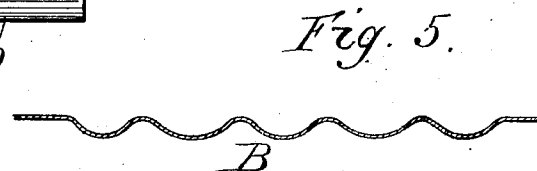
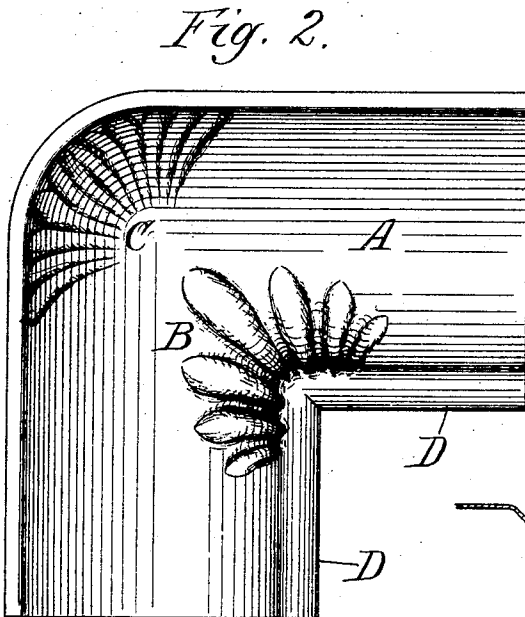
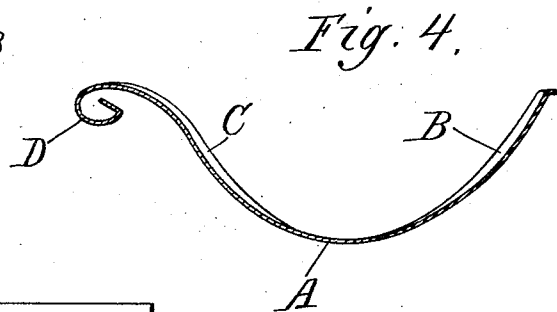
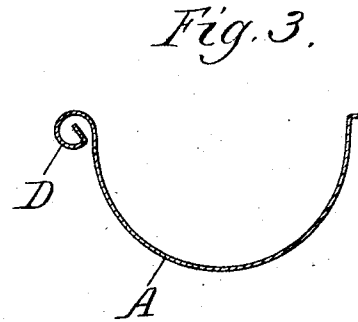
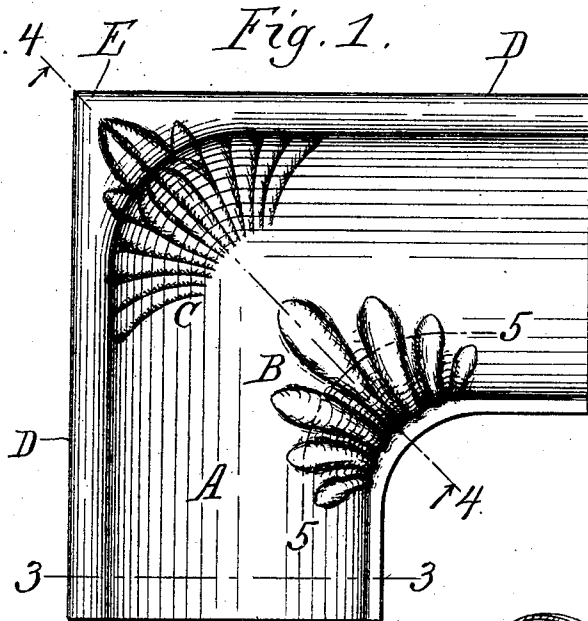


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ONE PIECE SHEET METAL GUTTER CORNER.
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937,697.

Patented Oct. 19, 1909.



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UNITED STATES PATENT OFFICE.

ALBERT FRIEDLEY AND HERMAN F. VOSHARDT, OF CHICAGO, ILLINOIS.

ONE-PIECE SHEET-METAL GUTTER-CORNER.

937,697.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed April 20, 1908. Serial No. 427,994.

To all whom it may concern:

Be it known that we, ALBERT FRIEDLEY and HERMAN F. VOSHARDT, citizens of the United States, both residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in One-Piece Sheet-Metal Gutter-Corners, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide an improved gutter corner made of one piece of sheet metal.

It consists of the features of construction shown and described as indicated in the claims.

In the drawings:—Figure 1 is a plan view of a sheet-metal-gutter corner embodying this invention for an exterior corner. Fig. 2 is a similar view of a gutter corner having the invention applied to an interior corner or reëntrant angle. Fig. 3 is a section at the line 3—3 on Fig. 1. Fig. 4 is a section at the line 4—4 on Fig. 1, diagonally through the corner. Fig. 5 is a section at the curved line 5—5 on Fig. 1, showing the edge which would appear at that section as if the curved plane of the section were straightened out and made to appear flat.

The gutter corner shown in this application affords a path for the flow of water around the corner, which is curved both at the inner and outer side and widens at the corner as compared with the direct courses leading to and from the corner. The rounding at the outer side is particularly useful to deflect the current without the abruptness which characterizes a corner angular or mitered at the outer side, and which tends to cause the water to overflow at the corner even when the quantity of water is not nearly sufficient to fill the gutter in straight courses.

