(No Model.)

J. G. BIRELY.

FLAT ROOFED BUILDING.

No. 400,431. Patented Apr. 2, 1889.

FIG. 1

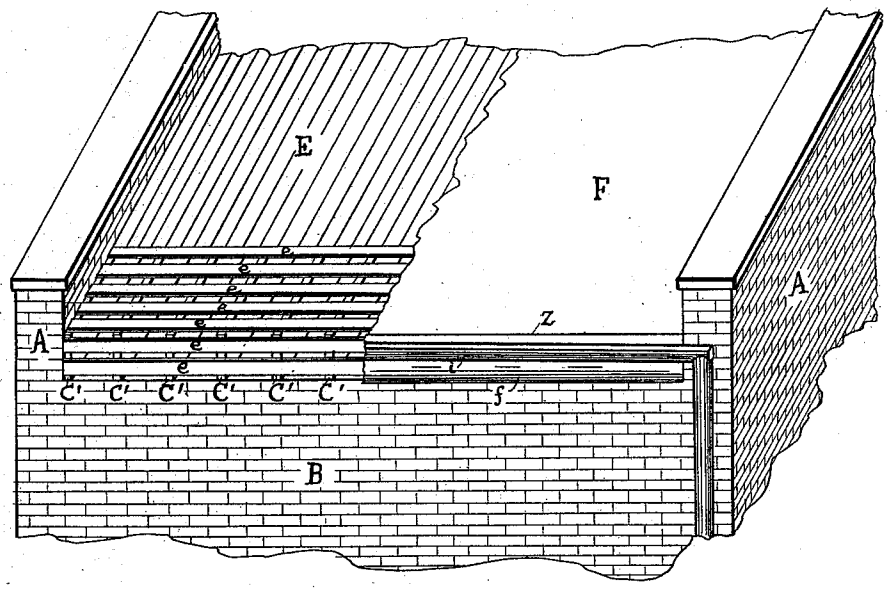
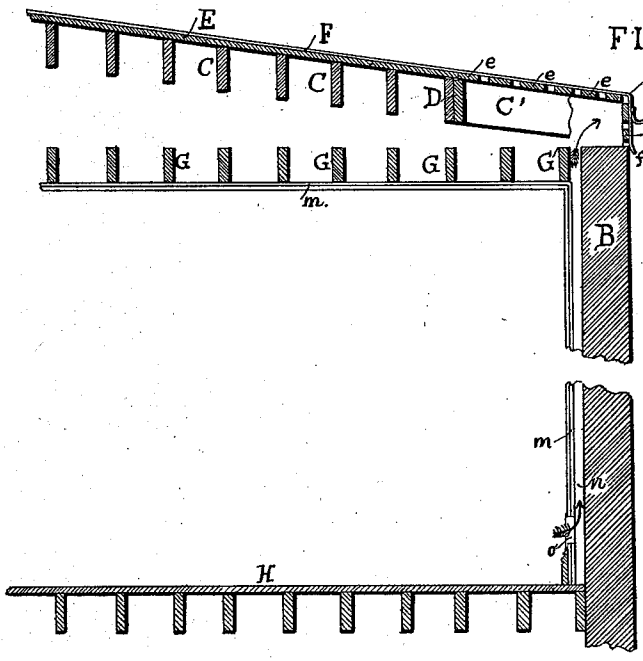


FIG. 2



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES G. BIRELY, OF OSHKOSH, WISCONSIN.

FLAT-ROOFED BUILDING.

SPECIFICATION forming part of Letters Patent No. 400,431, dated April 2, 1889.

Application filed November 5, 1888. Serial No. 290,048. (No model.)

To all whom it may concern:

Be it known that I, JAMES G. BIRELY, a citizen of the United States, residing at the city of Oshkosh, in the county of Winnebago and State of Wisconsin, have invented certain new and useful Improvements in Flat-Roofed Buildings; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in flat roofs upon brick and stone buildings. When a quantity of snow is upon a tin or other flat roof, the constant heat from the inside of the building striking against the under surface of the roof-boards warms the boards and the tin or other covering, and this thaws or melts the under surface or portion of the snow resting on the roof. Heretofore roofs have been constructed so that the roof-boards at the lower end rested directly upon the top of the rear wall of the building, so that the gutter or eave-trough and the entire lower edge of the roof, back as far as the thickness of the rear wall, would rest directly upon and against the cold wall, and there would be a foot or more in width across the lower end of the roof that the warm air from within could not reach, and the melted-snow water, slowly running down the roof, as it reached that portion of the roof over the rear wall, would there become frozen and form a dam, causing the water to back up and remain upon the roof and causing the roof to leak.

