

No. 791,323.

PATENTED MAY 30, 1905.

J. COSTELLO & W. D. MILLER.
CATTLE GUARD.

APPLICATION FILED MAR. 1, 1905.

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CATTLE-GUARD.

SPECIFICATION forming part of Letters Patent No. 791,323, dated May 30, 1905.

Application filed March 1, 1905. Serial No. 247,916.

To all whom it may concern:

Be it known that we, JAMES COSTELLO, a resident of Glasgow, and WILLIAM D. MILLER, a resident of Saco, in the county of Valley and State of Montana, citizens of the United States, have invented a new and Improved Cattle-Guard, of which the following is a full, clear, and exact description.

The object of our invention is to provide novel details of construction for a cattle-guard which effectively obstructs the passage of live stock along or across the rails and bed of a railroad.

The invention consists in the novel construction and combination of parts for a cattle-guard, as is hereinafter described, and defined in the subjoined claims.

Reference is made 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 perspective view in part of a cattle-guard embodying details of the invention and placed for service on the road-bed of a railroad. Fig. 2 is an enlarged transverse sectional view of details that represent features of the invention, taken substantially on the line 2 2 in Fig. 1; and Fig. 3 is a detached perspective view of a rocking bar, which is a novel detail and which in proper number constitute leading features of the improvement.

As shown in Fig. 1, the improved cattle-guard is placed in position for service in the gap between the fence-lines A A, at each side of two track-rails 5 5 of a railroad, 6 representing one of the cross-ties employed for the support of said track-rails. In this application of the improvement, which may be changed to suit the situation, a plurality of similar bearing-blocks 7 are employed, which extend at each side of the respective track-rails 5 sufficiently to afford proper support for rockable bars 8, that are novel features which will be fully described in their order.

Each of the bearing-blocks 7 consists of a wooden or metal block that may be rectangular in cross-section, having proper dimensions for effective service and durability. As shown,

three of the bearing-blocks are employed, arranged in sequence at each end of the cattle-guard, one block being seated upon a cross-tie 6 between the track-rails 5, and the other blocks supported by seating one end of each upon a portion of the cross-tie that extends outside of a respective track-rail, the outer ends of said blocks resting upon two posts 6^a. Suitable means is employed for securing the blocks 7 removably in position for service. It is to be understood that a like number and relative arrangement of bearing-blocks 7 is employed for each end of the cattle-guard.

In the upper side of each bearing-block 7 a plurality of recesses *a* are formed of equal width and depth, the sides of each recess being parallel near their upper edges and merging into downward extensions that incline toward each other, as shown at *a'* in Fig. 2, these extensions ending in a concave bottom for the recess.

The bodies of the rockable bars 8 are triangular in cross-section, having equal sides and are of angles and a suitable length, terminating at each end in a journal *b*, said journals seating on the concave bottoms of opposite recesses *a* in the bearing-blocks 7. Upon each bearing-block 7 a cap-plate 7^a is mounted and secured by suitable means after the rockable bars 8 are placed in position, said cap-plates being preferably arched somewhat above each recess *a*, and the space between adjacent bars 7 is such that they may rock freely and have clearance from each other.

If the situation for locating the cattle-guard is such that it may be of moderate length, the bars 8 may be supported by their journal ends upon the blocks 7. If, however, the length of the bars requires them to receive support between their ends, this may be effected by providing a journal *c* centrally between the journals *b* on each rockable bar and seating said journals *c* upon the flat upper surface of a bearing-block 9, that is supported from the road-bed at a point directly below said journals.

Upon spacing-blocks *d*, one at each end of the bearing-block 9, a flat cap-plate 9^a is seated and secured, said plate having a loose contact

with the journals *c*, which permits the rockable bars 8 to slide laterally and turn freely while these journals are seated upon the bearing-block 9.

5 Preferably the triangular bodies of the bars 8 are so relatively spaced apart that the corresponding angular corners thereon will when disposed in the same horizontal plane, or nearly so, fail to receive between them the
10 feet of an animal—such, for example, as the hoofs of a cow; but when the animal treads between two adjacent bars 8 one or both front feet impinge upon the inclined sides of these bars, thus rocking them toward each other.
15 This will dispose the adjacent sides of said bars 8 nearly parallel with each other, and so increase the space between the bars as to permit the hoof or hoofs to pass down and rest upon the road-bed. The rocking movement
20 of the adjacent bars 8 causes their upper edges to bear upon the lower portion of the leg and pinch it hard enough to frighten the animal and cause it to retreat or step backward from the cattle-guard.

25 It will be noted that when the foot of an animal is raised after passing down between two adjacent rocking bars 8 the hoof of the beast will lift the journals on the bars above the bottoms of the recesses *a*, upon which they
30 have been seated, into the wider upper portions of said recesses, which will allow the pull of the hoof when raised to spread apart the journals *b* and permit the free removal of the animal's foot.

