No. 797,984. PATENTED AUG. 22, 1905.

H. B. STEWART.

CATTLE GUARD BLOCK.

APPLICATION FILED DEC. 7, 1904.

Fig. 1.

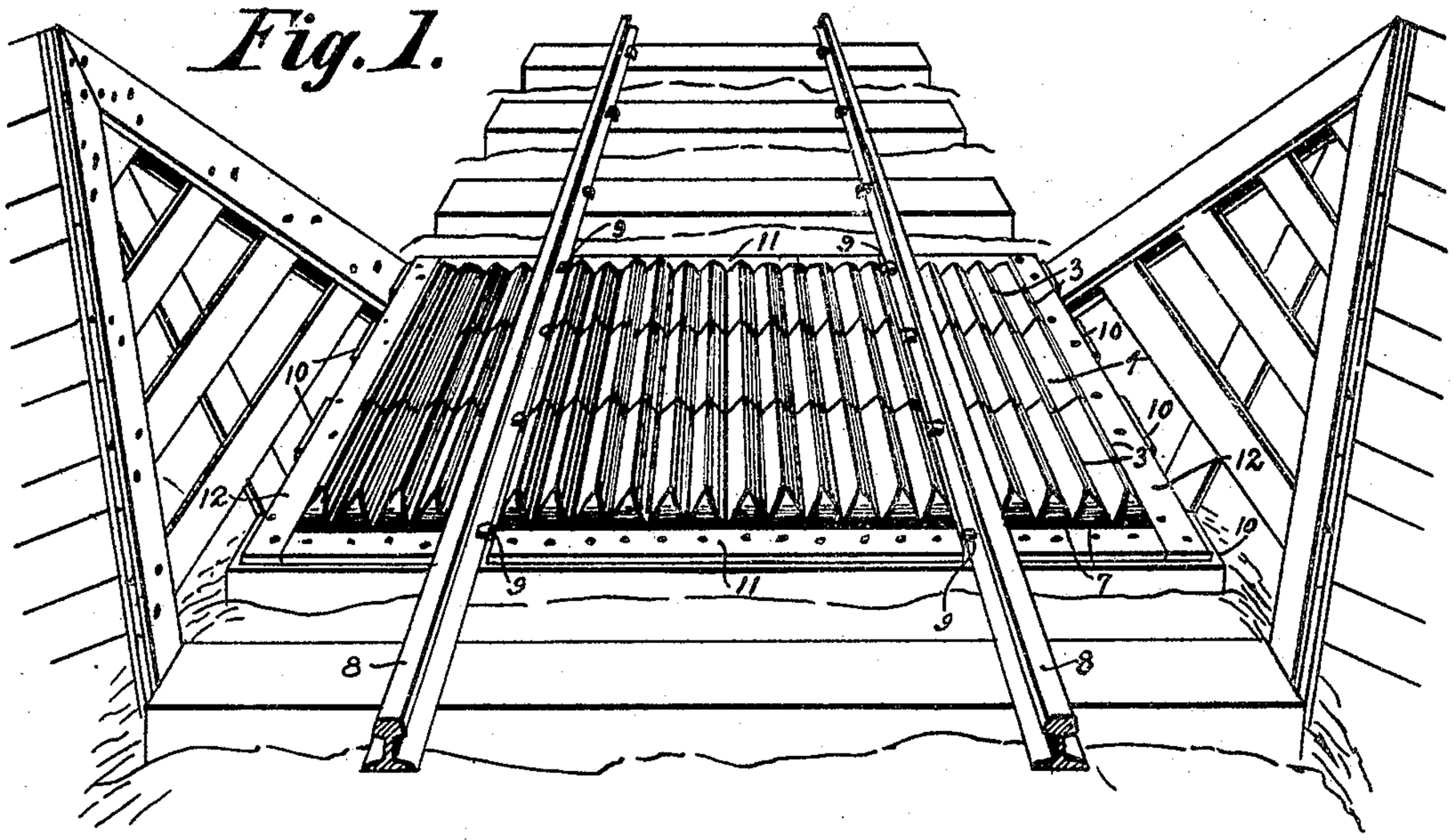


Fig. 2.

