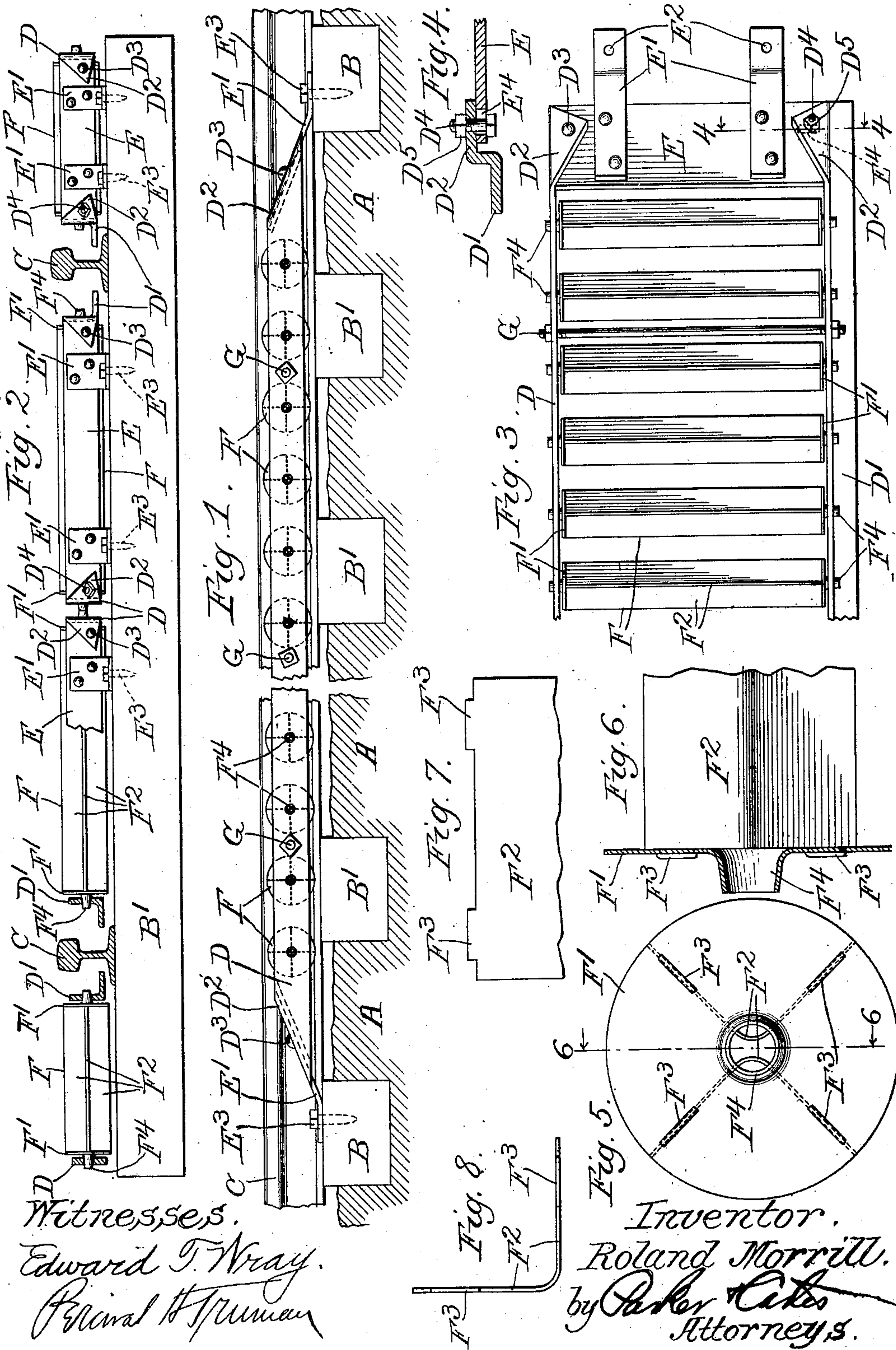


R. MORRILL.
CATTLE GUARD.

APPLICATION FILED SEPT. 20, 1906.



