

(No. Model.)

W. C. LANGENAU.
IRON ROOFING.

No. 317,381.

Patented May 5, 1885.

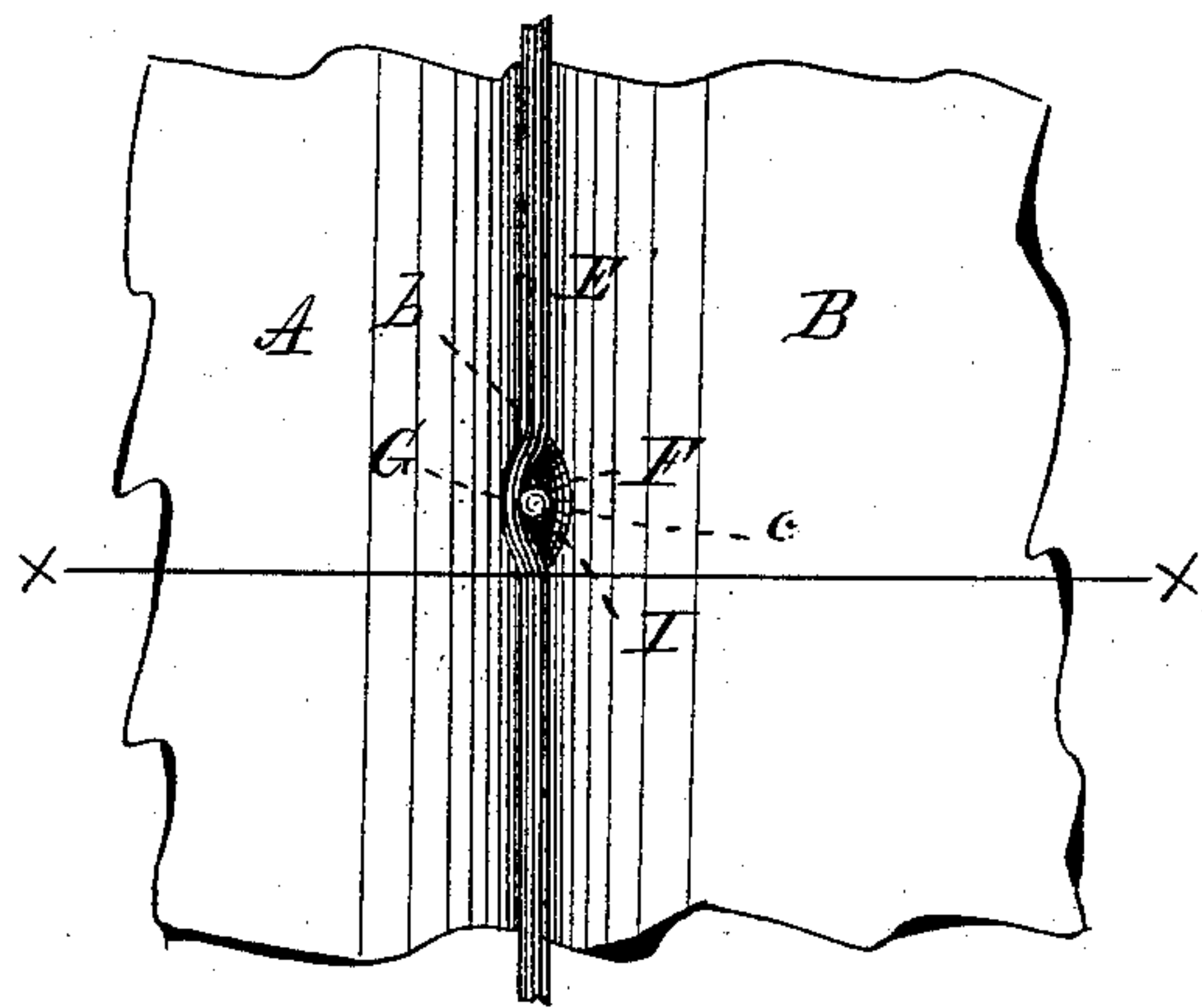


Fig. 1.

