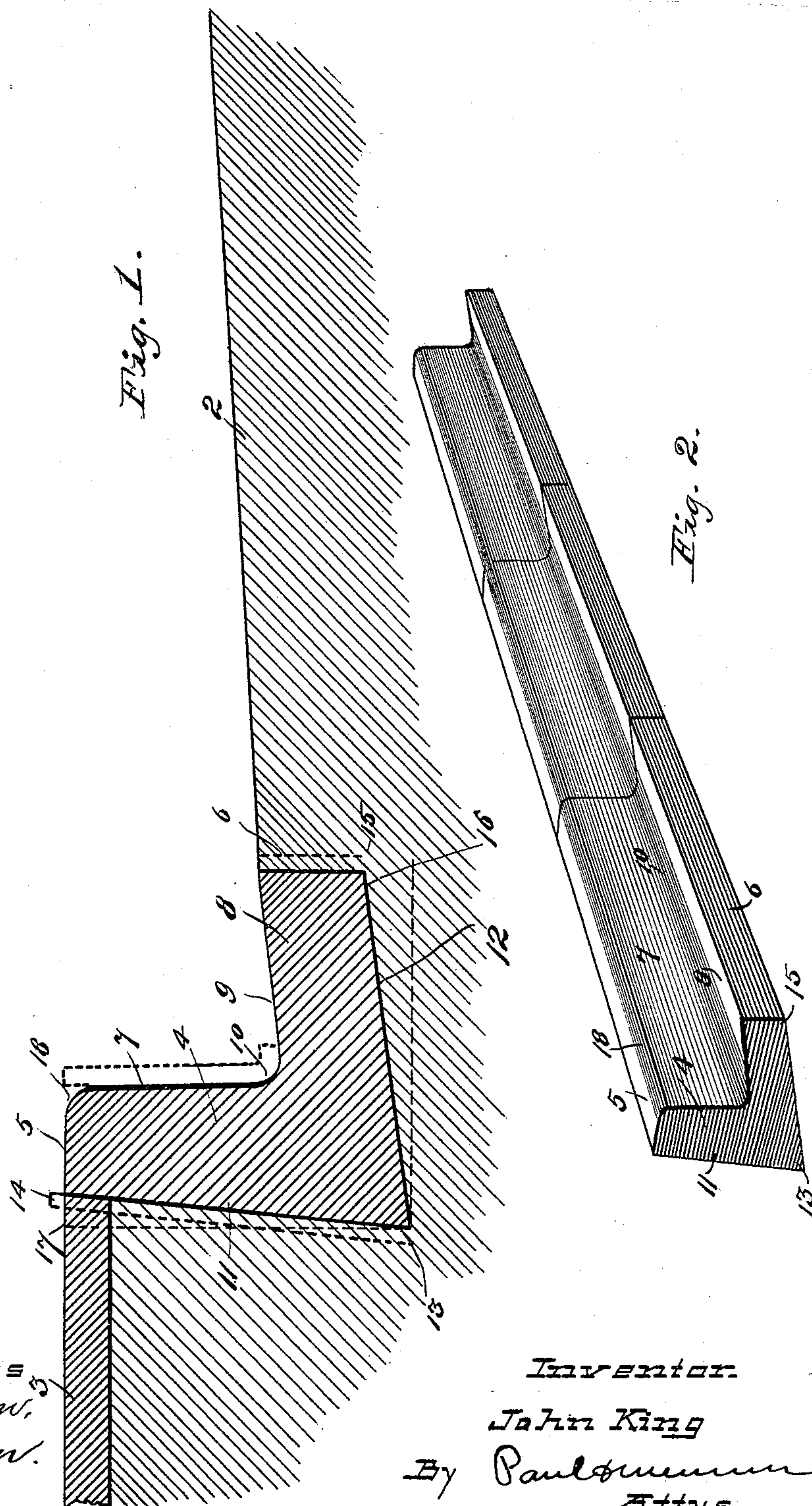


(No Model.)

J. KING.
COMBINED CURB AND GUTTER.

No. 459,754.

Patented Sept. 22, 1891.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN KING, OF MINNEAPOLIS, MINNESOTA.

COMBINED CURB AND GUTTER.

SPECIFICATION forming part of Letters Patent No. 459,754, dated September 22, 1891.

Application filed February 19, 1891. Serial No. 382,056. (No model.)

