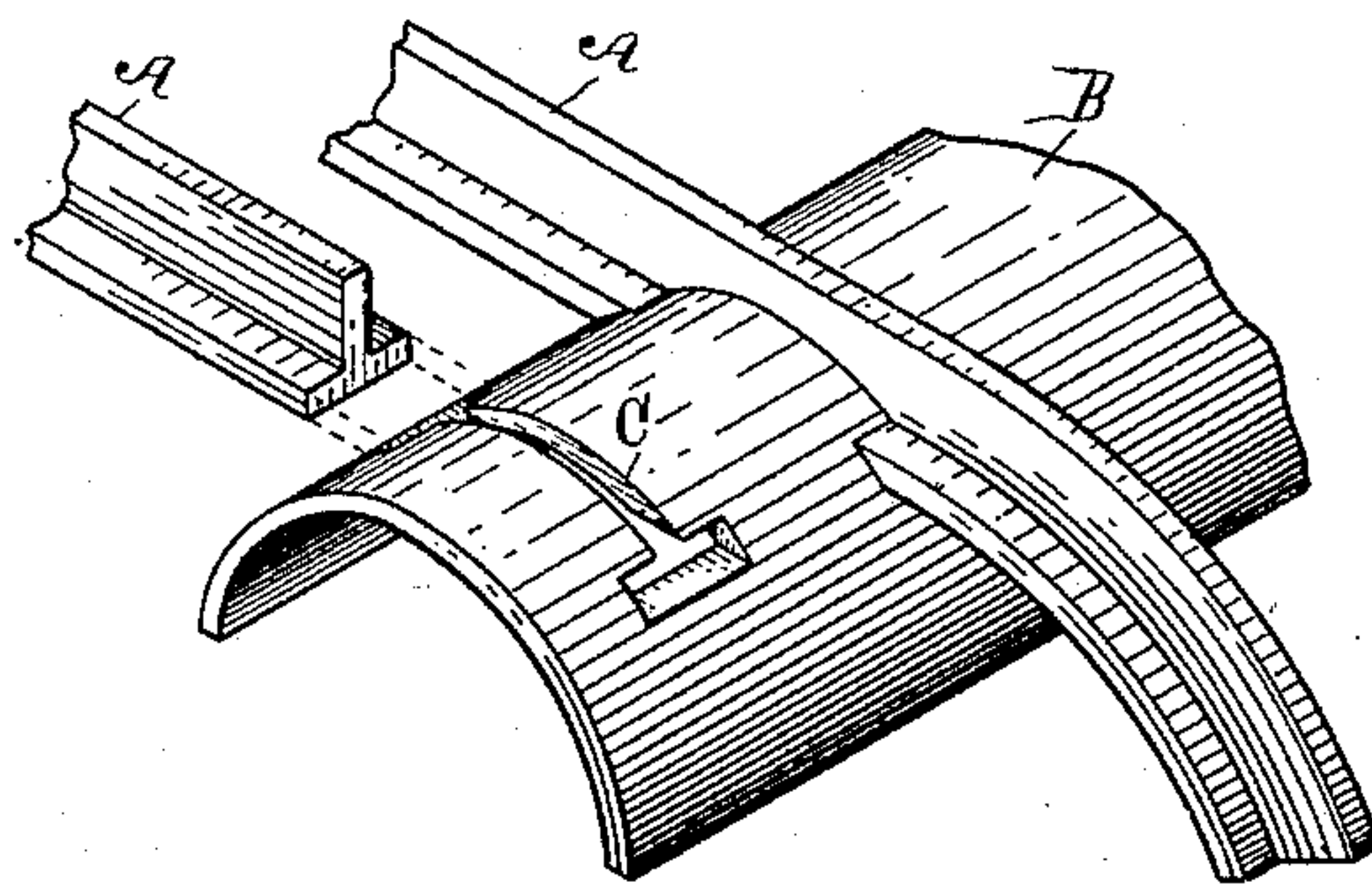
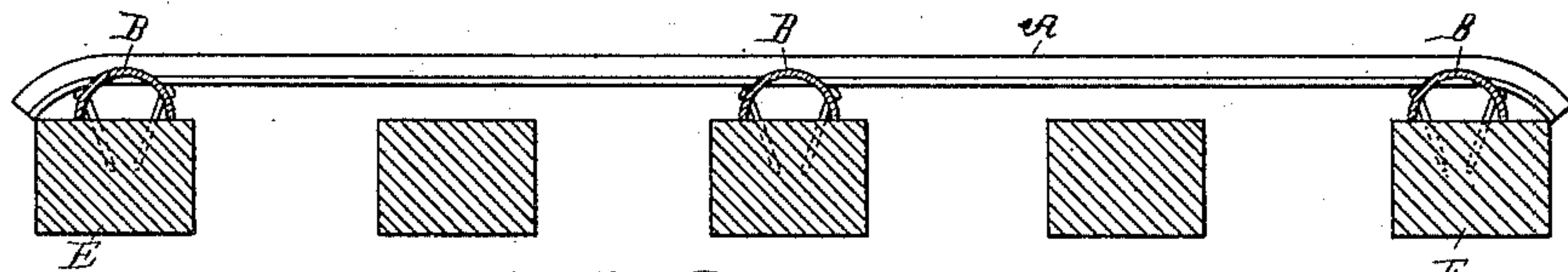