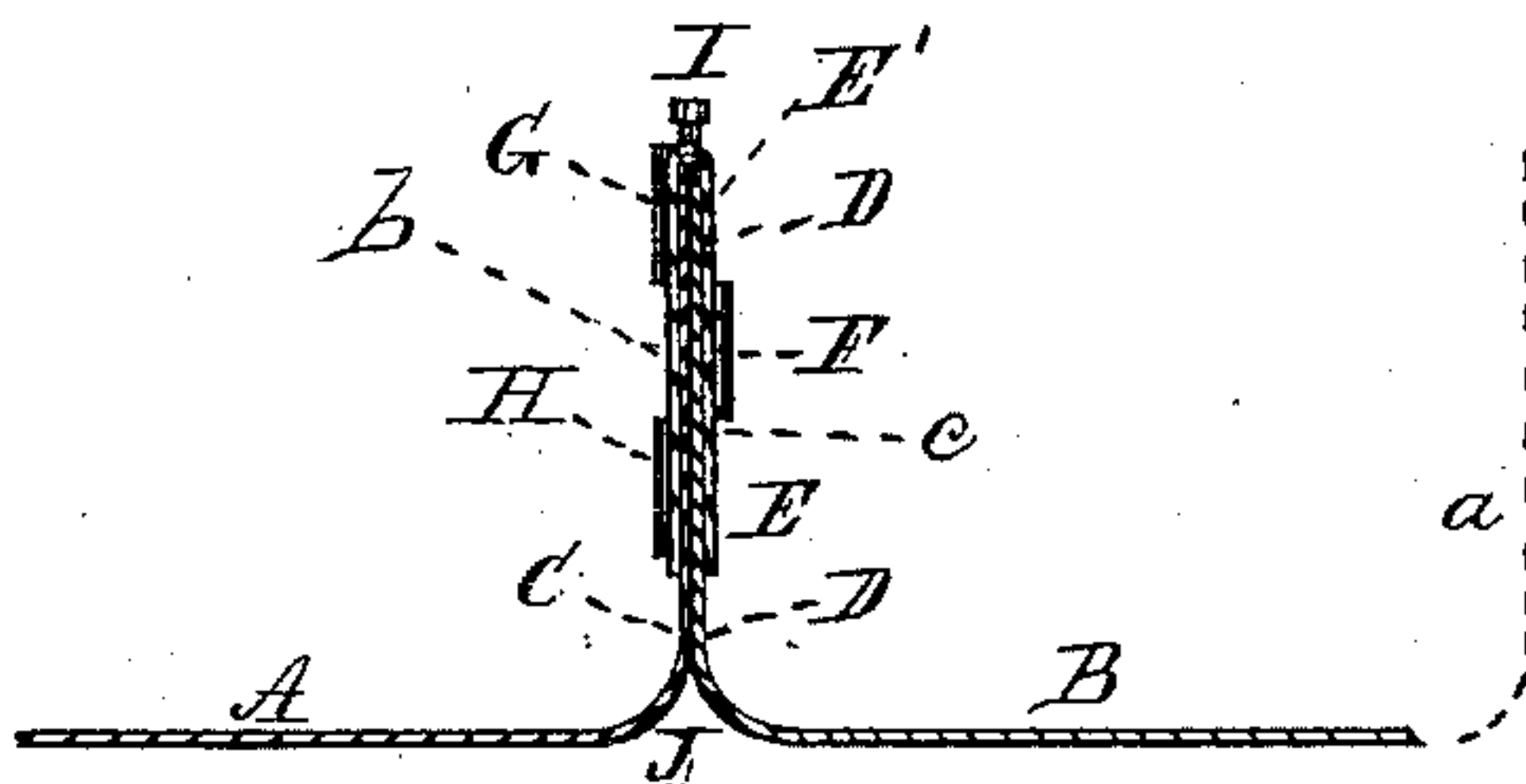


Fig. 2.

