

No. 765,704.

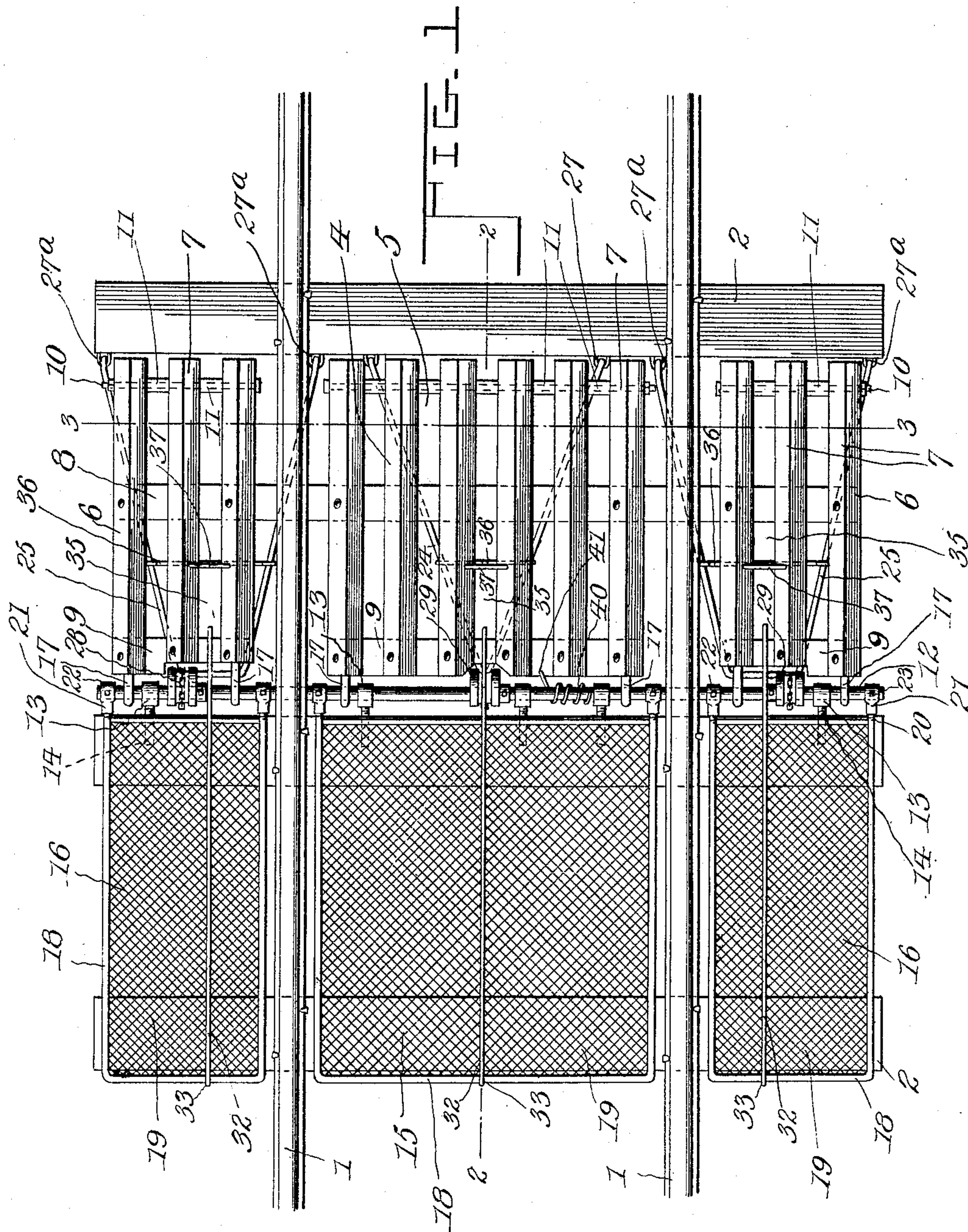
PATENTED JULY 26, 1904.

