2. Sheets. Sheet. 1.

S. Hughes,

Metal Roofing.

No. 106,825. Patented Aug. 30. 1870.

Fig: 4.

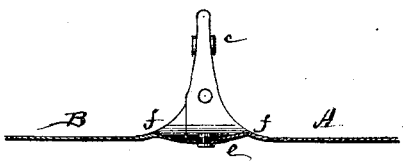


Fig: 1.

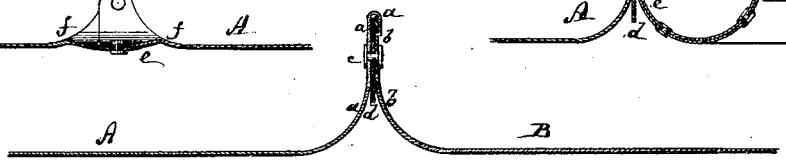


Fig: 3

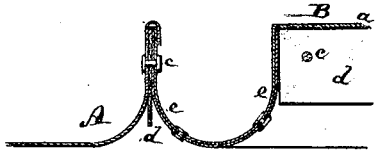


Fig: 2.

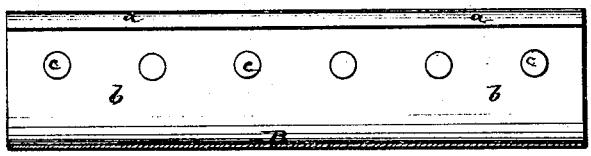
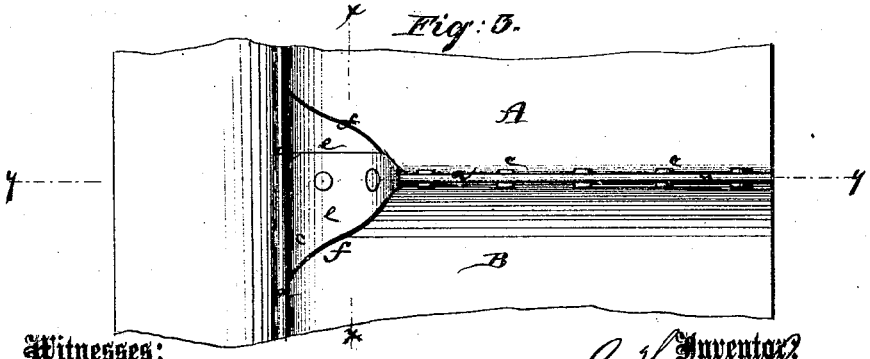


Fig: 5.



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2. Sheets. Sheet. 2

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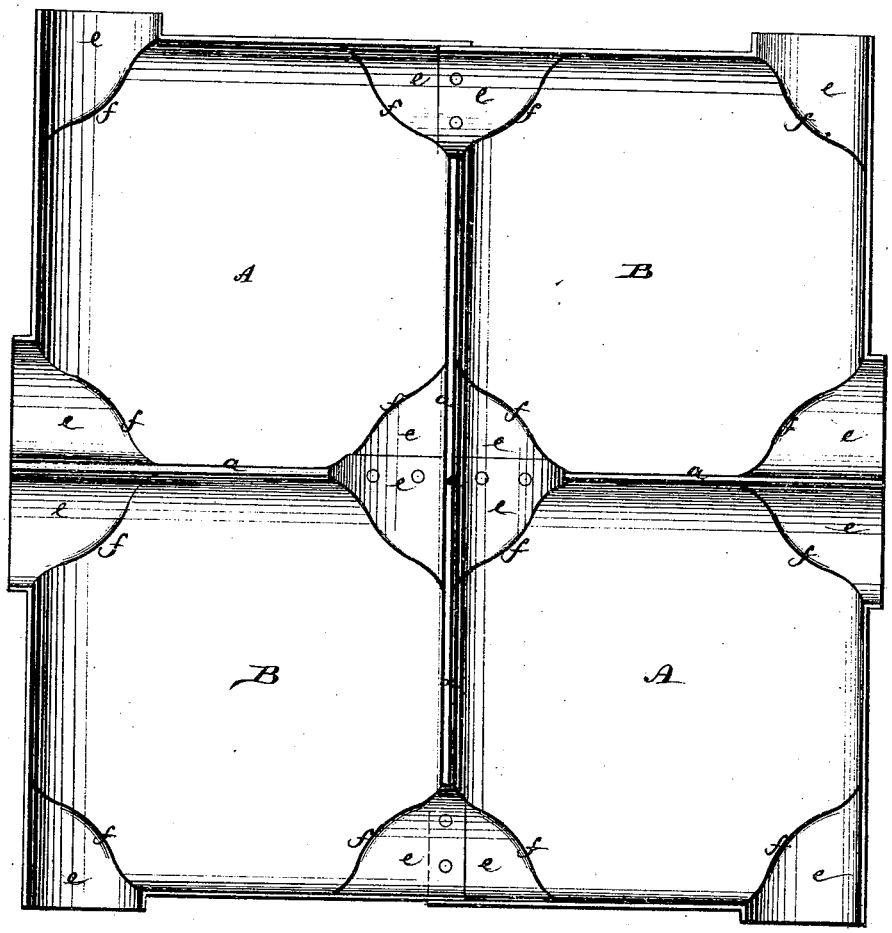
Fig. 6.



