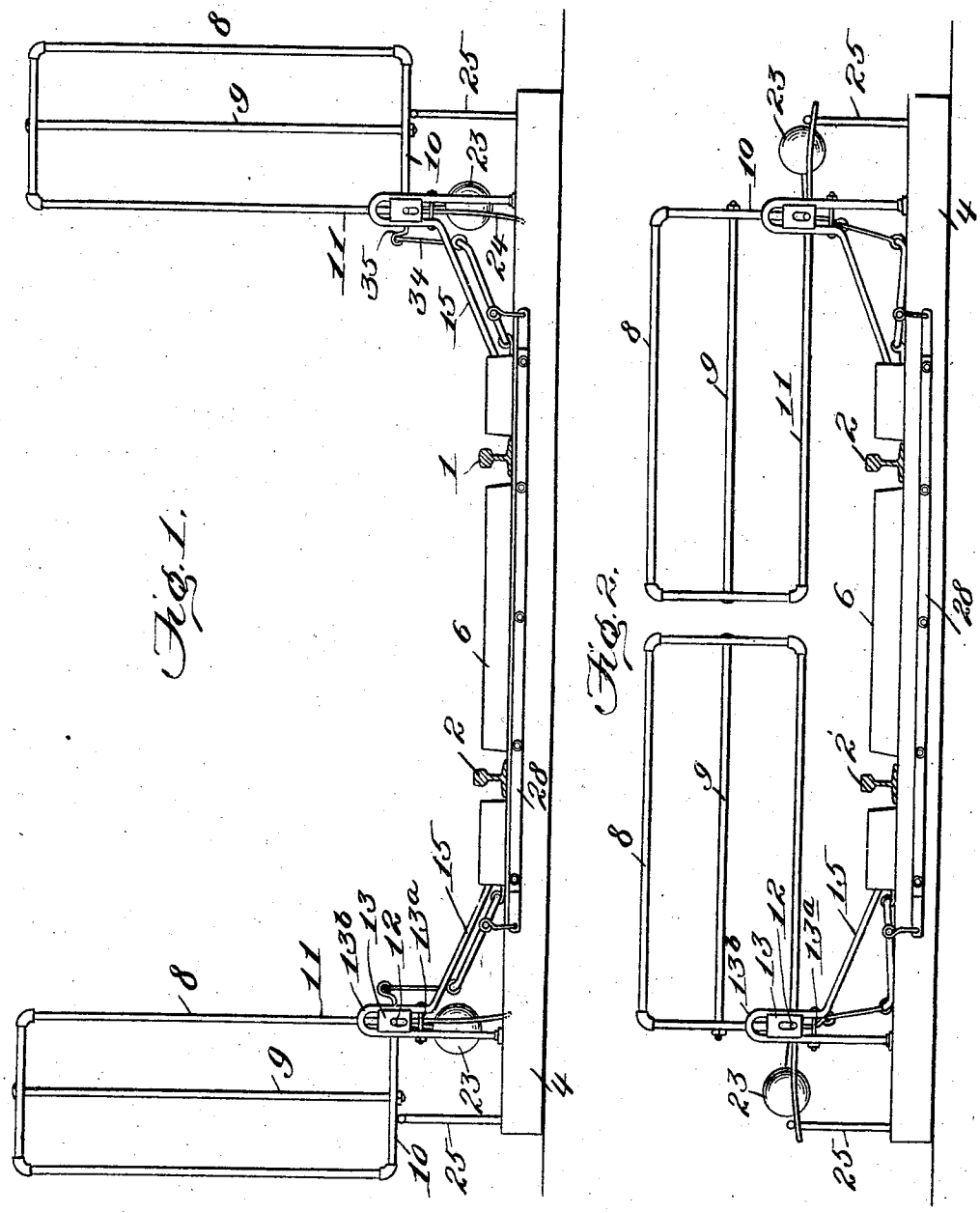
No. 859,901. PATENTED JULY 9, 1907.

G. W. CLINE.

CATTLE GUARD.

APPLICATION FILED FEB. 18, 1907.

4 SHEETS—SHEET 1.



Witnesses:
C. J. Kesler
J. B. Keefer

Inventor
George W. Cline
By
James L. Norris
Atty.

No. 859,901.

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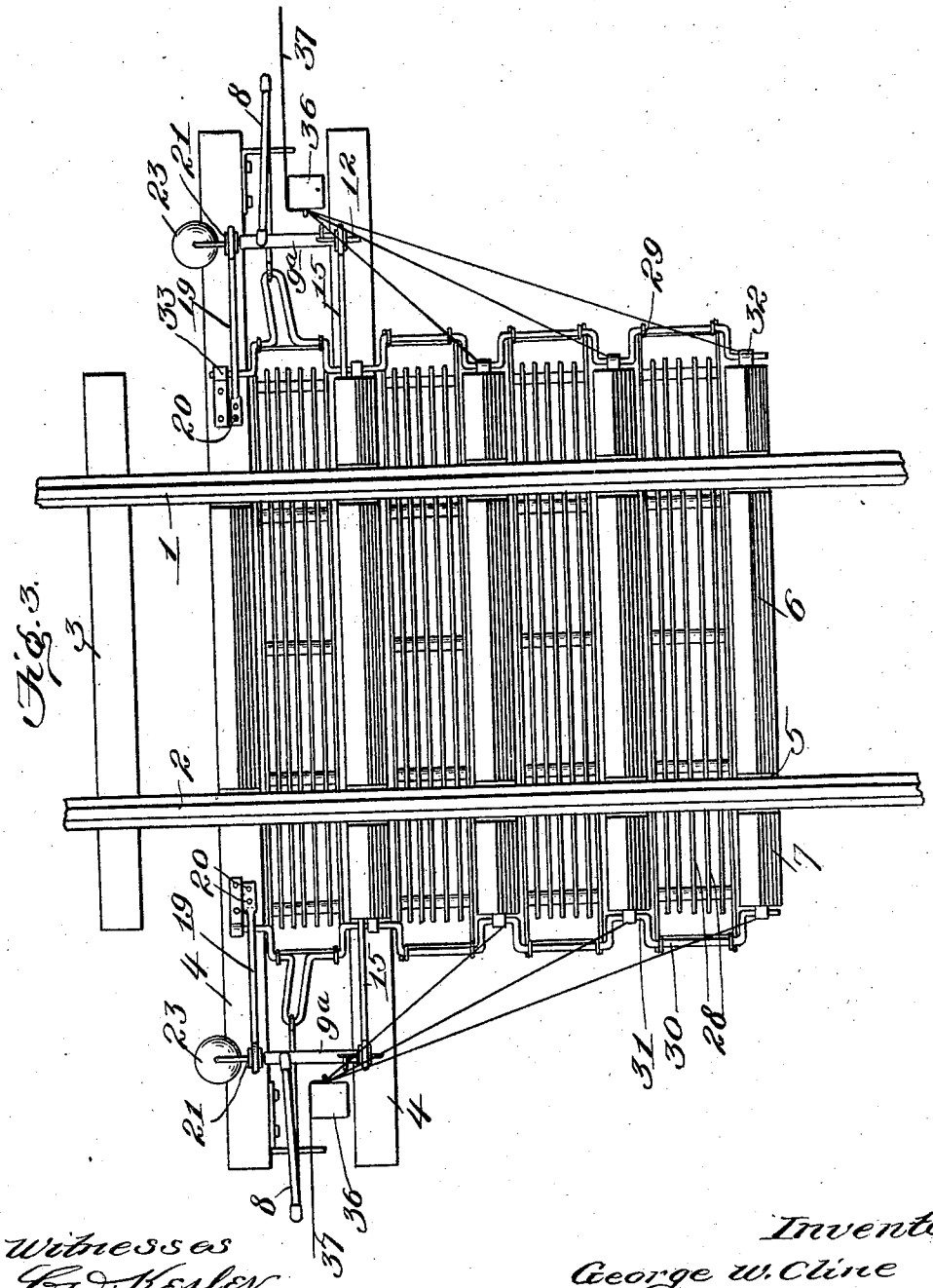
4 SHEETS—SHEET 2.



Witnesses
C. D. Kesler
W. B. Kesler

Inventor
George W. Cline
By
James L. Norris
Atty.

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4 SHEETS—SHEET 3.

Fig. 5.

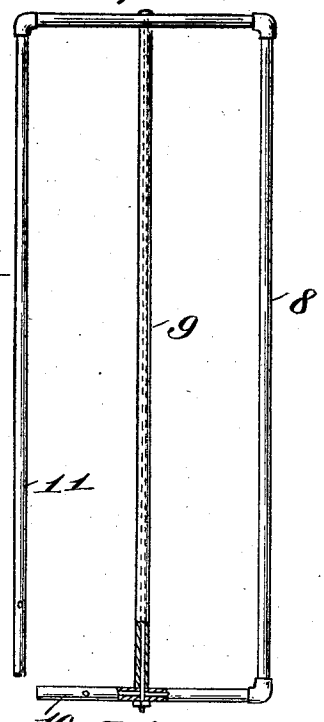


Fig. 4.

