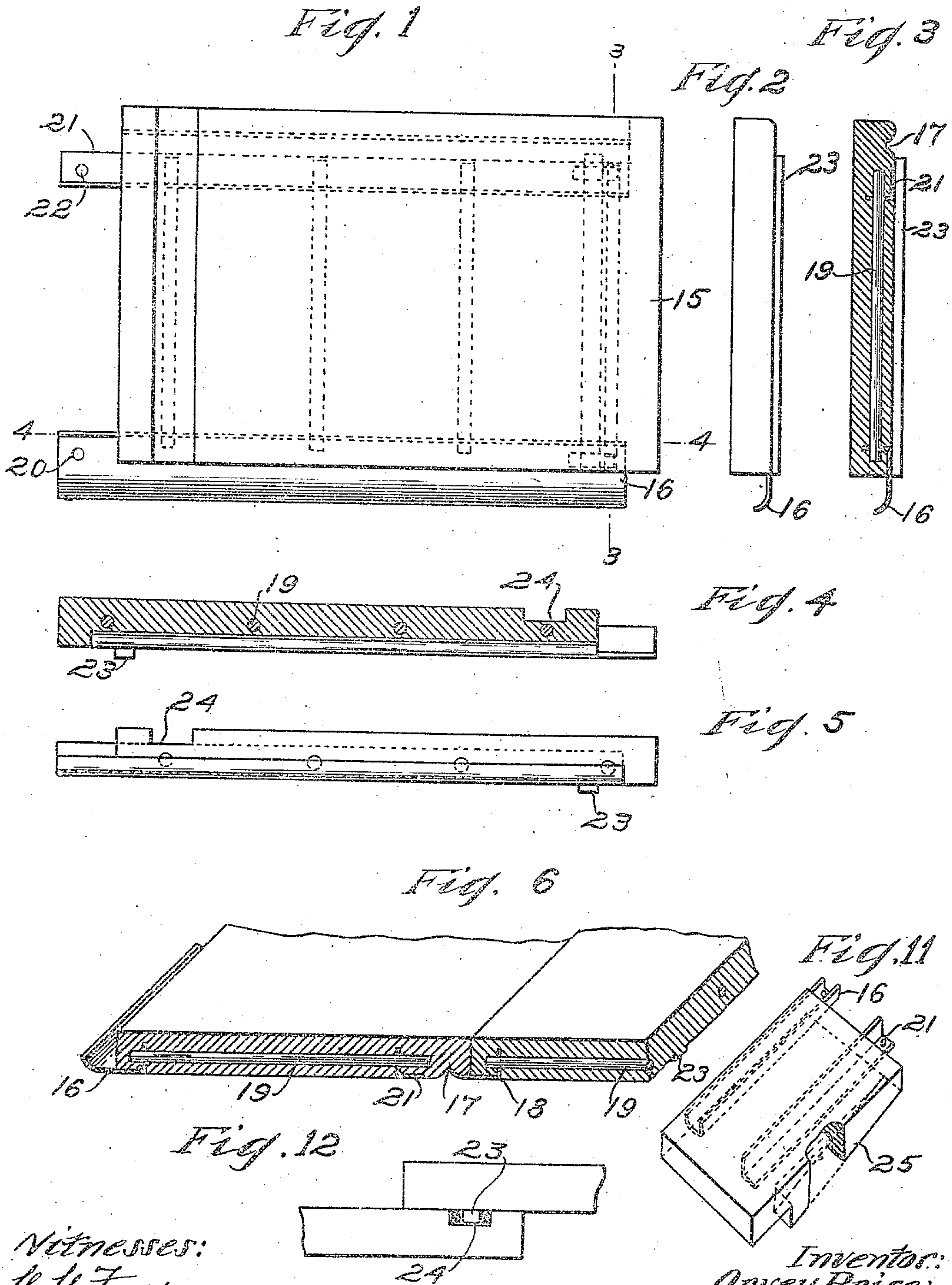


No. 816,252.

PATENTED MAR. 27, 1906.

