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PATENTED JAN. 17, 1905.

C. I. KELLY.  
CATTLE GUARD.

APPLICATION FILED NOV. 10, 1904.

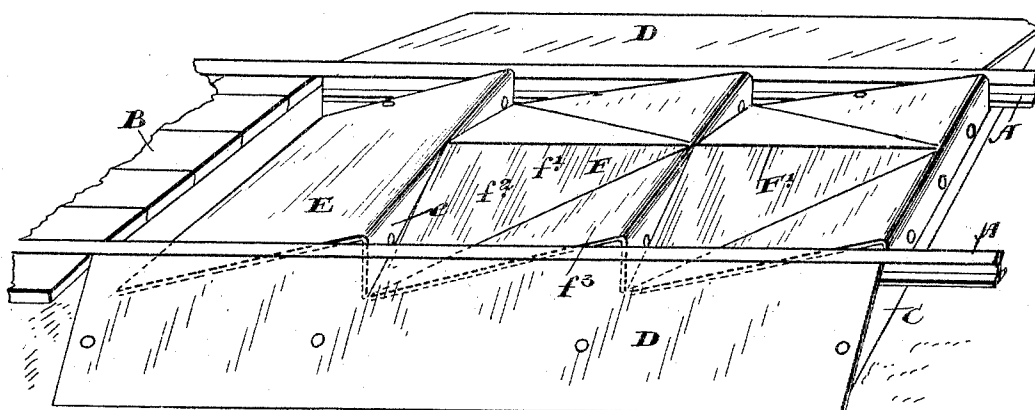


Fig. 1.

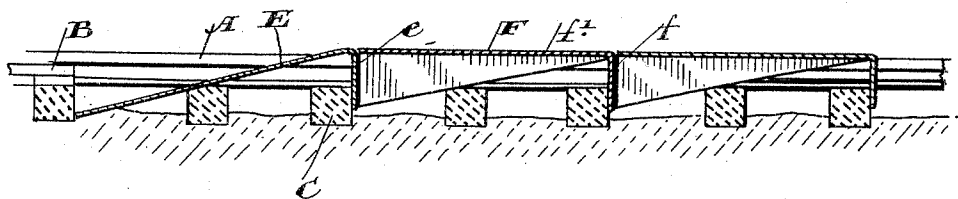


Fig. 2.

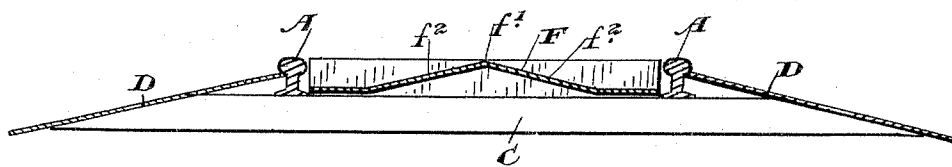


Fig. 3.

Witnesses.

*H. S. Young*  
*Chas. G. A. B.*

Inventor:

*C. I. Kelly*

*By*  
*Chas. B. Fetherstonhaugh*  
*att.*

# UNITED STATES PATENT OFFICE.

CHARLES ISRAEL KELLY, OF HAMILTON, CANADA.

## CATTLE-GUARD.

SPECIFICATION forming part of Letters Patent No. 780,197, dated January 17, 1905.

Application filed November 10, 1904. Serial No. 232,177.

*To all whom it may concern:*

Be it known that I, CHARLES ISRAEL KELLY, electrician, of the city of Hamilton, in the county of Wentworth, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Cattle-Guards, of which the following is a specification.

My invention relates to improvements in cattle-guards; and the object of the invention is to devise a simple, cheap, easily made and laid, durable, and permanent form of cattle-guard which will effectually prevent the ingress of cattle onto the railway from the crossing and which will be of such a form as will not in any way injure the animal should it fall, but serve to turn it back, and which will also allow of animals passing readily off the track onto the crossing; and it consists, essentially, of a plurality of inclined obstructions, preferably slippery and made of metal or other suitable material, the outer obstructions inclining from the outside of the rails downwardly and outwardly on both sides of the track and the inclined-plane obstructions between the rails extending, preferably, in several planes, the first plane starting at a point in proximity to the crossing below the level of the rails and inclining upwardly to a cross-ridge slightly above the rail and the next succeeding planes being arranged in sections, each of which is formed of a central ridge having downwardly and laterally inclined sides, and inclined planes at the sides inclining upwardly from a point below the level of the rail to a cross-ridge, the parts being otherwise arranged and constructed in detail, as hereinafter more particularly explained.

