

(No Model.)

3 Sheets—Sheet 1.

L. L. SAGENDORPH.

METALLIC ROOFING.

No. 355,888.

Patented Jan. 11, 1887.

Fig. 1.

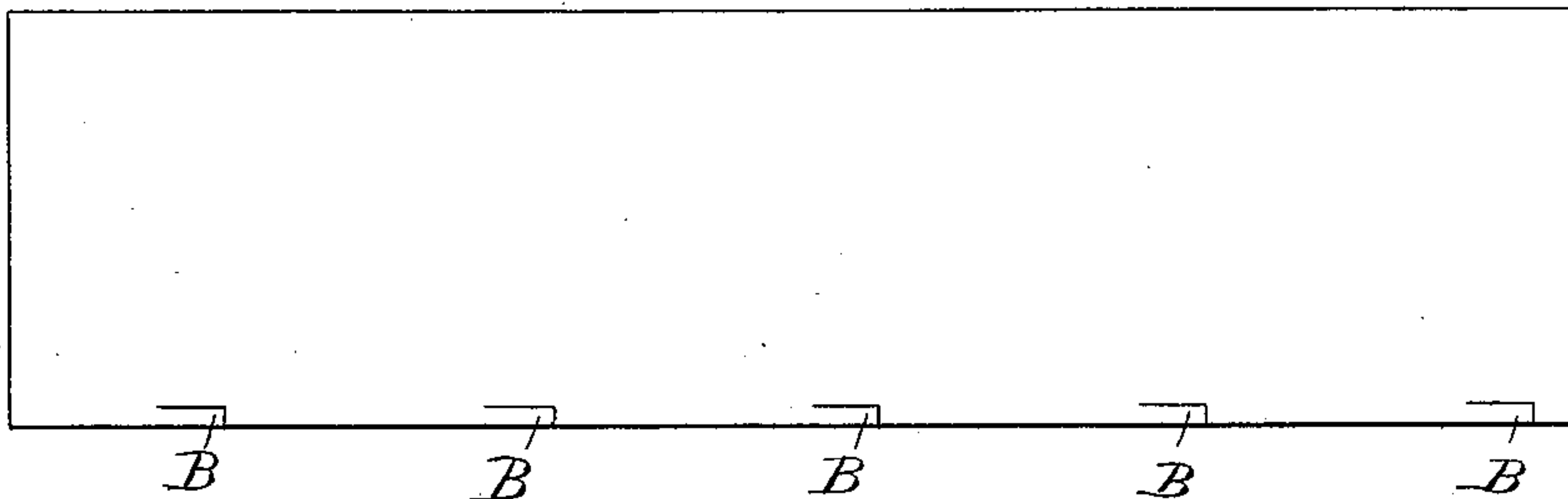