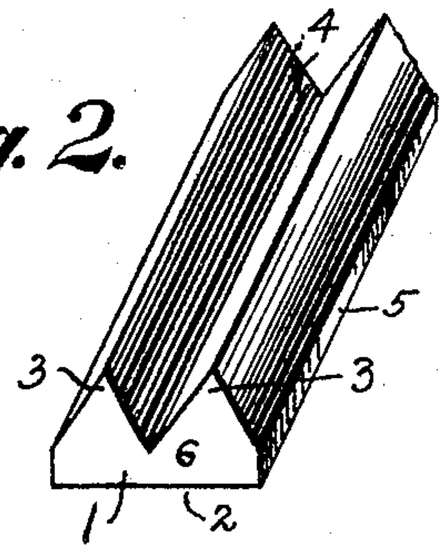


Fig. 3.

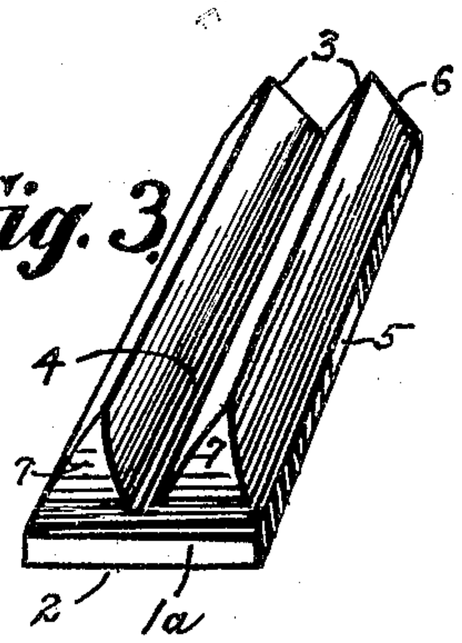
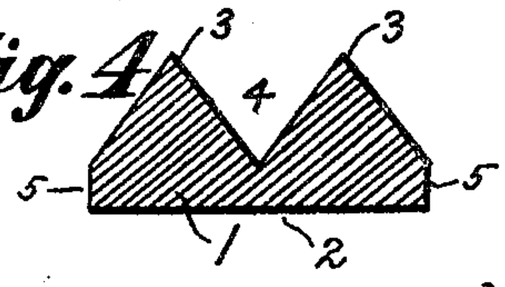


Fig. 4.



WITNESSES

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HARRY B. STEWART, OF CANTON, OHIO.

CATTLE-GUARD BLOCK.

No. 797,984. Specification of Letters Patent. Patented Aug. 22, 1905.

Application filed December 7, 1904. Serial No. 235,868.

To all whom it may concern:

Be it known that I, HARRY B. STEWART, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented a new and useful Improvement in Cattle-Guard Blocks, of which the following is a specification.

The invention relates to a surface guard for preventing cattle or other animals from passing along a railroad-track. In practical railroading the well-known desirable requirements for such a guard are that it should not have a pit for trapping animals or otherwise endangering trains nor have projecting surfaces or edges liable to be caught by a dragging brake or other rigging. It should not endanger employees who are compelled to pass over it in the discharge of their duties, but at the same time should be effective as to all kinds of live stock without having parts which will catch and hold stock that might endeavor to pass. It should be reasonable in first cost and durable and easily applied and removed, so as to allow repairs of track at a minimum expense, and, finally, it should not rattle during the passage of trains.

The object of the improvement is to make a guard that will satisfy each and all of these requirements out of a series of rectangular blocks having the under supporting surface or surfaces truly formed in the same plane and having inverted-**V**-shaped ridges on the upper exposed side, so that the blocks can be applied and firmly seated on the ordinary track-ties with the ridges exactly registering endwise. This object is attained by making such blocks out of cement or other similarly setting and hardening material and shaping and assembling them as illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a section of railroad-track, showing the improved cattle-guard applied thereto; Fig. 2, a perspective view of a two-ridge intermediate block; Fig. 3, a perspective view of a two-ridge end block, and Fig. 4 a cross-section of a two-ridge block.

Similar numerals refer to similar parts throughout the drawings.

The blocks 1 and 1^a are made of cement or other material, as concrete or artificial stone, having cement as a setting, hardening, and binding element, and are preferably cast in molds in the usual manner for making cement products. The blocks are made rectangular in shape and preferably of the same size, so as to be interchangeable, and the under side 2 is made perfectly flat—that is, with all parts of the presented surface in the same plane—so that it will rest firmly on a flat surface without any rocking or tilting. The upper side is formed with one or more inverted-**V**-shaped ridges 3, with their bases adjoining laterally, so as to make the intervening **V**-shaped grooves 4. The sides of each block preferably correspond with the line of junction between two ridges, and the vertical flat faces 5 below the bases of the ridges are presented to the sidewise-adjoining blocks. The ends 6 of the blocks are formed flat, so as to abut squarely against the endwise-adjoining blocks, excepting only the outer ends 7 of the end blocks, which are beveled or curved above the bases of the ridges, so as to present an inclined surface to an endwise-moving object.