O. PRICE.
ARTIFICIAL STONE SHINGLE.
APPLICATION FILED JUNE 21, 1905.

2 SHEETS—SHEET 1.



Witnesses:
J. J. Foss
Robert A. Aat

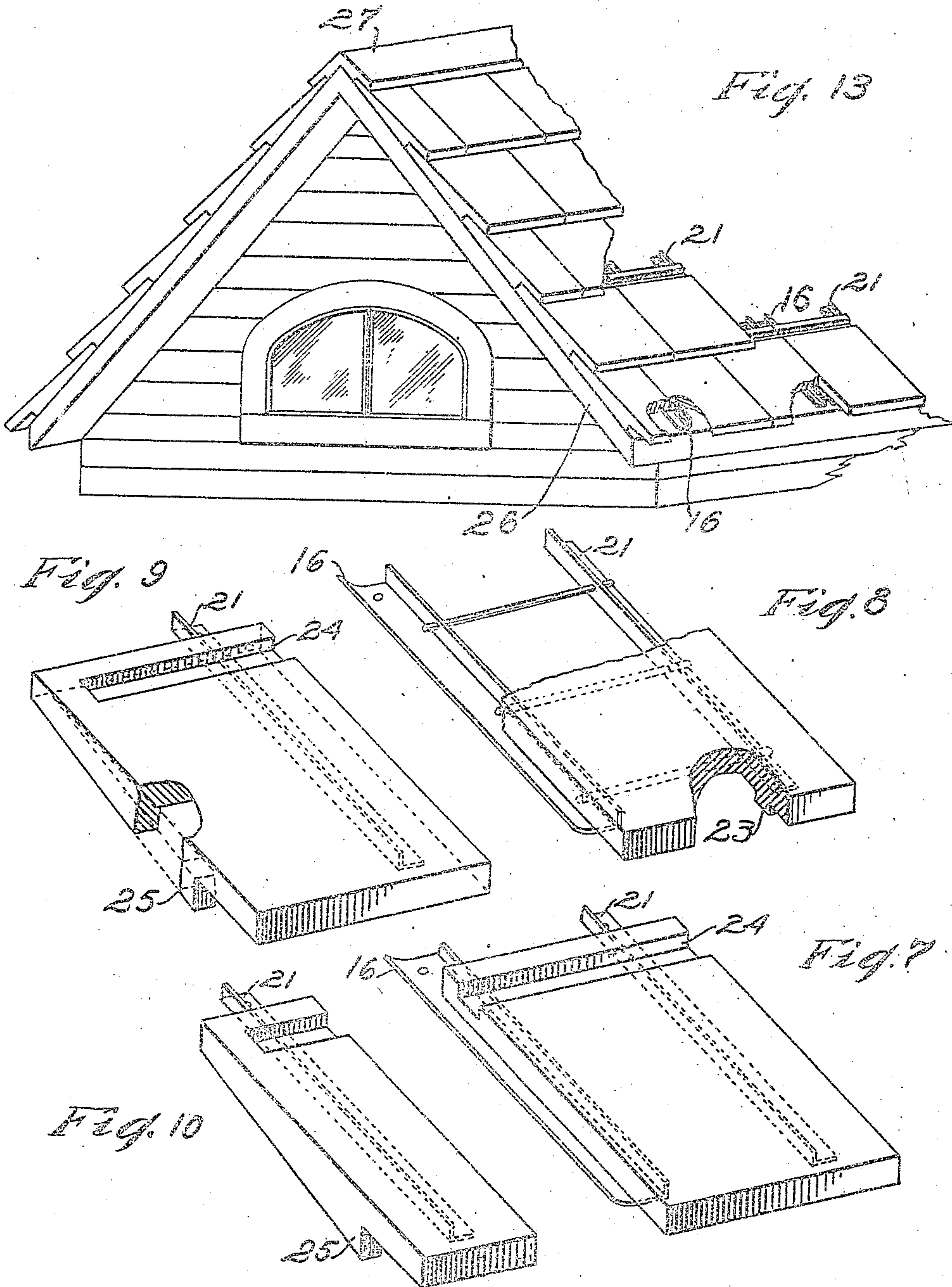
Inventor:
Orrey Price;
By his attorney,
F. H. Richards.