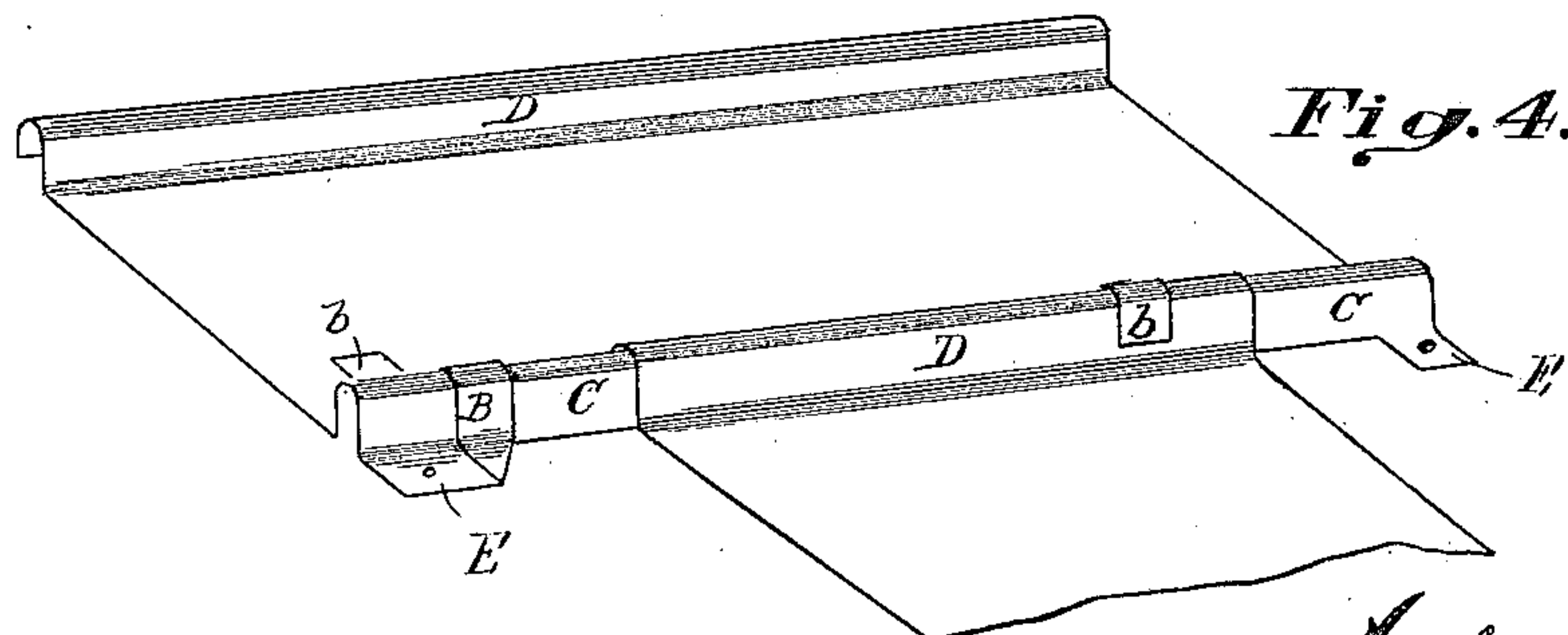
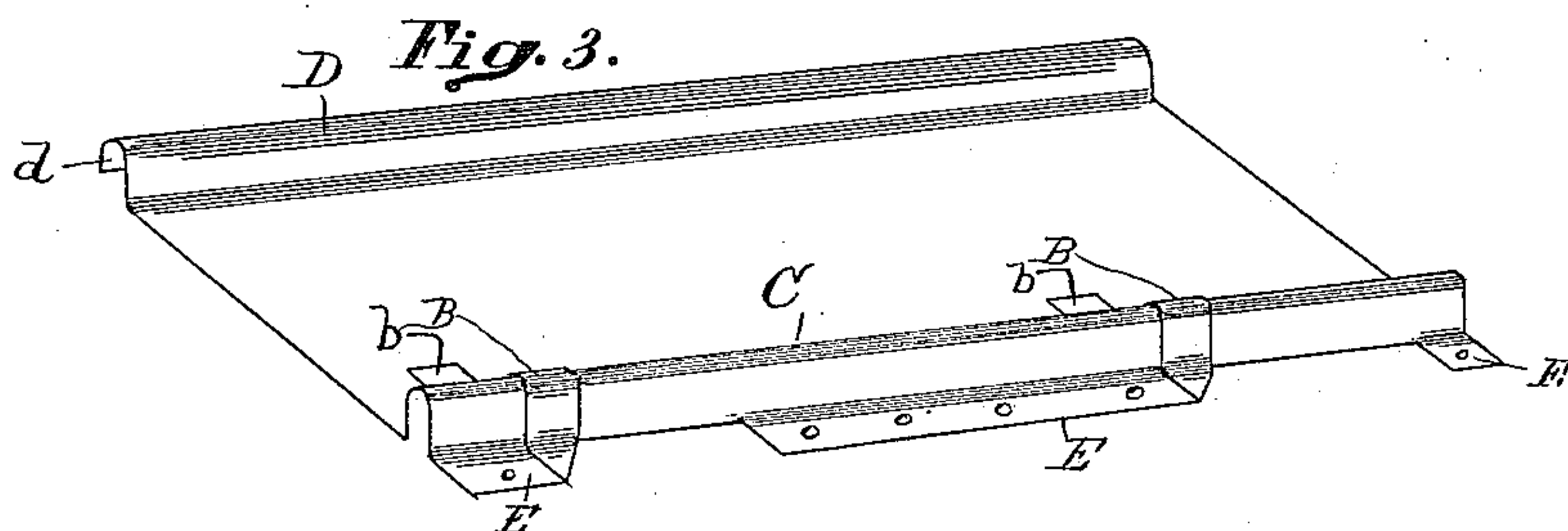
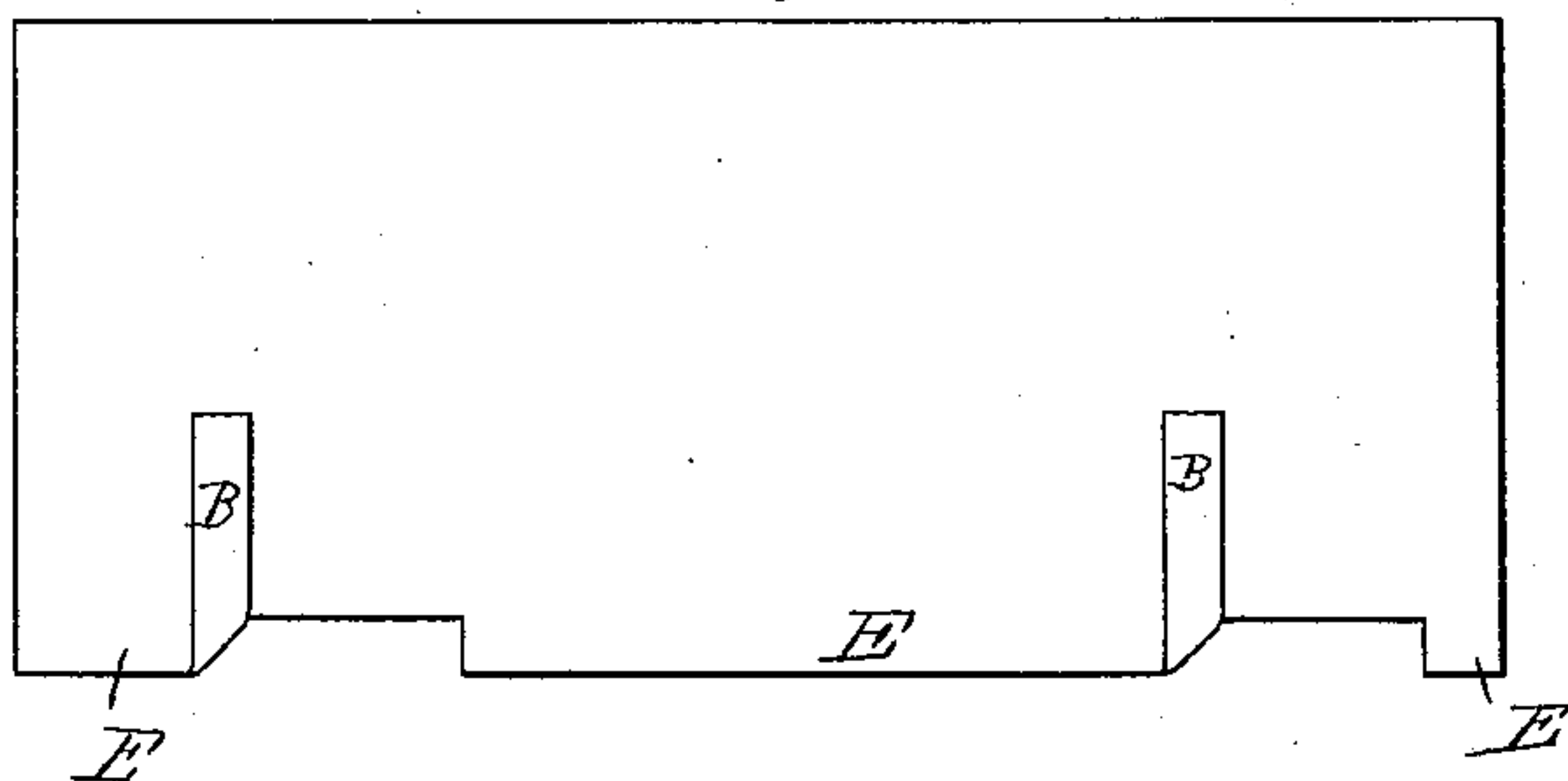


Fig. 2.