H. HAMEL.  
CATTLE GUARD.

APPLICATION FILED NOV. 9, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:

*J. Ed. Page*  
*J. D. Cramer*

*Hormidas Hamel*, Inventor

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*Marion Marion*

Attorneys



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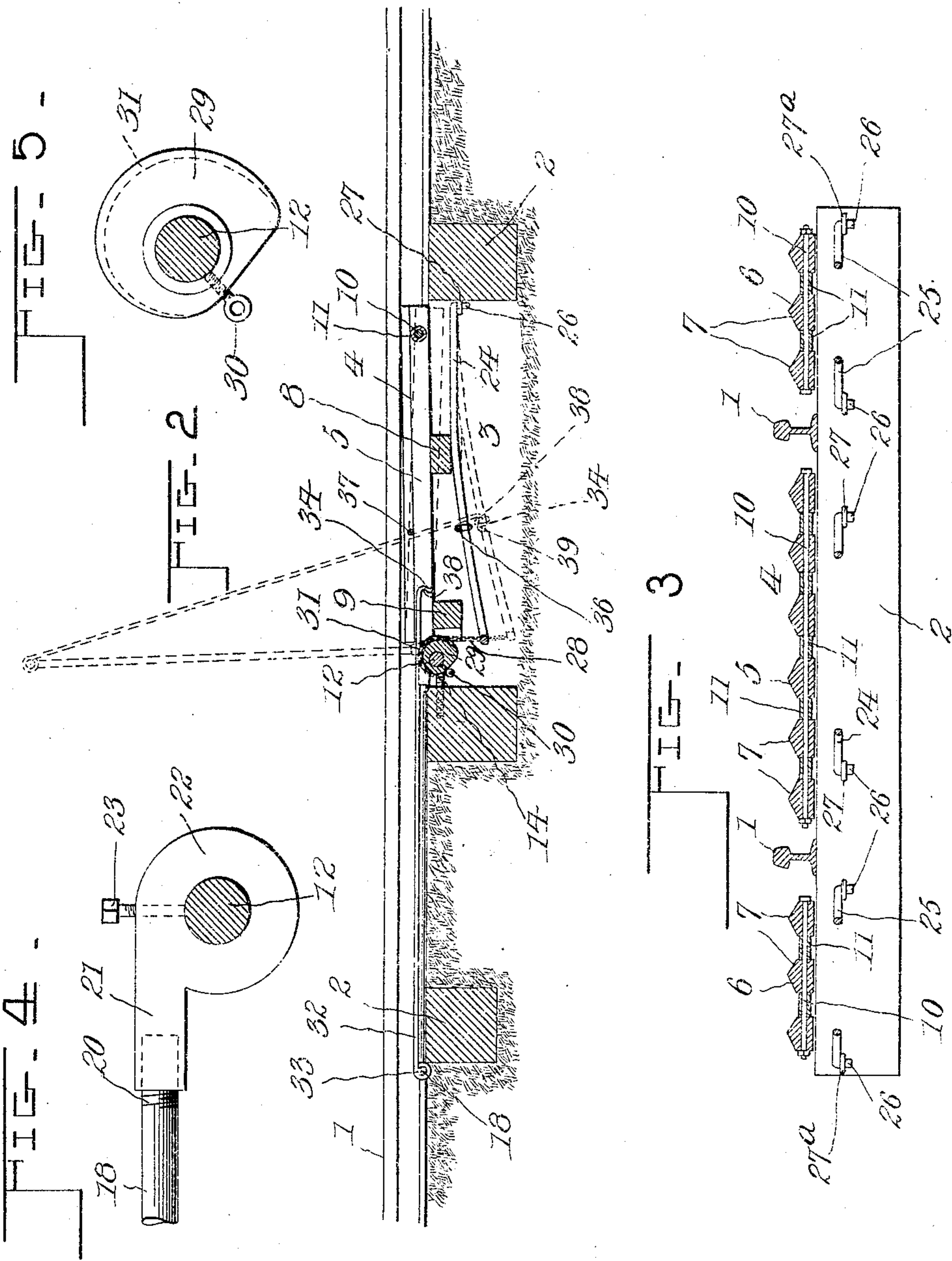
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# UNITED STATES PATENT OFFICE.

HORMIDAS HAMEL, OF GRANBY, CANADA.

## CATTLE-GUARD.

SPECIFICATION forming part of Letters Patent No. 765,704, dated July 26, 1904.

Application filed November 9, 1903. Serial No. 180,288. (No model.)

*To all whom it may concern:*

Be it known that I, HORMIDAS HAMEL, a subject of the King of Great Britain, residing at Granby, county of Shefford, Province of Quebec, Canada, have invented certain new and useful Improvements in Cattle-Guards; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to cattle-guards; and its object is to provide a device of this kind which is simple in construction, but at the same time effective in operation.

