May 15, 1928. 1,670,041

T. D. MILLER

SHINGLE

Filed Feb. 4, 1927 2 Sheets-Sheet 1

FIG. 1.

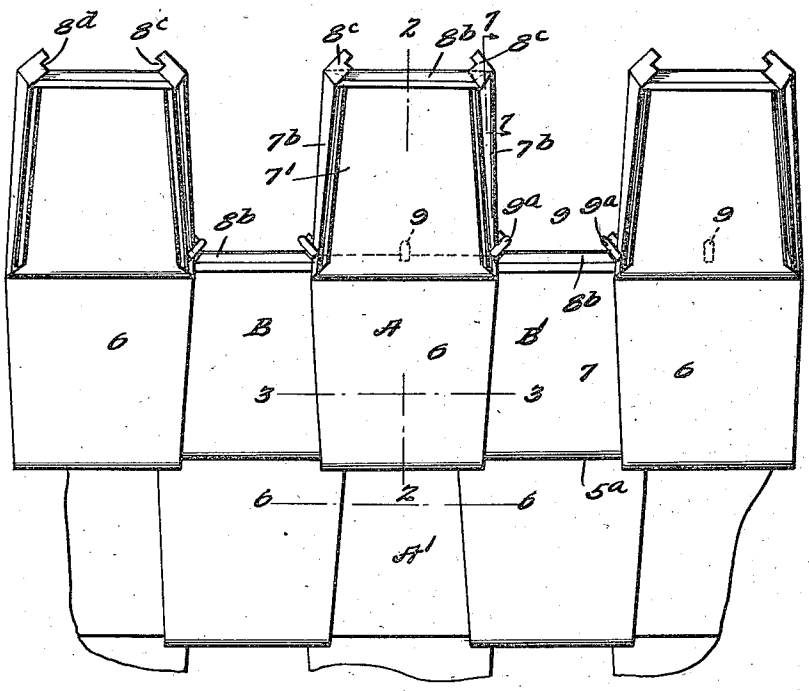


FIG. 2.

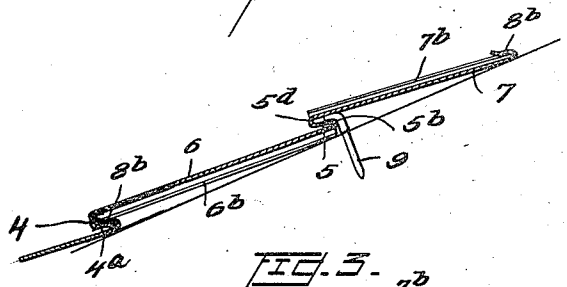
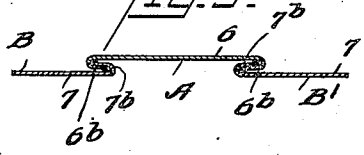


FIG. 3.



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FIG. 4.

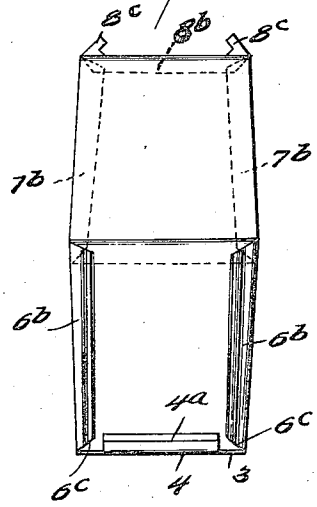


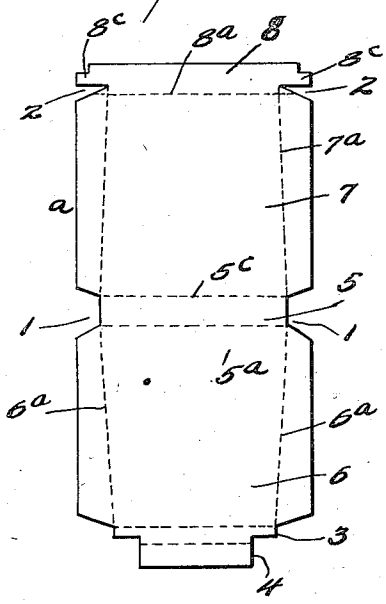
FIG. 6.





FIG. 7.

FIG. 5.



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UNITED STATES PATENT OFFICE.

THOMAS DENTON MILLER, OF CLARKSVILLE, MARYLAND.

SHINGLE.

Application filed February 4, 1927. Serial No. 165,968.

This invention relates to improvements in shingles. In carrying out the invention, I form the shingle from an oblong strip of sheet metal which is so bent and folded that when it is applied to a roof it has the appearance of two shingles. This strip may have considerable length, say ten feet or so, so that a relatively small number of strips will cover the roof, or it may be shorter so that the two exposed surfaces of the strip will approximate the size of ordinary shingles.