Attest
E. M. Harmon
W. P. Gulick

Inventor
Longley Lewis Sagendorph
per Wm Hubbell Fisher,
Att'y.

(No Model.)

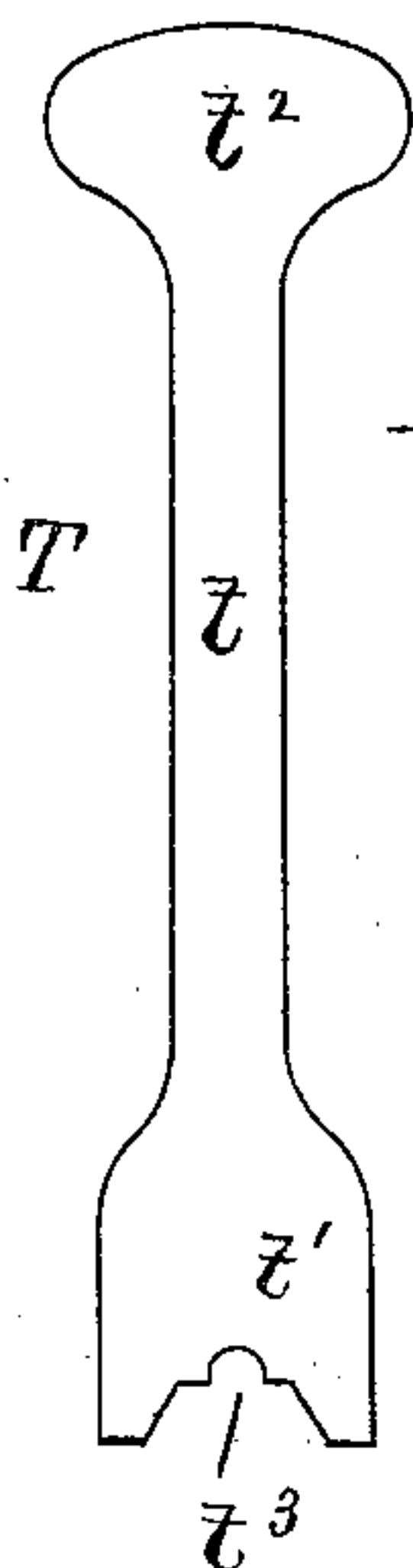
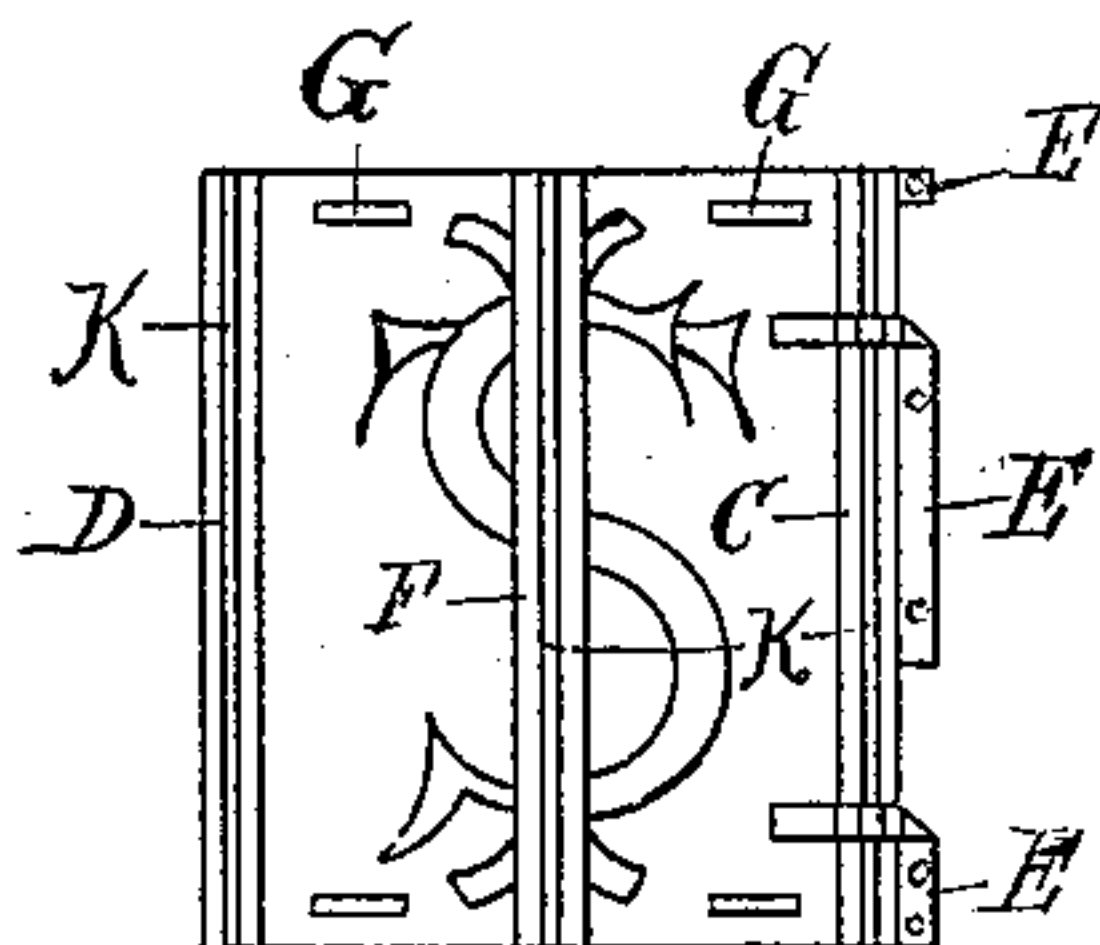
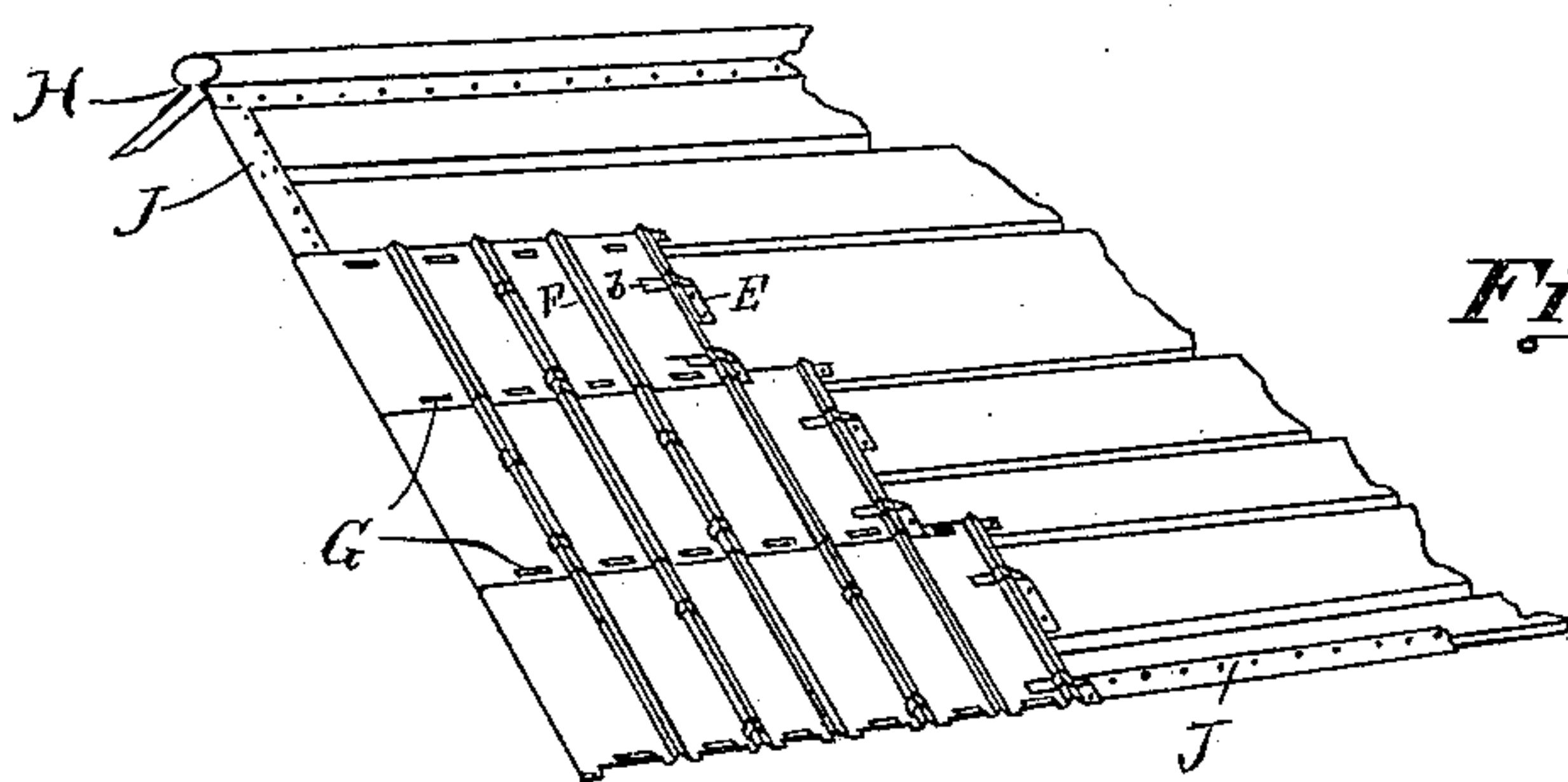
