

(No Model.)

F. C. BALCH & F. BUSH.  
SURFACE CATTLE GUARD.

No. 459,808.

Patented Sept. 22, 1891.

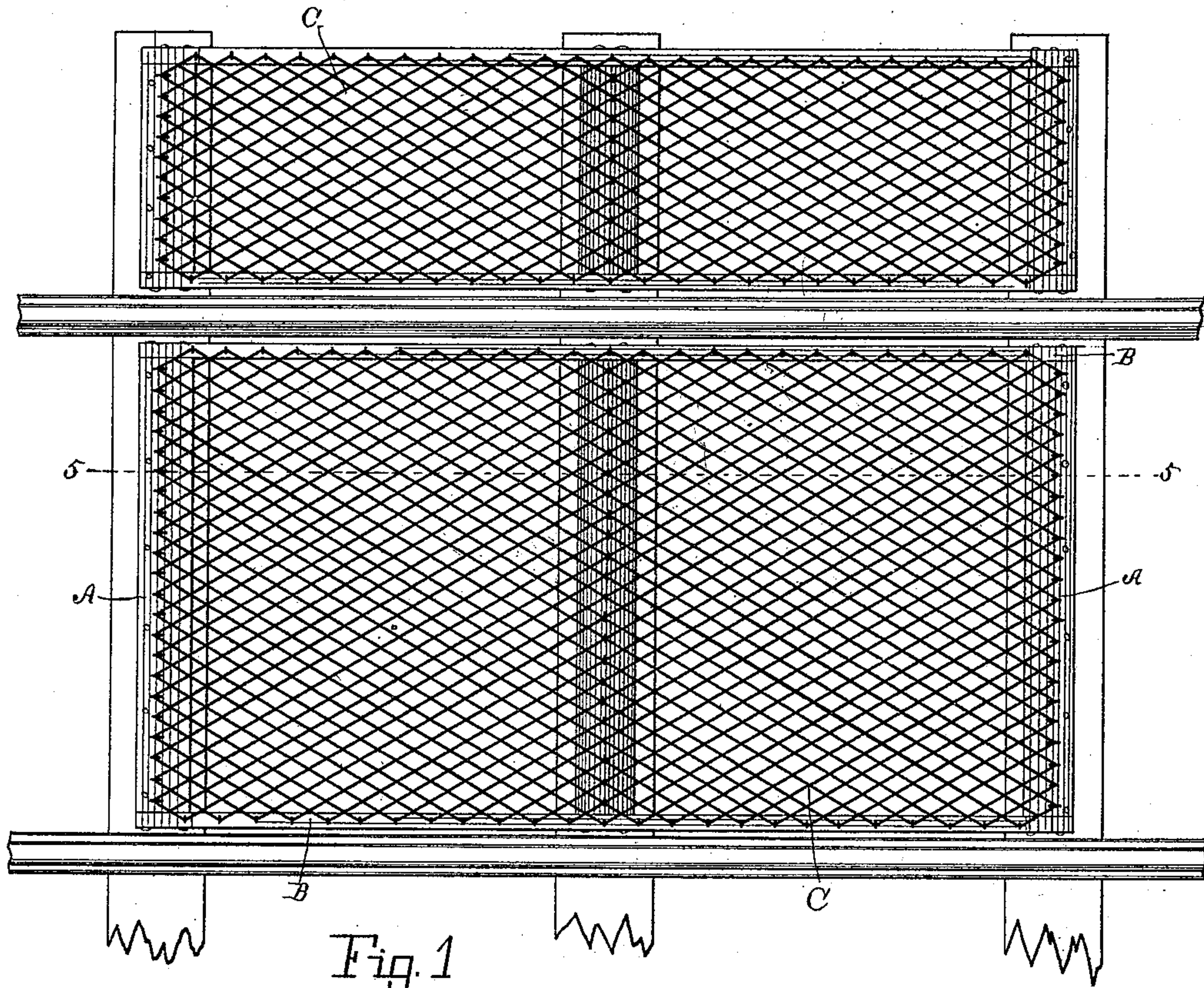


Fig. 1

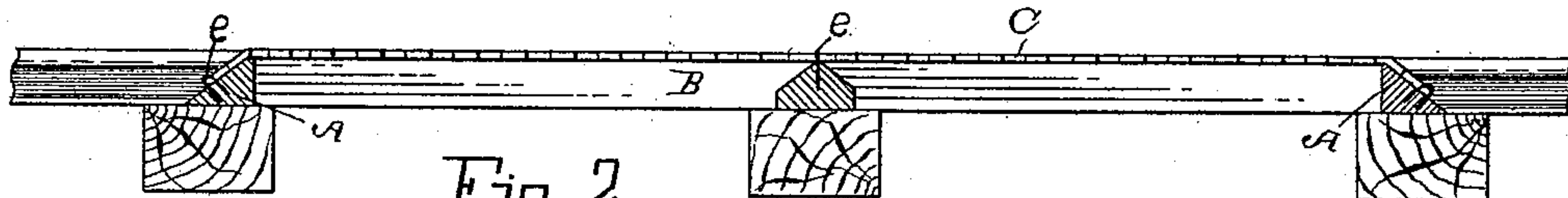


Fig. 2

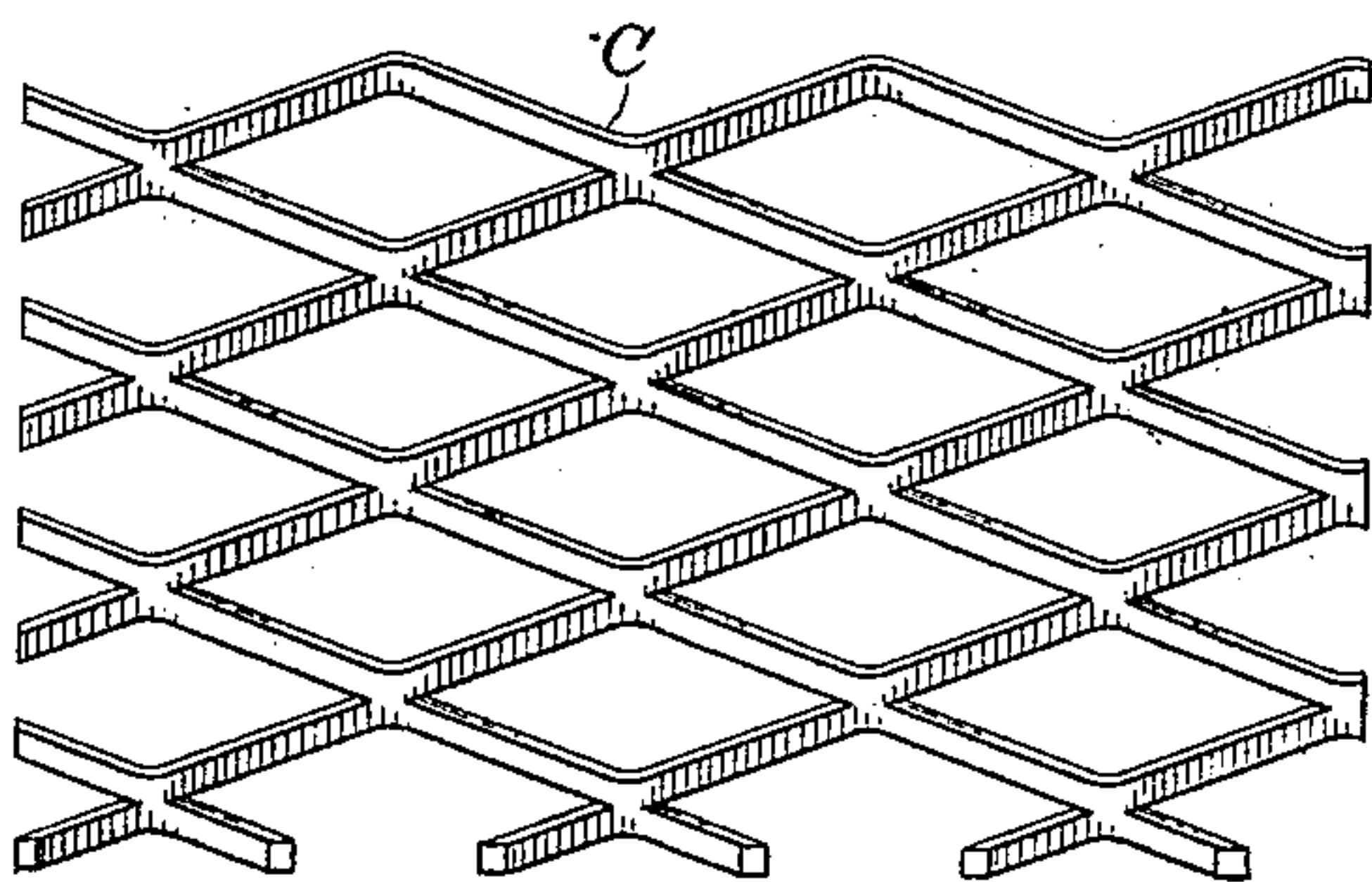


Fig. 3

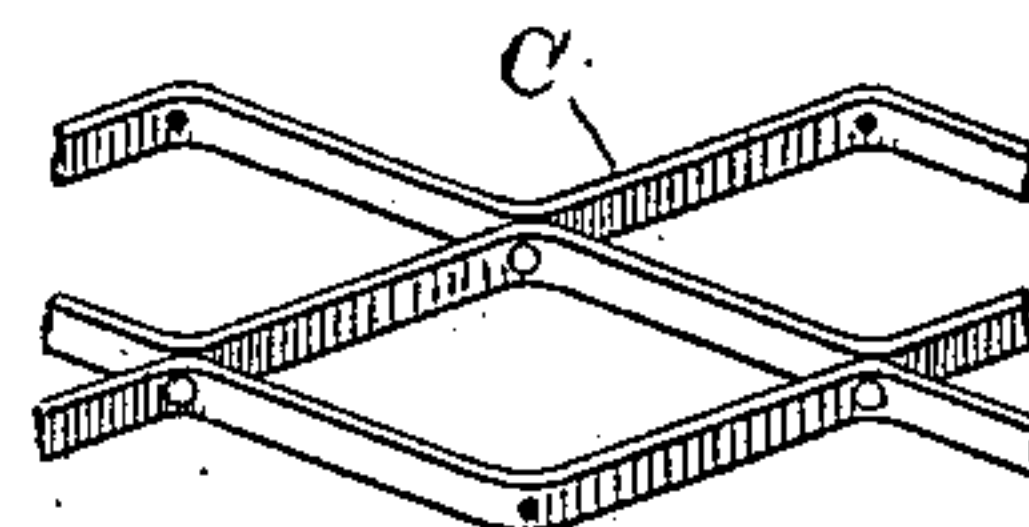


Fig. 4

Witnesses:

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By Lucius C. West  
Att'y.



# UNITED STATES PATENT OFFICE.

FRANK C. BALCH AND FREDERICK BUSH, OF KALAMAZOO, MICHIGAN.

## SURFACE CATTLE-GUARD.

SPECIFICATION forming part of Letters Patent No. 459,808, dated September 22, 1891.

Application filed July 3, 1890. Serial No. 357,662. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK C. BALCH and FREDERICK BUSH, citizens 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 cattle-guards known as "metal surface" cattle-guards, which are made in sections and placed between and outside of the rails.

This invention consists in the below-described and claimed construction of a surface cattle-guard in which the upper surface of the sections of the guard consists of metal plates so cut and drawn as to present diagonal crossing bars vertically edgewise and bounding diamond or other shaped apertures, whereby greater simplicity and cheapness are designed to be secured and animals are less liable to become entangled with the guard at the crossing.

