(No Model.)

P. H. REGAN.

SHEET METAL ROOFING PLATE.

No. 307,590. Patented Nov. 4, 1884.

Fig. 1.

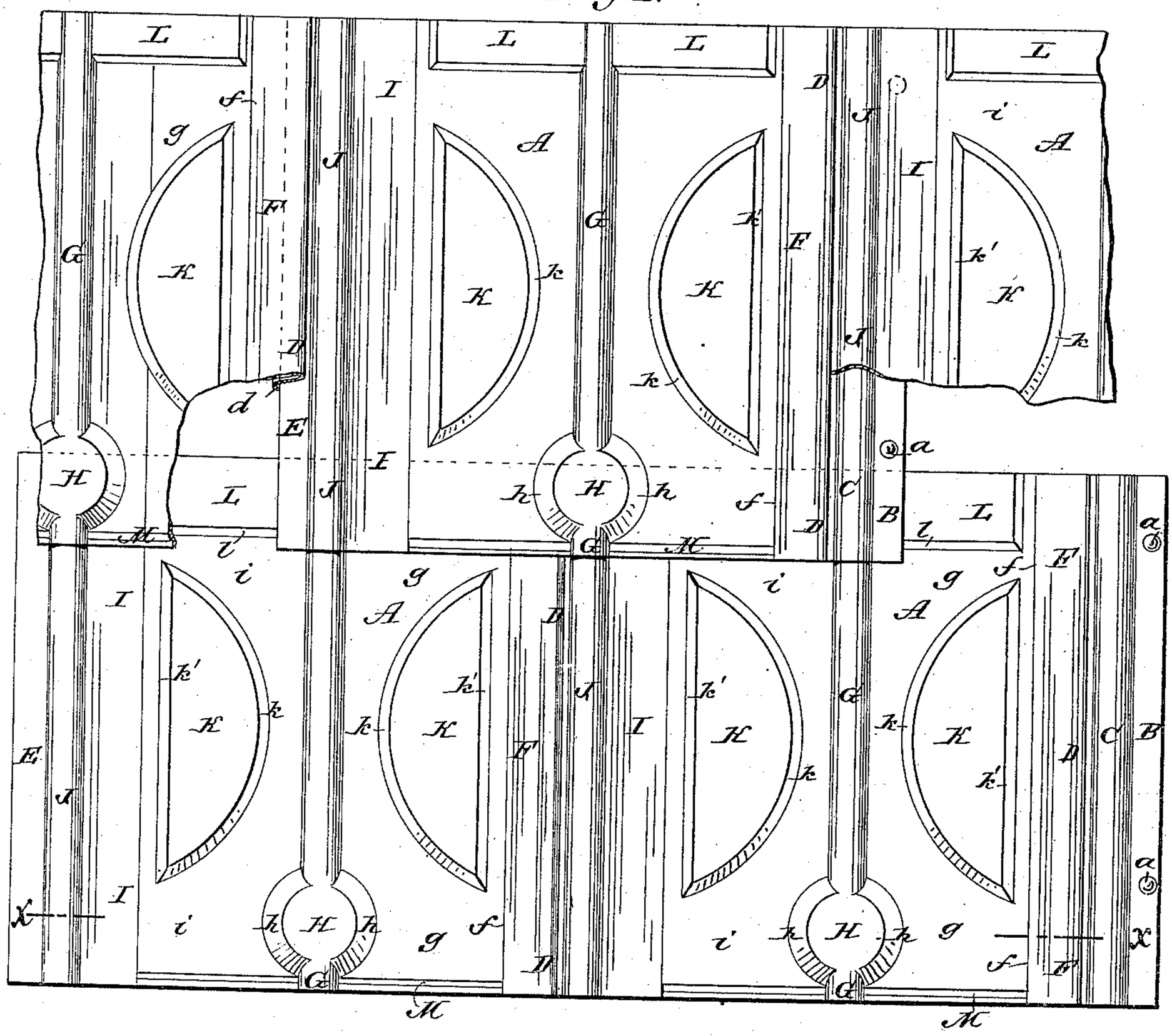
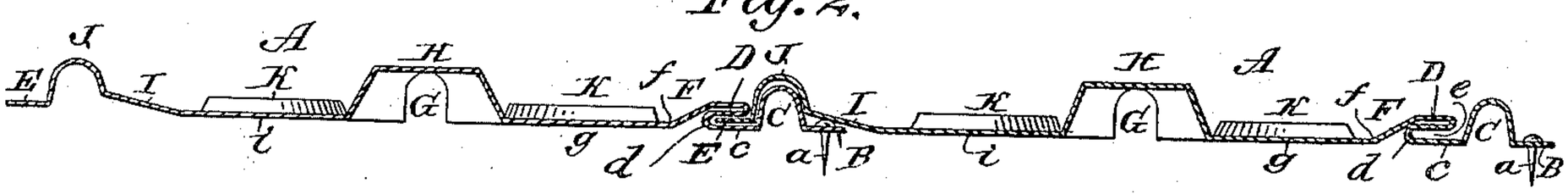