The object of my invention is to prevent the ice from so forming at the lower end and damming up the roof, and for that purpose to supply a constant current of warm air against the entire lower edge of the roof. I attain this object by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the roof with a portion of the roofing cut away; and Fig. 2 is a section of the building, showing the inside of the upper story and lower or ground story.

A A are the side walls and B the rear wall of the building. C C C are the roof-joists.

At D, I put in a header and construct the roof-joists from there to the rear wall, B, running lengthwise of the building, supported at one end by the header, and the rear ends resting on top of the rear wall, B. Fig. 2 shows one of these joists, the rear part cut away. F is the tin or other roofing attached to and covering the roof-boards E. From the header D down to the rear edge of the roof Z and down over the ends of the joists C C C, I fasten the roof-boards *e e e* crosswise of the building, and leave spaces between the boards or slats, so that the warm air can more readily reach the tin or other outside covering. I allow this covering to extend over the rear edge, Z, and down the rear end and fasten along the top of the wall at *f*. *i* is the gutter or trough. G G G are the ceiling-joists, *m* the lathing and plastering, and *n* one of several spaces between the plastering and the rear wall, leading upwardly from the ground-floor H to the roof, the lath being nailed to perpendicular parallel strips fastened to the wall. *o* is one of the several ventilators or openings from the inside room at or near the ground-floor into the spaces *n*. The warm air from the inside room passes through the ventilators *o* into the spaces *n*, and is gradually heated by the warm plastering as it passes upwardly. It is drawn upwardly, as indicated by the arrows, through the several stories of the building, passes between the joists C C C, and strikes directly against the inside surface of the roof at the rear edge and where the gutter is attached, thereby keeping the extreme lower edge of the roof at a higher temperature than other portions of the roof, keeping a constant circulation of warm air along the lower surface of the roof, and preventing any dam of ice from forming.

I am aware that frame buildings have been constructed having an air-chamber under the roof beyond the line of the supporting-walls; but in such cases it is usual to make the lower roof-strip project beyond the edge of such space and to secure the shingles to these strips, so that there is an overlapping surface of eight or ten inches which is completely under the influence of outdoor temperatures and along which a ridge of ice may form; but, so far as I am aware, no roof prior to my invention has been constructed in which the extreme lower edge was in sufficient proximity to a warm-

air space to keep said edge above the freezing-point in very cold weather, and as this edge forms the line or strip on which the melted snow flowing from the higher and warmer portions of the roof freezes, the advantages of my invention will at once be appreciated.

Therefore, what I claim as my invention, and desire to secure by Letters Patent, is—

1. A building provided with a roof the extreme lower edges of which are in contact on one side with a body of air within the building, whereby the temperature of the roof is moderated at all points and snow readily shed.

2. The combination, with the walls of a building, of a roof supported thereby, the lower edges of the roof resting on the walls, an interior air-space being in contact with the roof between the walls and the lower edges, and being in communication with the under side of the roof at its extreme lower edge.

3. A building provided with a roof supported on the walls so that the under side of the roof is in contact throughout its entire surface, including the lower edges, with an interior air-space, and provided with warm-air ducts from lower floors to the air-space.

4. In a building, the combination of the walls, inclined roof supported on the walls and in contact at all points, including the extreme lower edges, with an interior air-space, supports for the roof spaced to permit direct contact with the interior air, and warm-air ducts from the lower stories opening into the air-space.

5. In a building, the combination of the walls supporting the roof, the header D, supporting the rear roof-joists, the opposite ends of which rest upon the top of the rear wall, slats across the top and lower end of these joists to support the roof-covering, and an air-space between the roof-covering and the top of the rear wall, connecting with ducts between the plastering and the rear wall extending upwardly from ventilators or openings from inside rooms, as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES G. BIRELY.

Witnesses:

CHARLES BARBER,

HENRY ECKSTEIN.