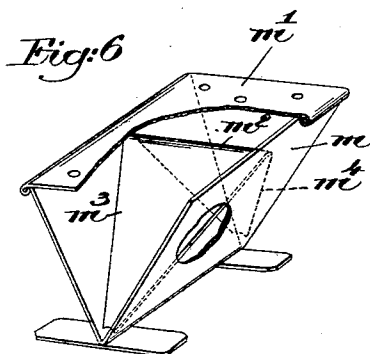
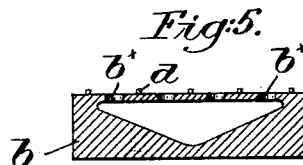
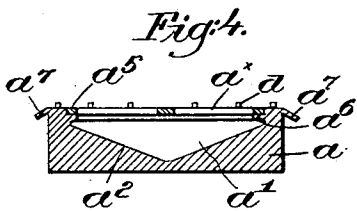
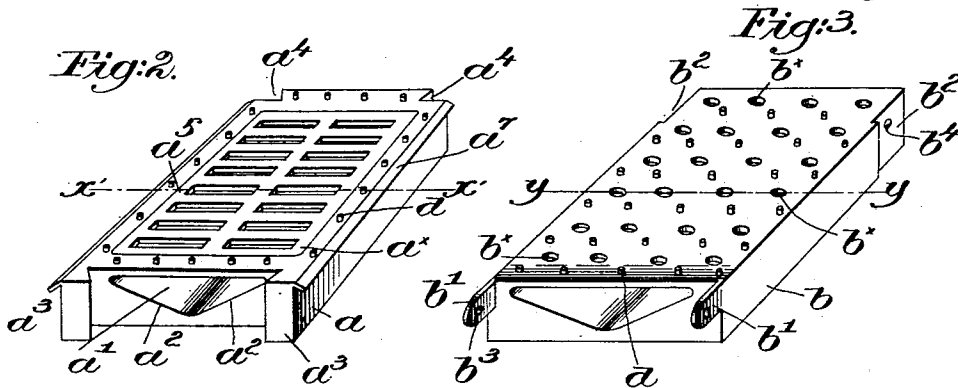
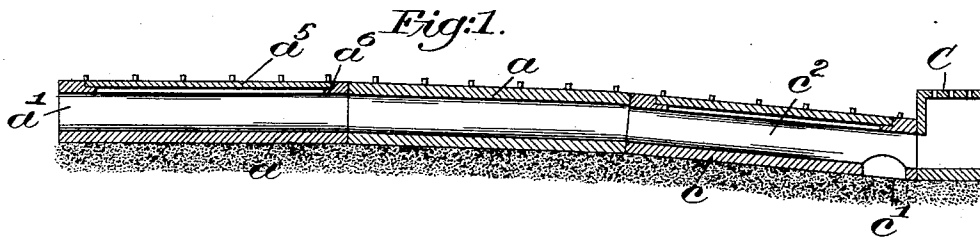


(No Model.)

J. H. RING.
HIGHWAY CROSSING.

No. 541,181.

Patented June 18, 1895.



Witnesses.

Fred S. Grunke of.
A. C. Harmon

Inventor.

John H. Ring.
by Crosby & Gregory
attys.

UNITED STATES PATENT OFFICE.

JOHN H. RING, OF LOWELL, MASSACHUSETTS, ASSIGNOR OF ONE-FOURTH
TO MICHAEL H. CURRY, OF SAME PLACE, AND EDWARD T. P. CURRY,
OF LYNN, MASSACHUSETTS.

HIGHWAY-CROSSING.

SPECIFICATION forming part of Letters Patent No. 541,181, dated June 18, 1895.

Application filed July 9, 1894. Serial No. 516,919. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. RING, of Lowell, county of Middlesex, State of Massachusetts, have invented an Improvement in Highway-Crossings, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

Highway crossings are now commonly constructed by setting a series of flag-stones at the desired point, extending across the highway from gutter to gutter. In wet weather the mud and dirt are deposited thereon by passing vehicles and by the rain, so that the crossing is only less wet and muddy than the adjacent street or highway.

This invention has for its object the production of a street or other crossing which will remain dry and clean with little care or attention, of cheap construction and easy to lay, the crossing assisting the gutters in properly carrying off the water from the street or highway.

In accordance therewith my invention consists in certain features of construction and arrangement hereinafter particularly described in the specification, and particularly pointed out in the claims.

Figure 1 represents in longitudinal section a sufficient portion of a highway crossing to be understood, my invention being embodied therein. Fig. 2 is a perspective view, on a larger scale, of one form of a crossing-section. Fig. 3 is a similar view of a modified form of section. Fig. 4 is a transverse section of the section shown in Fig. 2, taken on the line $a'a'$. Fig. 5 is a similar section taken on the line $y'y$, Fig. 3; and Fig. 6 is a perspective view, partially broken out, of another form of section, showing the deflector therein.

Referring to Fig. 1 of the drawings, the crossing is shown as composed of a series of sections a , of cast iron, earthenware, or other suitable material, of any desired shape in cross-section, and laid end to end on the highway bed, from one to the other gutter, or extending across the sidewalk, as at C, at the right of Fig. 1. Each section is hollowed out longitudinally to form a covered passage a' , preferably with converging sides a^2 , their

apex or junction being at the lowest point. The top of the section is pierced with openings, which may be slots, as a^x , (see Figs. 2 and 4,) or circular holes, as b^x , in Figs. 3 and 5, the openings communicating with the passage a' .