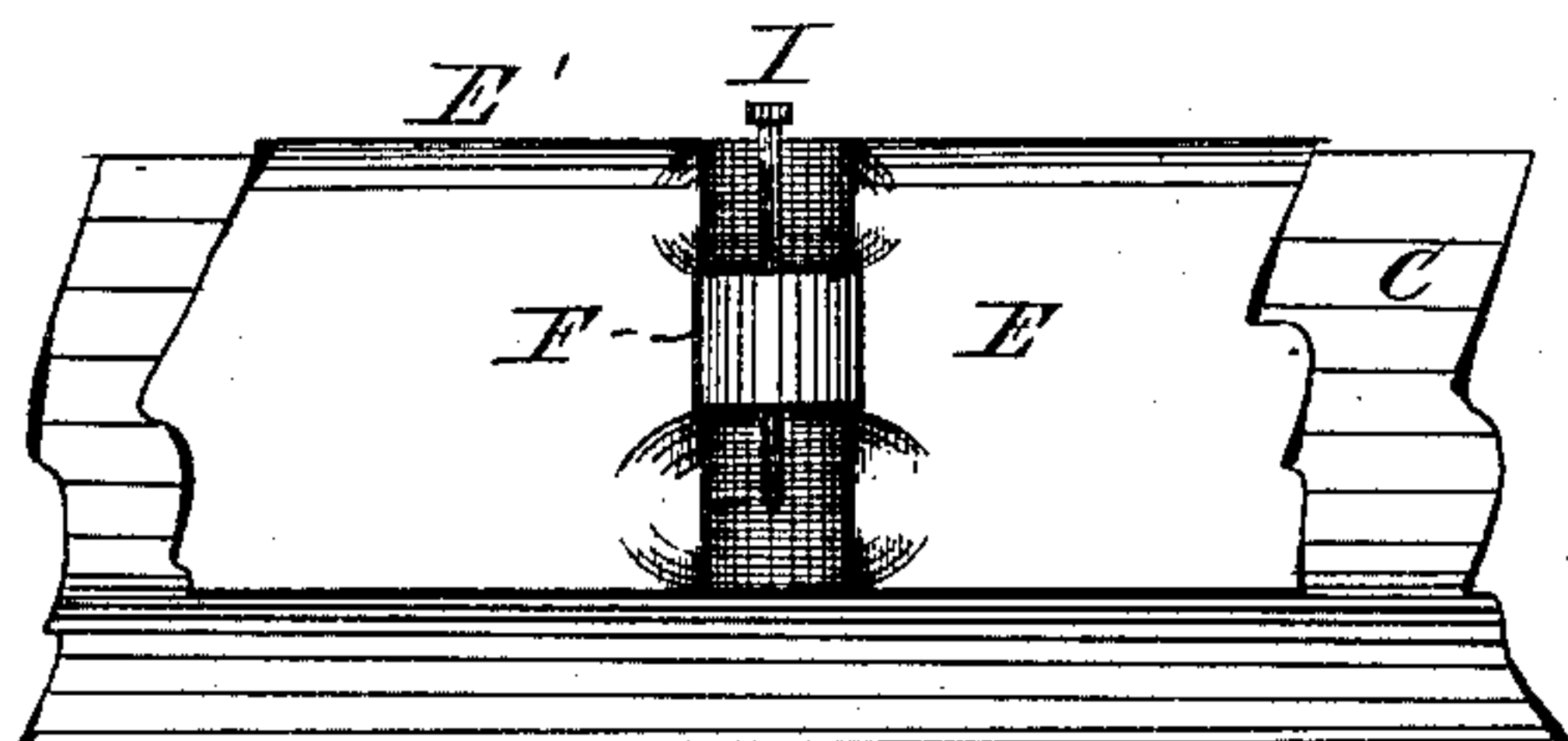


Fig. 3.