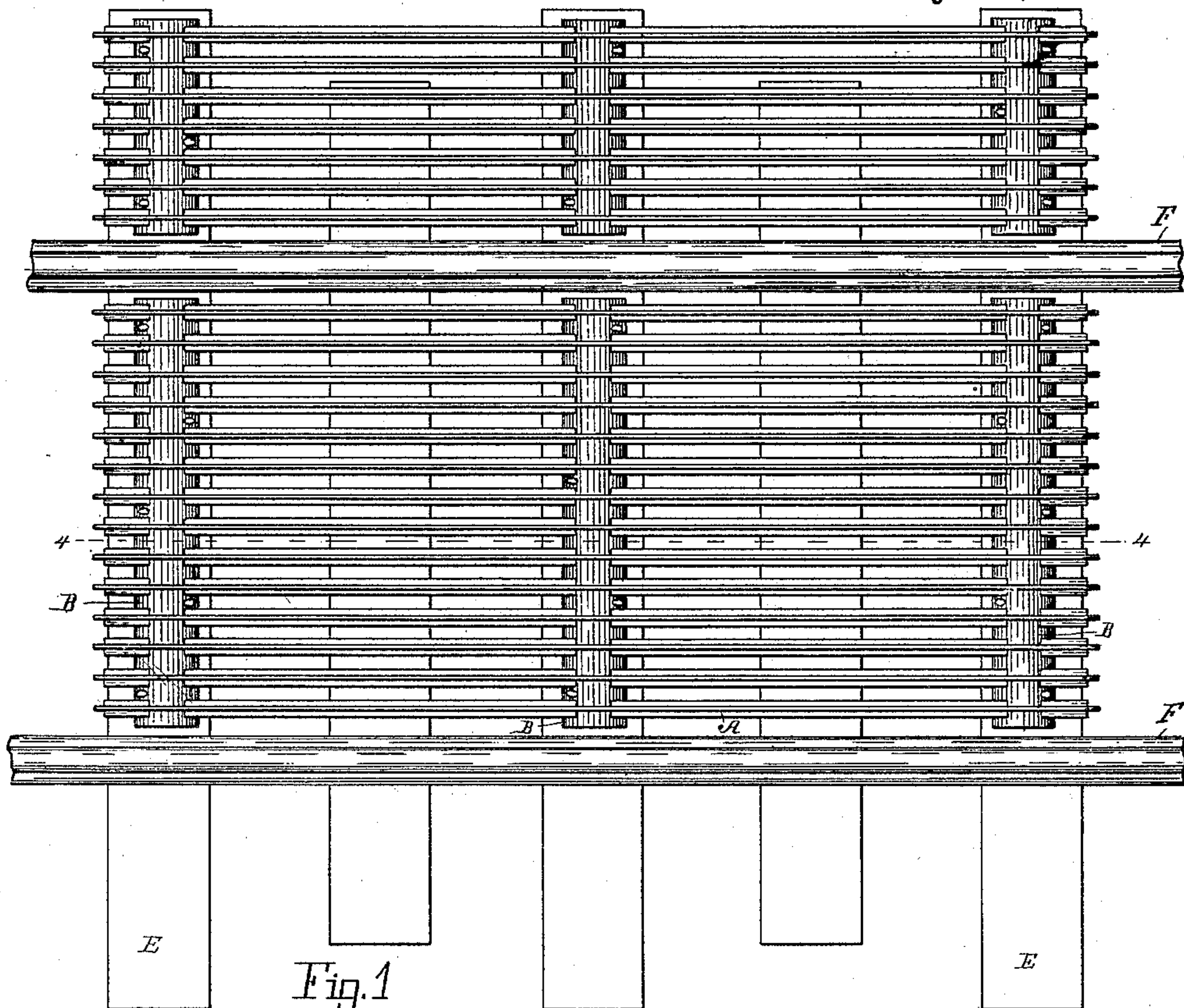