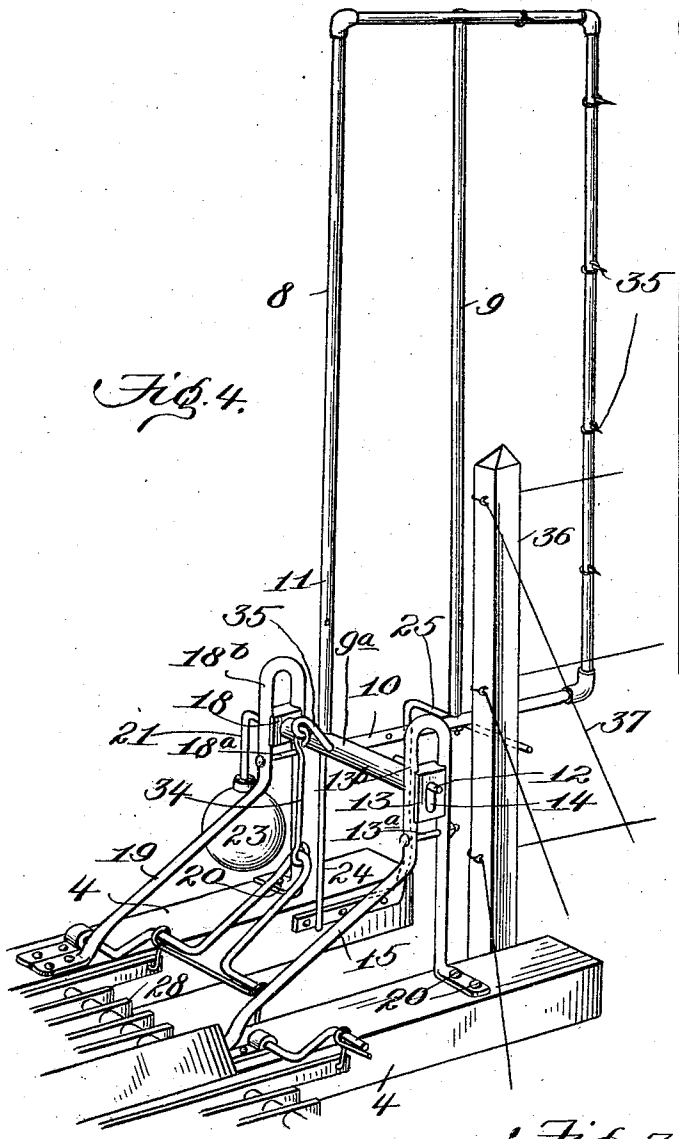


Fig. 6.

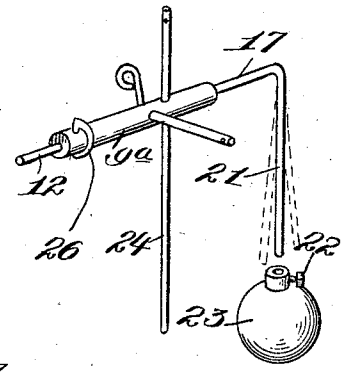
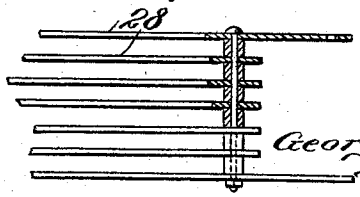


Fig. 7.



Witnesses:
C. D. Keller
J. B. Keller

Inventor.
George W. Cline
By
James L. Norris
Atty.

No. 859,901. PATENTED JULY 9, 1907.

G. W. CLINE.

CATTLE GUARD.

APPLICATION FILED FEB. 18, 1907.

4 SHEETS—SHEET 4.

Fig. 8.

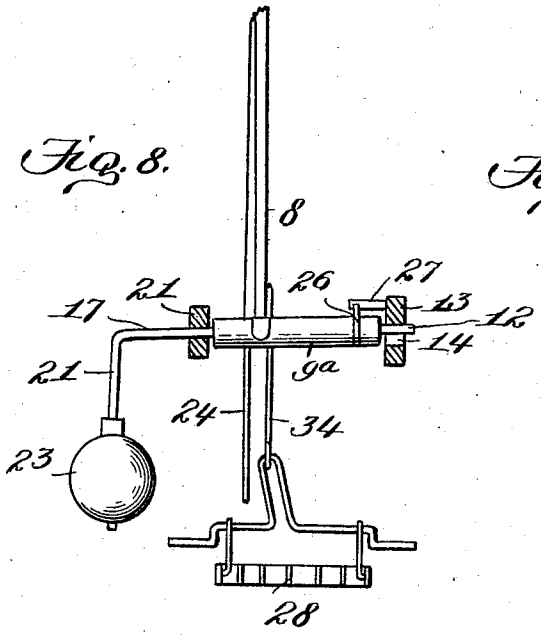


Fig. 9.

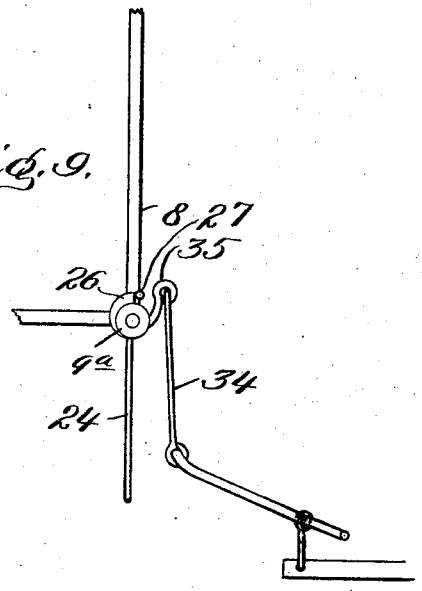


Fig. 10.

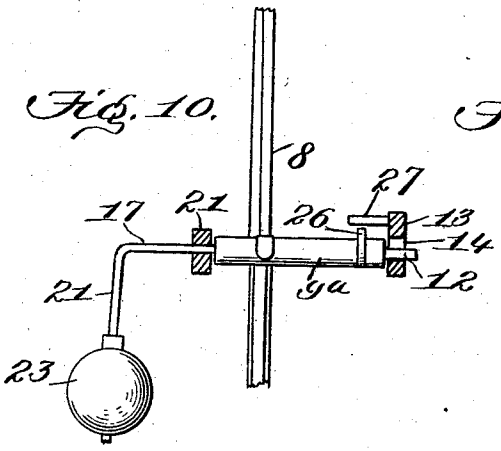


Fig. 11.

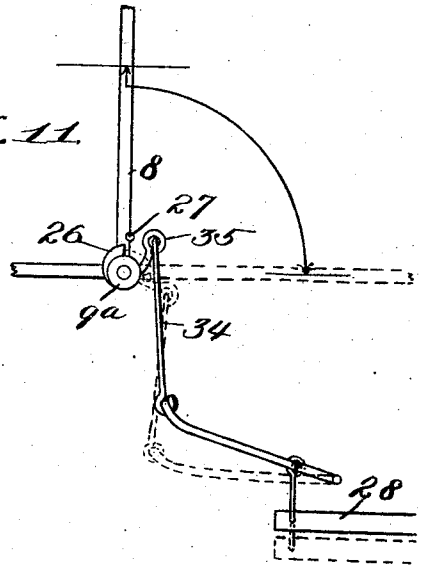
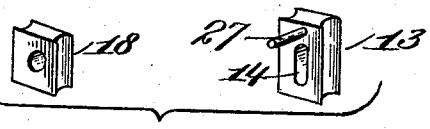


Fig. 12.



Witnesses
C. F. Keller
J. B. Keller

Inventor
George W. Cline
By
James L. Norris,
Atty.

UNITED STATES PATENT OFFICE.

GEORGE W. CLINE, OF SANDPOINT, IDAHO, ASSIGNOR TO AUTOMATIC CATTLE GUARD COMPANY, OF SANDPOINT, IDAHO, A CORPORATION OF IDAHO.

CATTLE-GUARD.

No. 859,901. Specification of Letters Patent. Patented July 9, 1907.

Application filed February 18, 1907. Serial No. 358,089.

To all whom it may concern:

Be it known that I, GEORGE W. CLINE, a citizen of the United States, residing at Sandpoint, in the county of Kootenai and State of Idaho, have invented new and useful Improvements in Cattle-Guards, of which the following is a specification.

This invention relates to cattle guards for preventing cattle and other stock from passing on railroad tracks or from one field to another, and the object thereof is to provide in a manner as hereinafter set forth an automatically operable guard embodying means whereby, as the animal steps upon the guard, said means will be caused to automatically extend transversely of the track and effectually prevent further passage of the animal, said means being further adapted to automatically return to normal position as soon as the animal steps off the guard.

A further object of the invention is to provide a cattle guard for the purpose set forth which shall be simple in its construction, strong, durable, automatic in its operation, efficient in its use, readily set up, and comparatively inexpensive.

With the foregoing and other objects in view, the invention consists in the novel construction, combination, and arrangement of parts hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations, and modifications can be resorted to which come within the scope of the claims hereunto appended.

In describing the invention in detail, reference is had to the accompanying drawings wherein like reference characters denote corresponding parts throughout the several figures, and in which

Figure 1 is a transverse section of a railway track showing the adaptation thereto of a cattle guard in accordance with this invention, the guard being open. Fig. 2 is a like view with the guard closed. Fig. 3 is a plan view of the guard arranged in connection with a railway track. Fig. 4 is a perspective view of a portion of the guard. Fig. 5 is a detail of one of the gates. Fig. 6 is a detail showing the gate supporting and shifting shaft. Fig. 7 is a detail of one end of one of the yielding treads. Fig. 8 is a view showing the gate in its normal or locked position. Fig. 9 is a like view looking towards one end of the supporting and shifting shaft for the gate. Fig. 10 is a view similar to Fig. 8 with the gate released. Fig. 11 is a view similar to Fig. 9 with the gate released, and also showing in dotted lines the gate swung to closing position. Fig. 12 is a detail illustrating the bearings for the gate supporting and shifting shaft.