Figure 1 is a perspective view of my improved cattle-guard. Fig. 2 is a longitudinal section. Fig. 3 is a cross-section.

In the drawings like letters of reference indicate corresponding parts in each figure.

A A are the rails of the track, B the crossing, and C the sleepers. It will be noticed that the ends of the sleeper are preferably cut away or beveled, as indicated in Fig. 3. D represents plates which are supported on the beveled ends and extend from the ends outwardly at a downward incline. The plates

D extend the full length of the cattle-guard, and the surfaces are made, preferably, smooth or slippery.

E is an inclined plate having a downwardly-extending portion *e*. The plate E is located between the rails and extends from the bottom of one sleeper at an incline upward and away from the crossing to a point above another sleeper and slightly above the top of the rail. The vertical portion *e* of the plate E is suitably secured to the sleeper C.

F is a plate extending from the vertical portion *e* of the plate E to a point above another sleeper and slightly above the rails. The plate F is formed with a vertical end *f* and a central rib *f'*, having downwardly-inclined sides *f''*, triangular in form, and the upwardly-inclined portions *f'''* at each side of the downwardly-inclined portions *f''*, such upwardly-inclined portions extending from the depressed portion next the vertical portion *e* of the plate E to the highest point of the ridge formed in the plate.

F' is a plate similarly formed to the plate F.

The plates E, F, and F' are also provided with smooth or slippery surfaces. Although I show the surfaces formed of plates D, E, F, and F', it will of course be understood that such surfaces may be formed of any suitable material, and instead of metal plates they may be wood, or the inclined surfaces may be formed of cement which is made smooth or given a polish so as to make it slippery. In case the inclined surfaces are formed of cement, of course it would not be necessary to provide sleepers; but the rails would be supported on longitudinal timbers, and the cement would be sunk in the ground and formed up, as shown, at the top, so as to present the smooth inclined surfaces.

I have tested my invention practically and I shall now describe the utility thereof.

When an animal passes from the crossing B and attempts to proceed along the track, it first meets with the inclined surfaces E, on which the foot or hoof slips until it is brought back against the crossing. Should it make another attempt forward so as to pass onto the inclined surfaces F, it will if it strikes the ridge F' slide laterally downwardly and

if it should strike the inclined surface  $f^3$  pass rearwardly. It will thus be seen that any attempt to go forward will result in it moving backwardly instead of forwardly, which I find  
 5 an animal will not do, and the result is that it turns laterally off onto the inclined surfaces D and then passes over onto the crossing. Should the animal come from the opposite direction and attempt to pass the cattle-guard,  
 10 it will be readily seen that it may do so, as upon its placing the foot or hoof upon the inclines, which now extend downwardly in respect to the animal, the foot will pass forwardly into the recess and form a firm foothold and the  
 15 animal naturally proceed forwardly from one recess to the other, which would be natural for it, and I find from actual test that the animal will readily pass outwardly over the guard onto the crossing, but will not pass inwardly  
 20 onto the track for the reasons above stated.

It will thus be seen that I have provided a guard which is very simple and cheap to manufacture and one which will effectually stop all classes of animals, both small and large, from  
 25 passing onto the railway-track from the crossing.

What I claim as my invention is—

1. A cattle-guard comprising the downwardly and outwardly inclined plates outside  
 30 of the rails, and plates between the rails inclining upwardly and forwardly from the crossing, substantially as described.

2. A cattle-guard comprising a series of plates between the rails, inclining longitudi-

nally and laterally in respect to the said rails, 35 substantially as described.

3. A cattle-guard comprising a series of inclined plates forming slippery surfaces and extending upwardly and onwardly away from the crossing and forming depressions at the  
 40 side of the plates next the crossing and laterally-extending plates located on the outside of the rails and inclining downwardly from the rails over the sleepers as and for the purpose specified.

4. A cattle-guard comprising a series of plates inclining onwardly and upwardly away from the crossing from depressions at the side of the plates next the crossing and forming a series of ridges, the plates after the first one  
 50 being provided with a central longitudinal ridge having downwardly and laterally inclining sides as and for the purpose specified.

5. A cattle-guard comprising a series of plates inclining onwardly and upwardly away  
 55 from the crossing from depressions at the side of the plates next the crossing and forming a series of ridges, the plates after the first being provided with a central longitudinal ridge having downwardly and laterally inclining  
 60 sides and the downwardly and laterally inclined side plates extending laterally and outwardly from the rails as and for the purpose specified.

CHARLES ISRAEL KELLY.

Witnesses:

B. BOYD,  
 ELSIE THOMAS.