J. C. GASTON.

METALLIC ROOFING PLATE.

No. 20,636. Patented June 22, 1858.

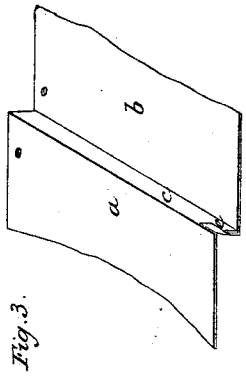


Fig. 3.

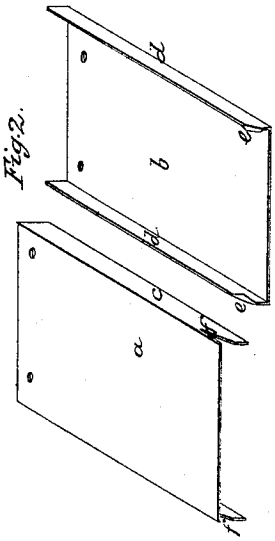


Fig. 2.

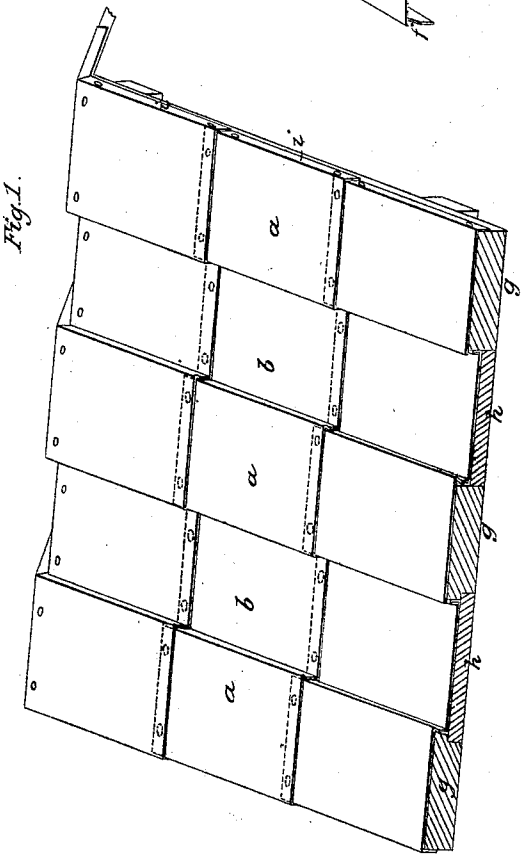


Fig. 1.

UNITED STATES PATENT OFFICE.

J. C. GASTON, OF OXFORD, OHIO.

METALLIC ROOFING.

Specification of Letters Patent No. 20,636, dated June 22, 1858.

To all whom it may concern:

Be it known that I, J. C. GASTON, of Oxford, Butler county, State of Ohio, have invented certain new and useful Improvements in Metallic Roofing-Plates, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 represents a roof covered with metallic plates embracing my improvements. Fig. 2 represents a pair of these plates on an enlarged scale, and disconnected in order to show the construction and arrangement of the joint. Fig. 3 represents on an enlarged scale a pair of plates connected.

In the construction of metallic roofs consisting of thin flexible plates many difficulties have been experienced in forming a connecting joint for the plates, that is simple, cheap, not liable to crack or break in the bend, that will shed rain perfectly, admit the plates being fastened to the roof and interlocked, so as not to be raised or blown off by high winds; and at the same time leave each plate free to expand and contract without moving those connected with it.