Referring to the drawings by reference characters, 1 and 2 denote the rails of a railway track and 3, 4, and 5 the cross-ties. The ties 4 are of such length as to project from each side of the track and that portion between the rails 1, 2, as well as the intermediate portion of the ties 5, are of inverted V-shape, as at 6. The outer portions of the ties 5 as well as a part of the outer portion of one of the ties 4 are also of inverted V-shape in cross-section, as at 7, for the purpose of deflecting an animal's hoof.

The cattle guard consists of a pair of swinging gates which are adapted to be projected transversely across the track, and, when projected in such manner, the gates assume a position in alinement with each other.

As the supporting and shifting mechanism for each gate is of the same construction, but one will be described, the same reference characters applying to both. Each of the gates is indicated by the reference character 8, is substantially rectangular in contour, and of skeleton formation; that is to say, each gate is formed of a rectangular frame having a longitudinally extending strengthening bar 9. If desirable, the bars of the frame may be provided with barbs 35. A combined supporting and counterbalanced shifting shaft 9^a is provided for the gate 8. One of the side bars 10 of the gate 8 is secured at one end to one side of the shaft 9^a and the bottom bar 11 of the gate 8 is secured to the top of the shaft 9^a; by such arrangement, one corner, which is the outer lower corner, of the gate is attached to the shaft 9^a. A journal 12 is provided for the shaft 9^a and extends through a bearing block 13 having a vertically extending slot 14, the said block 13 being adjustably secured by the bolt 13^a in the upper end 13^b of the supporting bracket 15 which is fixed to the upper face of one of the projecting ends of a cross-tie 4, holdfast devices 20 being provided for securing the bracket 15 to the cross-tie 4. The other end of the shaft 12 is formed with a journal 17 which extends through a bearing block 18 adjustably secured by the bolt 18^a in the upper end 18^b of a supporting bracket 19 attached to the upper face of the other of the cross-ties 4, holdfast devices 20 being provided for such purpose. By such an arrangement, one end of the shaft 9^a can vertically move in the slot 14. The journal 17 is of such length as to enable the same to be bent downwardly, as at 21, and to the said depending portion 21 is adjustably connected, through the medium of the set-screw 22, a counterbalance weight 23, the function of which is to automatically return the shaft 9^a to normal position. Depending from the shaft 9^a is an arm 24 for limiting the movement of the shaft 9^a when the same is shifted to swing the gate 8 to closing position, the arm 24, during such movement, being adapted to engage the angular upper end of a stop-bar 25 having an angular lower end secured to one side of one of the cross-ties 4 at the end thereof. The stop-bar 25 also acts as a means to

limit the return movement of the gate 8 for the reason that the stop-bar 25 is arranged in the path of the side bar 10 of the gate. The stop-bar 25 further acts as a means for supporting the gate 8 when the latter is swung to an elevated position.

A means is provided for automatically locking the gate 8 from movement when the latter is swung to a vertical position, so that the gates cannot be blown across the track from the wind or accidentally moved, and such means consists of a protuberance 26 projecting from one end of the shaft 9^a and which is adapted to abut against an inwardly extending lug 27 carried by the block 13. When the gate 8 is returned to normal or rather swung to a vertical position, the lug 27 projects in the path of the protuberance 26, so that, if an attempt is made to swing the gate downwardly, such movement will be arrested by the abutting of the protuberance 26 against the lug 27. The protuberance 26 is moved so as to pass by the lug 27 when the shaft 9^a is shifted by an operating means to be hereinafter referred to. The first movement imparted to the shaft 9^a by the operating mechanism is such as to cause that end of the shaft provided with the journal 12 to fall, the slot 14 providing for such action. The lowering of such end of the shaft 9^a will enable the protuberance 26 to pass under the lug 27 when the shaft 9^a is shifted to swing the gate to closing position. After the gate has been swung to closing position and released, the weight 23 will cause the gate to return to its normal position; that is to say, cause the gate to be swung to a vertical position, and the action of the weight 23 will also cause that end of the shaft 9^a provided with the journal 12 to be elevated, as shown in Fig. 8, so as to cause the lug 27 to be in the path of the protuberance 26.

The operating mechanism which is common to both of the gates 8 and shafts 9^a consists of a plurality of vertically yielding treads 28 each consisting of a slatted frame interposed between pairs of cross-ties and each of which is connected at each end, as at 29, to a crank portion 30 of a shaft 31. The shafts 31 are pivotally connected to the ends of the cross-ties 5 by the keepers 32 and upon the upper face of the cross-ties 4 by the keepers 33. The crank portion of each of the shafts 31, which is positioned between the cross-ties 4, is connected by a link 34 to an eye 35 projecting from the shaft 9^a. By such construction, when an animal treads upon one of the slatted frames, the said frame will yield, consequently rocking the shafts 31, which in turn will lower the links 34 and thereby rock the shafts 9^a. These latter will then swing the gates 8 to closing position; that is to say, cause the gates 8 to extend transversely of the railway track. The weights 23 not only act as a means to return the shafts 9^a to normal or inoperative position, but also constitute means for returning the shafts 31 and yieldable treads 28 to normal position, as will be evident.

The cattle guard may be positioned between a pair of fence posts 36, so that each of the gates when in an upright position will be arranged at one side of the post, as shown in Fig. 4, and the wires 37 which were between the posts can be severed, extended downwardly at an inclination, and secured to the ends of the cross-ties 5, which would act as a means to prevent the cattle mounting the guard from the side.

Although the guard is shown in single form, that is to say, having the yielding treads only at one side of the gate, yet the guard can be extended so as to form what may be termed a double guard, so that the treads will be positioned at both sides of the gate in order to guard approach from both directions. As this is an obvious expedient, it is thought unnecessary to illustrate the same.

From the foregoing description, taken in connection with the accompanying drawings, it will be evident that an exceedingly simple means is provided which will be entirely automatic in operation and absolutely preclude the passage of animals from one field to another along a railway, as, when the gates are swung to a position to extend transversely of the railway track, the passage of the cattle will be arrested.

What I claim is:

1. A cattle guard comprising a pair of shafts, a pair of gates each having one corner thereof connected to one of the shafts, a pressure operated means for shifting said shafts thereby moving said gates to a position transverse of a railway track, a counter-weight carried by each of the shafts for automatically returning said shafts, gates and means to normal position when pressure is relieved from said means, means for automatically locking the gates in inoperative position, and means for causing the automatic release of the gates at the beginning of the operation of said pressure operated means.

2. A cattle guard comprising a pair of shafts, a pair of gates each having one corner thereof connected to one of the shafts, a pressure operated means for shifting said shafts thereby moving said gates to a position transversely of a railway track, a counter-weight carried by each of the shafts for automatically returning said shafts, gates and means to normal position when pressure is relieved from said means, means for automatically locking the gates in inoperative position, means for causing the automatic release of the gates at the beginning of the operation of said pressure operated means, and means for limiting the movement of the gates in either direction.

3. A cattle guard comprising a pair of shafts, a gate carried by each of the shafts and adapted when the shafts are moved in one direction to swing to a position transverse of a railway track, adjustable bearings for each end of the shafts, the bearings for one end of the shafts provided with means to allow such ends to be vertically moved and each further provided with an inwardly extending lug, protuberances carried by the shafts and adapted to engage the lugs for retaining the gates in an upright position, and means connected with the shafts for moving the protuberances below the lugs and for shifting the shafts in one direction causing thereby the swinging of the gates over the railway track.

4. A cattle guard comprising a pair of shafts, a gate carried by each of the shafts and adapted when the shafts are moved in one direction to swing to a position transverse of a railway track, adjustable bearings for each end of the shafts, the bearings for one end of the shafts provided with means to allow such ends to be vertically moved and each further provided with an inwardly extending lug, protuberances carried by the shafts and adapted to engage the lugs for retaining the gates in an upright position, means connected with the shafts for moving the protuberances below the lugs and for shifting the shafts in one direction causing thereby the swinging of the gates over the railway track, and counterbalance means connected to the shafts for automatically returning the shafts and gates to inoperative position.

5. A cattle guard comprising a pair of shafts, a gate carried by each of the shafts and adapted when the shafts are moved in one direction to swing to a position transverse of a railway track, adjustable bearings for each end of the shafts, the bearings for one end of the shafts provided with means to allow such ends to be vertically moved and each further provided with an inwardly extending lug, protuberances carried by the shafts and adapted to engage the lugs for retaining the gates in an

upright position, means connected with the shafts for moving the protuberances below the lugs and for shifting the shafts in one direction causing thereby the swinging of the gates over the railway track, and means connected to the shafts for automatically returning the shafts and gates to inoperative position.

6. A cattle guard comprising a pair of shafts, a gate carried by each of the shafts and adapted when the shafts are moved in one direction to swing to a position transverse of a railway track, adjustable bearings for each end of the shafts, the bearings for one end of the shafts provided with means to allow such ends to be vertically moved and each further provided with an inwardly extending lug, protuberances carried by the shafts and adapted to engage the lugs for retaining the gates in an upright position, means connected with the shafts for moving the protuberances below the lugs and for shifting the shafts in one direction causing thereby the swinging of the gates over the railway track, counterbalance means connected to the shafts for automatically returning the shafts and gates to inoperative position, and means for limiting the movement of the gates in either direction.

7. A cattle guard comprising a pair of shafts, supporting means therefor, a gate connected to each of the shafts, a plurality of vertically movable slatted frames, crank shafts for suspending said frames adapted to be actuated when pressure is applied to the frames, and connections between the crank shafts and the first mentioned shafts for operating the latter when the crank shafts are actuated by the frames causing thereby the swinging of the gates over a railway track.