In the drawings forming a part of this specification, Figure 1 is a plan view. Fig. 2 is a sectional elevation on line 5 5 in Fig. 1, and Figs. 3 and 4 are enlarged lettered details in perspective.

Referring to the lettered parts of the drawings, B represents a frame, having transverse bars A, upon which the surface of the guard C is mounted, as in Figs. 1 and 2. The end bars A incline downward and the ends of the surface C are bent down to fit said inclined surface, as in Fig. 2. Any suitable means, such as staples *e*, as here shown, or otherwise, may be used to attach the surface C to the frame. The sections of the guards as here shown are placed upon the ties and are of course attached thereto when in use by some suitable means, such as spikes or otherwise; or the guards may be provided with other suitable supports. The apertures between the bars should be small enough, of course, so as not to allow the animals' feet to pass through in case they should step upon the guard.

In Fig. 3 the diagonal bars are integral with each other where they cross. These bars may be styled "diagonal" bars crossing each other,

or they may with equal propriety be styled "zigzag" bars. In this plan C is a sheet of metal provided with a series of slits or gashes. The metal is then drawn and pressed so as to fix the bars vertically edgewise, as in Fig. 3.

Fig. 4 shows an equivalent construction, in which the zigzag bars are riveted or bolted together at their points of interception. Such a guard is light, strong, neat in appearance, and can be cheaply produced.

The design in use is of course to employ one or more sections between the rails and a section outside of each rail, only one outside section being shown in Fig. 1.

While I have described these bars as being vertically edgewise, I do not wish to be limited strictly to this construction, as it will appear obvious that the bars might be set at other angles or be square or diamond-shaped, or be placed flatwise; but the construction as herein illustrated is preferred.

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

In a surface cattle-guard, sections composed of transverse bars and an upper metal surface consisting of zigzag bars attached together at their points of meeting and supported by said transverse bars, said zigzag bars bounding diamond or other shaped apertures and being bent at a downward incline at each end of the section, said bent-down portion being secured to the end transverse bars, substantially as set forth.

In testimony of the foregoing we have hereunto subscribed our names in the presence of two witnesses.

FRANK C. BALCH.  
FREDERICK BUSH.

Witnesses to the signature of Frank C. Balch:

BELLE C. FREEMAN,  
JAMES BAMMANN.

Witnesses to the signature of Frederick Bush:

RALPH LITTLER,  
J. E. PALMER.