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UNITED STATES PATENT OFFICE.

ORVEY PRICE, OF PLAINFIELD, NEW JERSEY.

ARTIFICIAL-STONE SHINGLE.

No. 816,262.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed June 21, 1905. Serial No. 266 219.

To all whom it may concern:

Be it known that I, ORVEY PRICE, a citizen of the United States, residing in Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Artificial-Stone Shingles, of which the following is a specification.

This invention relates to an improved building-shingle composed of plastic material, such as of artificial stone or cement.

One of the objects of the invention is to provide in a shingle roof in which the overlapping portion of the adjacent horizontal rows does not extend to the overlapping portions of the next horizontal row above and below, wherein the adjoining edges of the shingles in each horizontal row are not lapped by the shingles either above or below at an intermediate part, means for receiving such water as may find its way between these edges and conveying it downward to the lower shingle.

Another object of the invention is to provide, in connection with a roof formed of such shingles lapped in the manner usual with shingle or slate roofs, a suitable member located beneath the adjoining edges of the shingles in the horizontal rows that will act as a gutter to convey the water that may find its way between the adjacent edges of the shingles downward onto the face of the lower shingle.

A further object is to provide in such a construction of shingled roof a form of channel member partly embedded in one side of each cement shingle, the adjacent shingle being provided with a suitable groove for the reception of a projecting portion of the channel member.

A further object of the invention is to provide means, in connection with such channel members, whereby the cement shingle can be secured to the supporting service in its proper position.

A further object is to provide means, partly embedded in the shingle, for securing the channel member in position and also securing a retaining-strip to the shingle, which means shall also perform the function of a strengthening member, giving additional rigidity to the shingle and tending to prevent breakage thereof.

A further object is to provide in the overlapping portions of such cement shingles a suitable tongue-and-groove arrangement

which, in connection with suitable cementitious material placed therein, will practically form an integral binding of the overlapping shingles and prevent relative displacement of them at such portions.

A still further object of the invention is to provide modified forms of such shingles for use along the side edges, the channel member or the correspondingly-grooved construction, as the case may be, being omitted and an inclined extension being provided in order to secure a practical continuous line along such side edges.

Figure 1 is a plan view of one form of shingle. Fig. 2 is an end view of the shingle. Fig. 3 is a cross-section on the line 3 3 indicated in Fig. 1. Fig. 4 is a longitudinal section on the line 4 4 indicated in Fig. 1. Fig. 5 is a side elevation of the shingle. Fig. 6 is a broken transverse section through two shingles placed adjoining. Fig. 7 is a perspective view of the shingle from its upper side. Fig. 8 is a similar view with the shingle partially broken away, showing the interior binding members. Figs. 9 and 10 show in perspective shingles used along one of the sides of the roof. Fig. 11 shows the form of shingle used on the opposite edge of the roof. Fig. 12 shows the cement joint of overlapping shingle, and Fig. 13 shows in perspective an end portion of a roof formed of the shingles shown in the other figures.

Referring now to Fig. 1, the shingle or block 15 is formed out of any suitable or preferred plastic material, such as cement or concrete. The shingle is preferably rectangular and may be formed of an oblong shape, as shown. Along one of the longitudinal sides is provided a member 16, suitably secured at one face of the shingle and having a portion extending beyond the shingle, with its longitudinal edge bent toward the plane of the opposite face of the shingle. On the same face of the shingle adjacent its opposite edge is formed a groove 17, corresponding in cross-section to the extended portion of the connecting members 16, each of the shingles being thus formed with the connecting member along one side and the groove portion at its other side. When the shingles are brought edge to edge, the connecting member 16 will enter the groove portion, as shown in Fig. 6, permitting the adjacent edges to register.

