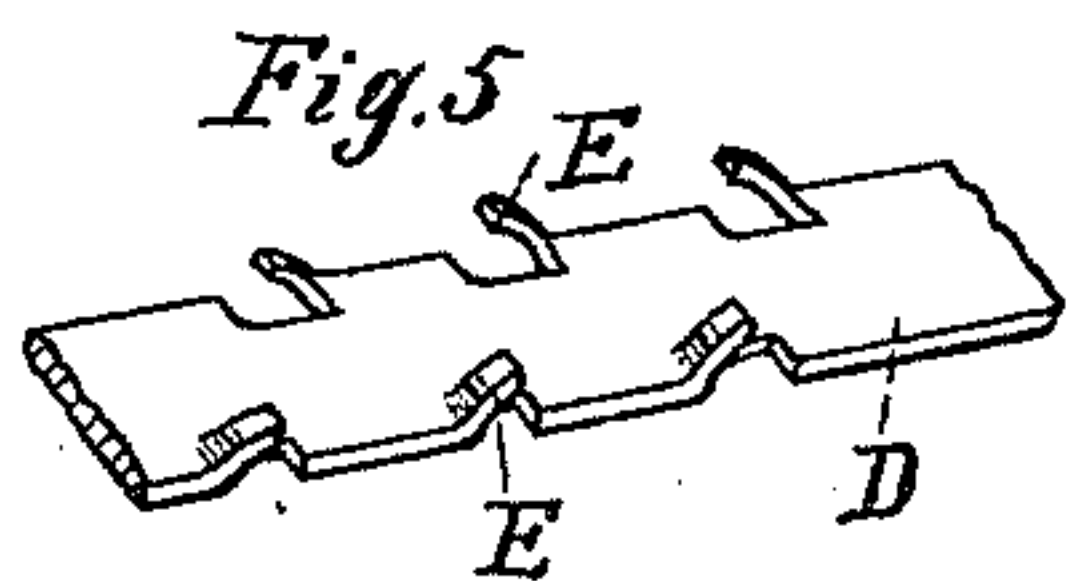
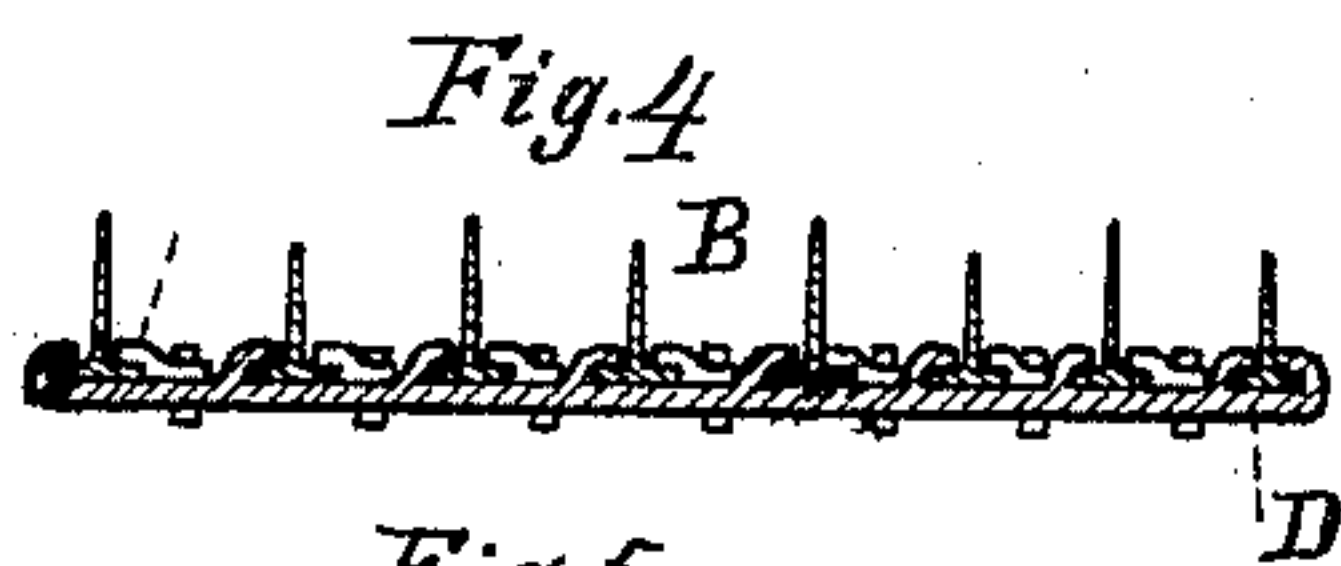
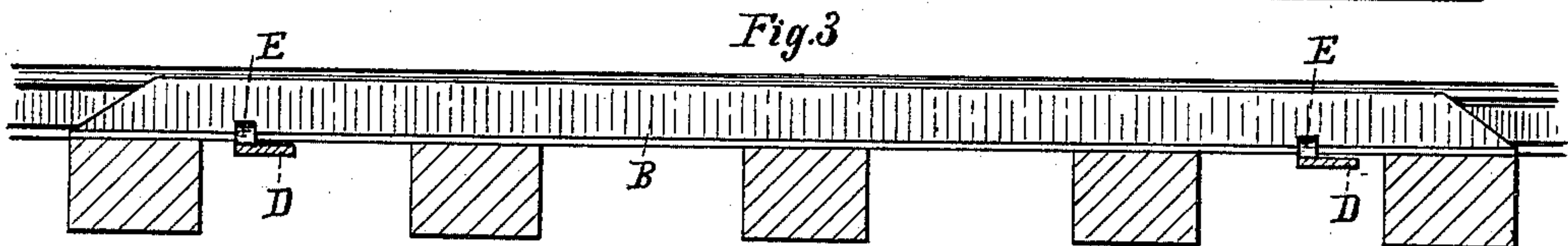
