(No Model.)

G. CROWL.

ROOFING.

No. 360,796. Patented Apr. 5, 1887.

Fig. 1.

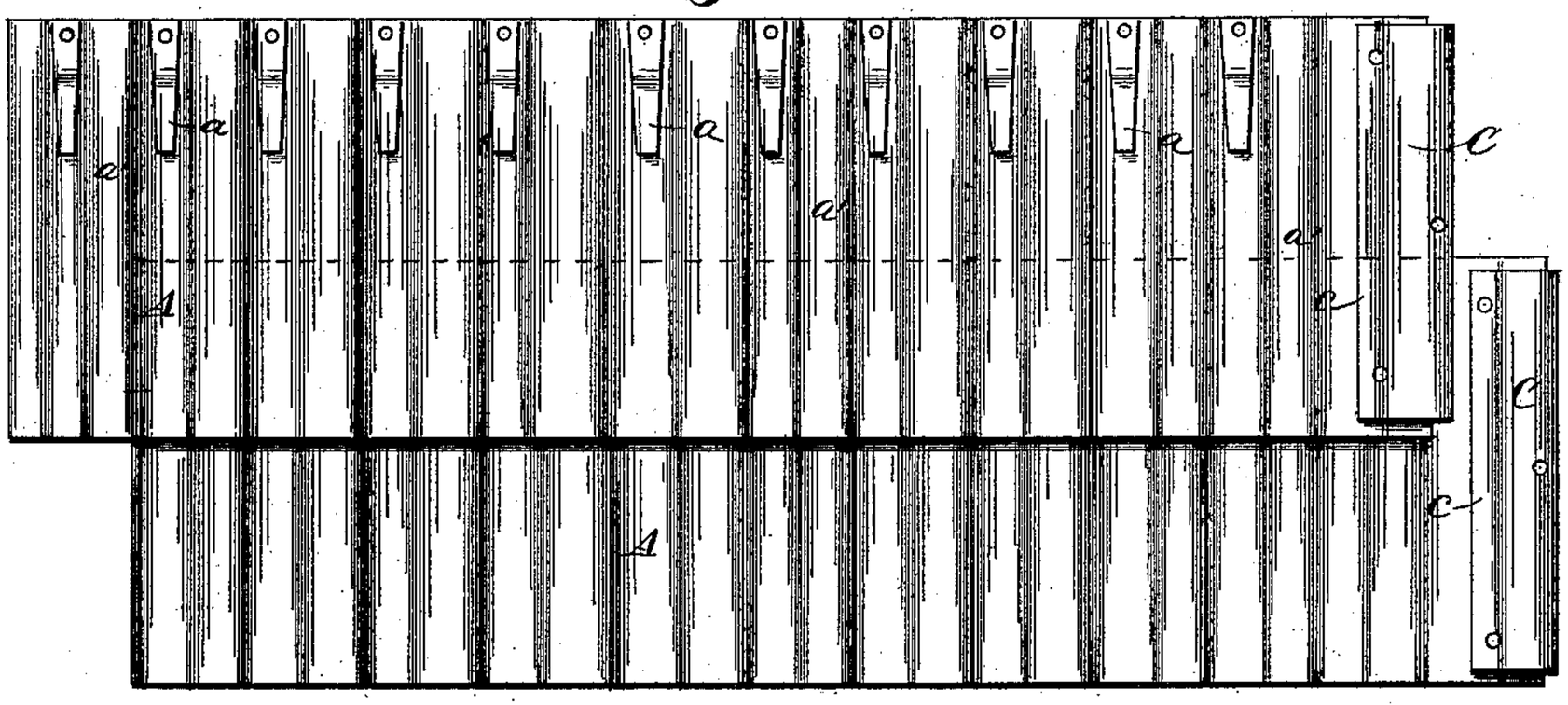


Fig. 2.

