

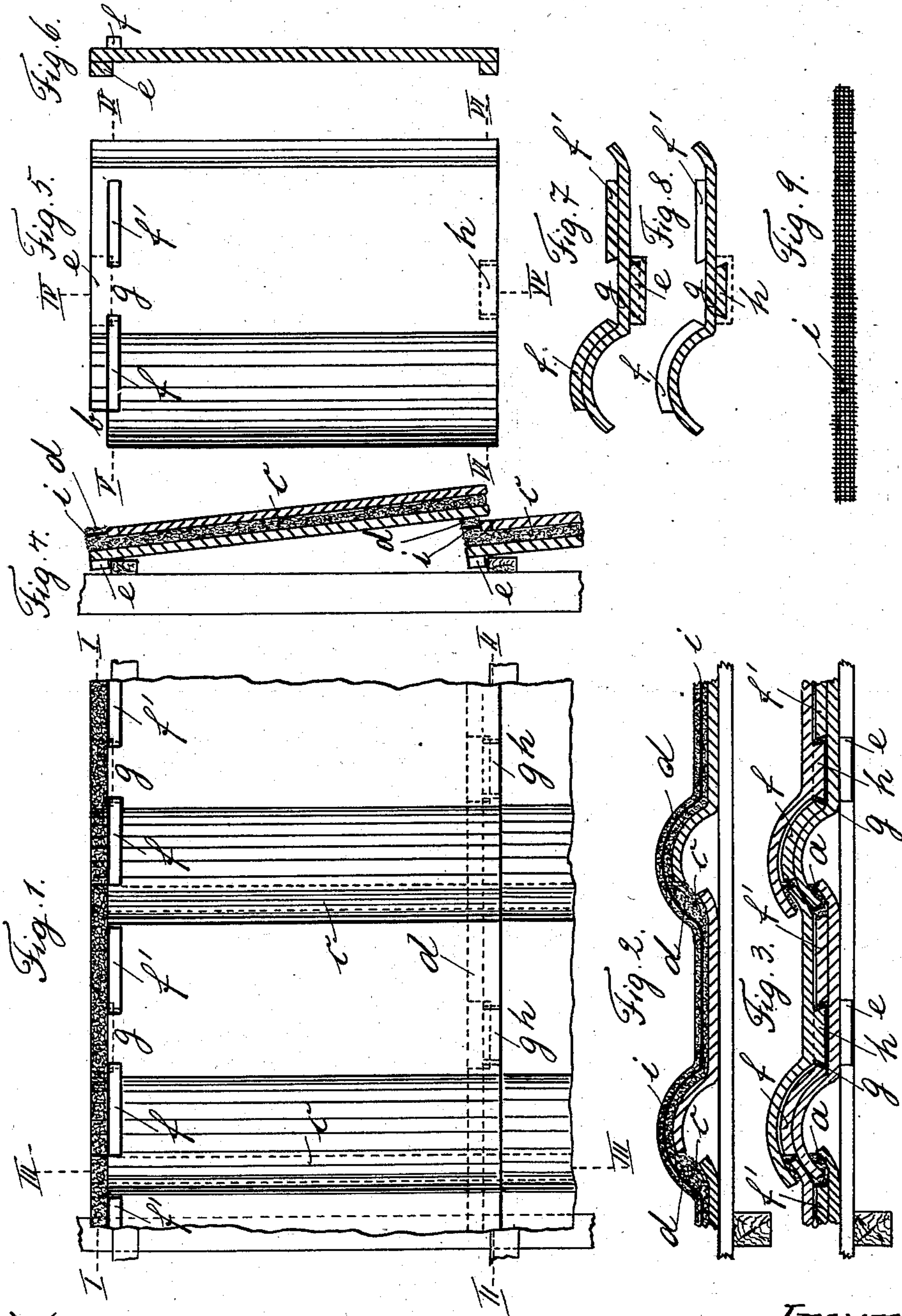
No. 654,717.

Patented July 31, 1900.

N. DAUBACH.
ROOFING.

(Application filed Sept. 15, 1899.)

(No Model.)



Witnesses

Al Melhuish
E B Christman

Inventor

N. Daubach

by his Attorney *R Haddan*

UNITED STATES PATENT OFFICE.

NICOLAS DAUBACH, OF HERMSDORF-UNTERM-KYNAST, GERMANY.

ROOFING.

SPECIFICATION forming part of Letters Patent No. 654,717, dated July 31, 1900.

Application filed September 15, 1899. Serial No. 730,647. (No model.)

To all whom it may concern:


Be it known that I, NICOLAS DAUBACH, a subject of the German Emperor, and a resident of Hermsdorf-unterm-Kynast, Germany, have invented certain new and useful Improvements in Roofing, of which the following is a specification.

All the known methods of covering a roof which shall be weatherproof do not answer their purpose. The disadvantage is that the single tiles are not connected together tightly enough to form a single fast body. Consequently in bad weather first single tiles or rows of them are lifted and the cement or mortar breaks and crumbles away, leaving free play to effects of storm and rain. Usually it was thought that the wet caused the crumbling of the mortar, and care was taken to protect the lines of mortar against exterior influence; but this did not really effect a weatherproof roof, because not only the wet led to the crumbling away of the mortar, but the imperfect connection together of the single tiles and rows thereof, which could not prevent an up-and-down movement, caused the lines of mortar to break. To obtain a really storm and weather proof roof, a resistant connection must be made. This has been tried already with various kinds of diagonal tiles or slates, which cover the lines of mortar entirely and are also better connected together by introducing connecting-tongues into suitably-formed grooves. Also the use of projections engaging with the layer of tiles lying thereunder has been tried. The connection-tongues have also been formed dovetailed in order to keep the roof comparatively tight if the tiles or slates should be displaced; but all these different arrangements have not had the desired effect, as the dovetail as well as the straight tongues with their grooves are much too long, being compelled to run along the edges of the tiles, &c., and the material of the tiles, &c., by reason of its physical qualities not being suitable to be formed into such long tongues and grooves, so that the respective parts can be placed one in the other, each tile contracts into a more or less different shape when burned. The before-mentioned projections do not fulfil their purpose at all, because they catch under the joint of two neighboring tiles, so that

their effect is contrary to their purpose, because they act as a lever and force the tiles lying above from one another, because the mortar cannot resist the pressure of the wedge during a storm. Besides, such a system, even when all the lines of mortar are entirely covered, cannot make a roof weatherproof.