One form of means for securing the con-

necting member 16 to the cement shingle is to form the connecting member substantially channel-shaped, as shown in Fig. 6; but one of the side edges is bent abruptly at 18, forming a right angle, while the other edge is curved, as shown. The angle portion of the member extends into the body of the shingle, as shown, and suitable means are provided, whereby such portion embedded in the shingle may be secured in such position. One form of means is to provide apertures in the angle portion of the member, and suitable tie-rods 19 are embedded in the interior of the shingle when the same is molded, with one end portion of the rod projecting into or through the apertured portion of the member, as indicated in Figs. 3 and 6. From the latter figure it will be seen that should water pass between the registering edges of the two shingles it will meet the channel member and run down the same, that thus acts as a gutter, conveying it onto the lower shingle arranged underneath the lower portions of such meeting edges. This lower end of the channel member may preferably stop a short distance back of the lower edge of the shingle, as indicated in Figs. 1 and 5, since the water can now continue its way down the overlapped shingle. This will also produce a better appearance at the exposed lower edges of the shingle, as shown in Fig. 12. At the upper end the channel member 16 is shown as projecting a short distance beyond the shingle, which projecting portion may serve for the reception of any suitable fastening means to be driven into the rafters or other form of supporting structural members on which the shingle roof is supported. If desired, this projecting end of the channel member may be provided with an aperture 20, through which a nail may be driven into the rafter or supporting-board. It is also desirable to have a fastening member projecting beyond the same end of the shingle near the opposite edge, which may be formed of an angle-piece 21, having one of its angle portions embedded in the shingle and provided with apertures, through which extend the other ends of the said tie-rods 19, that secure the channel member to the shingle. The projecting end of the angle-piece 21 may be also provided with an aperture 22 for the reception of a securing-nail.

For the purpose of binding together the overlapping portions of each adjacent horizontal row of shingles a form of tongue-and-groove arrangement is provided. This is shown as consisting of a tongue or strip 23, provided on the lower face of each shingle and arranged transversely across the face at a short distance away from the lower ends. At a corresponding place on the upper face of the shingle is provided a groove or channel 24, extending transversely across the shingle adjacent such end. The piece 23 may be

formed integral with the shingle and is of smaller dimensions than the said channel. When these shingles overlap, with the piece projecting into the channel, as shown in Fig. 13, a space will be left around the free sides of the piece, and this space is filled with cement, which upon setting and hardening will form substantially an integral joint at such place, securely binding the overlapping shingles and effectually resisting relative displacement of the members.

At the sides of the roof a slightly-modified construction of the shingle is necessitated—that is, either the channel member or the cooperating groove is omitted and such edges simply formed straight. In Fig. 9 it will be observed that member 16 is omitted, the angle-piece 21 only being used, that will be securely held in place by the tie-rods, as in the shingles. In this instance the channel does not extend to the outer side edge, and the engaging cross-piece of the shingle will also be correspondingly shortened. These side shingles in alternate rows will have to be formed of one-half the width of the other shingles in order to form a continuous side line in the manner usual in the art. This smaller shingle is shown in Fig. 10 and corresponds substantially with the form shown in Fig. 9; but in all of these side shingles in order to form a continuous lower edge at the outside an extension 25 is provided that may be integral with the shingle. This extension is of somewhat wedge shape or taper form, starting at the upper end of the shingle and gradually becoming thicker until it reaches the end of the lower overlapped shingle, where it terminates, as shown in Fig. 13. The lower edges of these extensions 25 extend in a substantial contiguous plane, as shown, and hence may rest on a suitable strip 26, if desired. On the opposite side of the roof the grooves are omitted in the sides of the shingles, since there are no adjacent channel members to engage with them. These side shingles will also have to be of one-half the width in alternate horizontal rows for obvious reasons, and in such inner members the angle-piece 21 will be set close to the channel-piece or may be omitted, the channel-piece alone, in connection with the tongue-and-groove portions, serving to retain such shingles in position. On the outer side of these shingles extensions identical with the said extensions 25 are formed in order to provide a continuous end service at the outer portions of the shingles.