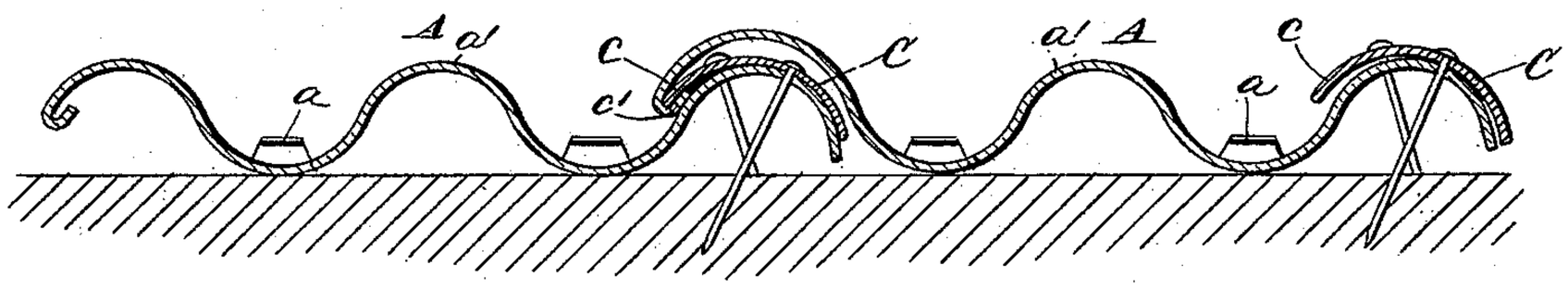


Fig 3

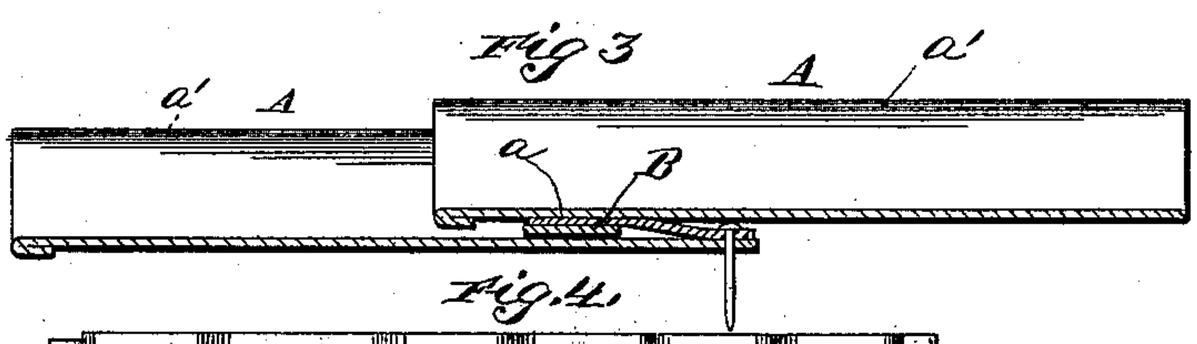
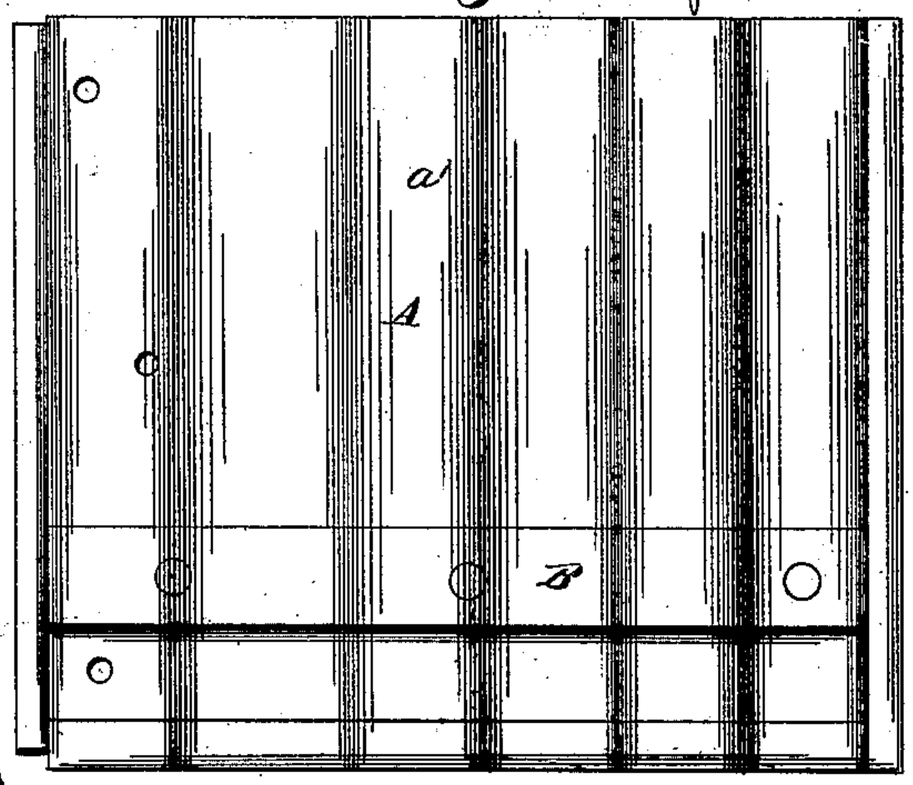


