L. KUEHN.

SHEET METAL SHINGLE.

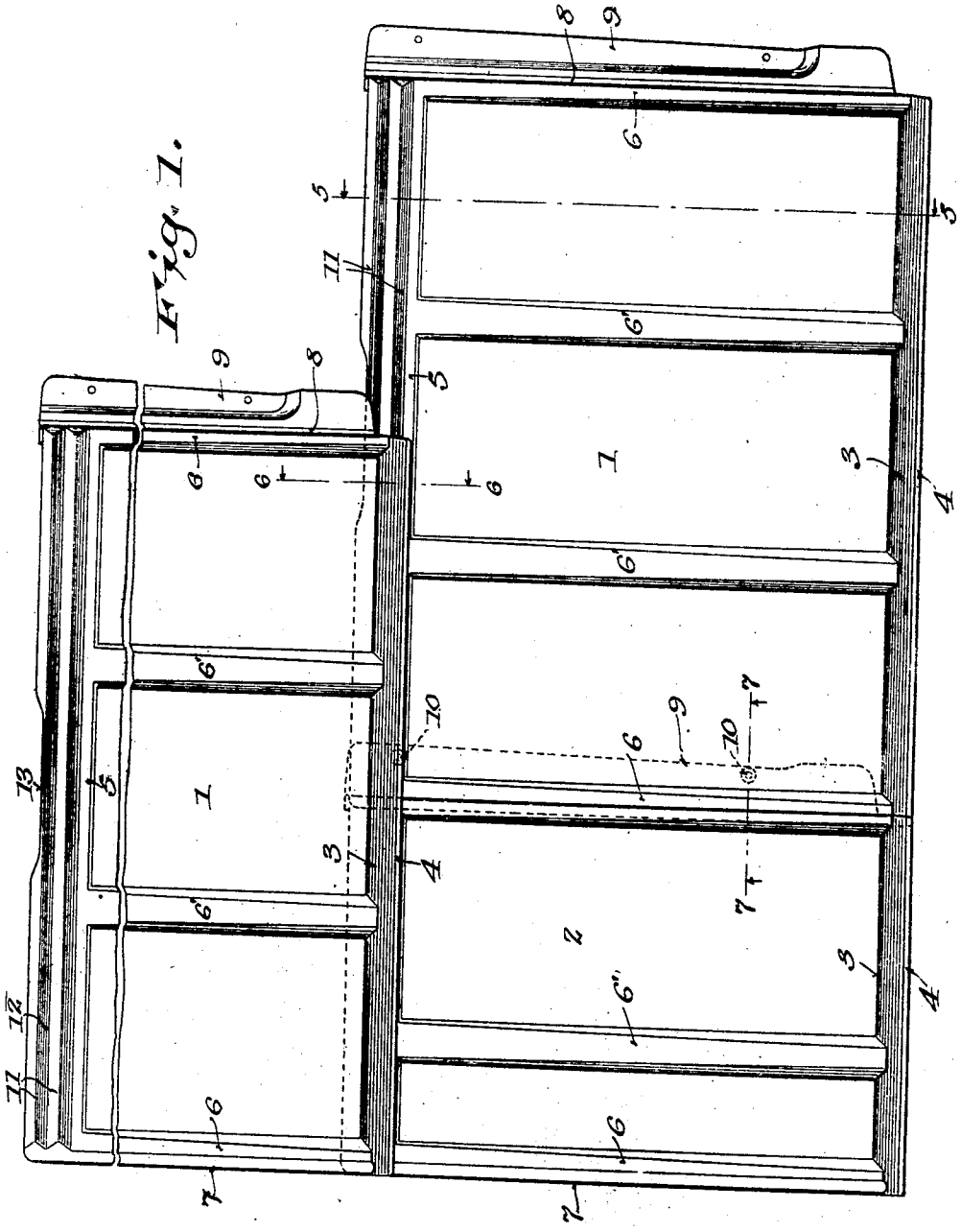
APPLICATION FILED JUNE 22, 1917.

1,306,488.

Patented June 10, 1919.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 5.

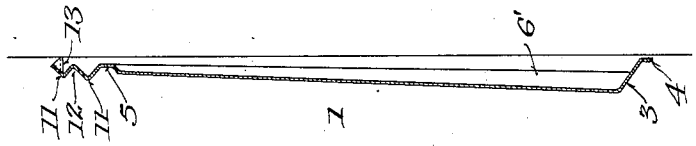


Fig. 4.