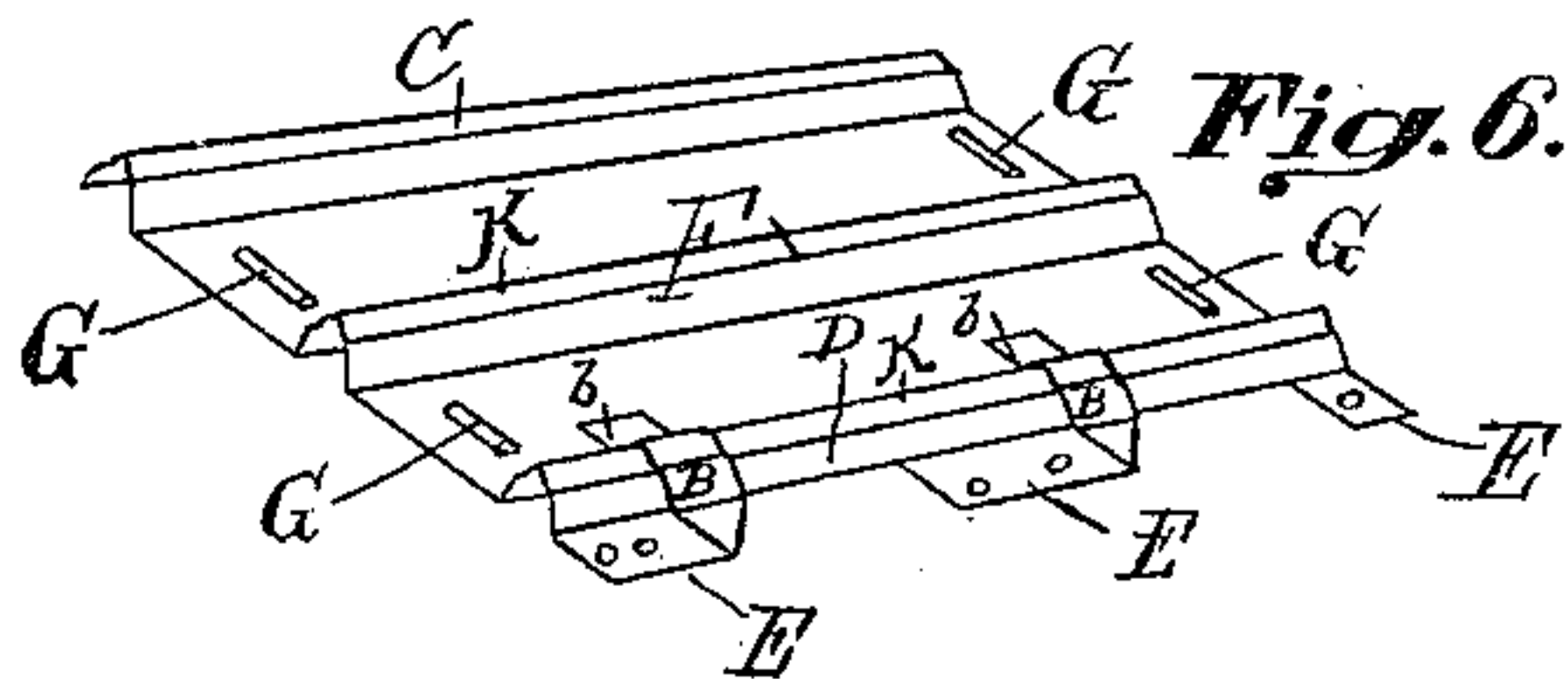
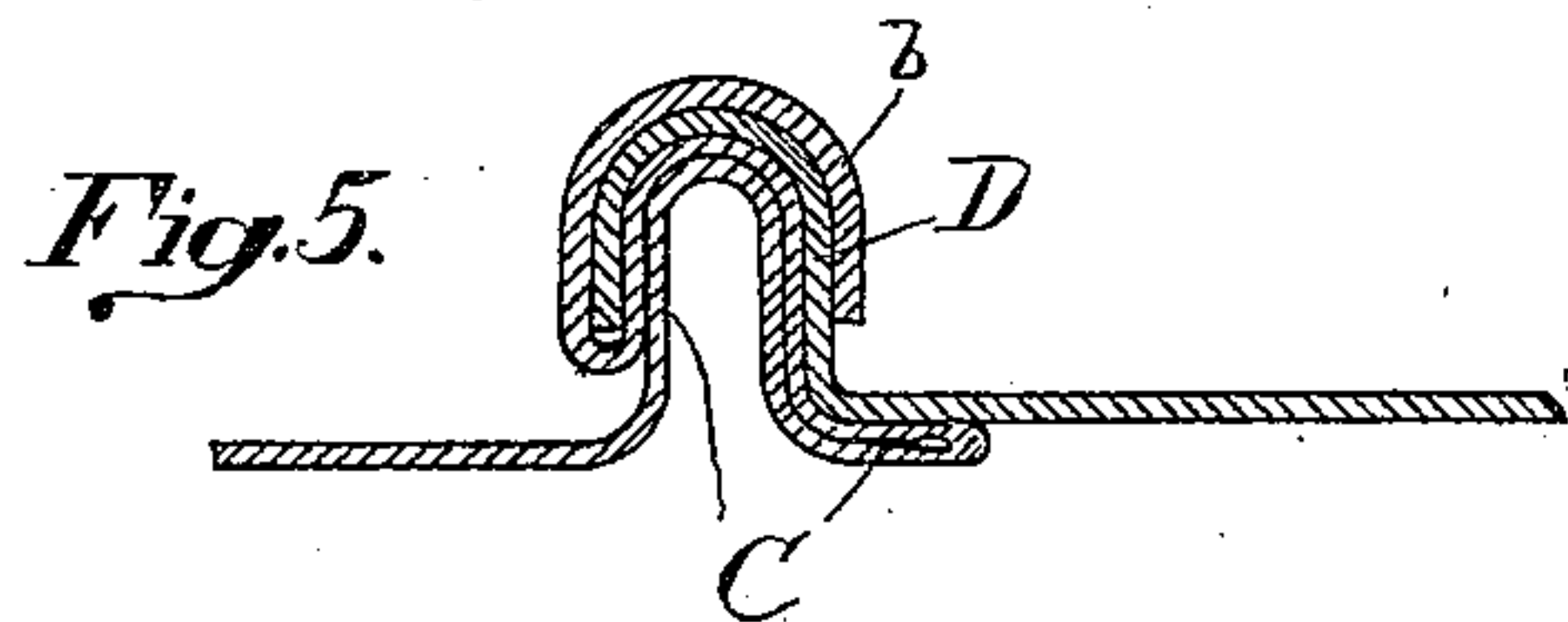
3 Sheets—Sheet 2.