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE CROWL, OF NEW LISBON, OHIO.

ROOFING.

SPECIFICATION forming part of Letters Patent No. 360,796, dated April 5, 1887.

Application filed February 9, 1887. Serial No. 227,049. (No model.)

To all whom it may concern:

Be it known that I, GEORGE CROWL, a citizen of the United States, residing at New Lisbon, in the county of Columbiana and State of Ohio, have invented new and useful Improvements in Roofing, of which the following is a specification.

The invention relates to improvements in roofing, referring especially to corrugated metal roofing, the objects being to construct a metal-plate roof that will permit all expansion and contraction due to the weather without injury, and in which the nails or other means of attaching one layer of plates to the frame-work of the building will be covered by the next higher layer of plates, so that no nail or attachment opening will be exposed to the rain, thus avoiding the risk of forming leaks in the roof.

The invention exists more particularly in the construction and arrangement of the means by which the plates are connected together, and, further, in certain details of construction, hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a part of the roofing, showing the longitudinal strip on the edge of the plates and the tongues of metal by means of which the layers of plates are connected. Fig. 2 is a transverse sectional view of a layer of plates, showing how the same are connected at their edges. Fig. 3 is a longitudinal sectional view through the engaging-tongue, to show how it connects with the strip on the under side of the plate above. Fig. 4 is a reversed plan view of one of the plates, showing the transverse strip with which the tongues on the next lower plate engage.

Referring to the drawings, in which similar letters denote corresponding parts in all the figures, A designates one plate of the improved corrugated-metal roofing, nailed near its upper end or edge to the frame-work of the roof, through the downwardly-pointing tongues of metal *a a*, which are placed between the corrugations *a' a'*, which run from the upper to the lower edge of the plate when the same is in place. The said tongues are thus secured in place in the groove between the corrugations, with the upper end of the tongue fixed to the plate and the lower end free, the securing-nail thus firmly binding the plate in place on the roof at the point where the said plate naturally touches the roof.

B represents a transverse strip of metal, secured across the plate on its under side and near its lower edge, and the said strip is not too closely attached to the plate at the points where it passes under the grooves between the corrugations, being designed to leave a slight space between the said strip and the under side of the plate, so that the tongue *a* on the lower layer of the plates can readily engage therewith by passing through the said slight space between the strip and the under side of the plate.

C is a metal strip, secured longitudinally on one edge of each plate by a nail driven through the said strip and the top of the corrugation forming the edge or adjacent thereto, and having the inner edge, *c*, of the said strip extended and free to engage with the meeting hooked edge *c'* of the adjacent plate in the same layer.

