No. 736,801. PATENTED AUG. 18, 1903.

J. VEEN.

ROOFING TILE AND ROOF.

APPLICATION FILED MAR. 6, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

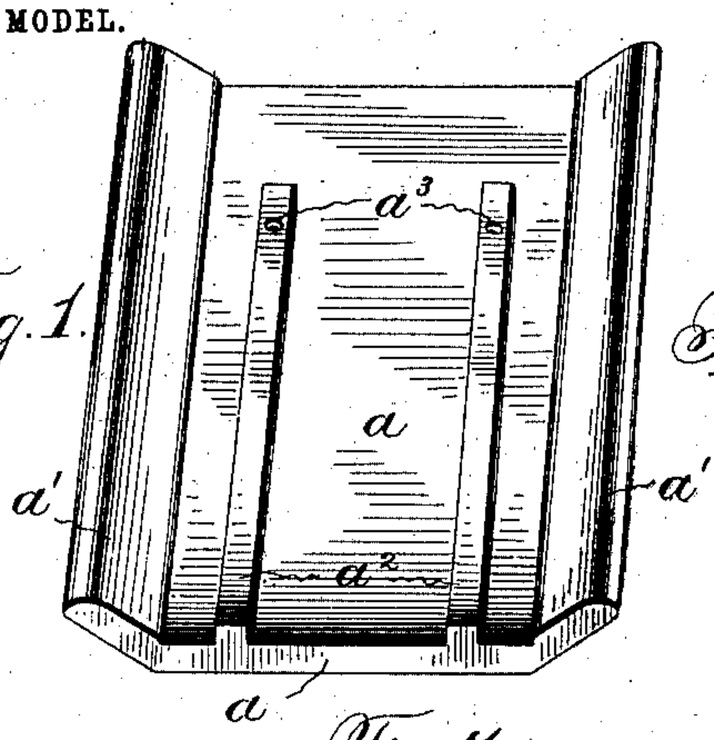

Fig. 2.

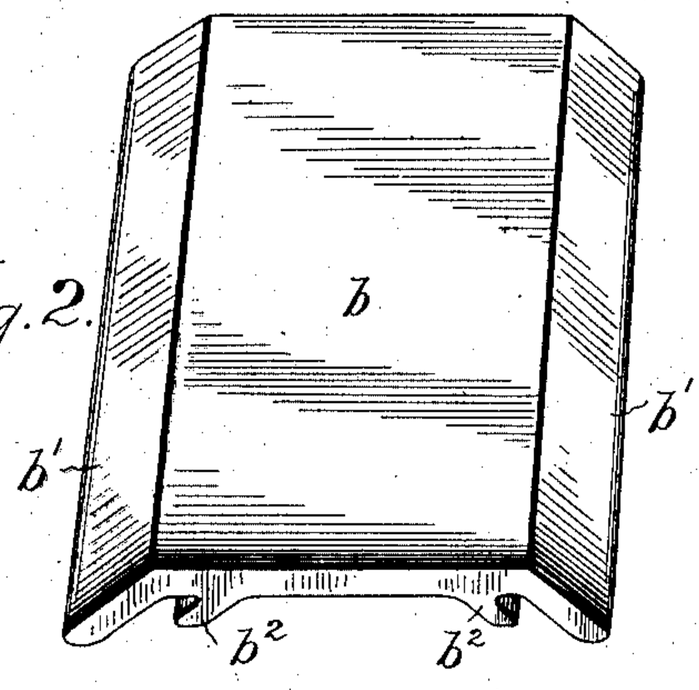

Fig. 3.