The manner of assembling the shingles on a roof is shown in Fig. 12, from which it will be observed that each horizontal row of shingles overlaps the next lower row for about one-quarter of the length of each shingle. Herein lies a great advantage in the use of this form of shingle, which is permitted by reason of the channel-shaped member. It

will be observed that the adjoining vertical edges of the shingles are overlapped at the top by the upper shingle and such shingles overlap at the bottom portion the next lower shingle, while an intermediate portion of considerable length, in this instance about half of the length of the shingle, is not overlapped either above or below such adjoining edges. In the ordinary form of shingle, either wood or slate, the water running down the roof would pass between such adjoining edges and leak into the building; but with the present construction the channel member 16 extends from the lower portion of such adjoining edges and where such edges overlap the lower shingle to and beyond the upper end of the adjoining edges. Consequently such rain-as would penetrate these edges will necessarily be caught by this channel member and conveyed to the lower shingle. In the usual form of shingle roof, either wood or slate, each row overlaps the lower row for about two-thirds of the length or more. Thereby a portion of the shingle is underneath the entire length of the adjoining edges of the shingles; but with my construction there is approximately only one-half of the number of shingles used by reason of the small overlapping portion, which not only makes the roof more economical and more quickly and easily laid, but reduces the weight of the roof about one-half what it would be if the usual form of lapping were used. At the top the shingles may have a ridge-piece 26 of the usual ordinary preferred construction. The provision of the channel on the upper face of one block and the integral projection of cross-rib on the other face of said block, with the channels somewhat wider in cross-section than the rib, enables the shingles to be adjusted relatively to each other during the laying thereof, this being accomplished with the side shingles by cutting or sawing the lower end of the wedge-shaped portions, should it be necessary to adjust the end or side shingle.

I claim as my invention—

1. A molded building-shingle formed of artificial stone or cement and having embedded therein a metallic strengthening-frame; with parts thereof projecting at one end for the reception of fastening devices and with a part thereof projecting at the side to underlap a companion shingle to form a gutter.

2. A molded building-shingle formed of artificial stone or cement, having a metallic strengthening-frame embedded therein, comprising a plurality of metallic members with tying means therebetween, said metallic members projecting beyond one end of said shingle for the reception of fastening devices and one of said metallic members underlapping a companion shingle.

3. A molded building-shingle formed of artificial stone or cement, having a metallic strengthening-frame therein comprising a

pair of bars projecting at one end of said shingle for the reception of fastening devices, rods embedded within said shingle and connecting said bars, one of said bars projecting at one side of the shingle to underlap a companion shingle and form a gutter.

4. A molded building-shingle formed of artificial stone or cement and having embedded therein a metallic strengthening-frame, with a part thereof at one end arranged for the reception of fastening devices, and having a part of the frame projecting at one side arranged to underlap a companion shingle to form a gutter.

5. A molded building-shingle formed of artificial stone or cement, and having molded therein a metallic member projecting beyond one side to underlap a companion shingle to form a gutter.

6. A molded building-shingle formed of artificial stone or cement, and having molded therein a metallic member projecting beyond one side to underlap a companion shingle to form a gutter, said member projecting beyond one end of the shingle for the reception of fastening devices.

7. A molded building-shingle formed of artificial stone or cement, and having molded therein a metallic member projecting at one side to underlap an adjoining shingle to form a gutter, and means of connection with an overlapping shingle.

8. A molded building-shingle formed of artificial stone or cement, and having molded therein a metallic member projecting at one side to underlap a companion shingle to form a gutter, and a metallic stiffening-frame embedded in the shingle.

9. A molded building-shingle formed of artificial stone or cement, and having molded therein a metallic member projecting at one side to underlap a companion shingle to form a gutter, the shingle having a wedge-shaped projection on its under face.

10. A molded building-shingle formed of artificial stone or cement, and having at one side thereof a metallic member arranged to underlap a companion shingle to form a gutter, and one or more metallic members embedded in the shingle and securing said gutter member to the shingle.

11. A molded building-shingle formed of artificial stone or cement, and having at one side thereof a metallic member arranged to underlap a companion shingle to form a gutter, and a metallic strengthening-frame embedded in the shingle and securing said gutter member to the shingle, said gutter member projecting beyond one end of the shingle for the reception of fastening devices.

12. A molded building-shingle formed of artificial stone or cement, a metallic strengthening-frame embedded in the shingle, a member projecting at one end of the shingle for the reception of fastening devices, and a member

projecting at one side of the shingle arranged to cooperate with a companion shingle to form a gutter.

