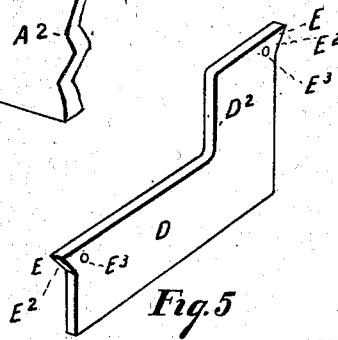
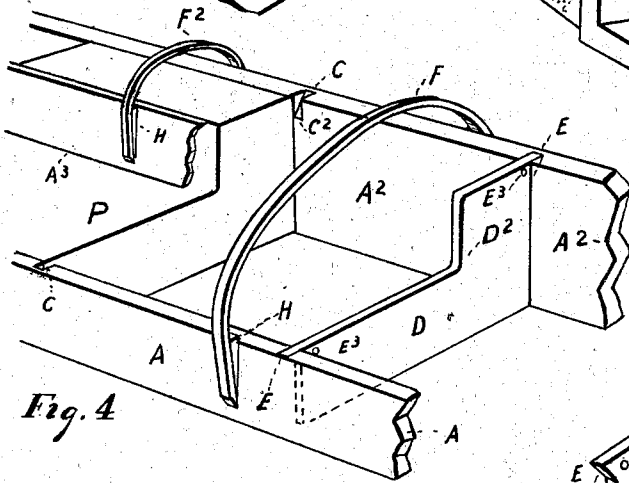
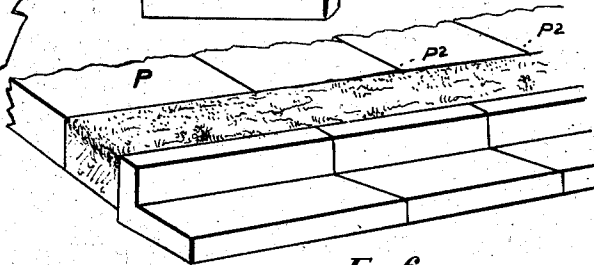
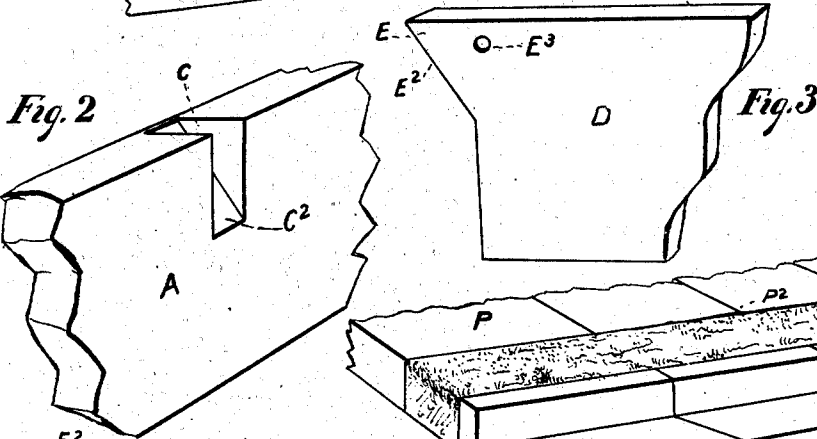
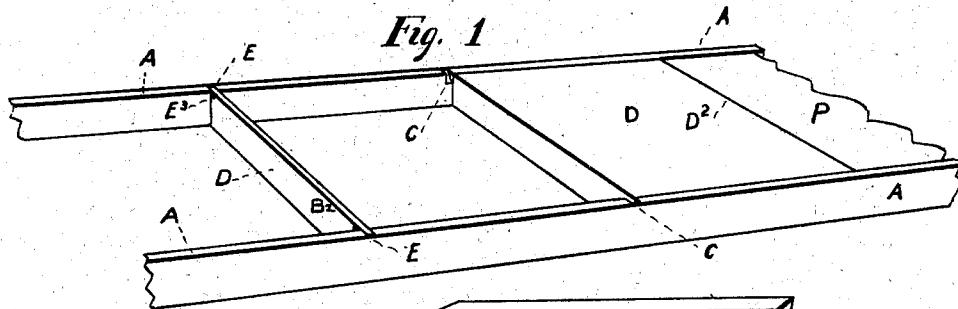


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MECHANISM FOR MAKING SIDEWALKS, CURBS, AND GUTTERS.