8. A cattle guard comprising a pair of shafts, supporting means therefor, a gate connected to each of the shafts, a plurality of vertically movable slatted frames, crank shafts for suspending said frames adapted to be actuated when pressure is applied to the frames, connections between the crank shafts and the first mentioned shafts for operating the latter when the crank shafts are actuated by the frames causing thereby the swinging of the gates over a railway track, counterbalance means connected with the shafts carrying the gates for automatically returning the frames, crank shafts, gate carrying shafts, and gates to normal position, and means for automatically locking the gates in normal position, said means released when the crank shafts are operated.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE W. CLINE.

Witnesses:
JOHN MARSHALL,
HERMAN N. TAYLOR.

W. J. HICKEY.

CATTLE GUARD.

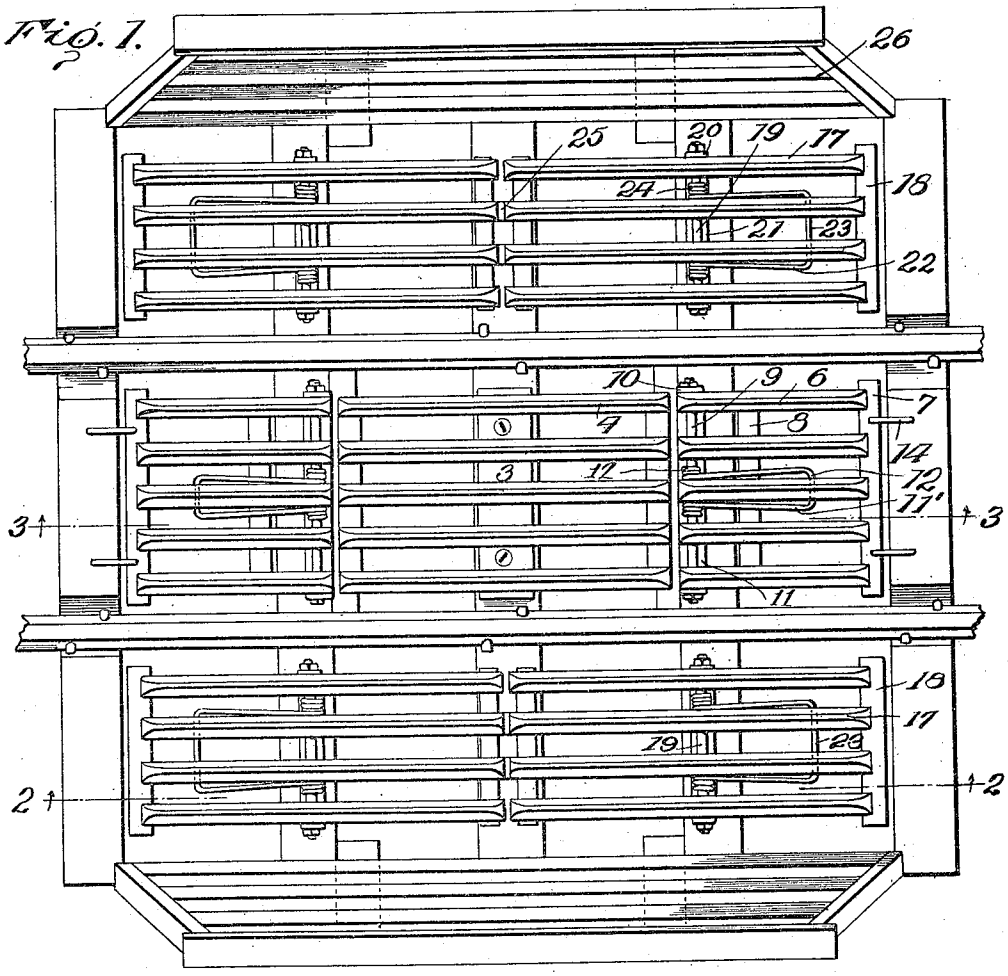
APPLICATION FILED JULY 10, 1913.

1,125,095.

Patented Jan. 19, 1915.

2 SHEETS—SHEET 1.

Fig. 1.



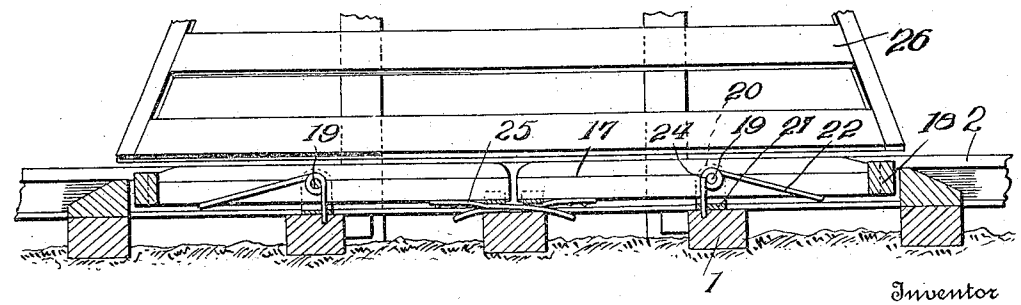


Fig. 2.

Inventor

W. J. Hickey.

Witnesses

Ferdinand Orpey

J. M. Mirie

By

H. A. Stacey, Attorneys.

W. J. HICKEY.

CATTLE GUARD.

APPLICATION FILED JULY 10, 1913.

1,125,095.

Patented Jan. 19, 1915.

2 SHEETS—SHEET 2.

Fig. 3

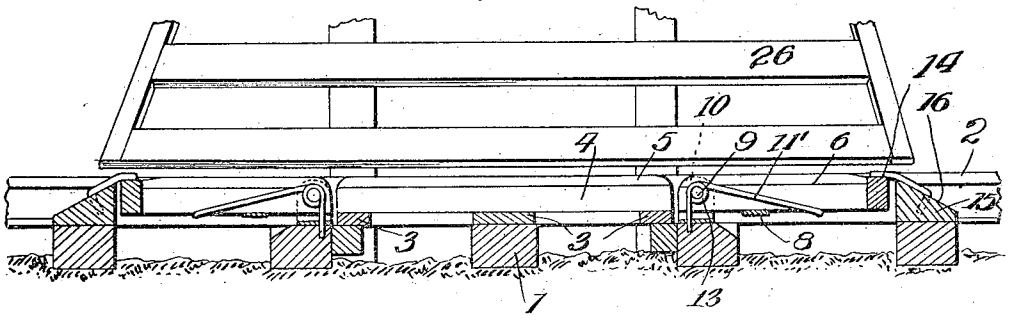


Fig. 4.

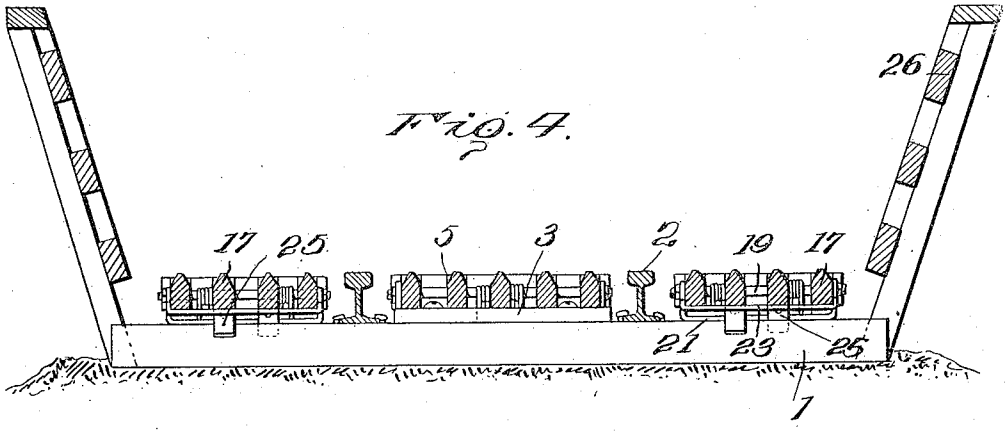
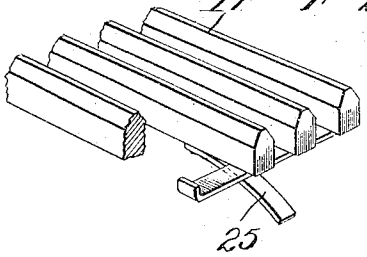


Fig. 5.



Inventor

W. J. Hickey

Witnesses

Bernard Egey

J. M. Murie

By H. A. Toncray, Attorney

UNITED STATES PATENT OFFICE.

WILLIAM J. HICKEY, OF RENO, NEVADA.

CATTLE-GUARD.

1,125,095. Specification of Letters Patent. Patented Jan. 19, 1915.

Application filed July 10, 1913. Serial No. 778,340.

To all whom it may concern:

Be it known that I, WILLIAM J. HICKEY, citizen of the United States, residing at Reno, in the county of Washoe and State of Nevada, have invented certain new and useful Improvements in Cattle-Guards, of which the following is a specification.

This invention relates to cattle guards and aims to provide a guard which may be readily set up and which, while it will afford an unstable footing for an animal treading thereon, will not be liable to get out of order.

Another aim of the invention is to so construct the tread of the guard that it will yield in a downward direction when weight is imposed thereon and will be immediately returned to normal position as soon as relieved of the weight.

The invention also aims to so construct the guard that although its tread will yield in a downward direction when an animal's hoof is placed thereon, there will be no likelihood of the hoof being caught or injured.

In the accompanying drawings: Figure 1 is a plan view of the guard embodying the present invention. Fig. 2 is a vertical sectional view on the line 2—2 of Fig. 1. Fig. 3 is a similar view on the line 3—3 of Fig. 1. Fig. 4 is a vertical transverse sectional view through the guard. Fig. 5 is a perspective view of a portion of one of the tread sections.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

In the drawings, the guard is illustrated as mounted upon a section of track, the ties of which are indicated by the numeral 1 and the rails by the numeral 2.