Each shingle has a transverse double fold at its central portion, which divides the shingle into upper and lower halves offset from one another. The upper half of the shingle has overturned end and side flanges, and the lower half has underturned end and side flanges. The arrangement is such that the shingles will be assembled on a roof by sliding each shingle upwardly, when the side flanges on the lower half of one shingle will interlock with the side flanges on the upper half of two shingles in the next lower row, the reverse fold in the upper shingle will interlock with the upper flanges of said shingles in the next lower row, and the flange on the lower half of the upper shingle will interlock with the reverse folds of said shingles in said next lower row and will also interlock with the upper flange in a shingle which is in a third row. The joints between the shingles are such as to prevent water from being driven through them and to permit the water to drain out of them, and the shingles are secured by nails which are not driven through the metal and which are protected from the weather by the shingles.

In the accompanying drawing,

Fig. 1 is a plan view of a number of shingles, made according to my invention, assembled to form a roof covering;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a section on the line 3—3 of Fig. 1;

Fig. 4 is a bottom plan view of one of the shingles;

Fig. 5 is a plan view of the blank from which the shingle is made;

Fig. 6 is a section on the line 6—6 of Fig. 1; and,

Fig. 7 is a section on the line 7—7 of Fig. 1.

The shingle of my invention is made from a relatively long rectangular strip of sheet metal which is cut into the form shown in Fig. 5, by suitable blanking dies. As shown in this figure, the blank a has notches 1 in its sides at the central portion of the blank, and it also has triangular notches 2 near its upper end. The lower end of the blank has a part 3, which is narrower than the main portion of the blank, and a part 4, which is of less width than the part 3. In forming the shingle from the blank described, the central part 5 of the blank is folded back, along the line 5^a, over the lower part 6 of the blank, forming a bend 5^b (Fig. 2), and the upper part 7 of the blank is then folded back over the part 5, along the dotted line 5^c, forming a bend 5^d, (Fig. 2). The side portions of the upper part 7 of the blank are then folded over the top of the blank, along the lines 7^a, thus forming the side flanges 7^b, shown in full lines in Fig. 1 and indicated in dotted lines in Fig. 4. The side portions of the lower part 6 of the blank are folded under the blank along the dotted lines 6^a, forming flanges 6^b (Fig. 4) which are on the opposite side of the shingle from the flanges 7^b. These flanges are longitudinally grooved or corrugated, as indicated by the shading in Figures 1 and 4, so that the flanges 6^b on one shingle will more closely fit within the flanges 7^b of adjoining shingles, as indicated in Fig. 3, to prevent water from passing laterally through the joints. It is to be noted that the part 5 of the shingle which is reversely bent at 5^b and 5^d is without flanges, and it is also to be noted that the side flanges of the shingle gradually increase in width from the central part 5, toward the ends of the shingle. The finished shingle therefore tapers from the center toward the ends. The upper end 8 of the blank (Fig. 5) is turned backwardly over the part 7 of the shingle, along the line 8^a, forming a flange 8^b, which extends over the upper ends of the side flanges 7^b, and preferably, the upper ends of the side flanges are turned over in forming the flange 8^b, as indicated at 7^c, in Fig. 7. The parts 8^c at the ends of the flange 8^b may be cut off or turned upwardly, as shown in Figs. 1 and 2, to form tabs for engaging nails on the roof timbers. The part 3 of the blank (Fig. 5) is turned downwardly at right angles to the plane of the lower

half 6 of the shingle, as shown in Figs. 4 and 6, and the part 4 extends below the part 3, and in the same plane, for a short distance, and has a part 4^a at its end which is bent under the part 6.

In assembling the shingles upon a roof, headed nails 9 are driven into the roof timbers in line with the upper ends of the several shingles in one row, and the heads of the nails will extend into the central folds in the shingles in the next row when the latter are shoved upwardly into place. Other nails 9^a may be driven into the roof timbers in position to engage the notches 8^a in the tabs 8^c, and the heads of these nails may also project over the side flanges 7^b of adjacent shingles. The shingles in a row are spaced apart and in assembling the shingles, the side flanges 6^b of the lower part 6 of a shingle A, for instance, will engage the side flanges 7^b of two adjacent shingles B and B'. These flanges are brought into engagement by sliding the shingle A upwardly. At the upper limit of movement of the shingle A, the folded portion 5 of said shingle will extend beneath the flanges 8^b of the shingles B and B', and beneath the head of the nail 9, and the part 3 of the shingle A will rest upon the lower halves 6 of the shingles B and B' and against the bends 5^a in the latter shingles; the part 4 will rest upon the upper half of a shingle A', and the tongue 4^a will also rest upon the latter shingle and project under its upper flange 8^b. Thus, in laying the singles, the lower half of each shingle dove-tails with the side flanges on the upper halves of two adjacent shingles, and it will be noted that the nails, which engage only the upper halves of the shingles, are not driven through the metal and are covered and protected from the weather by the lower halves of the shingles in one row which cover the gaps between the upper halves of the shingles in another row. The folded portion 5^b of each shingle, engaging under the upper flange of two adjacent shingles, prevents water from being driven up under the shingles, and such water as may be driven into the fold will flow down between the interlocked side flanges of the shingles and out at the bottom of the flanges 6^b, the lower ends of which are cut away, as indicated at 6^c, so that the water can flow out freely.