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NO MODEL.



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MECHANISM FOR MAKING SIDEWALKS, CURBS, AND GUTTERS.

SPECIFICATION forming part of Letters Patent No. 729,852, dated June 2, 1903.

Application filed January 30, 1901. Serial No. 45,383. (No model.)

To all whom it may concern:

Be it known that I, DANIEL B. ESTELL, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain Improvements in Mechanism for Making Sidewalks, Curbs, and Gutters, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

In the accompanying drawings, making a part of this application, and in which similar letters of reference indicate corresponding parts, Figure 1 represents a view in perspective of a portion of a frame, a part of the general compartment therein, together with my invention applied thereto, a division of concrete being also shown therein, the device being employed in making concrete pavements. Fig. 2 represents in perspective and enlarged a part of the side frame provided with a feature of my invention. Fig. 3 is a view, also enlarged and in perspective, of a portion of the end of one of the separators or division-pieces provided with a feature of my invention. Fig. 4 is a view in perspective of the mechanism for making curb and gutter. Fig. 5 is a view in perspective of a separator for curb and gutter formation and formed according to my invention. Figs. 4 and 5 are on a scale larger than that of Fig. 1, but less than that of Figs. 2 and 3. Fig. 6 represents, on a diminished scale, a view in perspective of the concrete of a pavement and of a curb and gutter, the pavement being separated, as in country sidewalks, by a plot of grass.

I will now proceed to describe my invention in detail. I will first describe it in connection with a sidewalk and then in its application to a curb and gutter.

The classes of material which I purpose using are what is known in general under the term "concrete." Such concrete is while in a semiliquid or viscous state poured or placed within the mold or form whereby it is to be shaped and retained until it is hard and solid. A suitable foundation must be present on which the concrete is laid. This foundation is preferably of cinders.

In the manufacture of concrete pavement an important and necessary provision is channels in the pavement separating the same into blocks or divisions. These channels may vary as to their distance from one another. A desirable distance is anywhere from three to six feet.

In Figs. 1 and 6 is seen part of a concrete pavement already laid. P indicates the pavement, and P² P² P² the cross-channels in the latter. The purpose of these channels is to prevent the pavement from cracking or breaking. The reason why these channels prevent such breakage, &c., of the pavement is because they make a provision for the expansion and contraction of the pavement. To those not skilled in the art it is proper to say that such concrete pavements expand very much when subjected to the heat of summer, and they contract very much when subjected to the cold of winter. Very often in a single day they expand and contract greatly, owing to the great rise or fall of the temperature. For beauty of workmanship, as well as excellence in accomplishing the function which it is intended they should perform, it is desirable that such channels be quite narrow and exceedingly straight. Various devices and mechanisms have been used and tried to accomplish the formation of these channels. The mechanisms I have invented are exceedingly simple, economical in cost, efficacious in use, and quickly handled. They are exceedingly accurate in function. On the sidewalk on which the concrete is to be laid I lay down the usual side pieces or boards A on a foundation, heretofore mentioned, on piece A on the side toward the gutter and the other on the opposite side of the walk. These pieces A are then held in place by any well-known means—as, for example, by stakes driven into the ground. Thus far the construction is old. I now apply my improvements. At those points along each of the side pieces A where I desire to locate my dividing-strips or separators D, I cut in the inner upper edge portion of these side pieces an inclined kerf or groove C, whose bottom C² runs from the upper outer edge of the piece A downward to the inner side of the piece. The direction of

this channel is transverse to the length of the piece A. I form each end of the separator D with a projection E, whose bottom E² inclines upward and outward, substantially as shown.