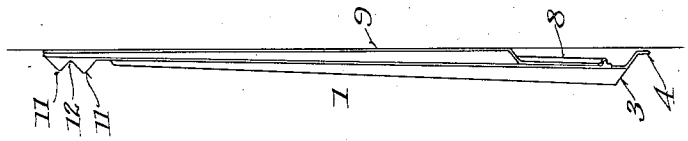


Fig. 2.

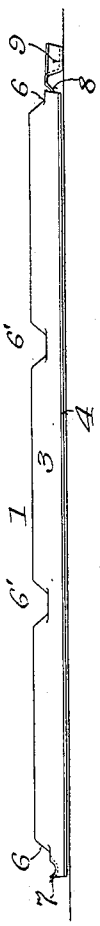


Fig. 3.

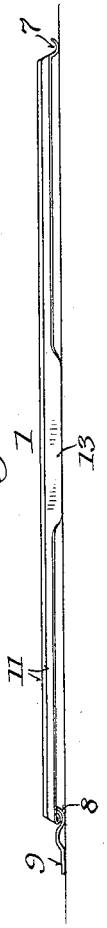


Fig. 7.

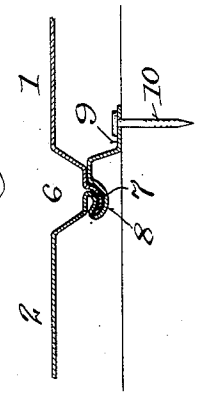
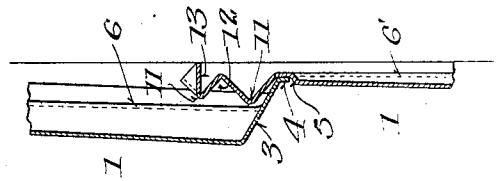


Fig. 6.



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UNITED STATES PATENT OFFICE.

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SHEET-METAL SHINGLE.

1,306,488. Specification of Letters Patent. Patented June 10, 1919.

Application filed June 22, 1917. Serial No. 176,263.

To all whom it may concern:

Be it known that I, LOUIS KUEHN, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Sheet-Metal Shingles, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

The main objects of this invention are to produce sheet metal shingles which can be easily laid upon and securely attached to roofs, which will form self-draining lapped joints, which will readily conform to more or less irregular or uneven surfaces and will admit of expansion and contraction due to variations in temperature and humidity without causing open joints and leakage; and which can be laid so as to produce a variety of attractive patterns or designs; and generally to improve the construction and increase the utility and convenience of shingles of this class.

It consists in the peculiar construction, arrangement and combination of parts as hereinafter particularly described and pointed out in the claims.

In the accompanying drawings like characters designate the same parts in the several figures.

Figure 1 is a plan view of portions of two courses of shingles embodying the invention; Fig. 2 is a lower end elevation of a full size shingle; Fig. 3 is an upper end elevation of the same; Fig. 4 is a side elevation as viewed from the right relative to Figs. 1 and 2; Fig. 5 is a longitudinal section on the line 5—5, Fig. 1; Fig. 6 is an enlarged section on the line 6—6, Fig. 1, of a joint between adjoining courses of shingles; and Fig. 7 is an enlarged cross section on the line 7—7, Fig. 1, of an interlocking joint between the sides of adjoining shingles.

The shingles are made in full and fractional sizes, such as halves, so that when laid as shown in Fig. 1, the shingles of adjoining courses will break joints and the courses may be evenly filled out at the ends. In Fig. 1 a full size shingle 1, and a half size shingle 2 are shown in the lower course, and a full size shingle 1 in an upper adjoining course.

Each shingle is formed of sheet metal with a standing bevel 3, across the lower end, terminating in a narrow flat bearing or foot flange 4, and adjacent to its upper end with a transverse depressed seat 5, to receive the foot flanges of shingles of an adjoining upper course, as shown in Figs. 1 and 6. Along the sides each shingle is formed with half or partial longitudinal channels 6, extending from the seat 5 through the bevel 3.