The principal object has been to provide a guard which will normally lie in repose in the bed of the track, but which will be automatically elevated in order to prevent the passing of cattle along the roadway.

In its general construction the invention contemplates the use of certain gates or frames attached to a rock-shaft, and these frames normally lie in a horizontal position in the track-bed. A depressible platform, which is arranged in conjunction with the rock-shaft referred to, operates automatically by the weight of cattle standing upon the same to rotate the rock-shaft, and this effects a vertical movement of the frames, which then assume a substantially erect position.

The invention consists in the construction and combination of parts, to be more fully described hereinafter and definitely set forth in the claims.

In the drawings, which fully illustrate my invention, Figure 1 is a plan of the cattle-guard, showing a portion of a railway-track to which the same has been applied. Fig. 2 is a longitudinal section taken substantially on the line 2 2 of Fig. 1. Fig. 3 is a cross-section taken substantially on the line 3 3 of Fig. 1. Fig. 4 is a detail view representing in side elevation a head which is used in attaching the gates to the rock-shaft referred to above. The rock-shaft is shown in section. Fig. 5 is also a detail view representing in side elevation a hub used in connection with the platform construction.

Throughout the drawings and specification

the same numerals of reference denote like parts.

Referring more particularly to the parts, 1 represents the rails of a track laid upon suitable sleepers or cross-ties 2, as shown. At the point where the cattle-guard is to be applied the track-bed is cleared away to form an open space 3 between the ties, as shown, and in this space a depressible platform 4 is arranged. This platform 4 consists of a main section 5 and side sections 6, the said main section being disposed between the rails, as shown, and the side sections beyond the rails. These sections consist of a plurality of bars 7, which are preferably of the usual triangular form and disposed longitudinally with respect to the rails, and, as shown, these sections are constructed upon a main beam or stringer 8, which passes transversely of the track beneath the rails. In conjunction with each section, in addition to the main stringer 8, there are end stringers 9, to which the bars attach at their inner extremity remote from the cross-ing. At their opposite extremities the bars 7 are connected by transverse bolts 10, which pass through thimbles or distance-pieces 11, disposed between the adjacent bars, as shown.

Transversely in the bed of the track beneath the rails 1 there is disposed a rock-shaft 12, the same being rotatably mounted in eyes 13, which have threaded shanks 14, which screw into the adjacent vertical face of one of the ties 3, as shown, and this rock-shaft constitutes an axis of rotation for gates 15 and 16 and also constitutes an axis of rotation for the platform 4. In order to attach the platform 4 to the rock-shaft eye-bolts 17 are employed, there being preferably two of these in connection with each of the sections of the platform, as indicated.

The gates 15 and 16 are disposed in a manner corresponding with the sections of the platform. Each gate consists of a frame 18 of rectangular or square form, and these frames support wire mesh 19 or similar material. These frames have threaded extensions 20, which attach in sockets 21, projecting laterally from heads 22, which heads are rigidly attached to the rock-shaft 12 by means of set-



screws 23, as shown. As the rock-shaft 12 is depressed somewhat below the upper face of the ties, the sockets 21 are preferably offset upwardly, as shown.

5 The platform 4 is supported upon frames 24 and 25, which are disposed in the space 3 beneath the platform, as shown. The frame 24 is disposed beneath the main section 5 of the platform, and the frames 25 are disposed  
10 beneath the side sections 6. The frame 24 is substantially V-shaped in plan, the extremities of the legs of the frame being provided with lateral extensions 26, which are received by eyebolts 27, which eyebolts are attached  
15 in the face of one of the ties 3 in such a manner as to enable the inner extremity which lies adjacent to the rock-shaft 12 to swing downwardly, as will be readily understood. The frames 25 are preferably of the form  
20 shown, their extremities being mounted in eyebolts 27<sup>a</sup>, similar to the eyebolts 27, already described. These frames 24 and 25 are preferably bowed in form, as shown, and are located in such a manner that the beam 8 afore-  
25 said rests upon them, as shown, supporting the entire platform 4 in a substantially horizontal position. The frames 25, like the frame 24, are adapted to swing downwardly at their inner extremities.