5 Thus when the separator is united to the piece A the lower portion of the end of the separator, which is preferably straight, will fit directly and closely against the inner side of the piece A, while the inclined projection
10 E will fit closely the channel C in the piece A. The bottom of the separator D will preferably be in the same plane with the bottom of the pieces A, because it is desirable to altogether separate the divisions of concrete to
15 properly provide for their simultaneous expansion and contraction. Each separator is preferably provided with means for engaging it and lifting it out of engagement with the side pieces A. A desirable means for
20 this purpose consists of the openings E³, one near each end of each separator and located near the upper edge thereof, substantially as shown.

The side framing-pieces A and A², the
25 piece A³, and the wedges H are preferably made of wood, but the strips or separators D and the clamps F and F² are preferably made of iron.

The mode in which these features of my
30 invention operate is as follows: The frame-pieces A A being duly secured in place, substantially as specified, each separator D is duly placed in position, its ends E fitting into the respective adjacent grooves of the side
35 pieces A, substantially as shown. The concrete in a semiliquid and plastic form is now placed within the compartments and the top is duly smoothed, if that be desired or necessary. As soon as the concrete is duly set
40 the separators may be removed. They are lifted out, preferably, by means of a hook made to catch into the opening E³ of the separator. As soon as they are removed they are ready to be used as separators in forming
45 compartments for laying another length of walk.

The mode in which my invention is employed in laying curbs and gutters of concrete is substantially as follows: There is a side
50 piece A, whose height is the height of the outer side or edge of the gutter, and another side piece A², whose height is equal to that of the gutter and curb, and these pieces are duly secured in place and will then relatively
55 occupy the position shown in Fig. 4. The individual compartments are formed by separators D D², the part D being the lower part, running all the way across the general compartment and being of the height the concrete forming the gutter is to be, and the part
60 D² being the upper part or extension of the separator and being of the height of the curb and gutter. The upper outer edge portion of this upper part D² extends out into a projec-
65 tion similar to E E² of the separator D first

described, and I have therefore similarly marked the same E E². The upper outer edge portion of that end of part D opposite where the part D² extends up therefrom has a projection E E². In the upper inner edge of the
70 side piece A A² are kerfs or grooves C, cut therein to respectively receive the projections E E², and these grooves are similar to those of the side pieces A first described. The inner upper edge of the side piece A opposite
75 to the piece A A² also has kerfs or grooves C, like those first mentioned in connection with the side pieces A. The separators are duly placed in the compartment, the projections E E² fitting the grooves C of the side A and
80 of the side A A², substantially as shown. A very convenient and preferred means for thus securing the parts together consists of the clamps F, which duly straddle the compartment formed by the parts A A² and the separators and ends where the latter are used.
85 One hooked end of each clamp goes down outside of side piece A and the other hooked end of this clamp goes down outside of the piece A². Where the general compartment formed
90 by the pieces A and A² is not unusually long, two such clamps, one near each end of the compartment, will be sufficient to duly hold the pieces A and A² to place against the end
95 pieces and to brace the pieces A A² against deflection; but where the pieces A A² are very long, the compartment they bound being unusually long, there will preferably be one or more of these clamps located intermediate of
100 the ends and arranged to brace the pieces A and A² from outward deflection. To duly hold the clamps in place, inasmuch as those shown and preferably employed are not adjustable so that they can be shortened, I insert wedges
105 H between each clamp and the adjacent side piece, as A or A², substantially as shown. The concrete is now placed within the compartment until it rises to the level of the part
110 A. Then an additional side piece A³ is located on the tops of the lower part of the separators D and brought against that vertical edge of the part D² which is opposite where the side piece A² comes. This side piece A³ is duly secured to place. A convenient means for
115 this purpose are the clamps F², similar to the clamps F, but shorter, and applied as shown. These clamps are preferably secured by wedges. (See Fig. 4.) Concrete is then poured into the upper compartments formed by the
120 part A³ and the parts D of the separator and the side piece A² and the concrete already poured in, as aforementioned. When these upper compartments are full, the entire mass of concrete is allowed to set, and when sufficiently dry the side piece A³ is removed. Next
125 the separators are lifted out and removed. Such removal is accomplished, preferably, by means of the holes or recesses E³ in the ends of the separators and a hook for insertion therein.
130

The side pieces and the separators may be formed according to my invention previously to being laid down.