The object of the present invention is to obtain a roof which answers all requirements by the use of tiles with special arrangements, so that a really weatherproof roof is produced, which by a peculiarly-arranged locking of the tiles is so connected together that the solidity already obtained is still further increased by a good mortar connection.

In the annexed drawings, Figure 1 is a plan view of the roof. Fig. 2 is a section on line I I of Fig. 1—that is, a section through a mortar joint. Fig. 3 is a section on line II II of Fig. 1; Fig. 4, a section on line III III of Fig. 1. Fig. 5 shows a single tile. Fig. 6 is a section on line IV IV of Fig. 5; Figs. 7 and 8, sections on lines V V and VI VI of Fig. 5. Fig. 9 shows a metal filling for the cross-lines of mortar.

The roof is composed of -shaped tiles, Fig. 1. The hollow left side of each tile catches over the raised right edge of the next, so that the joining-line of mortar has always a solid support and is held in the groove *a*, Figs. 3 and 4. On the upper left edge of each tile is a cut-out part *b*, Figs. 1 and 5, of the same width as the cross-line of mortar is intended to be, while the length of said cut-out part is such that the latter is even with the right edge of the tile lying thereunder, Figs. 1, 2, and 5. The cross-lines of mortar being placed upon the upper borders of the tiles, Fig. 1, there is thus a direct connection effected between the longitudinal and cross lines of mortar, so that the latter have a solid support at all points, because at the cut-out part *b* the tile thereunder forms the support. In Fig. 1 the longitudinal lines of mortar *c* and the cross-lines *d* are represented by dotted lines, while in Figs. 2 and 4 their connection is shown. Such a connection of both said lines of mortar is very important from a technical point of view, because by the connection of these the roof is directly joined, so that it forms one solid body. The arrangement of the cut-out parts *b* has the advantage that into

the cross-lines of mortar long metal strips *i* can be placed in forming the cross-lines of the roof. In order to render the roof still more solid, two ribs *ff'* are arranged close underneath the lines of mortar, two on each tile, so formed that the free space lying between them forms a dovetail-shaped hollow *g*, Figs. 1, 3, 5, 7, and 8. Into this hollow *g* catch the dovetail-shaped projections *h*, arranged on the under side of the tile until they come close to the lower end, Figs. 3 and 8, so that the whole roof is again joined in lines. This joint is not at all like the projections on diagonal tiles hitherto used, because the projections do not catch under the joint of the two adjacent tiles, but catch the middle of each tile, so that a displacement sidewise is not possible. In order to lift a tile, the wind or weather must destroy both the side mortar lines and the junction of them with the respective cross-lines of mortar; but that is practically impossible, because the mortar joint lying on the right is covered by the next tile, and therefore joined in all directions. The projection *h* cannot be compared with the dovetail-shaped joining-tongues hitherto used in diagonal tiles, which allow a relative movability of the tiles without letting them go entirely out of the joints, or obtain even by the movability of the tiles a greater solidity, as the present arrangement acts entirely to the contrary—that is to say, to obtain an absolute immovability of the tiles. Finally, it may be mentioned that in this roofing all the cross-lines of mortar are protected against the influence of the weather, as they are covered by the ribs *ff'* and the projections *h*.

I declare that what I claim is—

1. In a roof the combination of consecutive series of overlapping tiles, each tile overlapping its neighbor on one side and each series overlapping that next below it, the said tiles having each a recess at its upper overlapping corner, mortar joints between each tile and its neighbor, and mortar joints between each series and the next, the two series of said mortar joints being integrally

joined throughout the roof by means of the aforesaid recesses.

2. In a roof the combination of consecutive series of overlapping tiles, each tile overlapping its neighbor on one side and each series overlapping that next below it, the said tiles having each a recess at its upper overlapping corner, mortar joints between each tile and its neighbor, and mortar joints between each series and the next, the two series of said mortar joints being integrally joined throughout the roof by means of the aforesaid recesses, and continuous metal strips in the horizontal mortar joints.

3. In a roof the combination of consecutive series of overlapping tiles, each tile overlapping its neighbor, on one side and each series overlapping that next below it the said tiles having each a recess at its upper overlapping corner and having non-continuous ribs on their upper surfaces near their upper edges and counterpart non-continuous ribs on their lower surfaces at their lower edges adapted each to interpose with the corresponding non-continuous ribs of the tiles above and below them, mortar joints between each tile and its neighbor and mortar joints between each series and the next, the two series of said mortar joints being integrally joined throughout the roof by means of the aforesaid recesses.

4. A tile having on one edge a cut-out portion *b* and on its surface near the upper border, running parallel therewith, a non-continuous rib *ff'* forming a dovetailed hollow interval *g* and on the under side ending on the lower border, a dovetailed projection *h* adapted to catch into the interval *g* of the tile lying thereunder to form a continuous rib.

In witness whereof I have signed this specification in the presence of two witnesses.

NICOLAS DAUBACH.

Witnesses:

WOLDEMAR HAUPT,
WILLIAM MAYNER.