L. L. SAGENDORPH.

METALLIC ROOFING.

No. 355,888.

Patented Jan. 11, 1887.



Attest
E. M. Harmon,
W. P. Gulick

Inventor
Longley Lewis Sagendorph
per Wm. Hubbell Fisher,
Atty.

(No Model.)

3 Sheets—Sheet 3.

L. L. SAGENDORPH.

METALLIC ROOFING.

No. 355,888.

Patented Jan. 11, 1887.

Fig. 9.

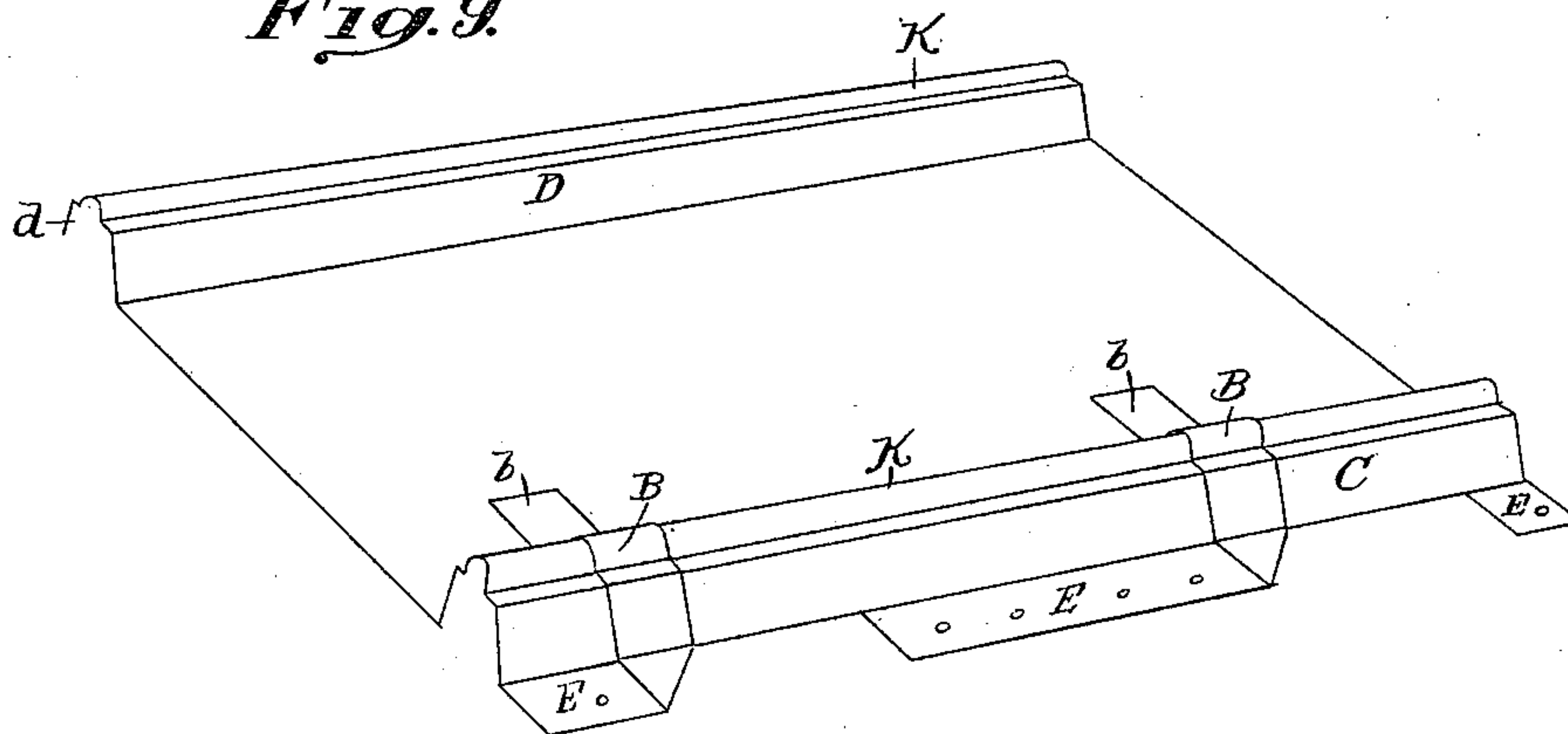


Fig. 10.