30 To the inner extremities of the frames chains 28 are attached, which chains pass upwardly and over the peripheries of the hubs 29, which hubs are of preferably the form shown and attached rigidly to the rock-shaft 12 by means  
35 of eyebolts 30, which constitute set-screws for this purpose, and also afford means for attaching the extremities of the chains 28 thereto, as illustrated. The peripheries of these hubs are eccentric with respect to the axis of the  
40 shaft 12, so that they present somewhat the same appearance as a cam, and their peripheral faces are provided with grooves 31 to receive the chains. It should be understood that the chains 28 are for the purpose of enabling the  
45 rock-shaft 12 to be rotated by the depression of the frames 24 and 25, produced by depressing the platform 4, and it should be stated that the hubs are attached to the shaft 12, so that normally their centers would be disposed  
50 toward the frames with which they connect, from which arrangement it follows that the radius to the point of application of the force of the chains is large. It should be understood from this arrangement also that as the  
55 frames are depressed they at first exert a greater rotative force upon the shaft 12 than they do at a later period. As the shaft rotates of course the gates 15 and 16 swing upwardly toward a substantially erect posi-  
60 tion from their normally horizontal position in the bed of the track. The advantage of the arrangement described in connection with the hubs 29 should now appear, as it should be readily understood that it would require a

greater force to initiate an upward movement 65 of the gates than to continue this movement after the gates had moved considerably toward their erect position.

It being understood that when an animal stands upon the platform 4 the gates 15 and 70 16 will fly up into a substantially vertical position, it should now be stated that arrangement is made for locking the gates against return as long as the animal remains upon the platform. For this purpose in connec- 75 tion with each of the gates there is a locking-rod or hook-rod 32, the same being rotatably attached at 33 to the outer or upper members of the frames 18 of the gates, as shown. These rods 32 normally lie horizontally upon 80 the upper sides of the gates, and their extremities project beyond the position of the rock-shaft 12 and overhang the adjacent edge of the platform 4. At these extremities hooks 34 are provided, the same being preferably of 85 the form shown, which will be described more fully hereinafter. These hooks are disposed just above spaces 35, lying between adjacent individuals of the bars 7, and it should be un- 90 derstood that as the gates move toward an erect position the hooks 34 pass downwardly into the space beneath the platform. It should also appear that they are located so that they pass, respectively, between the legs of the frames 24 and 25, disposed beneath the 95 platform. The legs of the frames 24 and 25 are connected by catch-bars 36, which are disposed transversely with respect to the rails, and as the hooks 34 pass downwardly they pass over and beyond these catch-bars 36, as 100 will be readily understood, and in the spaces 35 there are provided transverse guide-bars 37, which as the movement of the rods progresses deflect the same downwardly and in- 105 wardly in such a manner as to bring the hooks 34 beneath the catch-bars 36, as indicated in the dotted lines in Fig. 2.

As indicated most clearly in the dotted lines in Fig. 2, each hook comprises a bight 38, adapted to receive its corresponding catch- 110 bar 36, this portion of the hook being formed by bending the extremity thereof toward the catch-bar, as will appear. Beyond this bight the extremity of the hook is turned to form a lip or tail 39. The hooks 34 are intended 115 to prevent the gates from being returned by lateral pressure upon them, and hence it would be impossible for an animal to depress the gates, or one of them, by leaning upon the same. However, if the platform should be- 120 come elevated, the consequent vertical movement of the catch-bars would operate to release the hooks and allow the gates to return.

In order to return the gates and to normally maintain them in a depressed relation, a heli- 125 cal spring 40 is employed, the same being disposed about the rock-shaft 12, near the middle portion thereof. An extremity 41 of this



spring rests upon the upper side of the platform 4, and the other extremity is rigidly attached to the shaft.

It should be observed again in connection with the hooks 34 that the lips 39 are no more abrupt than necessary, from which arrangement it follows that a slight vertical movement of the catch-bars is sufficient to release the hooks.

In the operation of the cattle-guard described above it should be stated that the cattle in order to pass along the track will have to pass upon the platform 4. The weight of an animal upon the platform would depress it, rotating the same about the axis of the rock-shaft 12. The rotation of the platform would in turn depress the frames 24 and 25, disposed therebeneath, and these frames, through the medium of the chains 28, would rotate the hubs 29 and bring about a rotation of the rock-shaft 12 in such a direction as would operate to move the gates 15 and 16 toward an erect position. As the gates move toward their erect position the hooked extremities of the hook-bars would pass downwardly beneath the platform and be guided automatically so as to engage with the catch-bars on the frames 24 and 25, in this way locking the gates against movement as long as the platform remains depressed. Upon the removal of the weight of the animal from the platform the same would immediately rise and allow the hook-rods 32 to be released, whereupon the gates would return automatically to their normally depressed position by reason of the spring 40 and their weight. It should be understood that after the return movement of the gates has been initiated their weight would operate to assist their return.