The guard consists essentially of a middle section and side sections, the middle or intermediate section being supported upon the ties between the rails, and the side sections being supported upon the ties outwardly of the rails. The intermediate tread section of the guard includes a fixed portion and yieldable portions, the fixed portion including attaching plates 3 which are secured upon the ties 1 by means of spikes or the like. Secured upon the attaching plates 3 are a number of tread bars 4 which have their upper edges beveled, as clearly shown in Fig. 4 of the drawings and as indicated at 5. These bars 4 extend in parallel relation with respect to each other and with respect to the rails 2 and they are spaced apart and from the rails preferaby a sufficient distance to prevent an animal gaining foothold thereon, but are not so spaced as to allow the animal's hoof to pass between them or to become wedged. While the bars 4 are here illustrated as of such length as to extend over three of the ties, it will, of course, be understood that they may be made longer or shorter as may be desired. The movable or yieldable portions of the intermediate section are arranged at each end of the fixed portion above described, and each of the movable portions consists of parallel tread bars 6 which extend in parallel relation and in alinement with the bars 4. The bars 6 are of the same cross sectional form as the bars 4 and at their free ends are connected by a cross piece 7. Inwardly of their free ends the bars are connected by a cross bar 8 secured to their under sides and extending transversely of the series of bars. A pivot rod 9 is fitted through the inner ends of the bars 6 in the manner clearly shown in Figs. 1 and 3 of the drawings, and at its ends this rod is mounted in upstanding bracket ears 10 carried by a plate 11 secured upon that one of the ties upon which one of the end ones of the attaching plates 3 of the fixed portion is mounted. In this manner the bars 6 comprising the movable portion of the intermediate section of the guard are mounted for swinging movement, and it will be apparent that when an animal treads upon the bars, the said movable portion as a whole will be swung downwardly, thereby preventing the animal gaining foothold upon the guard. In order that the movable portion may be normally held raised or in the position shown in Fig. 3 of the drawings, a spring is employed in connection with each of the portions and is preferably formed with spaced members 11′ and a connecting portion 12 which extends beneath one of the bars 6, as shown in Fig. 1, the members 11′ being coiled as at 13 about the pivot rod 9 and having their ends secured to the respective bracket plate. In order to limit the upward swinging movement of the movable portions of the intermediate section, stop fingers 14 are secured upon a block 15 mounted upon that one of the ties beside which the cross piece 7 extends. It is preferable that the block 15

be provided with inclined upper faces 16 so as to assist in preventing an animal gaining foothold upon the guard. It will be observed that the movable portions of this section of the guard are arranged one at each end of the fixed portion and that their pivoted ends are located next adjacent the ends of the said fixed portion.

Inasmuch as the side sections of the guard are of counter-part construction a description of one will suffice for both, it being observed that one of these sections is mounted at each side of the intermediate section and upon the projecting ends of the ties. The section consists of two sets of tread bars 17 connected at their ends by cross pieces 18 and it will be observed that the corresponding bars of the two sets extend in alinement, the sets being disposed end to end. A pivot rod 19 is fitted through the bars 17 of each set at a point approximately midway between the ends thereof and transversely of the set, and this rod at its end is mounted in the upstanding ends 20 of a bracket plate 21 secured upon one of the ties 1. A spring having spaced portions 22 and a connecting portion 23 has its said spaced portions coiled about the pivot rod 19 and has its ends beyond the coils secured in the bracket plate 21. The connecting portion 23 of the spring bears against the under sides of a pair of bars, and this spring normally holds the bars comprising each of the members of the section substantially horizontal, it being understood, however, that the end of each member which is located at the end of the guard as a whole may be depressed against the tension of the respective spring. The opposite ends of the members or in other words, their adjacent ends rest upon the upper surface of the tie which is located between the ties upon which the bracket plates 21 are mounted, and this engagement of the adjacent ends of the members of the said tie serves to limit their swinging movement, due to the action of the springs, so that they will normally occupy a substantially horizontal position as stated. At this point it will be apparent that should an animal tread upon any one of the members comprising the side guard sections, that end of the member which is located at the end of the guard as a whole will be depressed and the opposite end will be elevated so that not only will the yielding of the member prevent the animal gaining a foothold on the guard but the elevation of the last mentioned end of the member will appear to the animal as a barrier and will in this way tend to discourage further effort on the part of the animal to cross the guard. In order that the rocking of either member of either of the side sections will cause a corresponding movement of the other end thereof an arm 25 is secured to the under side of one of the bars of each member at the adjacent ends of the members and projects beneath the end of the corresponding bar of the other member as clearly shown in Figs. 1 and 2 of the drawings. It will be understood, of course, that as either member is rocked, the arm carried thereby will ride beneath the bar of the other member and elevate the adjacent end thereof.

It is preferable that the guard be mounted between two winged fences 26 such as are usually employed in connection with cattle guards these fences serving as usual to insure of the animal stepping upon the operative portion of the guard.

Having thus described the invention what is claimed as new is:

1. In a cattle guard, a relatively fixed guard member and a depressible guard member arranged at each end of the fixed member, means yieldably supporting the depressible guard members, a block located adjacent each of the depressible guard members and having an inclined face, and means carried by each block and arranged to limit the upward movement of the respective guard member.

2. In a cattle guard, a supporting bracket comprising a base plate and upstanding ends, a rod mounted in the said upstanding ends of the bracket, a guard section including bars mounted for rocking movement upon the said rod, means connecting the bars, and a spring coiled about the rod and having a portion bearing beneath one of the bars at one side of the said rod.

3. In a cattle guard, guard members mounted for rocking movement and disposed end to end, and a resilient arm projecting from the adjacent end of each member beneath the said end of the other member, whereby depression of the remote ends of either member will result in simultaneous upward swinging movement of the adjacent ends of both members.

4. In a cattle guard, guard members mounted for rocking movement and disposed end to end, and resilient yieldable connection between the adjacent ends of the members, whereby depression of the remote end of either member will result in simultaneous upward swinging movement of the adjacent ends of both members.

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

WILLIAM J. HICKEY. [L. S.]

Witnesses:
OSCAR J. SMITH,
LAURENCE C. BERINGER.

No. 895,548. PATENTED AUG. 11, 1908.

W. L. FLEWELLIN & R. W. PITTS.

CATTLE GUARD.

APPLICATION FILED OCT. 10, 1907.

2 SHEETS—SHEET 1.

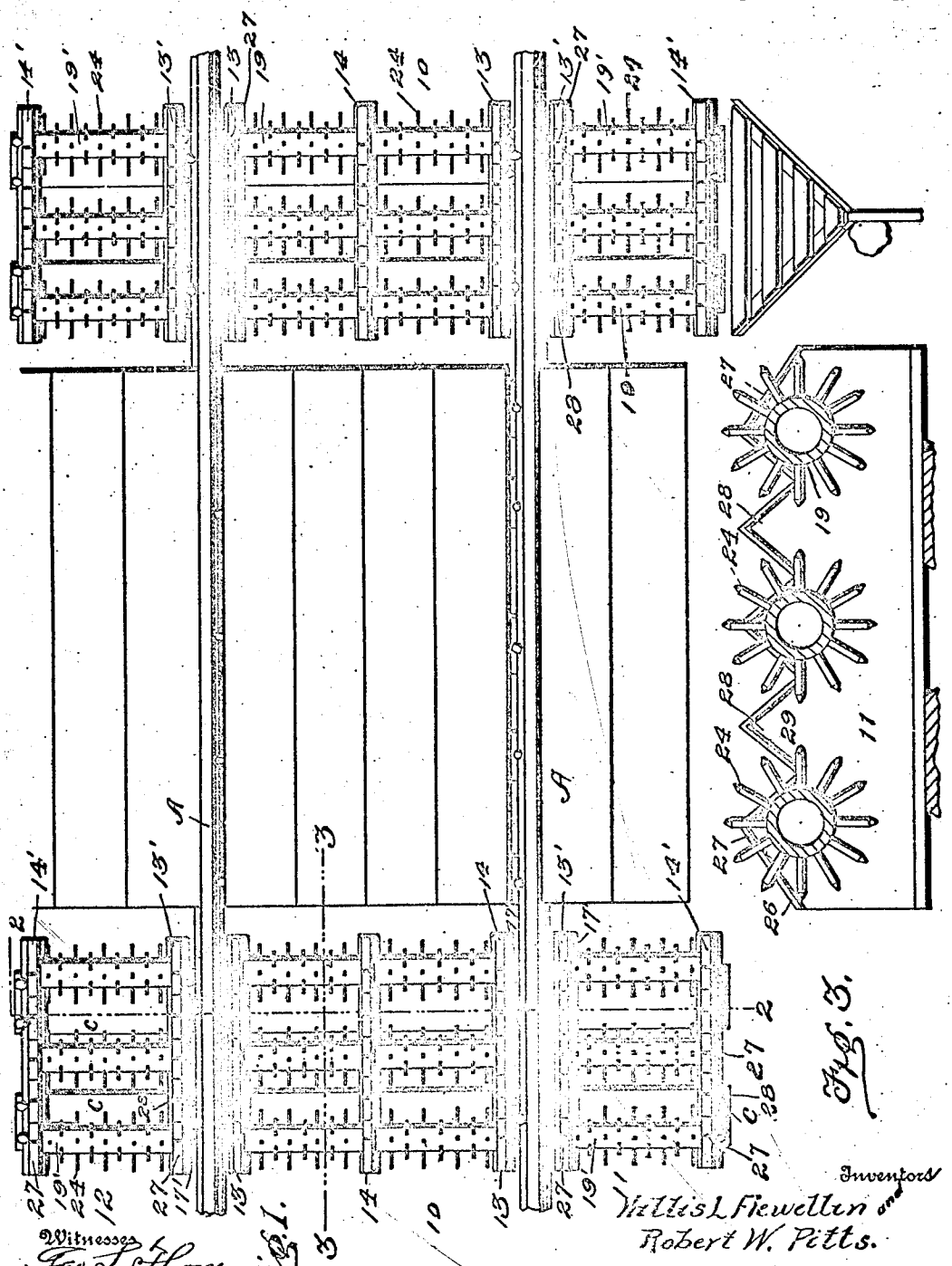


Fig. 1.