At one side, the left side as shown in Figs. 1, 2 and 7, each shingle is formed next to the half or partial channel 6 on that side, with a downwardly curved tongue 7, and on the other side, the right side, next to the channel 6 on that side, with a downwardly bent or curved under fold 8, forming a longitudinal socket with which the tongue 7 of an adjoining shingle is adapted to interlock, as shown in Fig. 7. Outwardly beyond this under fold and socket, each shingle is formed with a depressed bearing and nailing strip or flange 9, for firmly supporting the shingle upon and securely fastening it to a board or other roof foundation structure, as by nails 10.

Above and parallel with the seat 5, each shingle is formed with transverse upstanding ribs or ridges 11, and an intervening channel 12, which opens at the ends into the longitudinal channels 6, and serves to intercept and drain off any rain or water which may be driven or leak upwardly underneath the overlapping foot flanges 4 of an adjoining course of shingles. The upper beveled or inclined side of the marginal rib or ridge 11 is bent downwardly, as shown in Figs. 3, 5 and 6, to form a flange or support 13 extending but part way across the shingle. The shingle is supported at the ends and sides with an air space underneath it, by the bevel 3, tongue 7, nailing strip 9 and flange 13, resting on the roof boards or foundation and on adjoining shingles, as shown in Figs. 4, 6 and 7, so that water or moisture which may possibly leak into said space, will not be held in contact with and rust or corrode the metal of which the shingle is made.

The shingles may each be formed at an intermediate point or points between their sides, with one or more longitudinal channels 6′, corresponding with the channels 6 formed in adjoining shingles, and the number and arrangement of these intermediate channels may be varied to produce a variety of ornamental or attractive designs or pat-

terns like or similar to those produced in tile roofs.

In the application to a roof of shingles constructed as herein shown and described, the first course is laid along the lower side of the roof slope beginning at the left with a half size shingle 2, as shown for example, in Fig. 1, and working progressively to the right. As each shingle is laid, it is fastened in place by nailing through the strip or flange 9. The tongue 7 of the next shingle is then interlocked with the groove or socket in the fold 8 of the laid shingle, and being turned down into place, is nailed in like manner to the roof The next course above is then laid in like manner, beginning at the left with a full size shingle, as shown in Fig. 1, the foot flanges 4 along the lower edges of the bevels 3 being properly placed, as shown in Figs. 1 and 6, in the seats 5 of the shingles in the lower course. The channels 6 and 6′ in the shingles of each course breaking joints with those of the adjoining course or courses are of gradually increasing depth toward their lower ends and besides simulating tile and giving an attractive appearance to a roof, serve to strengthen the shingles and to drain the depressed seats 5 and intercepting grooves or channels 12.

While the shingles are stiffened and strengthened by their ribbed, channeled and flanged construction, they are nevertheless sufficiently flexible to readily conform and adapt themselves to a somewhat irregular or uneven surface.

The upper ends of the shingles being supported by the flanges 13, extending but part way across them, as shown in Fig. 3, leave openings through which the spaces underneath the several courses of shingles communicate with one another, and through which any water or moisture leaking into such spaces will readily escape, thereby avoiding the retention of water or moisture between the shingles and the surface on which they are laid, and consequently rusting or corrosion of the sheet metal of which the shingles are made.

I claim:

1. A sheet metal shingle having a raised central portion and formed along the sides with channels increasing in depth toward their lower ends, across its lower end with a continuous standing bevel intersected by the lower ends of said channels and terminating at the lower edge in a foot flange, and across the top with a depressed seat for the foot flange of an adjoining shingle and above and parallel with said seat with an intercepting and drainage channel opening at the ends into the side channels.

2. A sheet metal shingle having a raised central portion and formed along the sides with partial channels of increasing depth downward, an under fold forming a curved groove and a depressed bearing and nailing flange on one side extending below said under fold and a curved tongue on the other side adapted to interlock with the groove in an adjoining shingle, a standing bevel across the lower end terminating in a foot flange and intersected by said channels, and a depressed seat and an intercepting channel above it extending across the upper end and opening into the side channels.

3. A sheet metal shingle having a raised central portion, a longitudinal bearing and nailing flange on one side, a standing bevel extending continuously across the lower end and a downturned support extending part way across the upper end.

4. A sheet metal shingle having a raised central portion and formed with a continuous standing bevel across the lower end, a depressed seat for the lower edges of shingles of the next upper course and upstanding ridges with an intercepting and drainage channel across the upper end above said seat, and longitudinal channels along the sides and at an intermediate point extending from the depressed seat across the upper end through the bevel across the lower end.

In witness whereof I hereto affix my signature.

LOUIS KUEHN.