(No Model.)

V. FISCHER.

Valley and Ridge Sheets for Roofs.

No. 235,351. Patented Dec. 14, 1880.

Fig. 1.

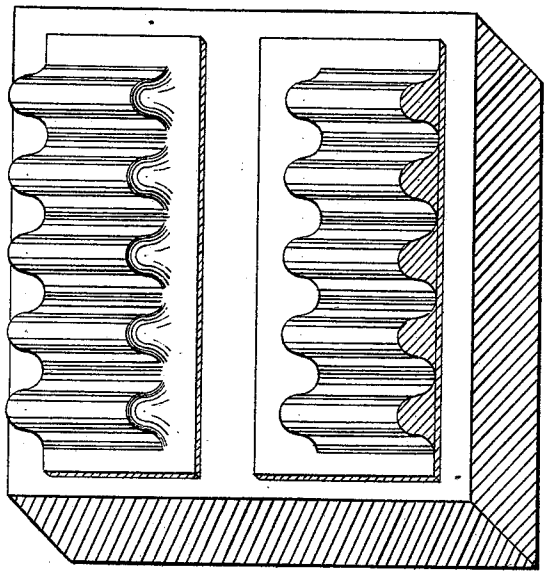
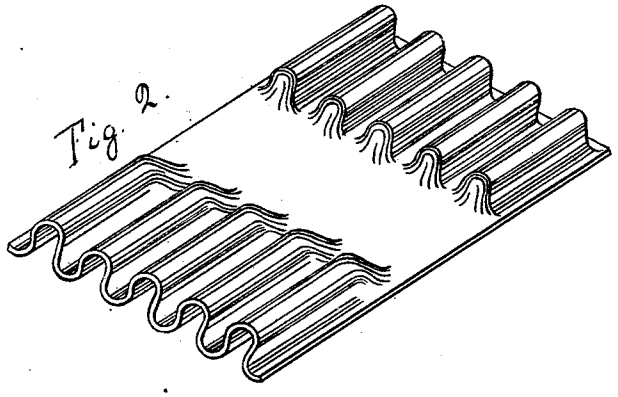


Fig. 2.



Witnesses.
W. L. Bemem.
Bern. F. Tattestein

Inventor.
Valentine Fischer
by Phillips Abbott
his Attorney.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

VALENTINE FISCHER, OF NEW YORK, N. Y.

VALLEY AND RIDGE SHEETS FOR ROOFS.

SPECIFICATION forming part of Letters Patent No. 235,351, dated December 14, 1880.

Application filed June 17, 1880. (No model.)

To all whom it may concern:

Be it known that I, VALENTINE FISCHER, of the city, county, and State of New York, have invented a new and useful Improvement in the Valley and Ridge Sheets of Sheet-Metal Roofs, as fully set forth and described in the accompanying specification and drawings, in which like letters represent like parts.

Figure 1 is a plan view of the lower die, shown as cast in two pieces and set on the anvil of the drop. Fig. 2 shows a valley or ridge sheet after having been corrugated on its edges by the dies.

The valley and ridge sheets of metal roofs as heretofore used have been flat pieces of sheet metal bent to fit the ridge or valley of the roof, and prior to my invention the joint between these pieces and the corrugated roofing-sheets has been made by slitting the corrugations of the roofing-sheet at the end, lapping the ends thus formed, and then hammering them down into as perfect a flat surface as could thus be obtained, which was nailed, soldered, or bolted onto the flat edges of the valley or ridge pieces. This joint was not a good one, and the slitting of the ends of the corrugations in the roofing-sheets took much time and labor.

My improvement consists in corrugating the edges or sides of the valley and ridge pieces with the same size corrugations as are in the sheet-metal roofing, which corrugations in the valley and ridge sheets shall be made in them in such position as to properly receive the corrugations of the roofing-sheets which are to fit into them.