Fig. 3.

Witnesses
Geo. L. Shoos
E. L. Chandler

Inventors
Willis L. Flewellin and
Robert W. Pitts.
By Woodward & Chandler
Attorneys

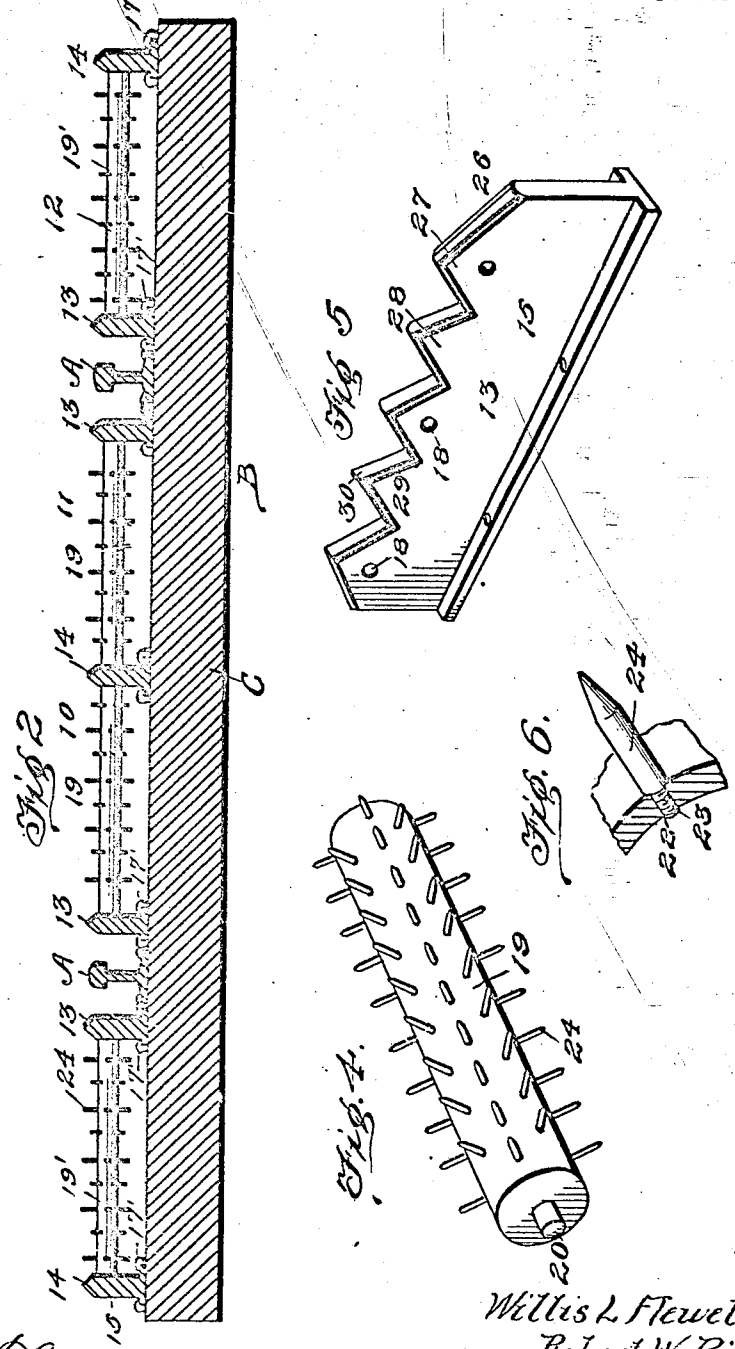
No. 895,548. PATENTED AUG. 11, 1908.

W. L. FLEWELLIN & R. W. PITTS.

CATTLE GUARD.

APPLICATION FILED OCT. 10, 1907.

2 SHEETS—SHEET 2.



Witnesses
Fes L Thom
E. L. Chandlee

Inventors
Willis L. Flewellin and
Robert W. Pitts
By Woodward & Chandlee
Attorneys

UNITED STATES PATENT OFFICE.

WILLIS L. FLEWELLIN AND ROBERT W. PITTS, OF BUFFALO GAP, SOUTH DAKOTA.

CATTLE-GUARD.

No. 895,548. Specification of Letters Patent. Patented Aug. 11, 1908.

Application filed October 10, 1907. Serial No. 396,835.

To all whom it may concern:

Be it known that we, WILLIS L. FLEWELLIN and ROBERT W. PITTS, citizens of the United States, residing at Buffalo Gap, in the county of Custer and State of South Dakota, have invented certain new and useful Improvements in Cattle-Guards, of which the following is a specification.

This invention relates to cattle guards, and has for its object to provide an improved structure of such guard for railways, and to provide an exceedingly simple and inexpensive guard capable of effectively preventing cattle and other animals passing over it.

In the drawings forming a portion of this specification, and in which like umeralsof reference indicate similar parts in the several views, Figure 1 is a top plan view of a railway track showing the arrangement of our cattle guard at both sides of a crossing, Fig. 2 is a section on the line 2—2 of Fig. 1, Fig. 3 is a sectional view on the line 3—3 of Fig. 1, Fig. 4 is a perspective view of one of the rollers, Fig. 5 is a perspective view of one of the bars composing the frame, Fig. 6 is a detail perspective view of one of the pins for the rollers.

Referring now to the drawings, there is shown a cattle guard which consists of a frame 10 which is arranged between the tracks A, of a railway B, and this guard further consists of the frames 11 and 12 respectively, which are arranged at the outer sides of the tracks A. The frames 10 comprise a plurality of vertically extending bars 13 and 14 which are arranged longitudinally of the tracks A. The bars 13 are arranged adjacent the inner sides of the tracks A and the bars 14 are arranged between the bars 13 and at the center of the railway ties C, as shown, and at the outer ends of frames 11, and 12. Each of the bars 13 and 14 is provided with a vertically extending web portion 15, and at the lower ends, these bars are provided with laterally extending flanges 16. Vertically extending passages 17 are formed in the flanges 16 for the reception of fastening devices 17′, and by means of these fastening devices, it will be seen that the guard may be securely held to the ties C.

In the web portions 15 of each of the bars 13 and 14, there are shown horizontally extending passages 18, and arranged between the bars 13 and 14, there are shown a series of parallel spaced rollers 19 which extend crosswise of the tracks A, and these rollers are provided with trunnions 20 which are arranged in horizontally extending passages 21 which are formed in the bars 13 and 14. It will thus be seen that the rollers are free to revolve between the bars 13 and 14. Threaded passages 22 are formed in the rollers 19, and arranged in these passages there are shown the threaded ends 23 of pins 24, and these pins have their outer ends pointed as shown at 25.

The longitudinally extending bars 13 and 14 have their upper edges serrated as shown at 26, and these serrated edges thus provide upwardly extending spurs 27 which are arranged adjacent the ends of the rollers 19 and in line therewith, and the spurs 28 which lie between the spaced rollers. The upper edges of the spurs are beveled as shown at 29 to form a knife edge 30.

The frames 11 and 12 are similar to the frame 10, but consist of but two longitudinally extending bars 13′ and 14′ respectively, and these bars are identical with the bars 13 and 14, and it is thought that a description thereof is unnecessary. Rollers 19′ are journaled between these bars in a manner similar to that shown in the frame 10.

From the construction described, it will be seen that the rollers 19 and 19′ are both of equal length, and the bars which are used in the construction of the frame 10 being identical with those shown in the frames 11 and 12, it will be seen that the frames 10, 11 and 12 may be formed of the same material. It will further be seen, that the construction shown provides a strong and durable cattle guard which may be shipped with its parts in sections, and which may be easily and quickly set up at its place of use.

In use, it will be seen that if an attempt should be made by cattle or other animals to travel from the crossing to a point longitudinally of the tracks A, they would come in contact with the guards at either side of the crossing, and in the movement of the cattle or animals it will be seen that the rollers will revolve, and the pins which are carried thereby will inflict sufficient pain and prevent further travel of the animals.

What is claimed is:

1. In a cattle guard the combination with longitudinally disposed parallel bars having base flanges and a plurality of vertically disposed spurs at their upper edges, said bars

having alining passages, of rollers disposed between said bars, trunnions carried by said rollers and disposed in said passages, and removable pins carried by said rollers.

2. The combination with revoluble spaced rollers having removable pins, and trunnions carried at the ends of said rollers, of a frame comprising longitudinally disposed parallel bars having base flanges, said bars having alining passages in which said trunnions are disposed, sharpened spurs carried by said bars at their upper edges and located between the roliers at their ends.

In testimony whereof we affix our signatures, in presence of two witnesses.

WILLIS L. FLEWELLIN.
ROBERT W. PITTS.

Witnesses as to the signature of Willis L. Flewellin:

H. E. CHANDLEE,
LILLIAN M. CURRY.

Witnesses as to the signature of Robert W. Pitts:

JOS. MARTY,
CHAS. H. BUSTEED.