It should be understood that in the winter season the cattle-guard will be removed. This may be effected in a simple manner by drawing the rock-shaft 12 longitudinally out of its bearings after having first disengaged the gate-sections therefrom. After the rock-shaft has been withdrawn the gate-sections can be removed, as well as the platform, and after the platform has been removed the frames 24 and 25, beneath the platform, can also be removed.

While I have shown in the accompanying drawings the preferred form of my invention, it will be understood that I do not limit myself to the precise form shown, for many of the details may be changed in form or position without affecting the operativeness or utility of my invention, and I therefore reserve the right to make all such modifications as are included within the scope of the following claims or of mechanical equivalents to the structures set forth.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a cattle-guard, in combination, a rock-shaft, gates carried thereby and normally dis-

posed in the bed of the track, a depressible platform, mechanism connecting said platform with said rock-shaft adapted to swing said gates to a substantially erect position, hook-rods carried by said gates, means for engaging the same so as to lock said gates in a substantially erect position, and means for controlling said last means by said platform.

2. In a cattle-guard, in combination, a rock-shaft, a swinging gate rigid therewith and normally disposed in the track-bed, a depressible platform pivotally mounted in the track-bed, a frame supported at a point remote from said rock-shaft and having a depressed extremity adjacent to said rock-shaft, means whereby the depression of said frame may rotate said rock-shaft to elevate said gate, a hook-rod carried by said gate, and a member carried by said frame adapted to engage said hook-rod.

3. In a cattle-guard, in combination, a rock-shaft disposed transversely in the track-bed, a gate composed of sections rigidly attached to said rock-shaft, a depressible platform disposed in sections corresponding to the sections of said gate and rotatably mounted upon said rock-shaft, frames disposed respectively beneath the sections of said platform, hubs rigid with said rock-shaft, chains passing over the same and connecting with said frames, hook-rods carried respectively by the sections of said gate, said hook-rods being adapted to project beneath said platform and adjacent to said frames when said gate is elevated, and members carried by said frames adapted to engage said hook-rods.

4. In a cattle-guard, in combination, a rock-shaft, a gate composed of separate sections rigidly attached to said rock-shaft, said gate normally occupying a depressed position in the track-bed, a depressible platform rotatably mounted upon said rock-shaft, a plurality of frames beneath said platform, means for pivotally supporting said frames near the extremity of said platform remote from said rock-shaft, chains attached to the free ends of said frames and adapted to rotate said rock-shaft, hook-rods carried by the outer portion of said gate and normally projecting over the adjacent extremity of said platform, means for guiding said hook-rods through said platform when said gate swings upwardly, and members carried by said frames adapted to engage said hook-rods.

5. In a cattle-guard, in combination, a rock-shaft disposed transversely beneath the rails in the track, a gate composed of sections rigidly attached to said rock-shaft, a depressible platform rotatably mounted upon said rock-shaft, a plurality of frames disposed beneath said platform and having legs converging toward said rock-shaft, means for supporting the extremities of said frames remote from said rock-shaft, said frames being adapted to support said platform, transverse catch-bars car-



ried by said frames, means for rotating said rock-shaft by the depression of said platform, hook-rods carried by said gate-sections, means for guiding the same through said platform  
5 when the gate-sections swing upwardly, and a spring normally constraining said gate toward a depressed position.

6. In a cattle-guard, in combination, a rock-shaft disposed transversely in the track-bed, a  
10 gate composed of sections rigidly attached thereto, a depressible platform rotatably mounted upon said rock-shaft, frames therebelow, means for supporting said frames at a point remote from said rock-shaft, chains con-  
15 necting the free extremities of said frames with said rock-shaft whereby the depression of said frames may rotate said rock-shaft, said

frames being adapted to support said platform at a point removed from said rock-shaft, said platform having a plurality of longitudi- 20 nally-disposed bars, hook-rods carried by said gate-sections, the extremities whereof normally lie adjacent to spaces between said bars, transverse members in said spaces adapted to guide said hook-rods, and transverse catch- 25 bars carried by said frames cooperating with said hook-rods.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

HORMIDAS HAMEL.

Witnesses:

A. GERMAIN,  
ALFRED PATENAUDE.