The ends of the sections abut when laid to form the crossing, as shown in Fig. 1, so that the open ends of the separate passages register and form a practically continuous channel or passage from one to the other end of the crossing, so that water will drain off from its upper surface and into the passage, to be carried thereby to the gutter or sewer.

Mud and dirt are washed into and carried away by the passage, so that the crossing will dry rapidly after a rain, and can be readily kept clean. Adjacent portions of the highway are also drained, thus aiding the gutters in their work of removing water therefrom.

In order to readily connect the sections when laid, I have shown in Fig. 2 dowels a^3 formed at one end of the section to fit into mortises in the adjacent end of the next section, the other end of the section being mortised, as at a^4 , to receive the dowels on the section next to it. The sections are thus securely locked together, and the paving blocks or other material prevent lateral displacement.

In the modification, Fig. 3, projecting lugs b' are formed on one end of the section b , to fit into recesses in the next section similar to the recesses b^2 on the other end of the section b . Holes b^3 in the lugs b' receive a suitable bolt, not shown, which is passed through an opening similar to the opening b^4 , in the adjacent end of the next section.

Should the drain passage become clogged or filled up access may be had thereto by means of hand holes formed in one or more of the sections, and in Figs. 1, 2 and 4, I have shown the top a^5 as removable, it normally resting on projections or flanges a^6 formed in the body of the section.

It may be desirable to obviate the presentation of a sharp longitudinal corner at each side of the crossing, and accordingly the corners may be beveled or provided with downwardly inclined flanges a^7 . See Figs. 2 and 4.

This construction is advisable on a highway on which there is much teaming, as the wheels then approach the crossing gradually, and without a shock.

5 If the endmost sections of the series were constructed just like the intermediate ones the usual surface gutters would be stopped up, as the sides of the end sections sometimes project above the road bed adjacent the curb, and to prevent this I form a gutterway by making a transverse recess or opening c' in the section in line with the gutter, see Fig. 1, intersecting the passage c^2 in the end section c , allowing the drainage water to pass out into the gutter or sewer, and permitting a free passage for the contents of the gutter.

A gasket may be interposed between the adjacent ends of the sections, or the joint may be cemented, if desired, but ordinarily the joints will fill up with sediment and be kept tight thereby.

Projections d may be formed on the tops of the sections to prevent slipping of horses thereon.

25 For comparatively narrow highways the crossing may be made of a single section, the ends of the covered drain passage communicating with the sewer or catch basin.

If desired covered gutters may be had by embedding a series of these sections in the street or road parallel to and adjacent the curb, the tops of the sections being set at the proper level, and the drain passage communicating at suitable intervals with the sewer, &c.

35 Referring to Fig. 6, the section m is shown as triangular in cross section, the base of the triangle forming the perforated top m' of the section.

It is desirable sometimes to aid in deflecting the drainage water toward the ends of the passage, and for this purpose I introduce a deflector m^2 in the drain passage, said deflector having its opposite sides m^3, m^4 , inclined downward and in the direction of the ends of the section, forming a species of watershed.

The inclination and length of the sides may be varied according to circumstances, and in a highway crossing the deflector would be located at its center, to turn the water equally toward both ends of the drain passage.

My invention is applicable to crossings over large or small, or public or private highways, paved or unpaved streets, sidewalks, &c., whether there is much or little travel thereover, and my invention is not restricted to the exact shape or arrangement of the sections, nor to the particular material of which they are composed, the gist of my invention consisting in providing means for draining

the upper surface of a crossing and thereby keeping it dry and clean.

I claim—

1. In a highway crossing, a series of connected hollow sections extended across the highway, to form a longitudinal covered drain passage, the upper surface of the sections having openings therein communicating with the drain passage, a section at each end of the series having a transverse opening there- through intersecting the drain passage and forming a gutterway for the free passage of the contents of the surface gutter, and providing an outlet for the drain passage thereinto, substantially as described.

2. A highway crossing, consisting of a series of connected sections extended across the highway, the end section having its upper surface raised to the level of and extending across the sidewalk, the outer side of the end section forming a continuation of the curb, a longitudinal covered drain passage through the sections from one to the other end of the crossing, and openings in the upper surface of the sections communicating with the drain passage, the sections next the sidewalk sections, of the series having a transverse opening therethrough for the free passage of the contents of the surface gutter and also intersecting and forming an outlet for the drain passage, substantially as described.

3. A crossing section having a longitudinal covered passage therethrough, and provided with openings in its top communicating with the passage, the upper longitudinal edges of the section being beveled, substantially as described.

4. A crossing section having a longitudinal drain passage therein, and provided with openings in its top communicating with said passage, to drain the surface of the section, and a deflector in said passage having its opposite sides inclined toward the ends thereof, substantially as described.

5. A crossing section having a longitudinal drain passage extended therethrough, openings in the top of the section communicating with said passage, to drain the surface of the section, and a deflector in said passage having its opposite sides inclined toward the ends of the section and extended part way to the bottom of the drain passage, substantially as described.

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

JOHN H. RING.

Witnesses:

JOHN C. EDWARDS,
FREDERICK L. EMERY.