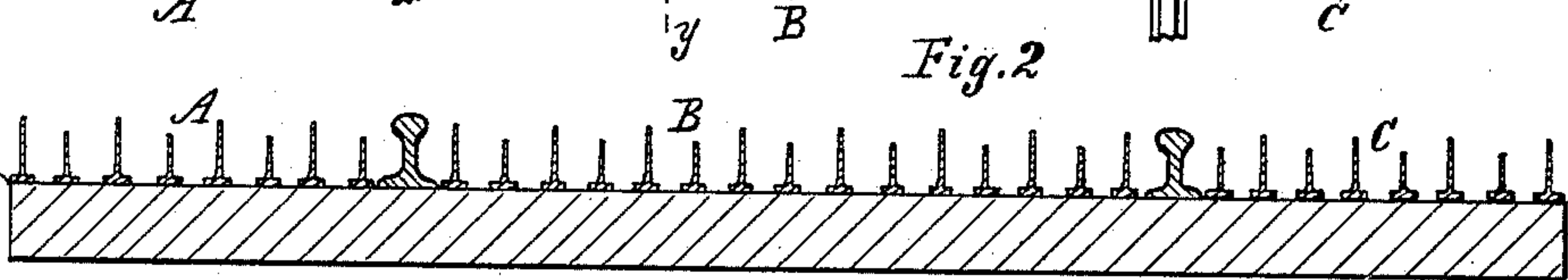
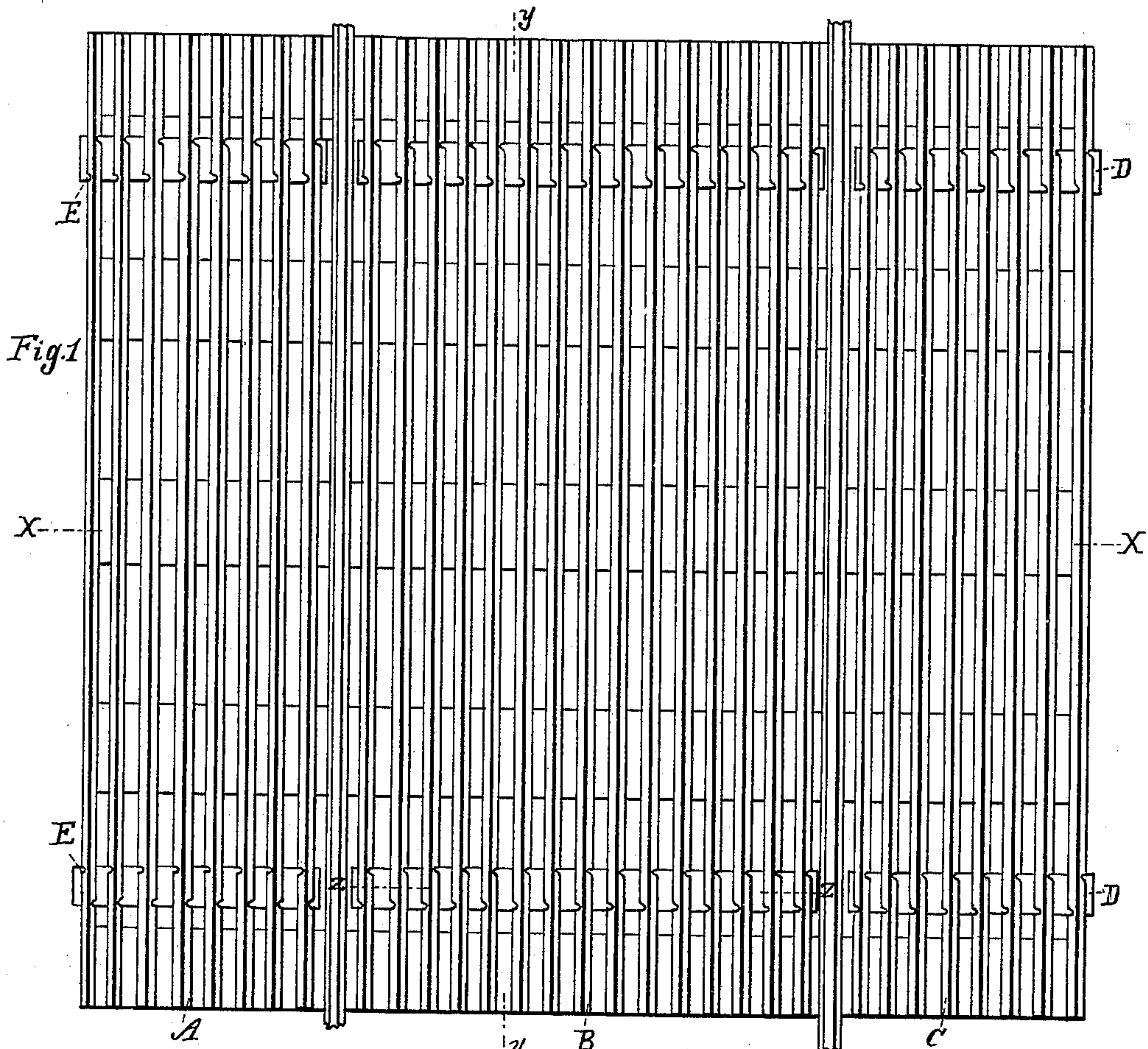