To all whom it may concern:

Be it known that I, JOHN KING, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Combined Curbs and Gutters, of which the following is a specification.

My invention relates to artificial-stone curbs and gutters for city streets.

The object of my invention is to provide a cheap combined curb and gutter of a desirable form and means for anchoring the same securely in the ground.

Heretofore various means have been devised for anchoring the gutter stones or blocks in the ground, such as specially-formed projections or shoulders adapted to engage the earth packed around the stone; but in general these have been expensive to make and place in position.

My invention consists in a curb-gutter formed in blocks, the exterior face of the curb being perpendicular and the surface of the gutter formed at an acute angle thereto, while the edges of the block are set vertical and horizontal. The back and bottom of the stone make an acute angle one with the other, the apex or rear corner thereof occupying a position back of and below the upper and outer portions thereof.

My invention will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a transverse section showing a combined curb and gutter embodying my invention. Fig. 2 is a perspective view showing three of the blocks placed together end to end.

In the drawings, 2 represents the pavement, and 3 the sidewalk-flagging. The full cross-section of the curb and gutter 4 is shown in Fig. 1, where it will be seen that the upper edge 5 of the stone is practically horizontal, while the outer or pavement edge 6 stands in a vertical plane and in line with the exterior face 7 of the curb, also vertical. The gutter is formed by the portion 8 of the stone extending laterally from the curb portion and provided with the downwardly-inclined surface 9, forming an acute angle with the surface 7 of the stone. These two surfaces do not make a sharp angle at the bottom, but are gradually merged by the curved corner 10. The pavement 2 extends upwardly from the

surface of the gutter, so that all water drains into the same. As shown, the back 11 of the curbstone makes quite a sharp acute angle with the bottom 12 thereof, the rear corner 13 being set back of and below the upper and outer corners 14 and 15, respectively. The surfaces of the back and bottom 11 are preferably smooth, but may be provided with slight corrugations, if desired. Further, the bottom 12 is preferably formed at a greater angle to the horizontal than the back is to the vertical, the distinction being indicated by the horizontal and vertical dotted lines 16 and 17. The upper and outer corner of the curb is slightly rounded, as shown at 18. These curb and gutter blocks may be made or formed complete prior to being placed in position or may be made directly on the spot and in the permanent position which they are to occupy along the sides of the street.

In practice three boards of widths corresponding to the face 11, 7, and 6, respectively, are employed as mold-boards. In the first place a shallow trench is dug and its bottom clearly packed down to form a good solid formation for the curb and gutter stone. The boards are then placed in position, that forming the face 7 being, so to speak, suspended between the others. The concrete, being now packed into the mold formed by the bottom of the trench and the three boards, is obviously made of even density, one portion of the stone being just as strong as the other. The mold-boards are then removed and the earth packed in behind the rear space 11 of the stone and the pavement completed. After the pavement 2 has been filled in against the edge 6 it will be seen that the curb is thoroughly wedged and anchored in the ground. A force exerted in a directly-vertical line and acting to raise the several sections or any one of the same is resisted by the compact earth between the back 11 and the dotted line 17, while an outward thrust is opposed by the earth packed against the bottom 12 and the end 6. Any tilting action is resisted by engagement of the lower corner of the curb with the earth. I thus securely anchor the curb and gutter stones in the ground without use of any large shoulders or lugs formed on the back or bottom thereof. It is obvious that the angle of the rear and lower surfaces 11

and 12 may be increased with respect to the vertical or horizontal; but that indicated has been found the most practicable. Any lowering of the corner 13 would increase the amount of material required to be used.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An integral curb and gutter V-shaped in cross-section, the curb portion being vertical upon the side next the gutter, while its rear surface slopes downward and backward under or toward the sidewalk, and the gutter portion or wing slopes slightly upward toward the street, substantially as described.

2. The combined curb and gutter, artificial stone 4, having the upright curb portion and

the lower gutter extension or wing; said gutter portion having a downwardly and backwardly slanting plane under surface and the upper surface of the gutter being parallel therewith, the outer vertical edge 6, adapted to engage the pavement, and said upright portion having a vertical exterior face 7 and downwardly and backwardly slanting rear side 11, making an acute angle with the bottom of the stone, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand this 14th day of February, 1891.

JOHN KING.

In presence of—

F. S. LYON,

C. G. HAWLEY.