13. A building-shingle formed of artificial stone or cement and provided at one of its edges with a channel-shaped metallic strip having one of the bent sides embedded in the shingle, the other portion of the strip projecting beyond the edge, the shingle being provided on its opposite side adjacent the edge with a channel whereby two of such shingles placed contiguous will have a projecting portion of the strip extending into said channel, and one or more members embedded in the shingle and engaging the said embedded side of the strip to secure the strip to the shingle.

14. A building-shingle formed of artificial stone or cement and provided on one of its edges with a channel-shaped metallic strip having one of the bent sides embedded in the shingle, the other portion of the strip projecting beyond the edge, the shingle being provided along its opposite side adjacent the edge with a channel whereby two of such shingles placed contiguous will have a projecting portion of the strip extending into said channel, and a metallic strengthening-frame embedded in the shingle and engaging said embedded portion of the strip to secure the latter to the shingle.

15. A building-shingle formed of artificial stone or cement and provided along one of its edges with a channel-shaped metallic strip having one of the bent sides projecting into the shingle, the other portion of the strip projecting beyond the edge, the shingle being provided along its opposite side adjacent the edge with a channel whereby two of such shingles placed adjoining will have a projecting portion of the strip extending into said channel, a metallic member projecting into the shingle and extending beyond one end for the reception of fastening devices, and one or more members embedded in the shingle and engaging said strip and said fastening member for retaining such members in position.

16. In a roof, the combination with a supporting-surface, of a series of horizontal rows of shingles, each shingle formed of artificial stone or cement and having embedded therein a metallic strengthening-frame, with a part thereof at one end arranged for the reception of fastening devices, and having a part of the frame projecting at one side and underlapping a companion shingle to form a gutter, the shingles along the other side edge being provided with grooves engaged by said frame projection, the shingles along one side edge of the roof having a tapering extension replacing the grooves, and at the other side edge of the roof having a tapering extension replacing the gutter projections of the frame.

17. A building-shingle formed of artificial stone or cement and provided with a metallic strip secured thereto and extending beyond

its face along one edge, the extending portion of the strip being bent toward the plane of the other face of the shingle, the shingle having at the opposite side of said face a grooved portion corresponding in section with the section of the projecting portion of said strip, whereby two of such shingles placed adjoining will have the projecting portion of the strip extending into said grooved portion of the other shingle, said strip having a portion projecting beyond one end of the shingle for the reception of fastening means.

18. A building-shingle formed of artificial stone or cement and provided with a metallic strip extending beyond its face along one edge, the extending portion of the strip being bent toward the plane of the other face of the shingle, the shingle having at the opposite side of said face a grooved portion corresponding in section with the section of the projecting portion of said strip, whereby two of such shingles placed adjoining will have the projecting portion of the strip extending into said grooved portion of the other shingle, a second metallic strip secured to said face of the shingle and projecting beyond the said end of the strip for the reception of fastening means.

19. A building-shingle formed of artificial stone or cement and provided along one of its longitudinal edges with a channel-shaped metallic strip having one of the bent sides embedded in the shingle with the intermediate portion of the strip partly in engagement with one face of the shingle, and the other portion of the strip projecting beyond said edge, the shingle being provided on said face along its opposite side adjacent the edge with a channel substantially corresponding in section with the section of the projecting portion of the strip, whereby two of such shingles placed adjoining will have the projecting portion of the strip extending into said channel, and one or more metallic members embedded in the shingle and engaging the embedded portion of the strip.

20. A building-shingle formed of artificial stone or cement and provided along one of its longitudinal edges with a channel-shaped metallic strip having one of the bent sides embedded in the shingle with the intermediate portion of the strip partly in engagement with one face of the shingle, and the other portion of the strip projecting beyond said edge, the shingle being provided on said face along its opposite side adjacent the edge with a channel substantially corresponding in section to the section of the projecting portion of the strip, whereby two of such shingles placed adjoining will have the projecting portion of the strip extending into said channel, and a plurality of tie-rods embedded in the shingle and extending through apertured portions of the edge of the strip projecting into the shingle.