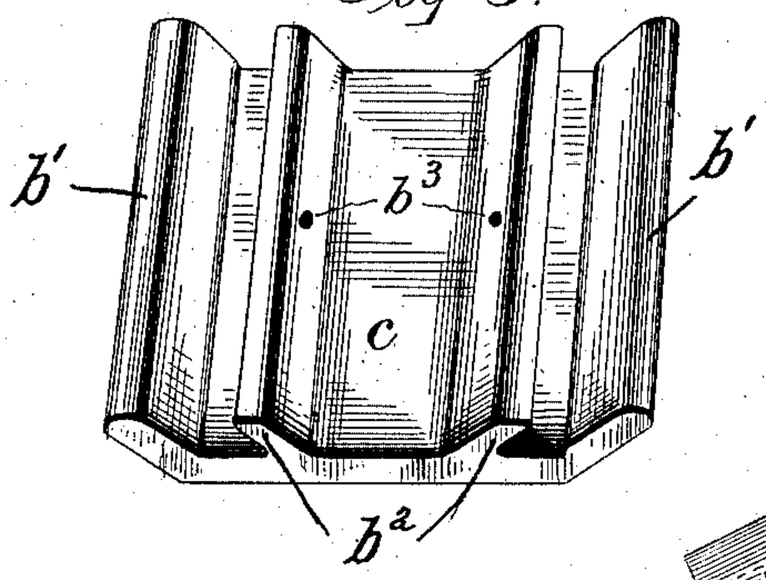

Fig. 4.

Fig. 5.

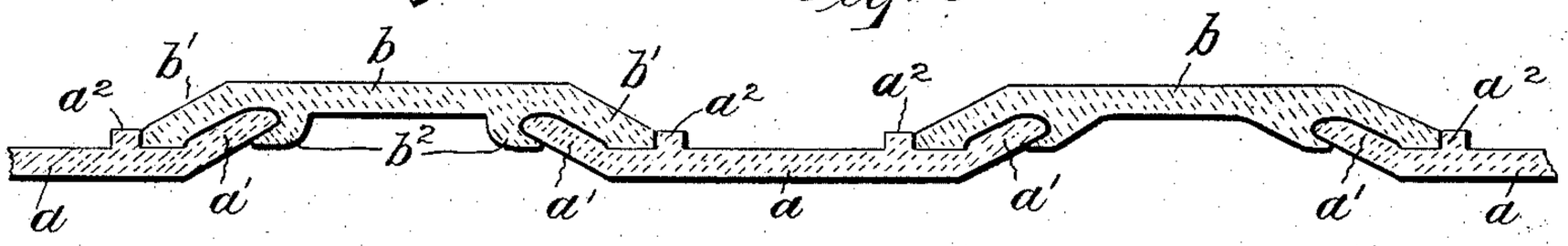

Fig. 6.

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ROOFING TILE AND ROOF.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 7.