Fig. 2.



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PATRICK H. REGAN, OF NASHVILLE, TENNESSEE.

SHEET-METAL ROOFING-PLATE.

SPECIFICATION forming part of Letters Patent No. 307,590, dated November 4, 1884.

Application filed May 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, PATRICK HENRY REGAN, of Nashville, in the county of Davidson and State of Tennessee, have invented certain new and useful Improvements in Sheet-Metal Roofing-Plates, of which the following is a full, clear, and exact description.

The object of my invention is to provide inexpensive and durable roofing-plates which may be quickly laid and will be weather-proof in heavy storms.

The invention consists in peculiar constructions of the joints of the plates to provide for easy locking together of the plates with water-proof joints, which will not be broken or split by pressure or tension, and will provide for expansion and contraction of the roofing by changes of temperature.

The invention consists, also, in peculiar formations of the face of the roofing-plate to deflect the downflowing water toward the centers of the plates and away from their joints, and in other details of construction, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 represents my improved roofing-plates as applied to a roof and partly broken away. Fig. 2 is a transverse section through two adjoining plates taken on the line *x x*, Fig. 1.

The letter A indicates the roofing-plates, which are formed along one edge with a flange, B, perforated to receive the nails *a*, by which that edge of the plate is fastened to the roof of the building, railway-car, or other structure. Along the flange B the metal of the plate is bent to form the bead C, whence the plate runs along laterally for a distance, as at *c*, about in line with the general bottom surface of the plate which lies upon the roof, and from the point *d* the plate is bent over toward the bead C and back again to form the lip D, which overhangs the part *c*, and provides a narrow space, *e*, between the parts *c* D, in which the flange E, along the opposite side edge of the next roof-plate to the right, is adapted to be passed, as at the center of Fig. 2. The rise of the metal of the plate to form the lip D provides for forming along the lip the shoulder or incline F, which drops to the general level of the plate-surface at *f*, whence the plate continues laterally at *g* to a central bead, G, which has a half-round enlargement, *h*, at each side near the central lower edge of the plate, forming a raised surface or corrugation, H, of circular general form. From the bead G and corrugation H the plate takes its general level, as shown at *i*, whence the plate-surface rises in an incline, I, beyond which is formed the bead or corrugation, J, adapted to overlap the bead or corrugation C at the other or right-hand edge of the adjacent plate A, while the flange E interlocks with the lip D of the said plate. Segmental-shaped raised surfaces or corrugations K are formed in the plate A, with their rounded sides or edges *k* facing each other and the central bead or corrugation, G, and their straight edges or chords *k'* facing the opposite inclined surfaces, F I, of the plate. Along the upper ends or edges of the plates A they have raised surfaces L between the side inclined surfaces, F I, said surfaces or corrugations L corresponding in width with the lap of the lower ends of the next upper horizontal row or layer of the plates, and the lower ends or edges of the plates A are crimped or bent downward, as at M, to come upon the faces of the next lower row of plates just below the lower transverse edges, *l*, of the corrugations L, as in Fig. 1.