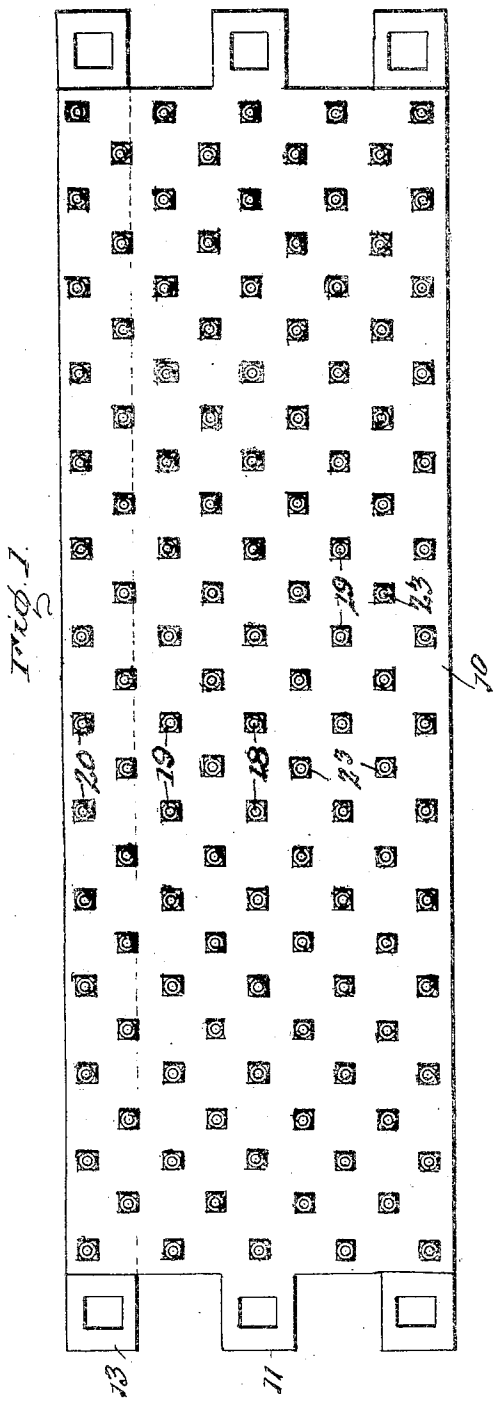
W. O. FINK.

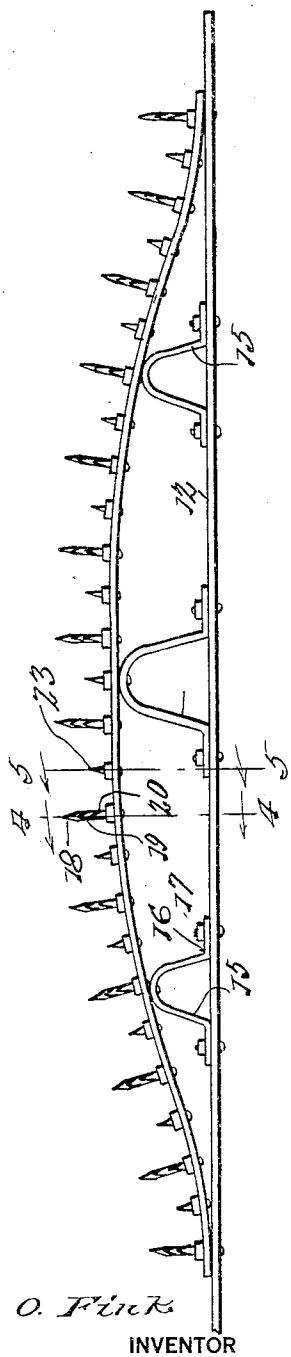
CATTLE GUARD.

APPLICATION FILED OCT. 7, 1919.

1,338,006. Patented Apr. 27, 1920.

2 SHEETS—SHEET 1.





William O. Fink

INVENTOR

BY Richard R. Ware

ATTORNEY

W. O. FINK.

CATTLE GUARD.

APPLICATION FILED OCT. 7, 1919.

1,338,006. **Patented Apr. 27, 1920.**

2 SHEETS—SHEET 2.

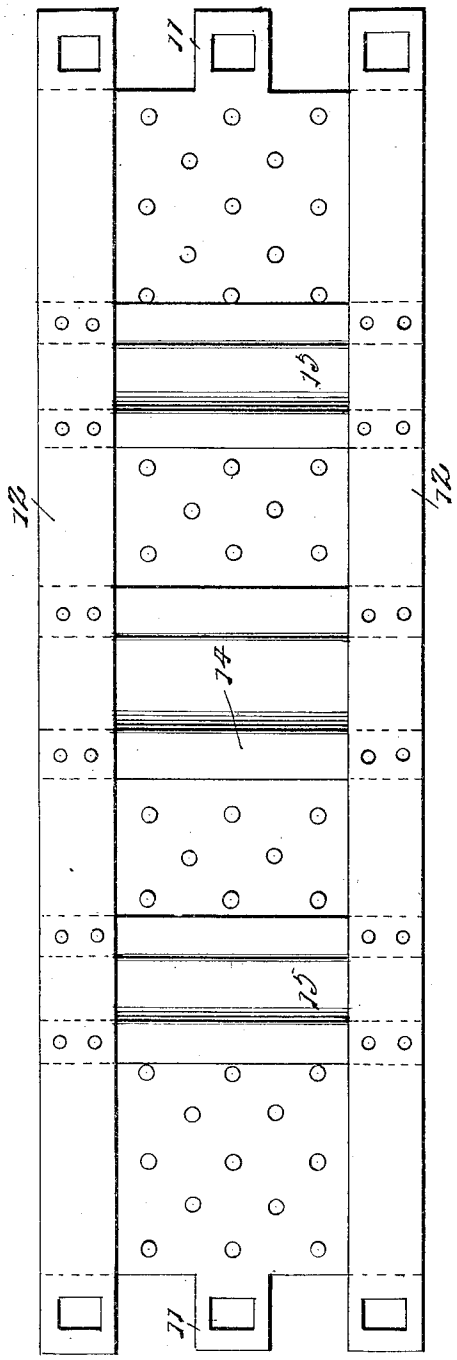


Fig. 3.

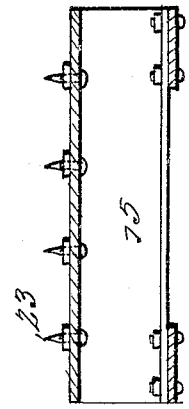


Fig. 5.

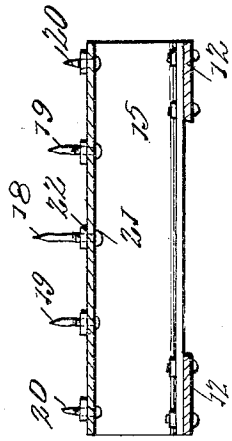


Fig. 4.

William O. Fink

INVENTOR

BY Richard B. Owen,

ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM O. FINK, OF SOUTH RANGE, WISCONSIN.

CATTLE-GUARD.

1,338,006. Specification of Letters Patent. Patented Apr. 27, 1920.

Application filed October 7, 1919. Serial No. 329,071.

To all whom it may concern:

Be it known that I, WILLIAM O. FINK, a citizen of the United States, residing at South Range, in the county of Douglas and State of Wisconsin, have invented certain new and useful Improvements in Cattle-Guards, of which the following is a specification.

This invention has relation to cattle guards and has for an object to provide a device of this kind adapted to be placed between the rails of a railroad track to prevent cattle from traversing the track to gain access from one field to the other.

Another object of the invention is to provide a cattle guard for the purpose above set forth including a plurality of spikes of different height, arranged in a specific manner and eminently adapted for the purpose desired.

In addition to the foregoing, this invention comprehends improvements in the details of construction and arrangement of parts, to be hereinafter described and particularly set forth in the appended claims.

In the accompanying drawings in which similar and corresponding parts are designated by the same characters of reference throughout the several views in which they appear,

Figure 1 is a view in top plan of my improved cattle guard.

Fig. 2 is a view thereof in side elevation.

Fig. 3 is a view of a cattle guard in bottom plan.

Figs. 4 and 5 are transverse sections taken on the line 4—4, and 5—5 of Fig. 2.

With reference to the drawings, 10 indicates the top plate which is curved and is provided at each end with integral end extensions 11, slotted to receive spikes whereby the guard may be attached to the tie or any other convenient support. Extending beneath the plate 10 longitudinal thereof are a pair of strips 12 which extend beyond the ends of the plate as at 13 and are slotted to likewise receive spikes to form an additional means of securing the cattle guard in place. The plate 10 is held in an elevated position relatively to the strip 10 by means of braces or supports which includes a transverse central brace 14, and end braces 15, the latter being shorter than the middle brace. Each brace is U-shaped in cross section provided with oppositely extending flanges 16 whereby bolts 17 may be passed therethrough and into the strips 12 to secure the braces in place. The upper portion of the braces may also be secured to the plate 10 if desired.

Mounted upon the plate 10 are a plurality of spikes which are arranged in longitudinal rows and transverse rows in a uniform manner as shown in Fig. 1. The transverse rows are of different characters and will be noted from the section taken on line 4—4 that the spikes adjacent the center of the device as indicated at 18 are longer than those adjacent the edges of the place as indicated at 19 and 20, the spikes 20 being the shortest and 19 of intermediate height. Each spike is formed with a head 21 and is inserted through an opening in the plate, a nut 22 being subsequently applied to the threaded portion of the spikes to secure the same in place. It will be noted by reference to Fig. 5 that at the point where the first section is taken the spikes indicated at 23 are all short and of the same length. These spikes are held in a similar manner to the spikes 18. The two series of short and long spikes are arranged alternately along the plate 10 in transversely extending rows. In this manner, it would be impossible for an animal to obtain a secure foot hold and hence the animal would be deterred in venturing across the plate 10.