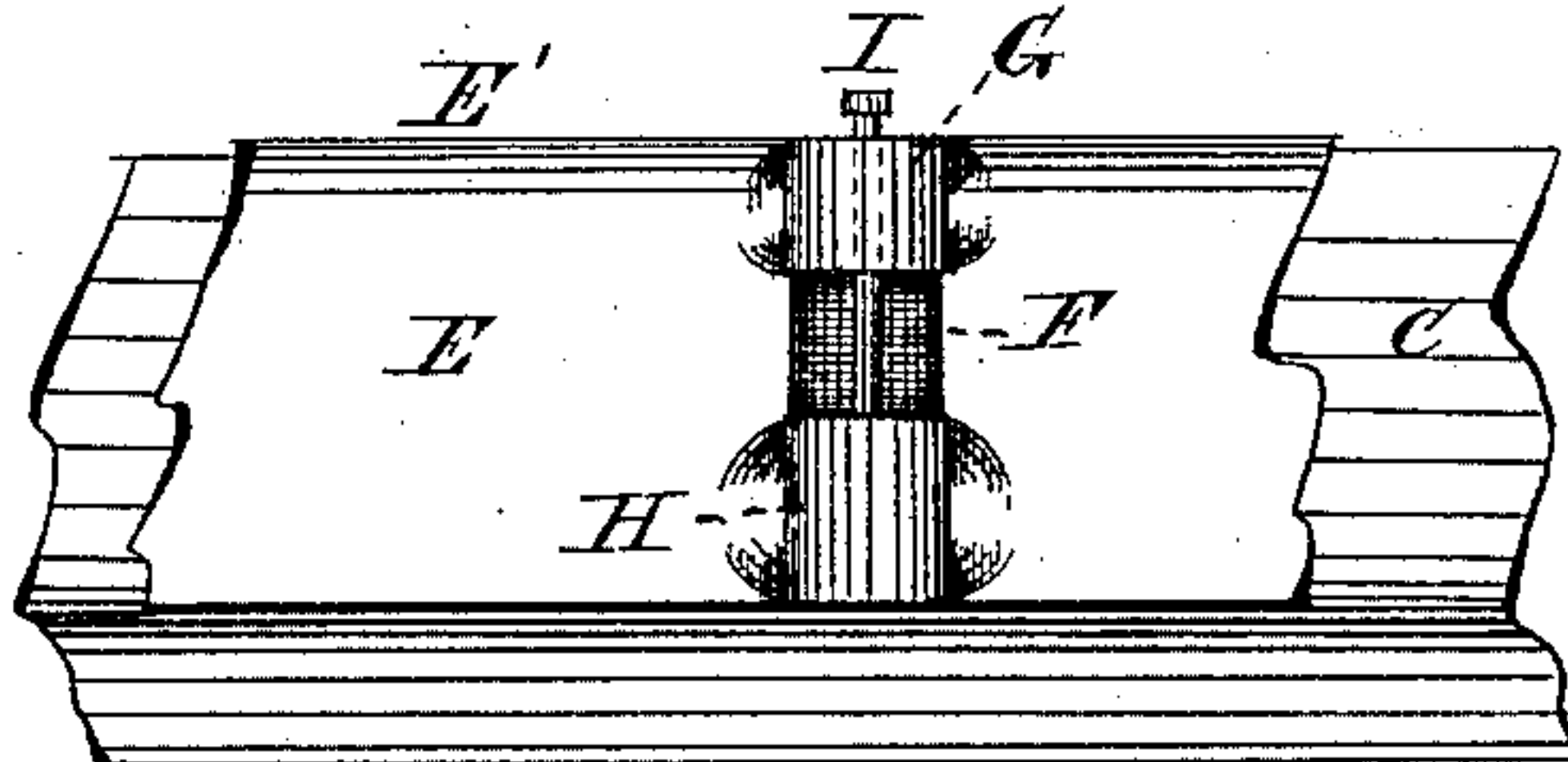


Fig. 4.

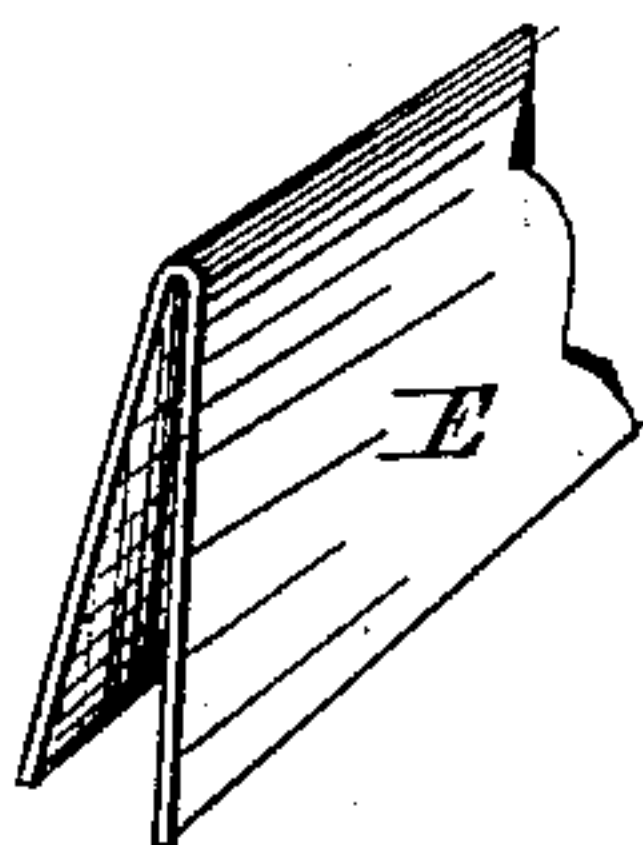


Fig. 5.

Witnesses.

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WILLIAM C. LANGENAU, OF CLEVELAND, OHIO, ASSIGNOR TO THE GARRY
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IRON ROOFING.