In laying the roof-plates, their right-hand edges are made fast by nailing the flanges B to the roof, and the left-hand edge of the next or right-hand plate is locked to the plate last laid by slipping the flange E of the right-hand plate into the space *e* beneath the lip D of the nailed left-hand plate, whereby the bead J of the plate being laid will lock over the bead C of the other plate, whereupon the flange B of the right-hand plate may be nailed fast at *a*, ready to receive beneath its lip D the flange E of the next roofing-plate, and so on for the whole width of the roof. As the successive horizontal rows of plates are laid, the central beads or corrugations, G, and the left-hand beads or corrugations J will alternately line with each other down the roof, so that the downflowing water will take a course mainly inward from the inclined plate-faces F I, and

around the curved edges *k* of the corrugations K toward the central beads, G, of the successively lower roof-plates, and thus deflect or guide the water away from the joints of all the plates and avoid flooding the joints, thereby lessening the liability of the roof to leak during heavy rain or snow storms. Each course or row of the plates A is finished as it is laid, avoiding damage to the finished roof by walking on it, and walking over the plates only tends to close the joints of the plates more tightly; and in laying the plates no hammering or malleting of the joints is necessary, and by forming the joints by the curved bent beads, lips, and flanges, as described, every necessary provision is made for the free contraction and expansion of the plates by changes of temperature and to guard against the cracking or splitting of the plates by pressure or tension. Moreover, my improved roofing-plates may quickly be laid, and by unskilled labor, and make a cheap and reliable roof.

I am aware that roofing-plates have before been made which have along one side or edge a nailing-flange, and next to it a raised gutter, and then an overhanging lip, which flange, gutter, and lip are covered by a raised cap formed on the opposite edge of the adjacent plate, which is bent down to lock under the overhanging lip from the top, as shown in the patent to J. Walter, No. 256,083, dated April 4, 1882. In my plates, the lock-flange E being held beneath the overhanging lip D and the bead C, inside of the flange E, insures protection against leakage. It will also be seen that the lock-flange E is entirely protected by the lip D from winds blowing in one direction, and the lip D is protected from winds blowing in the opposite direction by the bead J, thereby avoiding all liability of their being stripped from the roof by heavy winds.

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

1. The combination of two sheet-metal roofing-plates adapted to be arranged with other similar plates in overlapping courses or layers, and formed at their one edge with a flange, B, a bead, C, and a lip, D, formed so as to overhang toward said bead and nearly inclose a narrow space, *e*, and said plates being formed at the opposite edge with the bead J and flange E, adapted, respectively, to overlap the bead C and enter the space *e* of the adjoining plate, substantially as shown and described.

2. A sheet-metal roofing-plate having one of its edges formed with a nailing-flange, B, a bead, C, and a lip, D, overhanging toward said bead and nearly inclosing a space, *e*, below the lip, and having its opposite edge formed with a bead, J, and lock-flange E, substantially as shown and described.

3. A sheet-metal roofing-plate formed with a central bead, G, having an enlargement at H, near the bottom of the plate, and formed, also, with segmental raised surfaces K K at each side of the bead G, and arranged with their curved edges *k k* facing the bead, substantially as shown and described.

4. A sheet-metal roofing-plate formed with a nailing-flange, B, bead C, lip D, space *e*, and incline F along one edge, and a bead, J, flange E, and incline I along the opposite edge, and formed also with a bead, G, having an enlargement, H, and with segmental raised surfaces K K, arranged with their rounded edges *k k* facing each other, substantially as shown and described.

5. A sheet-metal roofing-plate formed with a nailing-flange, B, bead C, lip D, space *e*, and incline F along one edge, and a bead, J, locking-flange E, and incline I along the opposite edge, also with a central bead, G, having an enlargement, H, segmental raised surfaces K K, arranged with their curved edges *k k* facing the bead G, a raised surface, L, along the top of the plate, and a depression, M, at the lower edge of the plate, substantially as shown and described.

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Witnesses:
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