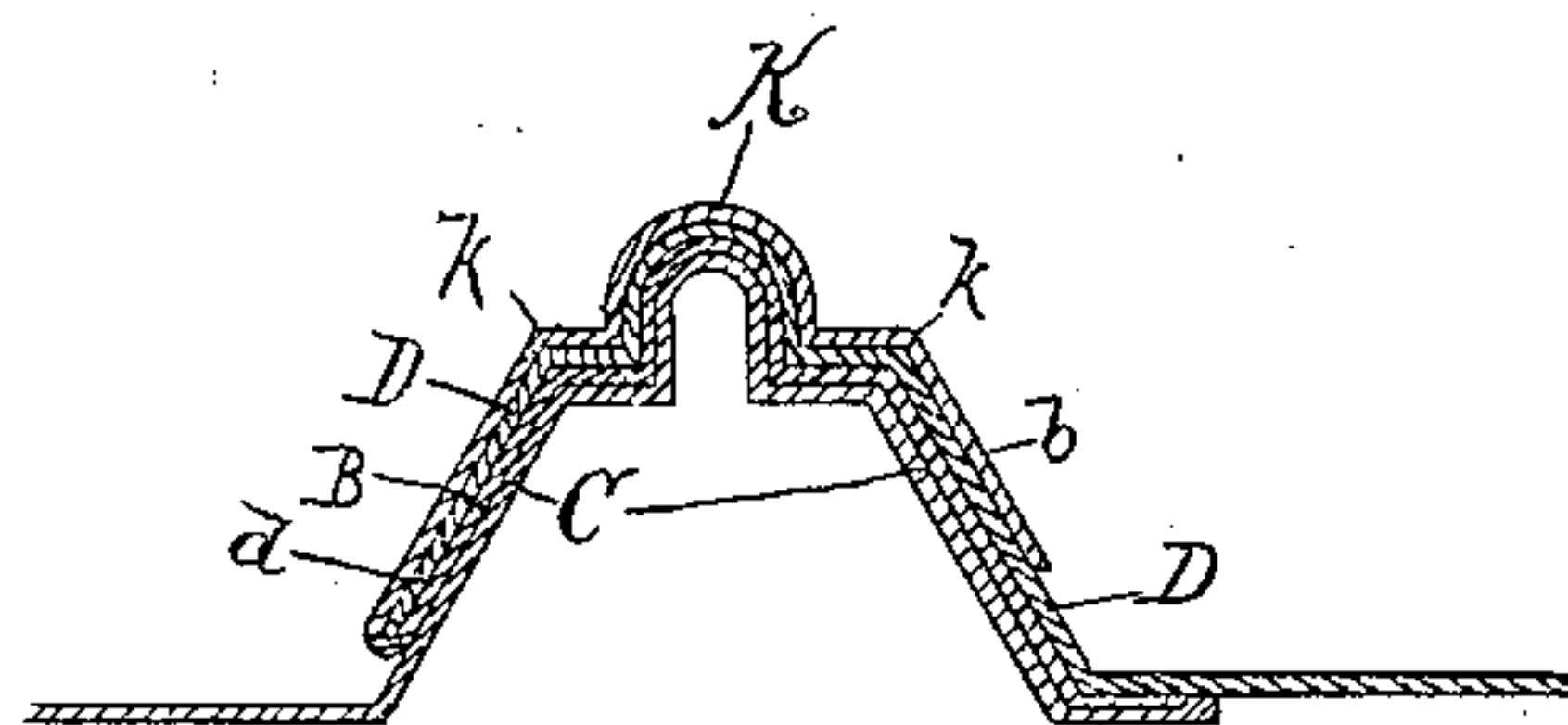
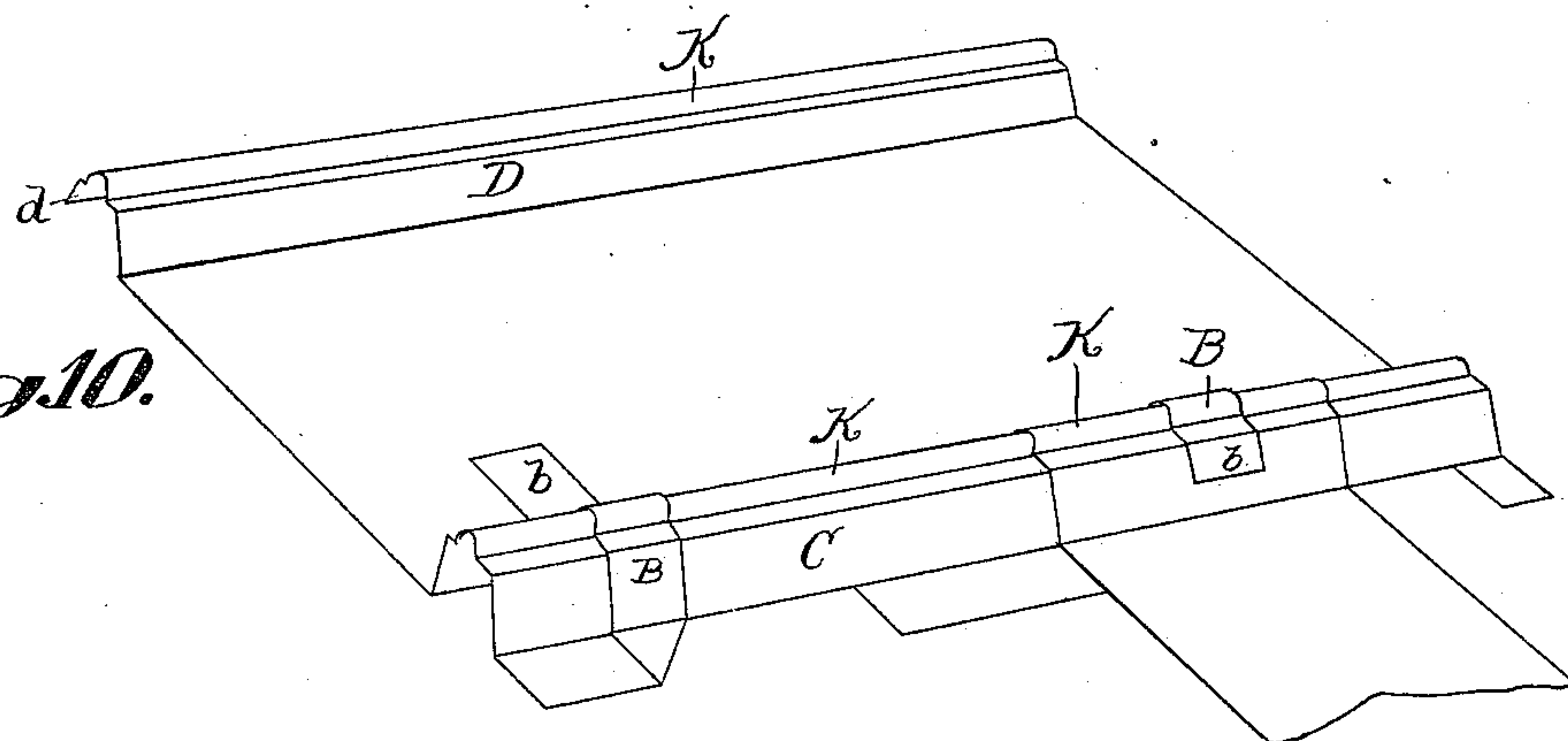


Fig. 11.

Attest
E. W. Harmon
W. P. Gulick

Inventor
Longley Lewis Sagendorph
per Wm. Hubbell Fisher
Att'y

UNITED STATES PATENT OFFICE.

LONGLEY LEWIS SAGENDORPH, OF CINCINNATI, OHIO, ASSIGNOR OF ONE.
HALF TO HARLAN P. LLOYD, OF SAME PLACE.

METALLIC ROOFING.

SPECIFICATION forming part of Letters Patent No. 355,888, dated January 11, 1887.

Application filed August 5, 1886. Serial No. 210,154. (No model.)

To all whom it may concern:

Be it known that I, LONGLEY LEWIS SAGENDORPH, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Metallic Roofing, of which the following is a specification.

The various features of my invention, and the advantages resulting from their use conjointly or otherwise, will be apparent from the following description.