Witnesses.
Edward T. Wray.
Ernest H. Hume

Inventor.
Roland Morrill.
by Parker & Bates
Attorneys.

UNITED STATES PATENT OFFICE.

ROLAND MORRILL, OF BENTON HARBOR, MICHIGAN.

CATTLE-GUARD.

No. 862,181.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed September 20, 1906. Serial No. 335,360.

To all whom it may concern:

Be it known that I, ROLAND MORRILL, a citizen of the United States, residing at Benton Harbor, in the county of Berrien and State of Michigan, have invented a certain new and useful Improvement in Cattle-Guards, of which the following is a specification.

My invention relates to cattle guards for railroad tracks and has for its object to provide new and improved constructions in devices of that character.

The invention is illustrated in the accompanying drawings, wherein

Figure 1 is a side elevation showing the road bed in section; Fig. 2, a sectional view of the track with the guards in place; Fig. 3, a plan view of part of the device; Fig. 4, a section on line 4—4 of Fig. 3; Fig. 5, an end view of one of the rotary bars; Fig. 6, a sectional view on line 6—6 of Fig. 5; Fig. 7, a detail of the blank used in forming the bar before bending, and Fig. 8, an end view of the blank when bent.

Like letters of reference indicate like parts in all the drawings.

A represents the road bed, B, B, B¹, B¹, B¹ the ties, and C, C the rails. The guard is preferably made in four sections, one section being on the outside of each of the rails and two sections located between the same, although this arrangement is not essential. Each section consists of a number of rotary rollers or bars of peculiar construction mounted in a supporting frame work. This frame work rests at each end upon some firm foundation, for example, two of the railroad ties, but it is preferably free or suspended between its two points of support. In the drawings the frame work is shown as resting upon the two ties B, B and as spanning the ties B¹, B¹, B¹ at some little distance above the same.

The frame work of each section consists preferably of two longitudinal bars D, D¹. For one of the bars, for example, for the bar D¹ I prefer to use angle-iron for the purpose of giving additional rigidity. Both bars may be of this or any desired form. These longitudinal bars are connected at each end of the frame work by end pieces E which are preferably set at an angle to which are riveted the straps E¹ E¹ having perforations E² E² by which the frame may be secured to the tie, as for example, by the spikes E³. The longitudinal bars may be secured to the end pieces in any desired manner, for example, in Fig. 3 I have shown the corner of the longitudinal bars turned down at D² D², one of the bars being riveted to the end piece as at D³, the other temporarily secured to the end piece by the bolt D⁴ and nut D⁵. In such case the end piece has the slot E⁴ for purposes of adjustment. The relation of the parts is clearly shown in the section of Fig. 4. In the frame work thus formed are mounted the rotating bars designated generally by the letter F. I prefer to

make these bars of a peculiar construction aiming thereby to get simplicity, cheapness and great rigidity and durability. As shown particularly in Figs. 5 to 8 inclusive, these rotatable elements are composed of the end pieces F¹ between which extend the angle strips F². These latter may be made from blanks of sheet metal, the end of one of these being shown in Fig. 7, which are preferably formed with the lugs F³. These blanks may be bent until the two halves stand at right angles to each other, as shown in Fig. 8. The two of them will then be set between a pair of end pieces on diagonal lines so as to form four radiating wings at right angles to each other. The lugs F³ will pass through slots in the end pieces F¹. The end pieces are provided with journals for mounting the rotating bars in the frame work. Preferably these journals are made tapering and are formed by striking out the metal, as shown at F⁴. The various parts of the guard will then be removable, as shown in Fig. 3.