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United States Patent Office.

SEYMOUR HUGHES, OF HUDSON CITY, NEW JERSEY.

Letters Patent No. 106,825, *dated August* 30, 1870.

IMPROVEMENT IN ROOFING.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, SEYMOUR HUGHES, of Hudson City, in the county of Hudson and State of New Jersey, have invented a new and improved Metal Roofing; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 represents a transverse section of my improved joint for roofing.

Figure 2 is a side view of the same.

Figure 3 is a plan view of the same, showing the joint and water-channel.

Figure 4 is a transverse section through the water-channel, taken on the line *x x*, fig. 3.

Figure 5 is a longitudinal section of the same, taken on the line *y y*, fig. 3.

Figure 6 is a plan or top view of four united sheets, showing the general arrangement of water-courses.

Similar letters of reference indicate corresponding parts.

This invention relates to a new joint for connecting metal roofing-plates, and to a novel arrangement of providing water-courses with transverse projecting joints; and has for its object to combine great strength with simplicity of construction, so that the joints will be durable and comparatively inexpensive, while a free escape of water is provided at the end of each joint, so that the water cannot accumulate on any part of the roof.

This invention relates to improvements in metal roofing; and consists in so joining the sheets composing the roofing that the joints shall be expansible, and water-channels or troughs be formed at their angles, as hereinafter set forth.

A and B in the drawing are two adjoining sheet metal roofing-plates. Their adjoining edges are turned up, as shown, to form a rounded joint with the main plates.

The upturned edges *a b* are placed together, and then the upper part of *a* is turned over the edge of *b*, as is clearly shown in fig. 1. This forms in itself a water-tight joint.

The two flanges *a b* are riveted together by means of rivets *c c*, and between them is placed a piece, *d*, of water-proof fabric. This fabric is, by the rivets, firmly clamped, and prevents every particle of water from passing through the joint.

This joint will form a ridge, projecting above the roof, and permits full expansion and contraction of the metal plates. Joints are thus made projecting at the four edges of each roofing-plate, so that they are formed on the roof in longitudinal and transverse courses.

Water-passages are formed at each corner of each plate, as is clearly shown in fig. 6.

Each of these passages is formed by bending the metal down into a semi-cylindrical trough, *e*, at the corner, and the two troughs, which come together on two adjoining plates, are made to overlap each other, and riveted together, as is clearly shown in fig. 3, 4, 5, and 6.

The boundary of each trough *e* is defined by a slightly upward-bent portion, *f*, of the metal, which gives elasticity to the joint, allowing free expansion and contraction of the metal.

The four troughs, formed at the four corners of each plate, project all in different directions, so that a free discharge of water in each direction is provided.

The water will, with such free channels for escape, not be apt to overflow the joints, and the water-proof quality of the roof is consequently increased.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

1. The plates A and B, so constructed and arranged as to form the water-troughs *e e* at their corners or angles, substantially as specified.

2. A roofing-plate, formed by the sheets A and B, united by the self-supporting lap-joints *a a*, as set forth, whereby the same are permitted to expand, in the manner described.

SEYMOUR HUGHES.

Witnesses:
GEO. W. MABEE,
T. B. MOSHER.