(No Model.)

F. C. BALCH.
SURFACE CATTLE GUARD.

No. 432,194.

Patented July 15, 1890.



Witnesses:

Walter S. Wood.
Bella C. Freeman.

Fig. 3.

Inventor.

Frank C. Balch
By *Lucius C. West*
Att'y.

UNITED STATES PATENT OFFICE.

FRANK C. BALCH, OF KALAMAZOO, MICHIGAN.

SURFACE CATTLE-GUARD.

SPECIFICATION forming part of Letters Patent No. 432,194, dated July 15, 1890.

Application filed May 8, 1890. Serial No. 351,007. (No model.)

To all whom it may concern:

Be it known that I, FRANK C. BALCH, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented a new and useful Surface Cattle-Guard, of which the following is a specification.

This invention relates to that class of surface cattle-guards which are made in sections and placed between and outside of the rails of the track, and which consist of a series of separated longitudinal bars running parallel with said rails and supported by transverse bars, to which said longitudinal bars are attached.

This invention has for its object the construction below described and claimed, designed to increase the utility of metal-surface cattle-guards.

In the drawings forming a part of this specification, Figure 1 is a plan view. Fig. 2 is a section on line 4 4 in Fig. 1, and Fig. 3 is an enlarged perspective view of broken lettered details from Fig. 1.

Referring to the lettered parts of the drawings, the transverse bars are shown at B, which, in the construction here illustrated, are semi-tubular in form and are spiked to the ties E of the track. Of course, so far as these transverse bars are concerned, they may be made solid instead of hollow underneath, with their rounded surface uppermost, as here shown, or they may be differently shaped, so long as they are constructed for the attachment of the longitudinal bars, which peculiar construction, as here shown, consists of slots through the upper portion of said bars B transversely thereto, and spaced equidistant from each other, said slots being flared laterally at their base. The slots referred to, as herein illustrated, are shown at C, said slots being of a form to receive the longitudinal bars A, which in cross-section are in the form of an inverted letter T, as illustrated in the different figures of the drawings, and more particularly in Fig. 3. It will be seen that by means of this construction the bars A are prevented from upward displacement

by the base-flanges of said bars, which fit in the laterally-flared portions of the slots C. It will be readily seen that it is not necessary (although preferable) that the bars A shall be provided with a lateral flange on both sides of their base, since one flange would suffice to prevent upward displacement of said bars. This makes a very convenient, cheap, and effectual mode of attaching or interlocking the longitudinal bars and the transverse bars of surface cattle-guards. Another advantage of having the base of these longitudinal bars A laterally flanged is that they may be placed at such a distance from each other that people who may pass over the cattle-guard cannot catch their feet between the bars, even if they should accidentally step between the upwardly-projecting flanges of said bars A. For this purpose it will appear obvious that it is not material how these bars A, having the laterally-flanged base, are attached to the transverse bars B.

The cattle-guard may be made in as many sections as is deemed necessary, ordinarily, of course, one section outside of each rail F of the track, a section being shown outside of one only of said rails in Fig. 1, and one or more sections between said rails. Only one central section is shown in Fig. 1 of a width to fill the space between the rails of the track. The longitudinal bars A are bent downward at each end, as shown in Figs. 2 and 3. While this is not absolutely necessary, it is deemed a good plan to prevent endwise displacement of said bars. Besides it is not advisable that the bars should terminate abruptly above the ties, as would be the case if they were not turned down at the ends, as stated, for the reason that broken brake bars or rods might catch against the ends of said longitudinal bars.

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

1. A surface cattle-guard consisting of sections composed of transverse bars having open slots transversely through their upper surface, said slots being laterally flared, and lon-

gitudinal bars representing an inverted T in cross-section interlocked with the slots of said transverse bars, substantially as set forth.

- 5 2. A surface cattle-guard consisting of sections composed of transverse bars, said bars being provided with open slots laterally flared at the base, and longitudinal bars laterally flanged at the base, substantially as set forth.

In testimony of the foregoing I have hereunto subscribed my name in presence of two witnesses.

FRANK C. BALCH.

Witnesses:

HARLEY J. FREEMAN,
BELLE C. FREEMAN.