I corrugate the edges or sides of these flat sheets to be used as the valley and ridge sheets as follows: I prepare a lower and upper die of cast-iron or other suitable metal, the lower one being shown in two parts in Fig. 1. These dies have on their working-faces elevations *h h* of the same size and shape, save length, as the corrugations in the roofing-sheets. These elevations are on the outer edges of the dies, or if the dies be made in two parts then on the outer edges respectively of these two parts, and they are cast on the dies at such an angle relative to the axial line of the dies, which line I indicate by *x x*, Fig. 1, as the corrugations to be made in the flat sheets are to bear to the axial line of the sheets. These elevations *h h* extend from the outer edges of the dies in toward the middle thereof far enough to make a corrugation on the edges of the sheet, as hereinafter explained, sufficiently long to admit of a good joint being made between the corrugated roofing-sheet and these ridge and valley sheets—usually from three to four inches. The inner ends of these elevations on the dies round off and disappear into a flat surface, *i i*, between them by spreading sidewise and flatwise downwardly. The flat surface lying between the inner ends of these elevations is on a level with their bottoms. These dies (if made in a single piece) should be as wide as the flat ridge or valley sheet is before it is corrugated; but in order that they may be easily made of the proper width to accommodate and correctly stamp any width of ridge or valley sheet, I prefer to make them, both upper and lower, in two pieces—halves, or nearly so—and I fasten these two halves firmly in position on the anvil and hammer of the drop (in which these dies are to be used for stamping the corrugations in the sheet metal) by pouring molten metal, preferably lead or zinc, around them after they have been placed the proper distance apart, taking care that the molten metal does not come above the flat surface of the dies. (Seen at *i i*, Fig. 1.) These dies are set on the anvil of the drop, and also fastened to the under side of the hammer of the drop, in such a position that the elevations on them run from the front of the drop backward to the rear of it and with the corrugations on the outer edges of the dies.

The upper die, or its two halves if made in more than one piece, are counterparts of the lower die or die-pieces, and are placed in the under face of the hammer, so as exactly to fit or match into the elevations on the lower die when in use.

The operation is as follows: The dies being properly set and fastened, respectively, on the anvil and the under side of the hammer, the workman, when the upper die is elevated, introduces the end of a valley or ridge piece, as the case may be, which, at this time, is a flat sheet or strip, onto the lower die in such a

position that it shall cover three, four, or more of the elevations on the lower die. The drop is then tripped, and the hammer, falling, strikes up as many corrugations in the metal on its edges as there are elevations on the die beneath it. The upper die is then again elevated and the sheet or strip is farther shoved in between the dies, care being taken that the corrugations just formed in it shall rest and correctly fit into the elevations and depressions of the lower die, so that they shall not be crushed out when the upper die falls on them. The upper die is then again allowed to drop, and it strikes up still other corrugations in the metal, as before, and thus the operation is repeated until the entire sheet or strip has been fed through the dies, when it will have a flat surface in the middle part thereof throughout its length, and corrugations on its two edges corresponding to the elevations on the dies, as seen in Fig. 2, and when put in place on the roof the corrugated ends of the roofing-sheets will nicely fit into these corrugations on the valley and ridge pieces and make a snug and handsomely-finished joint, which may then be riveted, soldered, or otherwise fastened.

I prefer to provide a guide at the side of the dies to aid the workman in placing and keeping the sheets accurately and squarely on the dies and to prevent lateral shifting of the sheet or movement cornerwise as it is fed through the dies.

I do not confine myself to valley and ridge sheets corrugated simply with the usual wave-like corrugation, as any form of corrugation, molding, beading, or other ornamentation that is stamped or formed in the roofing metal can be reproduced in the edges of the valley or ridge pieces by forming the dies to correspond thereto.

If the ridge or valley pieces are to be used on ridges or valleys which lie at an angle, either vertically or horizontally, to the line of the corrugations in the roofing-sheets, then the corrugations must be stamped in the sheets at an angle, (more or less, as the case may be,) to the axial line of the sheets.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The stamping-dies herein set forth, having a flat surface in their middle part and elevations on their outer edges, as and for the purposes set forth.

2. As a new article of manufacture, a piece of sheet metal corrugated on two of its edges, with a flat surface between the corrugations.

VALENTINE FISCHER.

Witnesses:

PHILLIPS ABBOTT,

G. G. FRELINGHUSEN.

Correction for Letters Patent No. 235,351.

It is hereby certified that in Letters Patent No. 235,351, dated December 14, 1880, issued to *Valentine Fischer* for improvements in *Valley and Ridge* sheets for roofs, the reference letters *x x*, *h h*, and *i i* were erroneously omitted from the drawing; that the proper corrections have been made in the records of this Office and in the said Letters Patent.

Signed, countersigned, and sealed this 14th day of January, A. D. 1881.

[SEAL.]

A. BELL,
Acting Secretary of the Interior.

Countersigned:

E. M. MARBLE,
Commissioner of Patents.