(No Model.)

J. T. HALL.
CATTLE GUARD.

No. 390,592.

Patented Oct. 2, 1888.



Attest:
John Schuman.
P. M. Hulbert

Inventor:
James T. Hall.

By *Thos. H. Paquet* for my

UNITED STATES PATENT OFFICE.

JAMES T. HALL, OF ST. LOUIS, MICHIGAN.

CATTLE-GUARD.

SPECIFICATION forming part of Letters Patent No. 390,592, dated October 2, 1888.

Application filed May 21, 1888. Serial No. 274,548. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. HALL, a citizen of the United States, residing at St. Louis, in the county of Gratiot and State of Michigan, have invented certain new and useful Improvements in Cattle-Guards, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in railway cattle-guards, the object of which is to prevent the cattle from straying upon the railway-tracks at the road-crossings. In the present state of the art such cattle-guards are preferably constructed to form permanent surface obstructions placed across the track at the road-crossings to destroy the footing of cattle; and to this end metallic bars have been used, set up on edge and connected by cross-bars to form gratings, which could be readily secured upon the sleepers across the track. Surface-guards of this kind have been found, when properly constructed, to effectually deter cattle from walking over them; but while this object has been obtained satisfactorily experience has demonstrated that in their construction little or no attention has been paid to the safety of railway-trains, and most cattle-guards of this class are a constant menace and liable to lead to serious accidents, since a dangling brake-beam, a broken truss-rod, a trailing chain, or other loose part of the car or locomotive may get caught in the cattle-guard, and in tearing it up may produce disastrous consequences.

