R. B. GAGE.

APPARATUS FOR MAKING ROADS.

APPLICATION FILED APR. 27, 1916.

1,320,222.

Patented Oct. 28, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

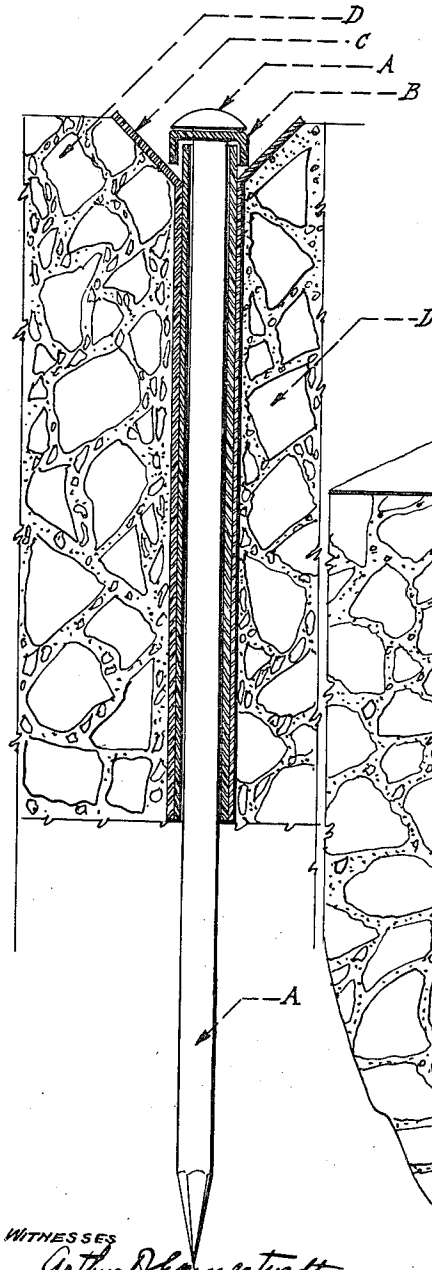
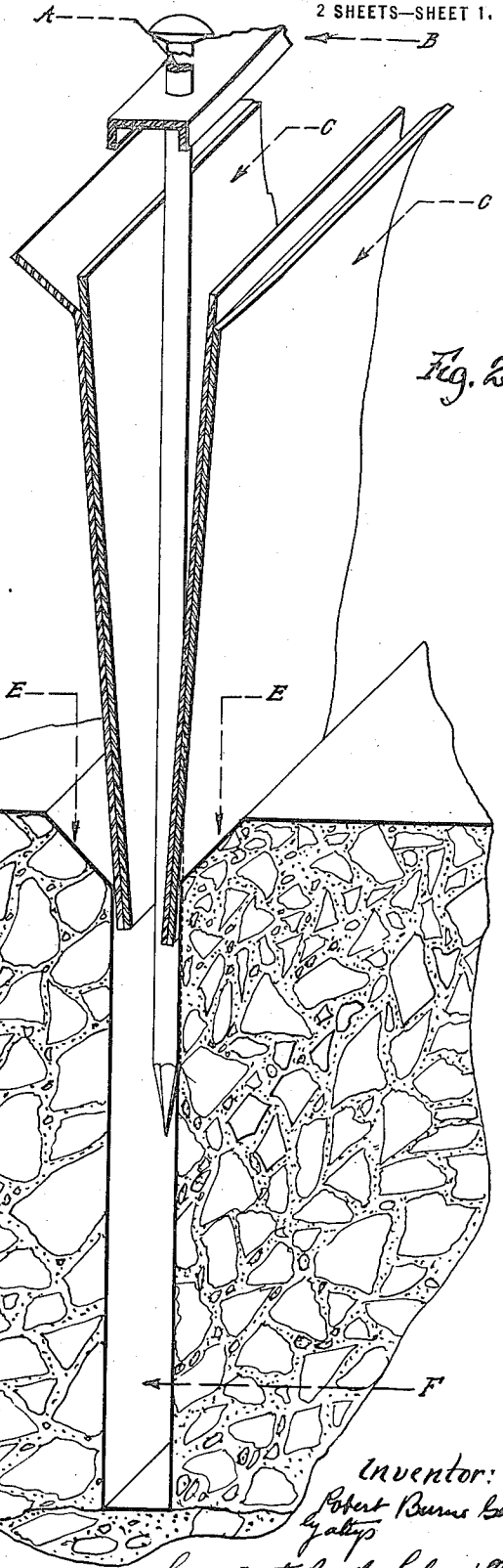