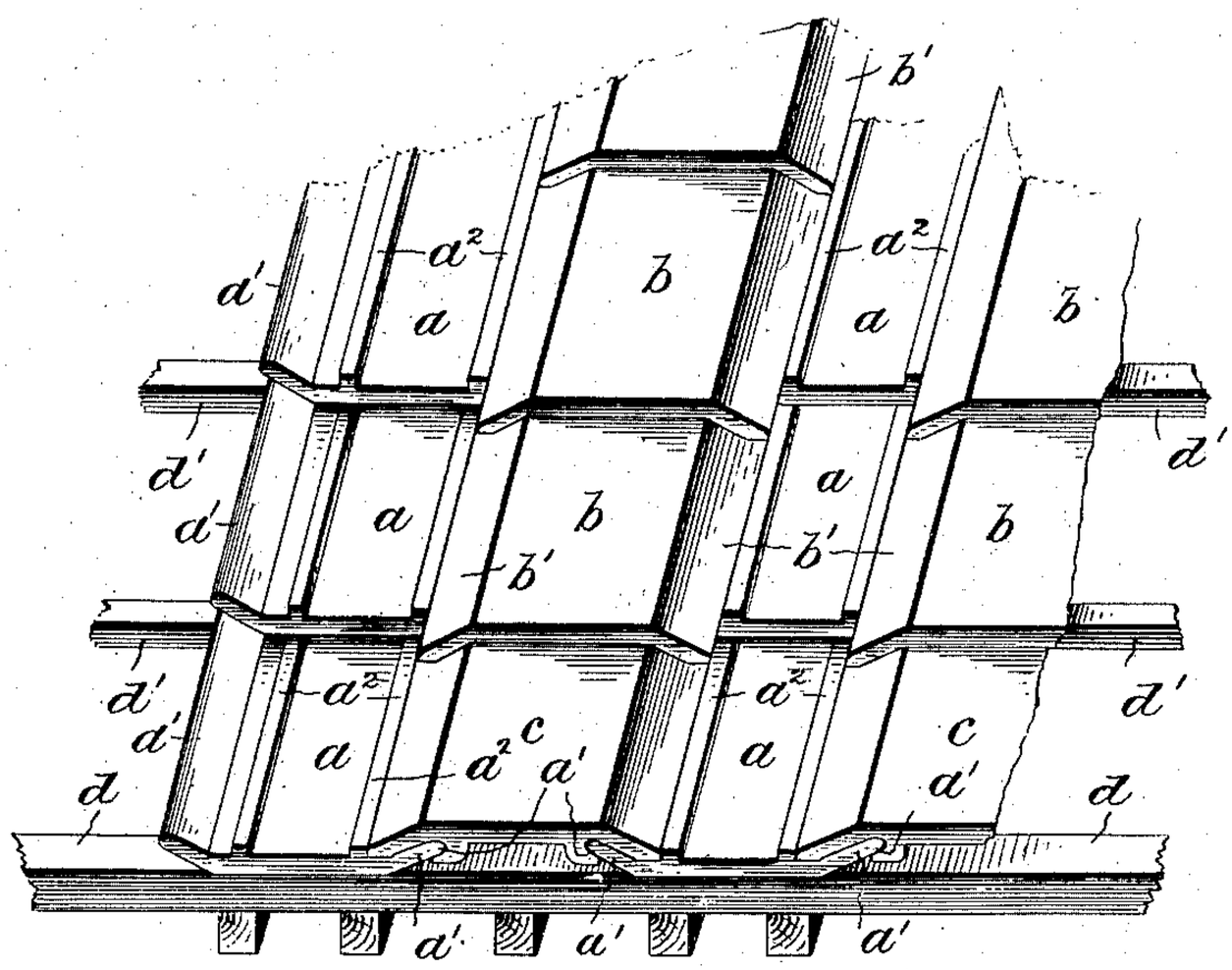
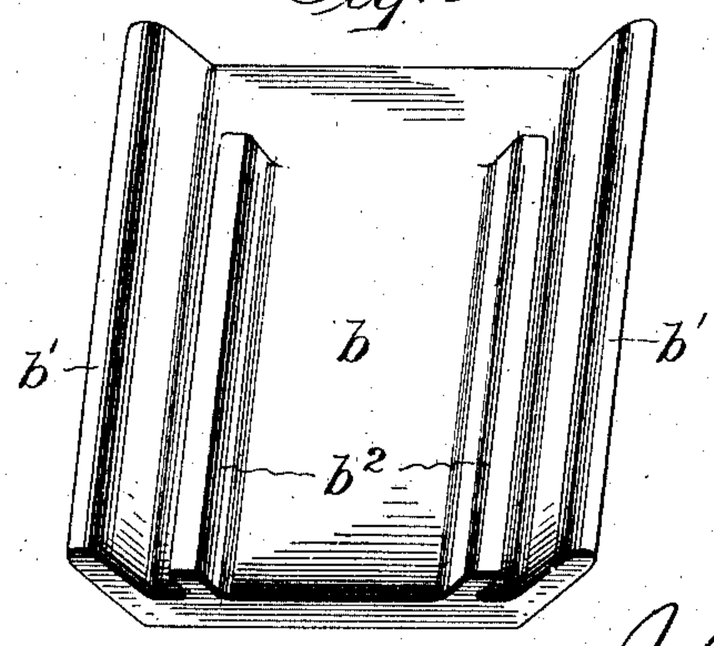


Fig. 8.



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No. 736,801. Patented August 18, 1903.

UNITED STATES PATENT OFFICE.

JOHANNES VEEN, OF ROANOKE, ILLINOIS.

ROOFING-TILE AND ROOF.

SPECIFICATION forming part of Letters Patent No. 736,801, dated August 18, 1903.

Application filed March 6, 1903. Serial No. 146,483. (No model.)

To all whom it may concern:

Be it known that I, JOHANNES VEEN, a citizen of the United States, and a resident of Roanoke, in the county of Woodford and State of Illinois, have invented certain new and useful Improvements in Roofing-Tiles and Roofs, of which the following is a specification.

My invention relates to roofing-tiles and roofs constructed by the employment thereof.

One of the primary objects of the invention is to provide a set of tiles the members of which are of simple construction, well adapted to be manufactured by ordinary tile-making machinery, which may be readily assembled or positioned in constructing a roof by even an unskilled person, and in which the members of one set will interlock with the companion members of the other set in such a manner that the accidental displacement or detachment of the members of the first set is absolutely prevented, whereby the necessity of independently securing or fastening means for the same is avoided.