The blocks are proportioned in width so that a given number will neatly fit inside the bases of the track-rails 8, allowance being made for the track-spikes 9, and in length so that each block will extend from the middle line of one track-tie 10 to the middle of another one. The blocks are assembled on the track, as shown in Fig. 1, with each end resting on one-half of a tie. A sufficient number of blocks are placed side by side to completely fill the space between the bases of the rails and also on each side to extend from the rails to a point near the ends of the ties, and a sufficient number of blocks are abutted against each other endwise with the ridges registering to make a cattle-guard of the desired length. The retaining-strips 11 and 12, preferably of wood, are then spiked on the ties along the ends and sides of the blocks so assembled, and the cattle-guard is complete. The retaining-strips are preferably formed to bring their upper sides flush with the bases of the ridges—that is, with the bottoms of the grooves—so that no sharp or abrupt corners or edges are presented at the ends of the guard.

The cattle-guard thus formed presents an upper surface composed of a series of inverted-**V**-shaped ridges side by side, with **V**-shaped grooves intervening, the same being continuous throughout its length and without any uneven or projecting edges or corners to catch a passing or dragging object. The several blocks are heavy enough to remain properly in place without any special fastening and for this reason can readily be removed and

replaced for track repairs or in case of breakage. No special preparation of the track is required, excepting a regular spacing of the ties and perchance a surfacing of the ties to make them flat if they are not cut or hewn true.

I am aware that it has been sought to make cattle-guard blocks of the general character described herein out of vitrified clay or shale; but the inherent character of such material to a great extent disqualifies it for the purpose designed. In the first place the uneven shrinkage of clay or shale blocks in the process of vitrification, depending upon the degree of heat used, renders it practically impossible to make such blocks of even length and witdth, and as a result they cannot be assembled and replaced with close joints and registered ridges, and in the second place the irregular shape and peculiar and irregular disposition of the material in the cross-section of the block renders it practically impossible to retain the true shape of the block in the process of vitrification, and the resultant warping, twisting, and bending makes it impossible to firmly seat the blocks on a flat surface and to register the ridges end for end.

By reason of the unavoidable irregularity of size and shape in a vitrified clay or shale block a cattle-guard made of such material necessarily has some open joints in which a dragging brake can catch and which also permits the several blocks to move laterally, so the ridges will not register endwise. Furthermore, the failure of the ridges to register endwise, whether caused by loose joints or by bent or warped blocks, presents at each cross-joint a projecting or a sharp corner or edge, which will readily catch any loose rigging there may be hanging from a train. These difficulties are obviated by making the blocks out of a cement product, because there is no appreciable shrinkage of cement in setting, and if there is such a shrinkage it is calculable in amount, and, furthermore, a cement product will harden without bending or warping irrespective of the shape or disposition of the material, so that it is practically possible to make a block as described of this material which will be true in size, shape, and form, these being the necessary and essential conditions of a block for making an efficient and a safe cattle-guard.

It will be noted that a cattle-guard has a secondary function growing out of its location in the railroad-track, that of avoiding danger to and the wrecking of a passing train and the consequent probable loss of human life, which secondary function is equally as important, if not many times more important, than the primary function of preventing live stock from passing along the track, and it is more particularly the means of making the described block in such a manner as to more successfully and surely, and therefore more safely, perform this secondary function—that is, the effect of the cattle-guard on one of the objects acted upon (namely, a passing train) without endangering or destroying it—that I believe to be new and useful.

I am aware that a cattle-guard as a whole has been made with a fabric foundation having a coating of cement or artificial stone on each side thereof, as set forth in Letters Patent No. 682,008, for cattle-guard, granted September 3, 1901, to Frederick A. Wenger, and do not claim such construction.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A cattle-guard block made of a cement product and having an inverted-**V**-shaped ridge or ridges on its upper side.

2. A cattle-guard composed of endwise and sidewise adjoining blocks made of a cement product, the blocks having inverted-**V**-shaped ridges on the upper side and the ridges of the several blocks registering with and abutting those of the endwise-adjoining blocks.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY B. STEWART.

Witnesses:
HARRY FREASE,
MINNIE F. ANTHONY.