Fig. 2.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

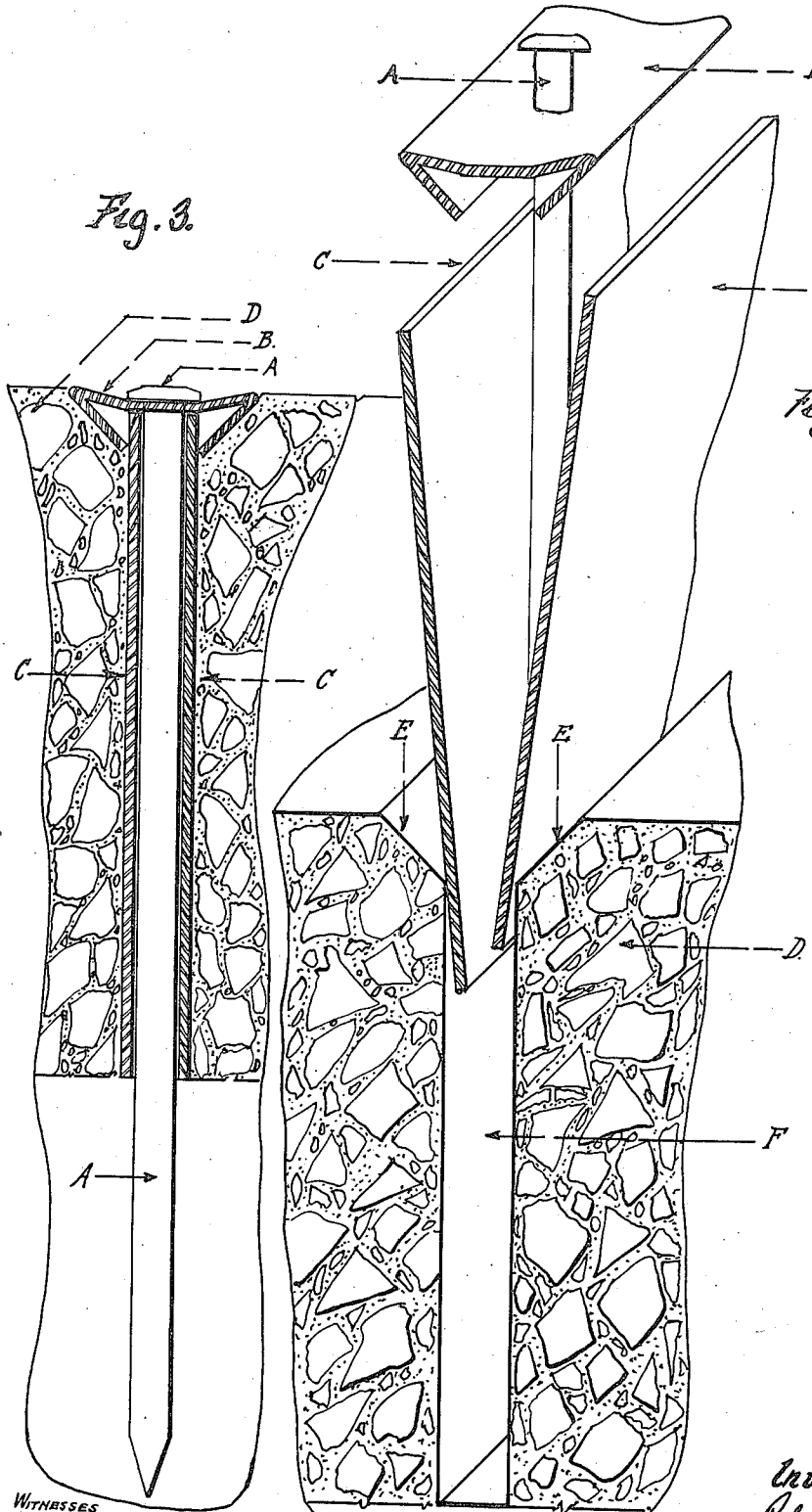


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT B. GAGE, OF TRENTON, NEW JERSEY, ASSIGNOR TO BLAW STEEL CONSTRUCTION COMPANY, OF HOBOKEN, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

APPARATUS FOR MAKING ROADS.

1,320,222. Specification of Letters Patent. Patented Oct. 28, 1919.

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To all whom it may concern:

Be it known that I, ROBERT BURNS GAGE, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Making Roads, of which the following is a specification.