Another object of the invention is to provide a roof construction formed of separable tiles, which will be permanent, will require a minimum amount of fastening devices for securing the tiles to the rafters or roof-frame, will be perfectly water-tight, and which will be uniform or regular throughout, having an even or uniform inclination throughout its entire expanse.

Other objects of the invention will appear and the many advantages of the same be appreciated when the invention is fully described.

To effect the ends sought, the invention includes the combination and arrangement of component parts and elements to be hereinafter described, and particularly pointed out in the claims.

While the invention is susceptible of various modifications, the accompanying drawings illustrate and I shall hereinafter describe what is now conceived to be the preferred embodiment thereof.

In the drawings, Figure 1 is a perspective view of one of the tiles of one set. Fig. 2 is a similar view of one of the tiles of the companion set. Fig. 3 is a similar view of one of the anchor-tiles of the second set, showing the same in inverted position. Fig. 4 is a longitudinal sectional view of a portion of a roof constructed with the two sets of tiles. Fig. 5 is a transverse sectional view of a portion of the roof. Fig. 6 is an end view of a modified form of an anchor-tile. Fig. 7 is a perspective view of a fragment of a roof constructed with the improved tiles; and Fig. 8 is a perspective view of one of the tiles of the second set, showing the same in inverted position.

My invention includes generally two sets of interlocking tiles, the members of one of which are designed when assembled in a roof structure to be secured by suitable attaching means to the joist or frame of the roof in separated rows, while the members of the other set are designed to bridge the spaces between said rows and to interlock with the adjacent sides of the members of the first set. The second set of tiles further includes anchor members which are designed to be secured by suitable attaching means to the joist or roof-frames, one of the latter members being associated with each row formed by the second set of tiles to hold or maintain the remaining members of the row with which it is associated against longitudinal or sliding movement, the lifting or raising of said members being absolutely prevented by the interlocking engagement between the same and the members of the first set.

The invention further includes generally a roof structure formed by a plurality of interlocking and overlapping individual tiles in which the members forming the same are so arranged and supported as to present a complete structure having a uniform slant or inclination throughout its entire expanse.

In the particular exemplification of my invention illustrated in the accompanying drawings the tiles constituting the lower set are indicated by the letter *a*, the tiles of the upper set by the letter *b*, and the anchor-tiles of the latter set by the letter *c*.

The tiles *a* preferably include a body portion having substantially flat faces and rectangular in shape, provided along their longitudinal sides or edges with upwardly-presented flat flanges *a'*, which extend at obtuse

angles in relation to the faces of the body portion or at angles less than right angles in relation thereto. Projecting from the upper face of the body of each tile are supporting abutments or ribs a^2, designed to receive and support the overlapping edge of the succeeding tile of the set when said members are arranged in rows, as when assembled in a roof structure, as will be hereinafter described. The members b of the other or upper set are of substantially the same length and width as the tiles a, and each has a rectangular body portion provided along its longitudinal sides or edges, with depending flanges b' extending from said body portion at substantially the same angles as the flanges a'. In addition the tiles b are provided with supplemental flanges b^2 projecting from the under faces of the body portion of the same and extending substantially in parallelism with the flanges b', being separated from the latter by spaces substantially equal in widths to the thicknesses of the flanges a'. The flanges b^2 of each tile b extend from the rear edge of the body portion of the latter to within a short distance of the front edge of the same, said distance being approximately equal to the amount of overlap of said tile upon the adjacent member of its set when the tiles b are assembled in rows, as in a complete roof structure.

The members c of the second set or anchor-tiles are constructed in a similar manner to the tiles b, except that they are only of a length equal to the flanges b^2 and that the latter flanges thereon extend from end to end of the same. The flanges b^2 in the anchor-tiles are provided with openings b^3 for the reception of binding-wires or the like, which may be provided for securing the same to the roof-frame, as will be hereinafter described.

Through the body portion of each tile a and through the ribs a^2 projecting from the upper face thereof openings a^3 are arranged for the accommodation of nails, screws, or other fastening means which may be employed for securing said tiles to the roof-frame.