All the plates are similar, each having a strip, C, on one edge, and having the opposite edge, *c'*, turned under to form the hook, as described.

To apply the roofing, a layer of plates are nailed to the eaves of the house, the edges of the plates in the layer being connected or hooked together, as before shown and described, the nails being driven through the strips on the edges and the corrugations, and also through the tongues near the upper edges of the plates, each plate being properly secured before its successor is applied, (this being absolutely necessary, as the said succeeding plate, when applied, covers the part of the former plate through which the securing-nails should be driven.) The plates in the next upper layer are then put in place by hooking the strips B over the tongues *a*, this being done by simply laying the upper plate having the strip on top of the lower plate having the tongue and sliding said upper plate up into its place, the tongue engaging in the strip as the latter passes upwardly. After this layer has been put in place and nailed, as described, in connection with the lower layer, a third course is applied in the same manner, and so on to the top of the roof, the layer of plate at the extreme top not having the en-

gaging-tongues, as there are no plates to engage therewith.

The advantages of this construction are that the corrugations permit expansion and contraction in the direction of the side edges of the plates, or transversely of the said corrugations, and the loose connection of the tongues *a* and the strips B permits expansion in the direction of the upper and lower edges of the plates, or longitudinally of the said corrugations.

The joints formed by the strips C and the hooked edges of the adjacent plates are perfectly water-tight, and the nail-holes in one plate, being covered by the edge of the next adjacent plate which forms the hooked connection therewith, are not exposed to the weather, but are completely covered from rain, &c., and consequently cannot form leaks through the roof.

The nail-holes through the upper edges of the plates, made by the nails which secure the engaging-tongues to the said plate, are also covered by the lower edge of the plates in the layer above. In fact, all the connections of the roofing and the building are covered, the layers of plates breaking the vertical joints, as in all other styles of roofing.

Thus I provide a style of roofing which, besides being highly ornamental, and therefore desirable for that reason, is also easily and rapidly laid, and when properly applied, as hereinbefore described, cannot possibly leak, as all the joints are carefully covered, will not readily rust out, as the edges of the material are concealed, and cannot be torn off by the wind, as there are no projections to offer resistance thereto, and the nailing is applied to the points where the greatest service and benefit can be derived therefrom.

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

1. A roofing composed of plates arranged in ascending layers, the plates in each layer having transverse strips secured to their under surfaces near their lower edges, and downwardly-projecting tongues secured to their upper surfaces near their upper edges, so that the said tongues and strips will engage when the roofing is laid from the eaves up, substantially as described, for the purpose set forth.

2. A metal roofing composed of corrugated plates arranged in ascending layers, the corrugations extending from the upper to the lower edges of the plates, each plate having a transverse strip secured to its under surface near its lower edge, and downwardly-extending tongues secured to its upper surface near its upper edge, so that the layers of plates can be engaged from the ends upward, substantially as described, for the purpose set forth.

3. In a metallic roofing composed of plates arranged in layers, the combination, with the plates, each having one edge hooked or bent under, provided with corrugations running from its upper to its lower edge, and nailed near its upper edge to the understructure of the roof, so that the nail-holes will be covered by the plates in the next upper layer, of the strips secured longitudinally to the edges of the plates opposite their hooked edges and forming with the hooked edges of the adjacent plates water-tight joints, substantially as described, for the purpose set forth.

4. In a metallic roofing composed of corrugated plates arranged in layers, the transverse strip secured to the under side of each plate near the lower edge, the tongues secured in the grooves of the corrugations on the upper side of the plates near the upper edge by nailing through said tongue and plate and into the frame-work of the roof, the longitudinal strip secured to one edge of the plate by nailing therethrough and through the corrugation adjacent to the edge and into the frame-work of the roof, and the underturned hook to engage in the inner edge of the said longitudinal strip, so that the said nail-holes are covered and protected from the weather, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GEORGE CROWL.

Witnesses:
HENRY E. FROST,
GEORGE MCCROWL.