In forming gutter corners of one piece of sheet metal, there is an excess of metal due to turning the corner and also to shaping the metal to form the hollow for the gutter or trough-way, both shapings,—that is, the shaping in semi-cylindrical form transversely and the shaping for turning the corner horizontally,—necessarily entering into the problem and affecting the distribution and amount of excess of metal to be taken care of in some manner. The simple method of disposing of the excess of metal when no attempt is being made to keep the structure

in one piece and without such cutting of the metal as to require solder joints, is by mitering, and a very common mode of effecting the result without cutting is to form a miter corner by crimping into a close clenched fold the excess of metal which would be cut away to form an ordinary cut and soldered miter joint. It is also customary to make such gutter corners of one piece by two or more such crimped or closely laid folds disposing of the excess metal, such crimps being symmetrically disposed at opposite sides of a diagonal through the corner. In all these methods, however, it will be observed that the crimps or closely clenched folds are liable to hold water and become rusted and constitute points of weakness, because, besides the fact that the water will go into the fold and remain there, the close pinching of the crimp tends to crack the metal and will very often actually crack it when the crack cannot be discovered, so that a leak will develop quickly at such crimp or fold. Also, any method of disposing of the excess which produces or requires a closely pinched crimp, even if it does not start a crack in the metal, will crack the surface coating of the galvanized metal or tin and expose the steel foundation metal to rusting.

The present invention avoids the defects and difficulties above pointed out, and in addition, produces an ornamental gutter corner, utilizing the excess metal for the purpose of ornamentation. In the drawings, the single piece of metal, A, is shown formed into a gutter corner in which the excess of metal, due both to turning the corner and to guttering or hollowing for the trough, is taken up in two groups of comparatively shallow corrugations, B and C, respectively, the former at the inner and the latter at the outer side of the corner. The corrugations of both groups radiate from points located in a line diagonal with respect to the corner, and all the corrugations diminish in depth toward the bottom or middle of the channel of the gutter, leaving the gutter substantially smooth at the middle bottom part. The shallowing of the corrugations as they approach the middle of the gutter is easily effected, even though the amount of the metal to be taken up does not diminish uniformly at the rate at which the shallowing of the corrugations might be desired, because the corrugation may be widened as it is diminished in depth for

taking up the amount of excess required by the curvature in both directions. The result of this method of disposing of the excess is almost unavoidably ornamental, the two groups of radiating corrugations naturally constituting the ornamental feature; but by a little attention to the shaping of the corrugations with a view to appearance, the result may be made quite highly ornamental, as shown in the drawings. Preferably, the edge which is to be outermost when the gutter is mounted is coiled into a roll, D. Preferably, also, an exterior corner is finished to an angle, as seen in Fig. 1, at the corner, E, although the channel of the gutter is curved for turning the corner, the roll, D, being cut and mitered, as will be easily understood, the slight soldered joint required for mitering the roll at the corner, E, being unobjectionable because it is not within the trough or channel. For an interior corner or reëntrant angle, in which the roll, D, bounds a reëntrant angle of the gutter corner, a similar expedient of mitering the roll may be resorted to without departing from the requirement that the gutter proper, throughout the entire channel thereof, shall be without any cut or joint requiring soldering.

It will be observed that the curving of the channel around the corner at the outer as well as the inner side which serves the primary purpose of deflecting the water current more easily than a mitered or angular corner, is effected in a manner to avoid the necessity for disposing of a very large excess of metal in the ornamental corrugations, by making the curve at the outer side, not about the same center as the curve at the inner side, but about a center determined by a shorter radius, the horizontal curvature at the outer side of the corner being made with approximately the same radius as the horizontal curvature at the inner side of the corner. It will also be noticed that the curvature in diagonal transverse plane,—that is, through the corner,—is at the outer side with only slightly greater radius than the curvature in transverse plane across the direct portions of the channel, as seen in section (Fig. 3), but that the curvature in said transverse plane at the inner side of the corner is made with a materially longer radius even than would result from a mitered joint at the corner; that is to say, the curvature at the inner side is more gradual and at the outer side is less gradual than in the case of a mitered corner. These characteristics of curvature serve partly to define the corner, distinguishing it from the mitering.

I claim:—

1. A one-piece sheet-metal gutter corner which is curved as distinguished from having an angular joint for turning the corner, and having the excess of metal at the inner side of the corner due to such curved form of the corner and to the guttering taken up in a group of shallow corrugations located at the inner side of the corner.

2. A gutter corner made of one piece of sheet metal having the excess of metal due to guttering and to turning the corner taken up by two groups of transversely extending shallow and tapering corrugations at the outer and inner sides of the corner respectively.

3. A one-piece sheet-metal gutter corner which is curved, as distinguished from being mitered, for turning the corner and having the excess of metal due to such curved form of the corner and to the guttering taken up in two groups of shallow corrugations located at the inner and outer sides of the corner respectively.

4. A gutter corner made of one piece of sheet metal, having the excess of metal due to guttering and turning the corner taken up by two groups of shallow tapering corrugations located at the inner and outer sides of the corner respectively, such corrugations diminishing in depth toward the middle or bottom of the gutter channel and disappearing before reaching such middle.

5. A gutter corner made of one piece of sheet metal curved as distinguished from being mitered for turning the corner, having the middle or bottom of the channel smooth at the corner, the excess of metal due to curving and guttering being taken up by two groups of shallow corrugations at the inner and outer sides of the corner respectively which diminish in depth toward the middle or bottom and disappear or become level with the metal surface at a distance transversely from the middle or bottom of the gutter.

6. A one-piece sheet-metal gutter corner, curved as distinguished from mitered for turning the corner, having the excess of metal taken up by ornamental embossing of the metal at inner and outer sides of the corner, such embossing being shallow and running out or disappearing before reaching the middle of the gutter.

In testimony whereof, we have hereunto set our hands at Chicago, Illinois, this 16th day of April, 1908.

ALBERT FRIEDLEY.
HERMAN F. VOSHARDT.

Witnesses:

JAMES L. PERKINS,
P. D. SHELMIER.