Many plans have been devised for connecting roofing plates, but all of them are more or less defective in some of the prerequisites to form a good metallic roof. Among the different modes heretofore used for connecting the plates, the joint has been formed in the direction of the slope of the roof by turning a flange on the two opposite edges of each plate and in the same direction, and connecting the plates by a narrow bent strip overlapping the flanges of two adjacent plates leaving a narrow space between them for a wooden rib to which the connecting pieces are nailed at their upper end. This mode of connecting the plates is objectionable from the expense consequent in the large amount of material required to form the joint being double that necesasry to form the same joint when the plates are connected directly with each other by their flanges. The joint between the plates in the opposite direction is made either by overlapping plates and nailing the upper end of each plate to the boarding of the roof leaving the lower end free, or by soldering the plates at the lap. Both of these modes are objectionable. The first from the lower end being unconfined it is liable to be raised by the wind. The second from its not allowing each plate to expand and contract without moving those connected with it.

The object of my improvement is to overcome some of the before mentioned defects in the mode of connecting metallic plates for roofing, and my invention for effecting these objects consists. First in connecting the plates transversely to the slope of the roof by means of a joint formed by turning a flange on two of the opposite edges of each plate and in the same direction and arranging these plates alternately with the flange turned toward and from the boarding of the roof with the flanges of the adjacent plates overlapping each other, when the same is combined with the boarding of roof so arranged as to correspond with the difference in the level of the adjoining plates and give support to the underside and also to the joint connecting the plates. Second. In connecting the lower corners of the plates by means of an angular notch in the corner of the flange of the upper plate in connection with hook formed on the lower plate by turning the lower corners of the flange over the side of the notch in the flange of the upper plate, by which means the lower end of the plates is prevented from being raised by the wind and each plate is left free to expand and contract from difference in temperature and does not move those connected with it.

In the accompanying drawing is represented a roof covered with metallic plates embracing my improvements. This roofing consists of a series of thin metallic plates (*a*—*b*) with a flange (*c*—*d*) turned in the same direction on the opposite edges of each plate. A small triangular piece is cut from the lower end of flange (*c*) of the upper plate (*a*) leaving an angular slot (*f*) over which the lower corner of the flange (*d*) of the lower plate (*b*) is turned, forming a hook (*e*) by which the plates when laid are connected together at the lower end and prevented from rising.

The roof on which the plates are laid is covered with boards (*g*—*h*) of two different thicknesses running in the direction of the slope of the roof, and arranged in alternate order; the large or gable boards being in all cases a thick board. The width or the distance between the upper edges of the boards corresponds nearly with the distance between the flanges of the plates, and the height, the thick board projects above the

thin corresponds with the depth of the flange. The plates (*a*) covering the thick board are laid with the flange (*c*) downward and overlap the flange (*d*) of the plate (*b*) covering the thin board which is laid with the flange upward. The lower ends of the plates are connected with each other as previously described by the hook (*e*) on one entering the slot (*f*) in the other; the upper end is confined to the roof by nailing and the flange of the end plates extend over the edge of the large board and is nailed to it. The ridge plates are bent over the comb of the roof and nailed to the opposite slope.

It will be seen that the joint connecting the plates at the side is formed with but two thicknesses of metal, without the aid of intermediate connecting pieces, and by the simple overlapping of the flanges turned on the plates, that the lower end of the plate is prevented from rising by the lower corners being interlocked with each other. Thus a simple, cheap and strong joint is formed that admits of each plate expanding and contracting from changes in the temperature without moving those connected with it, and without straining the joints.

Having thus described my improvements in roofing plates, what I claim therein as new and desire to secure by Letters Patent is—

1. Connecting the plates for a metallic roof by means of yielding joints consisting of only two thicknesses of metal and formed by overlapping the flanges turned in the same direction on opposite edges of each plate in combination with the boarding of the roof formed of different thicknesses of plank to correspond with the difference in the level of the plates when connected, and so arranged as to give support to the under side of the plates and also to the joints as described.

2. Combination of the lock in the lower corners of the plates (formed by the hook (*e*) in one plate and the slot (*f*) in the other or their equivalent) with a side joint formed by the overlapping of the plates.

In testimony whereof I have subscribed my name.

J. C. GASTON.

Witnesses:
F. SOUTHGATE SMITH,
JOHN S. HOLLINGSHEAD.