While I have illustrated and described my invention with some degree of particularity, I realize that in practice various alterations therein may be made. I therefore reserve the right and privilege of changing the form of the details of construction or otherwise altering the arrangement of the correlated parts without departing from the spirit of the invention or the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent is:

1. A cattle guard including a pair of spaced tie spanning strips having spike holes at their respective extremities, a spike-bearing plate disposed upon said strip between the spike holes thereof and braces supported transversely of said strip and beneath said plate, said braces varying in height so as to cause said spiked plate to be curved in an arc between the spike holed end of said strip.

2. A cattle guard including a pair of spaced, tie spanning strips having spike

holes at their respective extremities, a spike-bearing plate disposed upon said strip between the spike holes thereof, an extension carried by said plate at its opposite end, each of said extensions having a spike hole therein and being adapted to project forwardly between the strips in alinement with the spike holed ends thereof, and braces supported transversely of said strip in relative spaced relation beneath said plate whereby the latter may be elevated intermediate its ends above said strip to provide a sloping spiked surface for said cattle guard.

3. A cattle guard including a curve plate, strips extending longitudinally thereof, braces interposed between the strip and plate to support the latter in a curved position, and spikes of various length extending from the plate.

4. A cattle guard including a curve plate, means for supporting the same, and a plurality of transversely extending rows of spikes mounted on said plate, one row consisting of short spikes of the same length, and another row of spikes of different length, the longest spike in said series being at the center of the plate and the other spike extending toward the margins thereof in uniform decreasing length.

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

WILLIAM O. FINK. [L. S.]

Witnesses:

JAMES R. HILE,

C. P. FINK.

C. M. GREEN.

CATTLE GUARD.

APPLICATION FILED NOV. 23, 1920.

1,409,167. Patented Mar. 14, 1922.

Fig. 1.

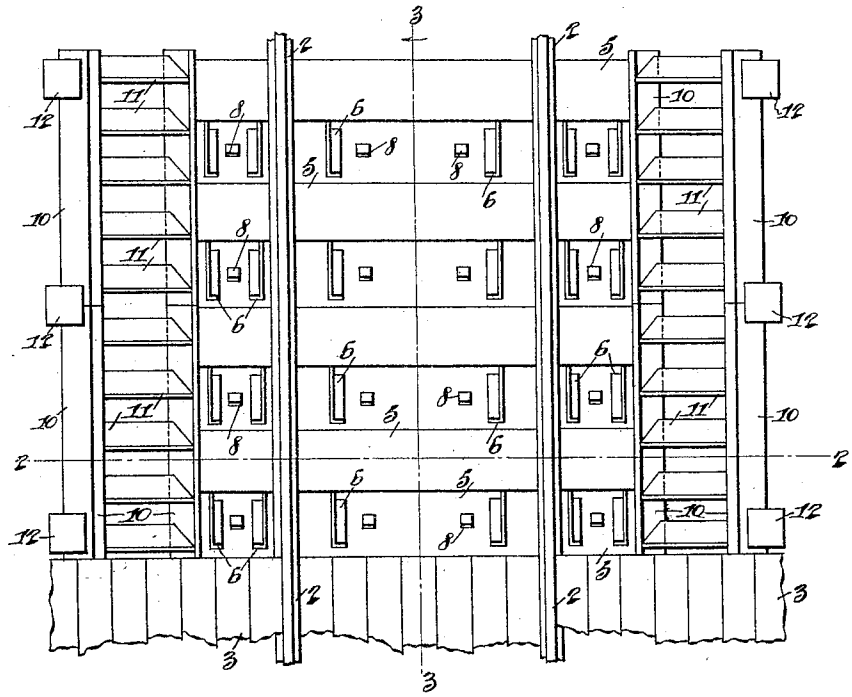


Fig. 2.

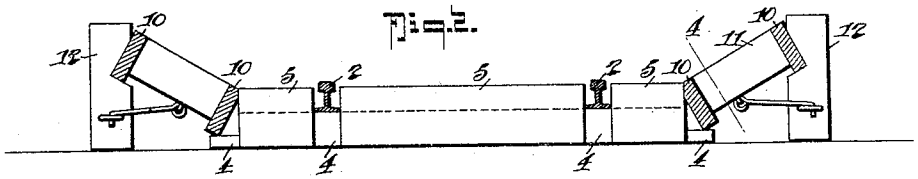


Fig. 3.

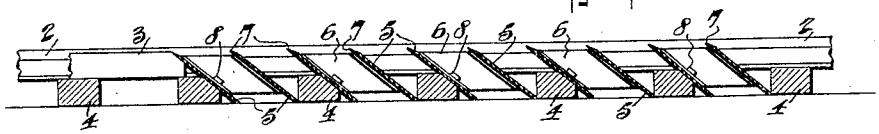


Fig. 4.

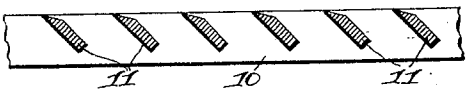
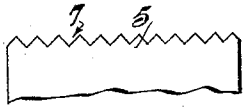


Fig. 5.



Inventor

Carl M. Green.

By Fred G. Dreinch

Attorneys

UNITED STATES PATENT OFFICE.

CARL M. GREEN, OF VANCOUVER, BRITISH COLUMBIA, CANADA.

CATTLE GUARD.

1,409,167. Specification of Letters Patent. Patented Mar. 14, 1922.

Application filed November 23, 1920. Serial No. 426,017.

To all whom it may concern:

Be it known that I, CARL M. GREEN, citizen of the Dominion of Canada, residing at Vancouver, in the Province of British Columbia, Canada, have invented certain new and useful Improvements in Cattle Guards, of which the following is a specification.

This invention relates to a cattle guard to prevent cattle straying along a railway right-of-way from the level crossing of a road, and is designed to be applicable to the permanent way of the railway without material alteration or change from the ordinary construction of the rails laid on cross ties on the ballast or road bed.

It is also designed to be simple and cheap in construction, readily applied and as easily removed during winter or during repair of the road bed. It is free from movable parts that are liable to derangement.

The invention is particularly described in the following specification, reference being made to the drawings by which it is accompanied, in which:

Fig. 1 is a plan of the cattle guard as applied to the railway track on one side of a level crossing.

Fig. 2 is a cross section of the same on the line 2—2 in Fig. 1.

Fig. 3 is a longitudinal section on the line 3—3 in Fig. 1.

Fig. 4 is an enlarged section of the side frames at 4.

Fig. 5 shows an alternative edge of the inclined members.

In these drawings 2 represents the rails of the track secured to the cross ties 4, and 3 the level crossing which it is desired to protect.

Between each pair of cross ties 4 a frame is secured composed of two transverse members 5, preferably of thin sheet metal, secured together by distance members 6 to form an acute angle from the level of the road bed toward the level crossing 3. They extend from the level of the road bed to a short distance below that of the upper sides of the rail 2 and are spiked or otherwise secured to the tie 4, on one of which they rest with the upper edge directed toward the level crossing. They may be secured to the cross tie 4 on which they rest by spikes, or preferably lag screws 8, so as to be removable, when desired.

In length they extend between the flanges of the track rails and from the outer edges of each rail flange to approximately the outer end of the cross tie. The upper edges of these inclined members 5 have sharpened or saw tooth edges, as at 7.

The angle at which the members 5 are set, approximately thirty-five (35°) degrees, is such as will offer an insecure footing for any animal, and the depth and distance apart are such that before an animal can slide to a secure footing on the inclined plates, the sharp upper edge of the plate in advance will engage the shin of the animal and not only prevent a further step being taken, but from the pain will induce the animal to draw back.

This constitutes the guard within the length of the cross ties.

Beyond the cross ties light ladder frames, composed of longitudinals 10 with inclined cross members 11 secured between them, are secured to extend the guard protection to the width of clearance within which the fences may not project. The inner sides of these ladder frames 10—11 rest on the ends of the cross ties and the outer sides are supported on posts 12 secured in the ground to support the frames at an angle of approximately thirty (30°) degrees from the horizontal.

These frames 10—11 may be made in such lengths that two of them will extend the length of the guard on each side. They naturally rest in a stable condition between the cross ties 4 and the supports 12 provided, but may be held down thereto by hooks and staples, as shown in Fig. 2.

With this guard the animal is prevented obtaining a footing on the cross ties, as the upper edges of the plates 5 project angularly over the upper side of the tie, and by fitting the frames 5—6 between the cross ties 4, I am enabled to support them thereon without any extra requirement of bevelled supporting blocks.

Although the cross members 11 of the side frames are here shown of wood, they may be made of sheet metal in the same manner as the members 5 of the track. Similarly, the transverse members 5 of the track may be made of wood, in which case they will require to have their upper edges reduced in thickness, as shown in Fig. 4.

Having now particularly described my invention, I hereby declare that what I

claim as new and desire to be protected by Letters Patent, is:

A railway crossing cattle guard comprising the combination with the cross ties of a railway track, of cattle guard members located between and at the sides of the rails transversely of the same, in combination with side guards composed of longitudinals with inclined cross rails between them, one of said longitudinals resting on the ends of the cross tie on each side of the track and the other longitudinal removably connected to posts to support the cross rails at an angle of approximately thirty degrees from the horizontal.

In testimony whereof I affix my signature.

CARL M. GREEN.