent cross-ties in such positions that the guard arms or fingers at each depression at one side or the other shall strike said cross-ties, or, rather, shall strike a heavy rubber block or strip 21, set in a recess in said cross-ties, substantially as shown, these rubber blocks or strips being adapted to prevent injury to said arms or fingers. By making said levers of sufficient length it is obvious that they remain depressed until the train has passed by, when the weight, being now relieved of the pressure of the car-wheels, swings down to its original position and elevates the levers, as shown. As the levers are reelevated the stop pins or screws 19, coming in contact with the heads of the rails, limit the upward movement of the levers, and consequently prevent the guard from oscillating under the influence of the weight.

From the above description it will be apparent that I have produced a cattle-guard which will be moved positively and reliably out of the way of a train when moving in either direction and which will effectually prevent cows or other animals straying along the track past the protected point.

It is to be understood, of course, that slight changes in the form, detail, construction, and arrangement of the parts may be made and

that mechanical equivalents may be substituted without departing from the spirit and scope of my invention.

5 Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

10 1. A cattle-guard for railway-tracks, comprising a transverse shaft journaled at the under side of the track, a weight swinging from said shaft, guard arms or fingers projecting vertically upward from said shaft, and held so normally by the weight, roller-carrying arms projecting upwardly normally from said shaft, trip-levers at the sides of the track-rails and resting upon said roller-carrying arms, and screws or stop-pins carried by said trip-levers and adapted to play in the operation of said levers between and against the base and head flanges of the rails, substantially as and for the purpose described.

20 2. A cattle-guard for railway-tracks, comprising a transverse shaft journaled at the under side of the track, a weight swinging from said shaft, guard arms or fingers projecting vertically upward from said shaft, and held so normally by the weight, roller-carrying arms projecting upwardly normally from said shaft, trip-levers at the sides of the track-rails and resting upon said roller-carrying arms, screws or stop-pins carried by said trip-levers and adapted to play in the operation of said levers between and against the base and head flanges of the rails, and guide

bearing-blocks secured to the cross-ties at the outer sides of said trip-levers, substantially as shown and described. 35

3. A cattle-guard for railway-tracks, comprising a pair of bearing-blocks secured pendently to the track-rails, and consisting of a pair of similar blocks bearing against each other and the bottom of the rail, and overlapping the base-flanges of the latter, and bolts clamping said blocks firmly and reliably together and upon said rails, a transverse shaft journaled in said bearing-blocks, and provided at diametrically opposite sides with a weight, and guard-fingers and roller-carrying brackets, a pair of trip-levers pivoted to the outer sides of the rails at opposite sides of said shafts, and at their free ends laterally flanged and provided with segmental cavities below said flanges, and provided also inward of said recesses with auxiliary recesses which are also overhung by said flanges, stop-pins or screws secured to the said trip-levers and adapted as they rise to impinge upon the under side of the head of the rails, and guide bearing-blocks secured to the cross-ties at the outer sides of said trip-levers, substantially as shown and for the purpose described. 40 45 50 55 60

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

ROBERT H. HODGES.

Witnesses:

M. R. REMLEY,
G. Y. THORPE.