21. A building-shingle formed of artificial stone or cement and provided with a metallic strip extending beyond its face along one edge, the free edge of the strip being bent
5 away from the plane of said face, the shingle having at the opposite side of said face a grooved portion corresponding in section with the section of the projecting portion of said strip, whereby two of such shingles
10 placed adjoining will have the projecting portion of the strip extending into said portion of the other shingle, and a metal piece secured to the shingle, said piece and said bent strip both projecting beyond one end of the shingle for the reception of fastening means.

22. A building-shingle formed of artificial stone or cement and provided with a metallic strip extending beyond its face along one edge, the free edge of the strip being bent to-
20 ward the plane of the other face of the shingle, the shingle having at the opposite side of said face a grooved portion corresponding in section with the section of the projecting portion of said strip, whereby two of such shingles placed adjoining will have the projecting
25 portion of the strip extending into said grooved portion of the other shingle, and an angle-strip located on the grooved face of the shingle with one of its angle portions embedded in the shingle, said angle-strip and said bent strip each projecting beyond one end of the shingle for the reception of fastening means.

23. A building-shingle formed of artificial stone or cement and provided along one of its longitudinal edges with a channel-shaped metallic strip having one of the bent sides embedded in the shingle with the intermediate portion of the strip partly in engagement
40 with one face of the shingle, and the other portion of the strip projecting beyond said edge, the shingle being provided on said face along its opposite side adjacent the edge with a channel substantially corresponding in section with the section of the projecting portion
45 of the strip, whereby two of such shingles placed together will have the projecting portion of the strip extending into said channel, an angle-strip having one of its angle portions extending into the shingle on the grooved side, tie-rods embedded in the shingle and projecting through apertured portions of the embedded parts of said strips, each of said strips projecting beyond one end
50 of the shingle for the reception of fastening means.

24. A building-shingle formed of artificial stone or cement and provided along one face adjacent to one edge with a groove, said shingle
60 having a rib extending partially across said face adjacent to one end portion, the shingle on the opposite face adjacent the other end portion being provided with a transverse channel extending partially across the

shingle, whereby upon two of such shingles 65 overlapping at their end portions said rib will enter said channel, the shingles being provided with a tapering extension on the grooved face at the side opposite the groove extending from the channeled end portion to 70 the overlapped shingle.

25. A building-shingle formed of artificial stone or cement and provided along one face adjacent to one edge with a groove, said shingle having a rib extending partially across 75 said face adjacent to one end portion, the shingle on the opposite side adjacent the other end portion being provided with a channel extending partially across the shingle, whereby upon two of such shingles overlapping at their 80 end portions said rib will enter said channel, the shingles being provided with a tapering extension on the grooved face at the side opposite the groove and extending from the channeled end portion to the shingle overlapped, 85 and one or more metallic angle-pieces having one of the angle portions extending into the shingle on the grooved face with the other angle portion substantially flush with said face, said pieces projecting beyond one end of the 90 shingle for the reception of fastening means.

26. In a roof, the combination with a supporting-surface, of a series of horizontal rows of adjoining shingles each row overlapping the lower row and breaking joints therewith, 95 a channel-shaped member secured on the lower face of each shingle at its adjoining edge, and having its opposite edges projecting into the lower faces of the respective shingles, the channel members extending beyond 100 the upper ends of the shingles, and fastening means securing such extensions to the supporting-surface.

27. In a roof, the combination with a supporting-surface, of a series of horizontal rows 105 of adjoining shingles, each row overlapping the lower row and breaking joints therewith, and a channel-shaped member secured on the lower face of each shingle at its adjoining edges and having its opposite edges project- 110 ing into the lower face of the respective shingles, the channel members extending beyond the upper end of the shingles, fastening means securing such extensions to the supporting-surface whereby the shingles are se- 115 cured in position, and an angle-strip secured on the lower face of each shingle and having one end projecting beyond the upper end of the shingle, and fastening means securing such projecting end to the supporting-sur- 120 face.

Signed at Nos. 9 to 15 Murray street, New York, N. Y., this 19th day of June, 1905.

ORVEY PRICE.

Witnesses:

C. A. WEED,
F. E. BOYCE.