In order to remedy the rattling due to possible loosening up of the various parts of the device I prefer to make the side bars D, D¹ adjustable toward each other on the end pieces E. For that reason the end piece described above is slotted. By loosening the nut D⁵ and moving the bar D¹ closer to the bar D the engagement between the longitudinal bars and the journals of the rotating bars will be tightened. Tightening rods G may also be placed between the rotating rods at intervals.

The use and operation of my invention is as follows: The apparatus is easily applied. The parts are made and may be securely fitted together, the size being as provided for by the specifications of the railroad company. The apparatus so complete is shipped to the point where it is to be used and may then be quickly and easily put in position by simply spiking it down. To do this it will at the most only be necessary to shift one railroad tie to give the right distance between two ties to accommodate the span of the apparatus. When in position under normal conditions it is noiseless because there are no parts to rattle. If any of the parts become loose so that rattling ensues, it can be easily stopped by simply loosening the bolt in the slotted end piece and moving the parts together. Each tapered journal will make a relatively tight fit in the hole in the side bars, thus preventing noise and rattle. There are no parts projecting above the horizontal plane of the tops of the rails and, therefore, to catch should there be any part of a car dragging upon the rails. The rotating parts are transverse to the line of the railroad and hence any dragging part will tend to rotate them. Any part which drags between the rails is directed up the incline at the end of the device and finds no solid stop against which it may impinge, thus accidents from dragging members of the cars are provided against. The appa-

ratus is mounted so as to require no removal of ballast from the track, and yet the animal endeavoring to cross will find its foot caught, cramped and pinched before it can reach the ground so that it will be compelled to withdraw its foot and retreat. The apparatus is mounted on but two ties and is slightly elevated above the ties. This frees the metal from the danger of crystallization and the like incident to the jar and strain which would result from having the side bars rigidly spiked to a series of ties. All the metal part of the apparatus is suspended, as it were, so as to have free vertical spring. Moreover, by so mounting the apparatus I avoid the trouble incident to inequality in the surface of the ties.

15 Claims:

1. In a cattle guard for railroads, the combination of longitudinal bars with a supporting device at each end of the guard resting upon and secured to a tie, said bars and supporting devices so constructed and secured together as to make an elastic structure raised, except at each end, above the ground and the intervening ties, and transverse rotary bars mounted between the longitudinal bars so as to turn freely above the ground.

2. A cattle guard for railroads comprising longitudinal bars mounted on the ties with transverse rotary bars each provided with a tapered journal to be received in a hole in the longitudinal bar.

3. A cattle guard for railroads comprising longitudinal bars mounted on the ties with transverse rotary bars each provided with a tapered journal to be received in a hole

in the longitudinal bar, said longitudinal bars supported so as to be adjustable toward each other.

4. A cattle guard for railroads comprising a plurality of rotary bars each consisting of a sheet metal end piece having a journal and a pair of angle strips oppositely disposed with respect to each other and secured between the end pieces.

5. A cattle guard for railroads comprising a plurality of rotary bars comprising sheet metal end pieces with journals struck out therefrom, and a pair of bent angle strips of sheet metal between the end pieces and secured thereto.

6. A cattle guard for railroads comprising a frame work composed of longitudinal bars and end pieces in combination with a plurality of rotatable bars mounted on the longitudinal bars, one of said longitudinal bars being adjustably connected with the end pieces.

7. A cattle guard for railroads comprising a frame work composed of longitudinal bars and end pieces, in combination with a plurality of rotatable bars mounted on the longitudinal bars, one of said longitudinal bars being adjustably connected with the end pieces, and cross rods for drawing the longitudinal bars together.

8. A cattle guard for railroads, comprising longitudinal bars mounted on the ties with transverse rotary bars each provided with a journal to be received in the hole in the longitudinal bar, one of said longitudinal bars being movably mounted so as to be adjusted toward the other.

ROLAND MORRILL.

Witnesses:

PERCIVAL H. TRUMAN,
SOPHIE WERNER.