SPECIFICATION forming part of Letters Patent No. 317,381, dated May 5, 1885.

Application filed November 3, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. LANGENAU, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain improvements in metallic roofing for locking or fastening together the sections of sheets or metal plates forming the roof, so that the joints shall be secured and durable, and also the sections of the roof may be readily removed in case of repairs or otherwise, of which the following is a specification.

For a more full and complete description of the said invention reference will be had to the following specification, and to the annexed drawings, making part of the same.

Figure 1 is a plan or top view of a section of a metal roof having the improvement connected therewith. Fig. 2 is a transverse section in the line *x x*, Fig. 1. Fig. 3 is a side view; Fig. 4, a view of the opposite side of Fig. 3. Fig. 5 is a detached section, which will be referred to hereinafter.

Like letters designate like parts in the several drawings.

The method of securing the plates in place, as herein shown, may be applied to various constructions of metal roofing.

In the drawings, A B represent two plates, Figs. 1 and 2, which may be of the ordinary iron or tin plate usually employed for roofing, the sides of which are bent up, forming flanges C D on the two sides of the roof plate or sheet, as seen in Fig. 2, the opposite sides of the plates A B being turned in an angular position corresponding to the said flanges C D, as shown in the drawings, and indicated by the dotted line *a*, Fig. 2. The plates are arranged upon the roof-boards so that the flanges C D will be in close contact, over which is then placed a protecting or safety cap, E, Figs. 2, 3, and 4, which covers the joint between the flanges and laps down on the sides thereof, as shown in Fig. 2. A section of said cap is seen in Fig. 5. This cap on being put on over the flanges is made to fit tight thereon. The two flanges and the two lappings of the cap on the outside form four thicknesses of plates, as seen in Fig. 2.

By means of a tool or instrument designed for this purpose, at certain points along the

line of the rib E, the flanges and cap before mentioned are by the said tool compressed together, and a boss, projection, or loop, F, Figs. 2 and 3, is struck or forced out on one side and two loops, G H, on the other, as seen in the drawings, leaving an opening between the loop on one side, also between the loops on the other and the rib E, in which openings is inserted a key or pin, I, which passes down the openings of the loops, as shown in Figs. 3 and 4, which effectually secures the cap to the plates and the plates firmly in position upon the roof. The ends of the respective loops are not separated from the metal of the cap and flanges, but form a part thereof. The loops are only forced or cut out from the metal to admit of sufficient opening to receive the pin, while the ends thereof remain united with the flanges and cap, respectively. There may be more or less loops in number than shown, according to circumstances.

It will be obvious that the described improvement is not confined to plain flat metal roofing, as shown, but may be used in connection with corrugated sheets, tin plates, angular-ribbed sheets, and is applicable to the roofs of railway-cars having metallic roofing.

By means of this improvement sections of a roof may be removed for repairs or otherwise by withdrawing the pins I and bending back the loops or projections, so that the cap may be taken off. This is often desirable, especially so on railway-car roofs, which is not readily done as they are usually constructed.

In place of the loops being formed at right angles with the rib E, they may be arranged longitudinally or in any angular relation with it, and fastened with a pin or otherwise.

In railway-car roofs, especially on stock-trains, it is well known that metal roofs are seriously injured by the metal-pointed gad or rod used by the drivers or cattle-men to assist them in passing over the roofs of the cars in motion, as they force the pointed end of the gad often through the metal roof. In this way the roof becomes so injured as to be removed for a new one. This injury is usually along the line of the foot-board. With my improvement the injured plates or parts of the

roof may readily be removed by withdrawing the key and bending back the loops or projections, so that the cap may be taken off and the injured plates withdrawn for replacing
5 with new without disturbing the other parts of the roof.

The curve or bend of the plates at J, as seen in Fig. 2, admits of the expansion and contraction of the metal without undue strain
10 thereof.

What I claim, and for which I solicit Letters Patent, is—

In the construction of metallic roofing, the plates or sheets thereof formed with side

flanges, and provided with a cap lapping over
15 the junction of said flanges, with one or more loops struck or forced out from the sides of the rib from the metal of the cap and flanges, and fastened together by means of a pin or its equivalent inserted in the opening of said
20 loops, substantially as and for the purpose set forth.

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

WILLIAM C. LANGENAU.

Witnesses:

J. H. BURRIDGE,

W. H. BURRIDGE.