The upper and lower parts 7 and 6 of the shingle lie in different planes, and the central folds in the alternate shingles, extending transversely of the roof, come nearly in alinement with the lower ends of the intermediate shingles, thus providing horizontal shade lines which are desirable from an architectural standpoint. Also, it is to be noted, that the lower halves 6 of the shingles are entirely exposed to view, while the upper halves 7 are only partly exposed to view, and this variation in size of the contiguous surfaces is also desirable from an architectural standpoint.

The strips or sheets from which the shingles are made may be relatively short, or they may be very long, and when formed, the strip presents the appearance of two shingles, each approximately half the length of the strip. As the overlapping of the strips is only at their sides and ends, the amount of metal required to cover a roof is reduced to a minimum. As few nails are used, and these are covered and do not perforate the metal, the danger of leakage and rusting out of the metal at nail holes is avoided.

While I have described the shingles as being made of sheet metal, it will be understood that they may be made of any other suitable sheet material that can be bent or molded into the desired shape.

What I claim is:

1. A shingle comprising a substantially rectangular sheet having, in its central portion, a transverse double fold, the upper half of the shingle having overturned side flanges and the lower half having underturned side flanges.

2. A shingle comprising a substantially rectangular sheet having, in its central portion, a transverse double fold, the upper half of the shingle having overturned side flanges and the lower half having underturned side flanges, said flanges gradually increasing in width from the central fold to the ends of the shingle.

3. A shingle comprising a substantially rectangular sheet having, in its central portion, a transverse double fold, the upper half of the shingle having overturned side flanges and the lower half having underturned side flanges, said flanges gradually increasing in width from the central fold to the ends of the shingle and each flange having a longitudinal corrugation or groove parallel with its inner edge.

4. A shingle comprising a substantially rectangular sheet having in its central portion a transverse double fold, the upper half of the shingle having overturned side flanges and an overturned flange at its upper end, and the lower half having underturned side flanges and an underturned flange at its lower end.

5. A shingle comprising a substantially rectangular sheet having in its central portion a transverse double fold, the upper half of the shingle having overturned side flanges and an overturned flange at its upper end and tabs bent upwardly from the latter flange, and the lower half having underturned side flanges and an underturned flange at its lower end.

6. A roof covering comprising a plurality of similar shingles, each having, at its cen-

tral portion, a transverse double fold, the upper half of the shingle having overturned side flanges and an overturned flange at its upper end, and the lower half having underturned side flanges, the side flanges on the lower half of each shingle interlocking with side flanges of the upper halves of two adjacent shingles, and the central transverse fold in each shingle interlocking with the upper end flanges of two adjacent shingles.

7. A roof covering comprising a plurality of similar shingles, each having, at its central portion, a transverse double fold, the upper half of the shingle having overturned side flanges and an overturned flange at its upper end, and the lower half having underturned side flanges, said side flanges gradually increasing in width from the central fold to the ends of the shingle, the side flanges on the lower half of each shingle interlocking with side flanges of the upper halves of two adjacent shingles, and the central transverse fold in each shingle interlocking with the upper end flanges of two adjacent shingles.

8. A roof covering comprising a plurality of similar shingles, each having, at its central portion, a transverse double fold, the upper half of the shingle having overturned side flanges and an overturned flange at its upper end, and the lower half having underturned side flanges, the side flanges on the lower half of each shingle interlocking with side flanges of the upper halves of two adjacent shingles, the central transverse fold in each shingle interlocking with the upper end flanges of two adjacent shingles, and the flange at the lower end of each shingle having its central portion extending between said adjacent shingles and its end portion fitting against their central transverse folds.

9. A roof covering comprising a plurality of similar shingles, each having at its central portion a transverse double fold, the upper half of the shingle having overturned side and end flanges and the lower half having underturned side and end flanges, the side flanges on the lower half of each shingle interlocking with side flanges on the upper halves of two adjacent shingles, the central fold in each shingle extending under the upper flanges of said adjacent shingles and the lower flange on each shingle extending within the upper end flange of a shingle below it.

In testimony whereof I hereunto affix my signature.

THOMAS DENTON MILLER.