In the accompanying drawings, forming part of this specification, Figure 1 shows the cut blank from which each section of my improved roofing sheets or plates is made. Fig. 2 is a top view showing one of the sections partly shaped. Fig. 3 is a perspective view of a section ready for use. Fig. 4 is a perspective view showing two sections united, one of the sections being partly cut away. Fig. 5 is an enlarged cross-section through a joint uniting two sections. Fig. 6 is a perspective view illustrating a modification of my invention, which I term "metallic shingles." Fig. 7 is a view of a portion of a roof partly covered with metallic roofing, the various sections of which are constructed as shown in Fig. 6. Fig. 8 is a top view of one of my metallic shingles constructed like the section of roofing shown in Fig. 6. Fig. 9 is a perspective view of a section made in the preferred form—viz., with a teat-crown, hereinafter fully described. Fig. 10 is a perspective view showing two sections, such as are shown in Fig. 9, united, one of the sections being partly cut away. Fig. 11 is an enlarged cross-section through a joint uniting the sections shown in Fig. 10. Fig. 12 is a view in elevation of a tool for countersinking the cleat formed from the end of the sheet and extending over the raised standing seam or teat-crown of the adjacent following sheet.

On one edge of the section cleats B are cut, as shown in Fig. 1. As arranged, the grain of the iron runs with the length of the cleats. These cleats are turned at right angles and flattened down onto the sheet of metal forming the section, as is shown in Fig. 2. When the cleats are turned back, the edge of the sheet appears provided with the lips E. Into the sheet so formed two ridges, C and D, are

pressed, the tops of each of which terminate in a secondary ridge, K, forming a teat-crown. The outer edge of the ridge C ends at the cuts which formed the edges of the cleats B. The cleats B are folded with the ridge C, as shown in Fig. 3. The outer lip, d, of the ridge D is short—that is to say, it does not project down to the plane of the section. The complete section, formed as described above, is shown in Fig. 3. Sections are joined by placing the ridge D of one over the ridge C of another. To hold the sections in this position the projecting ends b of the cleats B are folded over the joint. The cleats B, as folded over the junction of the ridges, form smooth curves. The tool T is then put over each one and struck with a hammer, forcing the cleat to the shape of the ridge with a teat-crown, and forming a very secure joint.

The above-described joint I use with two classes of roofing materials, which I term "metallic roofing" and "metallic shingles." The metallic roofing is made in sections six or eight feet long and about two feet wide. These sections are formed as shown in Fig. 3. The metallic shingles are made much smaller, and are intended for use on roofs where the large-sized roofing would be inapplicable. The shingles also preferably differ slightly in their detail from the sections of roofing. One of the shingles is shown in Fig. 6. The shingles are provided with a ridge, F, parallel to the other two ridges C and D, and lying midway between them. At each end of each of the spaces between the ridges a short rib, G, is struck up. In placing the shingles in position the ribs G of each transverse row fit over the ribs G of the row below them, and assist in making what is termed an "end joint." It is also preferable to arrange the shingles to break joints—that is, so that the ridges F of the upper row fit over the joints formed by the ridges C and D of the lower row, and so that the joints formed by the ridges C and D of the upper row fit over the ridges F of the lower row.

To secure the roofing to the house, a nail is driven through each of the lips E into the sheathing below, either in the case of the shingles or the roofing. The preferred form of ridge-pole for use with this form of roofing is

shown in Fig. 7. The space H receives the upper edge of the last line of roofing and forms a barrier, preventing water from getting under the roofing.

5 To secure the roofing to the house, at the edge of the roof I provide a strip, J, preferably of thin sheet metal, which is nailed along its inner edge to the roof, leaving its outer edge free. At the side of the house the edges 10 of the sections of roofing are turned under the free edge of the strip J, as shown in Fig. 7. The row of sections at the bottom of the roof have slits cut in them between the ridges, separating short cleats which are turned under the edge of the strip J, as before. This 15 construction is shown in Fig. 7. This use of the strip J prevents the nailing through the roofing-sheets or shingle-plates, and admits of bending the shingles at ends or sides into a U 20 shape and hooking into the metal strip. This effectually excludes the wind from every part of the roof and effectually prevents the plates from being lifted or blown off the roof.

Taking the cleats B from the body of the 25 roofing-plate produces a device for holding metal plates together, when used for roofing purposes, that is effectual in providing for expansion and contraction, whereas the old method of nailing, riveting, or indenting the 30 sheets has failed. Heat will draw nails, and expansion and contraction will break the riveted, soldered, or indented parts, whereas in my device the cleat performs a binding function that readily meets this strain upon the 35 metal, giving and taking alike, and not losing its hold. In forming the sheets, leaving flanges E provides a way of fastening each plate separately to the building or sides of a building, and the standing seams having a teat- 40 crown provides the extra material necessary for expansion and contraction. Each section is so formed that in placing it over the adjacent section it completely covers all the nails or screws used in fastening the lower section 45 to the sheathing.

The tool for shaping the cleats over the joined ridges consists of the shank *t*, at one

end of which is the head *t'* and at the other end the head *t''*. A groove, *t'''*, conforming to the shape of the ridges of the roofing, is cut across 50 the head *t'*. The other head, *t''*, is flattened to receive blows from a hammer. The advantage of this teat-crown is that by forming the square shoulders *k* and countersinking the cleat B to conform to said configuration any 55 lateral displacement of the sections and cleat is impossible. This result cannot be so well attained in a semicircular crown. The cleat B extends over the entire length of the standing seam, thus securing a perfect weather- 60 proof joint.

While the various features of my invention are preferably employed together, one or more of said features may be used in connection with roofing material other than that herein 65 specifically set forth.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. A section of metallic roofing provided with cleats cut from the edge of the sheet and 70 folded over onto the sheet at right angles to their original positions, substantially as and for the purposes specified.

2. A section of metallic roofing provided with the cleats B and ridges C and D, substantially as and for the purposes set forth. 75

3. A section of metallic roofing provided with the leaves B, ridges C, D, and F, and ribs G, substantially as set forth.

4. In metallic roofing, joining ridges provided with secondary ridges or crowns at their 80 tops, in combination with cleats passing over said secondary ridges and conformed in shape thereto, as and for the purposes set forth.

5. In metallic roofing, joining ridges provided with secondary ridges or crowns at their 85 top, in combination with cleats cut into the metal of the section, forming double locking devices, substantially as set forth.

LONGLEY LEWIS SAGENDORPH.

Attest:

C. N. AVERY,
O. M. HILL.