This invention relates to an improved apparatus for making roads, road beds, walks, and the like, and has particular reference to the making of roads from concrete or analogous cementitious material. My invention also contemplates an improved expansion joint form or device for forming expansion joints in the road which has certain advantages and overcomes certain difficulties to be more fully pointed out.

The foregoing, together with such other objects as may hereinafter appear or are incident to my invention I attain by means of apparatus which I have shown in preferred form in the accompanying drawings, wherein—

Figure 1 is a sectional view through a concrete road showing my improved expansion joint form in position therein ready to be removed; Fig. 2 is a similar sectional view indicating the manner in which the form parts may be removed; Fig. 3 is a sectional view through a concrete road showing a modified form of expansion joint form; and Fig. 4 is a sectional view illustrating the manner in which the form may be removed.

In the construction of concrete roads made of Portland or other cement, either with or without the addition of hydrated lime and similar binding material, it has been found necessary to construct transverse expansion joints at definite intervals in order to prevent the formation of transverse cracks at irregular intervals, or buckling. The customary practice in forming these joints is to embed strips of tarred felt, sheets of prepared bitumen, metal plates, or combinations thereof, in the fresh or soft concrete mixture. These materials are left in the concrete, and when metal plates are used, the joints are designated as "armored joints", which may or may not have a tarred felt or sheet of prepared bitumen between the plates.

Expansion joints naturally form points of weakness in a concrete pavement for the impact upon the surface of the pavement of the various types of vehicles and the horses' shoes breaks off the concrete adjacent to the joints and once a joint has started to ravel in this manner, the opening thus formed is rapidly enlarged. Armored joints have been provided to protect the joint and to prevent this raveling and the breaking off of the edges of the joint, for which purpose two armor plates are required one to protect each face of the joint, and these plates must be co-extensive with the road or pavement in width. From this it will be readily seen that the cost for plates for a mile of road or pavement makes protection of the joints in this manner quite expensive, while on the other hand, if they are not so protected, the road bed deteriorates very rapidly in the manner just above indicated.

It is the purpose of my invention to secure an expansion joint that is equally as efficient as one protected by armor plates, but the cost of which will not exceed that of the ordinary felt or sheets of prepared bitumen which are ordinarily used and which do not prevent the joints from breaking off or raveling.

My improved expansion joint form comprises two metal plates, C, preferably counterparts of each other, said plates having the same depth and curvature as and equal in length to the width of the pavement specified. In the form shown in Figs. 1 and 2, the plates C are a composite structure, each being composed of two plates secured together, the outer plates, or the ones next adjacent to the concrete having their upper edges bent outward, preferably at an angle of 45°, the inner plates projecting above the bend. These plates C are maintained in position and spaced apart by means of pins A, and a channel-shaped cap, B, the flanges of which embrace the upper edges of the inner plates. The pins A are driven into the ground and hold the cap and the plates in the required position. It will be understood that as many of the pins A are used as may be required. By this arrangement a joint opening is provided, the top of which forms an angle greater than 90°, and the bottom of which is substantially perpendicular to the surface of the pavement.

After a joint has been thus formed and the concrete has taken a set, the pins A are drawn out and the metal cap B is removed,

which leaves an open space between the metal plates equal in width to the thickness of the pins used, which makes it possible to readily remove the plates C of the form.

After the form has been removed the expansion joint opening is filled with filler, such for example as a hot bituminous filler, which is poured into the opening and which will be ironed out over the edges of the joint by the travel. The edges of the joint are thus protected because of the shape of the upper part of the joint opening and because of the spreading out over the edges of the softer filler.

From the foregoing it will be seen that the expansion joint itself is much more efficient and more durable, while at the same time the expense incident to the use of armored joints is obviated, for it will be noted that the expansion joint forms can be used over and over again and that but a few forms are necessary to carry on the work.

In Figs. 3 and 4 I have shown a slightly modified arrangement of form in which the angular opening at the top of the joint is formed by the cap B, the angular depending portions of which engage the outer faces of the plates and are bent at an angle of approximately 45° to the surface of the road so as to form a top opening of slightly greater than 90°.

I claim:

1. A removable expansion joint form for road making comprising a pair of plates, a cap member therefor having depending portions engaging the plates, and a plurality of holding members for holding the said cap in engagement with the plates and passing between the plates.

2. A removable expansion joint form for road making, comprising a pair of plates having their upper portions oppositely inclined, a cap member, and removable means engaging the said cap member and extending between the plates and engaging the road bed for holding the form in position.

In testimony whereof I have hereunto signed my name.

ROBERT B. GAGE.