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

1. In an apparatus for laying concrete, the side pieces forming the sides of the general compartment, each side piece provided at its upper inner edge with a groove having an inclined bottom, and the intermediate cross-pieces or separators provided at the upper portion of each end with a projection having an inclined bottom, and adapted to fit the groove aforementioned, in the side frame, and the independent clamps F extending over the side pieces, and wedges, for clamping the side pieces against the ends of the separators, substantially as and for the purposes specified.

2. In an apparatus for laying concrete, the side pieces one A of the height of the concrete of the gutter and the other side piece A² of the height of the concrete of the gutter and curb, each of these side pieces provided at its upper inner edge with a groove having an inclined bottom, and a separator having a lower portion of the height of the gutter concrete, and an upper portion of the height of the gutter and curb concrete, the upper portion of each end of the separator formed with projecting part E, E², to engage respectively in the grooves aforementioned, and a side piece A³ adapted in connection with the said rear side piece A² to retain and to form the concrete of the curb, and means for holding together the rear side piece, and the side piece A, and the rear side piece A² and the side piece A³, substantially as and for the purposes specified.

3. In an apparatus for laying concrete, the side pieces one of the height of the concrete of the gutter and the other side piece of the height of the concrete of the gutter and curb, each of these side pieces provided at its upper inner edge with a groove having an inclined bottom, and a separator having a lower portion of the height of the gutter concrete, and an upper portion of the height of the curb and gutter concrete, the upper portion of each end of the separator formed with projecting part E, E², to engage respectively in the grooves aforementioned, and a side piece A³, adapted in connection with the said rear side piece A² to retain and to form the concrete of the curb,

and a clamp F, and wedges for overarch- 55
ing and securing in place rear side A² and the front side A, and clamp F² for overarch-
ing and securing in place the rear side A² and the front curb side A³, substantially as and for the purposes specified.

4. In an apparatus for laying concrete, the 60
side pieces forming the sides of the general compartment, each side piece provided at its upper inner edge with a groove having an inclined bottom, and the intermediate cross-pieces or separators provided at the upper 65
portion of each end with a projection having an inclined bottom, and adapted to fit the groove aforementioned in the side frame, each of the ends being provided with opening E³, located in the separator just behind the in- 70
clined bottom, and the independent clamps F extending over and down outside of the side pieces, and wedges for clamping the side pieces against the ends of the separators, sub- 75
stantially as and for the purposes specified.

5. In an apparatus for laying concrete, the side pieces forming the sides of the general compartment, each side piece provided at its inner edge with a groove having an inclined bottom, and the intermediate cross-pieces or 80
separators provided at the upper portion of each end with a projection having an inclined bottom, and adapted to fit the groove aforementioned, in the side frame, and means for securing the side pieces in place, against 85
the ends of the separators, substantially as and for the purposes specified.

6. In an apparatus for laying concrete, the side pieces forming the sides of the general 90
compartment, each side piece provided at its inner edge with a groove having an inclined bottom, and the intermediate cross-pieces or separators provided at the upper portion of each end with a projection having an in- 95
clined bottom, and adapted to fit the groove aforementioned, in the side frame, each of the ends of the separators being provided with opening E³, located just behind the inclined bottom, and means for securing the side 100
pieces in place, against the ends of the separators, substantially as and for the purposes specified.

DANIEL B. ESTELL.

Attest:

SAMUEL A. WEST,
R. SMITH.