In a complete roof structure built with the tiles described the members a are arranged in separated rows running transversely in relation to the eaves of the roof, with their front edges, with the exception of the lowermost tile of each row, overlapping the upper face of the adjacent tile and resting upon the upper faces of the rear portions of the ribs a^2, formed thereon. Each tile a is separately or independently nailed, screwed, or otherwise securely fastened to the roof, joist, or frame. The openings a^3, which receive the fastening means, extend through the ribs a^2 near their rear ends, so that the overlapping portions of the adjacent tiles will extend over said openings, and thus provide a protecting-covering for the same. The members of the other set of tiles are likewise arranged in rows running transversely in relation to the eaves of the roof, which bridge the spaces between the rows formed by the members a, with their front edges, with the exception of the anchor members c, likewise overlapping upon the rear portions of one another, while the flanges b' b^2 of the members b interlock with the adjacent flanges a' of the tiles a.

The anchor-tiles c constitute the lowermost members of each upper or superimposed row, are permanently secured to the roof, joist, or frame, and have their front edges arranged flush or coincident with the front edges of the lowermost members of the rows formed by tiles a and the rear edges of their flanges b' contiguous to or in contact with the lower edges of the second members of the rows formed by the tiles a. With the anchor-tiles in such positions the rear edges of the body portions of the same provide abutments or stops against which the front edges of the flanges b^2 of the overlapping tiles may rest, and as the succeeding members b rest in a similar manner against the tiles, in advance thereof, said members are prevented from slipping longitudinally, and as the interlocking connections between the flanged sides of the same and the flanges on the tiles a prevent said tiles b from lifting or moving transversely away from said tiles a a permanent roof structure is secured.

As will be appreciated, by making the anchor-tiles of less length than the other members of the superimposed or upper set the front edges of the former may be arranged coincident with the front edges of the lowermost tiles a, and yet the rear edges of said anchor-tiles will occupy such positions that the succeeding tiles of the set or lowermost tiles b may both overlap the same and interlock, by means of their flanges b' b^2, with the flanges a' on the adjacent second tiles of the rows formed by tiles a.

In order that the roof as thus constructed may have a uniform inclination throughout its entire expanse and a perfect interfitting of the lowermost members of the two sets of tiles may be effected, the front ends of the lowermost tiles a are supported a greater distance from the general line of inclination of the roof than the remaining members of said set. This effect may be obtained by providing strips d, which support the front ends of the lowermost tiles a, of greater widths or thicknesses than the other supporting-strips d'.

As will be noted particularly in Fig. 5, the longitudinal edges of the flanges b', as well as the entire outer edges of the flanges a', are preferably rounded, and the coacting surfaces of the supplemental flanges b^2, under faces of the tiles of the upper or superimposed set between the flanges b' b^2, and the portions of the flanges a' contiguous to the faces of tiles a are correspondingly shaped.

The construction and operation of my invention will be readily understood upon reference to the foregoing description and ac-

companying drawings, and it will be appreciated that the parts and combinations recited may be varied within a wide range without departing from the spirit and scope thereof.

Having thus described my invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A roofing-tile having a rectangular body portion, flanges extending from the longitudinal edges of the same at obtuse angles to the face of the body portion, and supplemental flanges depending from the lower face of the tile also extending from the latter at obtuse angles, and in parallelism with said edge flanges, substantially as described.

2. A roofing-tile, comprising a body portion, flanges depending from the longitudinal edges of the same extending from end to end thereof, and surfaces extending in parallelism with the inner walls of said flanges spaced a distance from the latter and terminating a distance from one end of the body, the under face of the body between said end and the contiguous ends of said surfaces being unobstructed, substantially as described.

3. A roofing-tile, comprising a body portion, flanges depending from the longitudinal edges of the same extending from end to end of the former, and supplemental flanges extending in parallelism with said edge flanges spaced a distance from the same and terminating a distance from one of the ends of said body, the under face of the body between said end and the contiguous ends of the supplemental flanges being unobstructed, substantially as described.

4. A roofing-tile, having a rectangular body portion, depending flanges at the longitudinal edges of the same, and a supplemental flange associated with each edge flange of less length than the latter and arranged in parallelism therewith, said supplemental flanges depending from the lower face of the tile and being spaced a distance from the edge flanges pertaining to the same, the channels or spaces between the supplemental flanges and their companion edge flanges being entirely unobstructed at their ends, substantially as described.