The object of my invention is so to construct a cattle-guard of the class described that all liability to cause accidents to railway-trains from the causes mentioned is excluded; and to this end my invention consists in constructing the cattle-guard of a series of bars placed parallel to the track and connected together in the form of a grating by cross-bars placed below the surface of the track, whereby all possibility of any loose or dangling parts from a passing train catching on such cross-bars is entirely excluded.

In the drawings which accompany this specification, Figure 1 is a plan view of my improved cattle-guard. Fig. 2 is a cross-section on line *x x* in Fig. 1. Fig. 3 is a longitudinal section on line *y y*. Fig. 4 is an enlarged cross-

section showing the fastening of the guard-rails together by means of the cross-bar and rail-clips, and Fig. 5 is a perspective view of a cross-bar provided with rail-clips integrally formed therewith.

A, B, and C are three series of bars, preferably alternating in height for the purpose of more effectually destroying the footing for cattle, as described and claimed in a patent granted to me March 6, 1888, No. 379,107. The ends of these bars are cut off on an incline, as shown in the before-mentioned patent; but instead of flat bars, I make use in this construction of T-iron bars placed at suitable distances apart parallel with the rails, their flat bearings resting on the ties and having an upward presentation of sharp edges.

As is usual, fences are built on both sides of the track to narrow the open space left for the passage of the train, and in this space the cattle-guard is placed, in three sections, one section guarding the space between the rails and the other sections guarding the sections left open between the rails and the adjoining fences; and to save expense in securing the guard to the sleepers and to permit its ready removal in case of repair to the track the bars of each section are connected into a grating. This I accomplish by means of cross-bars D, which are constructed and arranged to attach to the under side of the guard-rails by means of rail-clips E. These rail-clips may be in part detachable and in part formed integral with the cross-bars, as shown in Fig. 4, wherein every alternate rail-clip is secured to the cross-bar by a suitable bolt, while the intermediate rail-clips are formed integral with the bar, or all the rail-clips may be formed integral with the cross-bar, as shown in Fig. 5, and in this latter construction the clips are alternately formed near the opposite edges of the cross-bar, so as to allow the guard-rails to be engaged obliquely between the clips, and then secured by turning the rails at right angles to the cross-bar, whereby the clips are made to clamp the guard-rails.

In constructing the guard with the last-described cross-bars each section is first set up with the rails obliquely to the cross-bars and then squared by means of a few spikes. The guard may then be finally secured to the ties.

The cross-bars are placed in such relation to the ties in the track as to come between the ties, so that the guard-rails may rest on the ties. The object of this arrangement is to bring the
5 cross-bars below the top of the ties, whereby they become embedded in the road-bed, and are therefore entirely out of the way, and cannot become a source of danger by affording a broken brake-beam or other object trailing on
10 the ground a chance to engage therein and tear the guard up, which would inevitably cause damage or disaster to a train, as experience with other guards has demonstrated.

The spirit of my invention consists, therefore, in constructing a metallic-surface cattle-guard in such a manner that no edges, corners, or other obstacles are thereby placed in the longitudinal direction of the road-bed, above the ties or the surface of the road-bed.

20 What I claim as my invention is—

1. A metallic-surface cattle-guard composed of longitudinal bars or guard-rails supported upon the ties and assembled into the form of gratings by means of cross-bars connecting them on the under side between the ties, substantially as described. 25

2. A metallic-surface cattle-guard composed of T-bars supported upon the ties in the longitudinal direction of the rails and assembled in the form of gratings by means of cross bars
30 on their under side, and of rail-clips securing them to the cross-bars, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 5th day of May, 35
1888.

JAMES T. HALL.

Witnesses:

L. T. WRIGHT,

JAMES K. WRIGHT.