35 It is preferred to mount suitable lengths of barbed fence-wire *e* upon each side of each rockable bar 8, and these barbed wires impinging upon the leg of an animal that passes
40 down through the space between adjacent bars will scratch the leg, so as to induce the animal to withdraw it and get off of the cattle-guard by a backward movement. While the employment of the fence-wires is to a certain extent advantageous and is preferred, they
45 may be dispensed with, since the angular corners of the rockable bars by contact with the limb or limbs of an animal will cause it gripping pain that will frighten the beast, so that it will get off of the cattle-guard and not
50 traverse it in any direction.

As shown in Fig. 1 at the left side, contractile springs *g* may be employed for drawing upon the journal ends *b*, and thus effecting a return of the rockable bars 8 to their
55 normal positions in the recesses *a* after these bars have been raised off of the concave bottoms of the recesses in which they are held.

If the cattle-guard is to be arranged for preventing cattle from traversing the same
60 laterally as well as lengthwise, it is preferred to place a fence-panel B at each side of the road-bed, inclining therefrom into contact with the fence-lines A.

The novel features that appear in this improvement principally reside in the employ-

ment of a plurality of triangular rockable bars, bearing-blocks that have downwardly-converged recesses in their upper sides for the support of journaled ends on the rockable
70 bars, cap-plates on the bearing-blocks, covering the widened upper portions of the spaced recesses, fence-wire secured on the sides of the triangular rockable bars, and contractile springs connecting the journal ends of adjacent rockable bars for returning said bars to
75 normal positions on the bottoms of the recesses.

It is well known that rollers having pointed projections thereon have been employed as details of a cattle-guard; but if such guards
80 are employed they either seriously injure a beast that steps on the guard or hold the animal by its foot or feet, so that derailment of a train of cars may result. The support of the rockable bars 8 in the upwardly and laterally
85 widened recesses *a* permits the animal to lift its feet and escape from the cattle-guard, the insecure footing afforded thereon and the pain inflicted while avoiding serious injury so alarming the beast that it will retreat from
90 the cattle-guard rather than attempt to traverse it in any direction.

Changes may be made within the scope of our invention to adapt the improvement for a particular locality, and we claim such departures from the exhibition of its application
95 herein shown as fall within the spirit and terms of the claims.

Having thus described our invention, we claim as new and desire to secure by Letters
100 Patent—

1. A cattle-guard embodying a plurality of bearing-blocks arranged transversely on the bed of a railroad, and having spaced recesses in their upper sides, said recesses converging
105 toward their bottoms, and a plurality of triangular bars journaled at their ends in the recesses in the blocks, thus adapting the bars for rotation when cattle tread upon or between adjacent ones.

2. A cattle-guard, embodying a plurality of bearing-blocks arranged in two series across the bed of a railroad, said blocks having spaced recesses in their upper sides, said recesses having concaved bottoms and sides that
115 converge toward said bottoms, cap-plates secured on the blocks over the recesses, and a plurality of triangular bars journaled at their ends in opposite recesses in the blocks.

3. A cattle-guard embodying a plurality of bearing-blocks arranged in two series that are spaced apart and extend across the bed of a railroad, a cap-plate for each bearing-block, a series of upwardly and laterally widened recesses formed in each bearing-block which
120 the cap-plates cover, an intermediate bearing-block on the road-bed, a cap-plate spaced from the upper side of said bearing-block, a plurality of triangular bars journaled at their
125 ends for loosely engaging the bottoms of the

recesses in the spaced bearing-blocks, and a journal formed between the end journals on each rockable bar for a loose-seated engagement with the intermediate bearing-block.

5 4. A cattle-guard embodying a plurality of bearing-blocks arranged in two spaced series over the bed of a railroad, spaced recesses in each bearing-block, each recess being widened upwardly and laterally, a plurality of triangular bars journaled at opposite ends and
10 seated in opposite pairs of recesses, a cap-plate on each bearing-block over the journals, and stretches of barbed wire secured respectively on each side of each triangular rock-
15 able bar.

5. A cattle-guard embodying a plurality of bearing-blocks arranged in two spaced series over the bed of a railroad, each block having similar spaced recesses in its upper side, these
20 recesses widening upwardly, a plurality of triangular bars journaled at opposite ends and

seated in respective opposite pairs of recesses, cap-plates on the bearing-blocks, each pair of the adjacent bars being thus adapted for lateral divergence when an object enters between 25 them, and a contractile spring between the journal ends of each pair of rockable bars for aiding the return of said journals to normal positions in the bottoms of the recesses.

In testimony whereof we have signed our 30 names to this specification in the presence of two subscribing witnesses.

JAMES COSTELLO.

WILLIAM D. MILLER.

Witnesses to the signature of James Costello:

P. D. JAMIESON,

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Witnesses to the signature of William D. Miller:

FRED ERICKSON,

CHAS. RUTHERFORD.