5. A roofing-tile, comprising a body portion, flanges depending from the longitudinal edges of the same extending from end to end thereof, and supplemental flanges extending in parallelism with the edge flanges spaced a distance from the latter and terminating a distance from one of the ends of the body, the under face of the body between said end and the contiguous ends of the supplemental flanges being flat and disposed in a plane substantially coincident with the juncture-point of the supplemental flanges with the body, substantially as described.

6. Two sets of roofing-tiles, the members of one set having upwardly-presented edge flanges, extending at obtuse angles and the members of the other set having depending edge and supplemental flanges also extending at obtuse angles, said second set of tiles including anchor members of less lengths than the remaining members, having the supplemental flanges thereof extending from end to end of the same, the supplemental flanges of each of the other members of the set terminating a distance from the front edge of the body portion of the same, substantially as described.

7. Two sets of tiles for forming a roof, the members of one set having depending edge flanges, and a supplemental flange associated with each edge flange, and of a less length than the latter and spaced a distance from the same, and the members of the other set having upwardly-presented flanges to interlock with the flanges of the members of the first set to prevent the interlocked members from moving transversely in relation to one another, substantially as described.

8. A roof-structure, comprising an underlying set of tiles arranged in separated rows with the front ends of the members forming each row overlapping one another, said members each having upwardly-presented edge flanges, extending at obtuse angles to the body of the members and a second set of tiles arranged in row formations with the front edges of the members of each row overlapping one another, said members having depending flanges extending at obtuse angles interlocking with the flanges of the members of the under set of tiles, substantially as described.

9. A roof structure, comprising an underlying set of tiles arranged in separated rows, with the front ends of the members forming each row overlapping one another, said tiles each having upwardly-presented edge flanges and each being permanently secured to the roof-frame, and a second set of tiles arranged in row formations with the front edges of the members of each row overlapping one another, and said rows of the second set bridging the spaces between the rows of the first set, said members of the second set having depending flanges interlocking with the flanges of the members of the under set to prevent the members of the first set lifting off of the members of the second set, the front ends of said flanges providing abutments to rest against the rear edges of the next lower tiles, substantially as described.

10. A roof structure, comprising an underlying set of tiles having independent attaching means, and an upper or superimposed set having means freely engaging the members of the first set to interlock the same to prevent the members of the upper set moving transversely in relation to the members of the first set while interlocked with the same, said members of the second set including anchor-tiles permanently attached intermediate of their ends to the roof structure and coacting with the remaining members of the

set to retain the latter in position, substantially as described.

11. A roof structure, comprising an underlying set of tiles having independent attaching means, and an upper or superimposed set having means freely engaging the members of the first set, to prevent the members in the upper set moving transversely in relation to the members of the first set while in engagement with the same, said members of the second set including anchor-tiles permanently attached to the roof structure, and coacting with the remaining members of the set to retain the same against longitudinal movement, substantially as described.

12. A roof structure, comprising a set of underlying tiles having edge flanges, said tiles being arranged in separated rows with the members forming the same overlapping one another, and a second set of tiles arranged in row formations, said rows bridging the spaces between the rows formed by the first set of tiles, the members of the second set overlapping one another and having depending edge and supplemental flanges interlocking with the flanges of the members of the first set, said second set including anchor-tiles forming the lowermost members of the rows of the second set, said anchor-tiles having their lower ends arranged coincident with the lower ends of the first tiles of the rows of the first set and the rear edges contiguous to the lower edges of the second members of the rows formed by the first set of tiles, and means for supporting the under set of tiles at their front and rear edges, the supporting-surface for the front edge of the lowermost tiles of said set being arranged a greater distance from the general line of inclination of the roof-frame than the remaining supporting-surfaces, substantially as described.

13. A roof structure, comprising two sets of tiles, the members of the first set being individually attached to the roof-frame, and having upwardly-presented flanges, and the members of the second set including anchor-tiles permanently attached to the roof-frame, the remaining members of said second set having depending flanges interlocking with the flanges of the members of the first set to prevent the same from lifting or moving away from said members of the first set, and coacting with one another and the anchor-tiles to prevent their longitudinal displacement, substantially as described.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Roanoke, in the county of Woodford and State of Illinois, this 19th day of February, 1903.

JOHANNES VEEN.

Witnesses:
A. F. BROWN,
C. F. BROWN.