

A. O. KITTREDGE, W. H. & W. J. CLARK.

STRENGTHENING SHEET METAL.

No. 184,086.

Patented Nov. 7, 1876.

Fig. 1

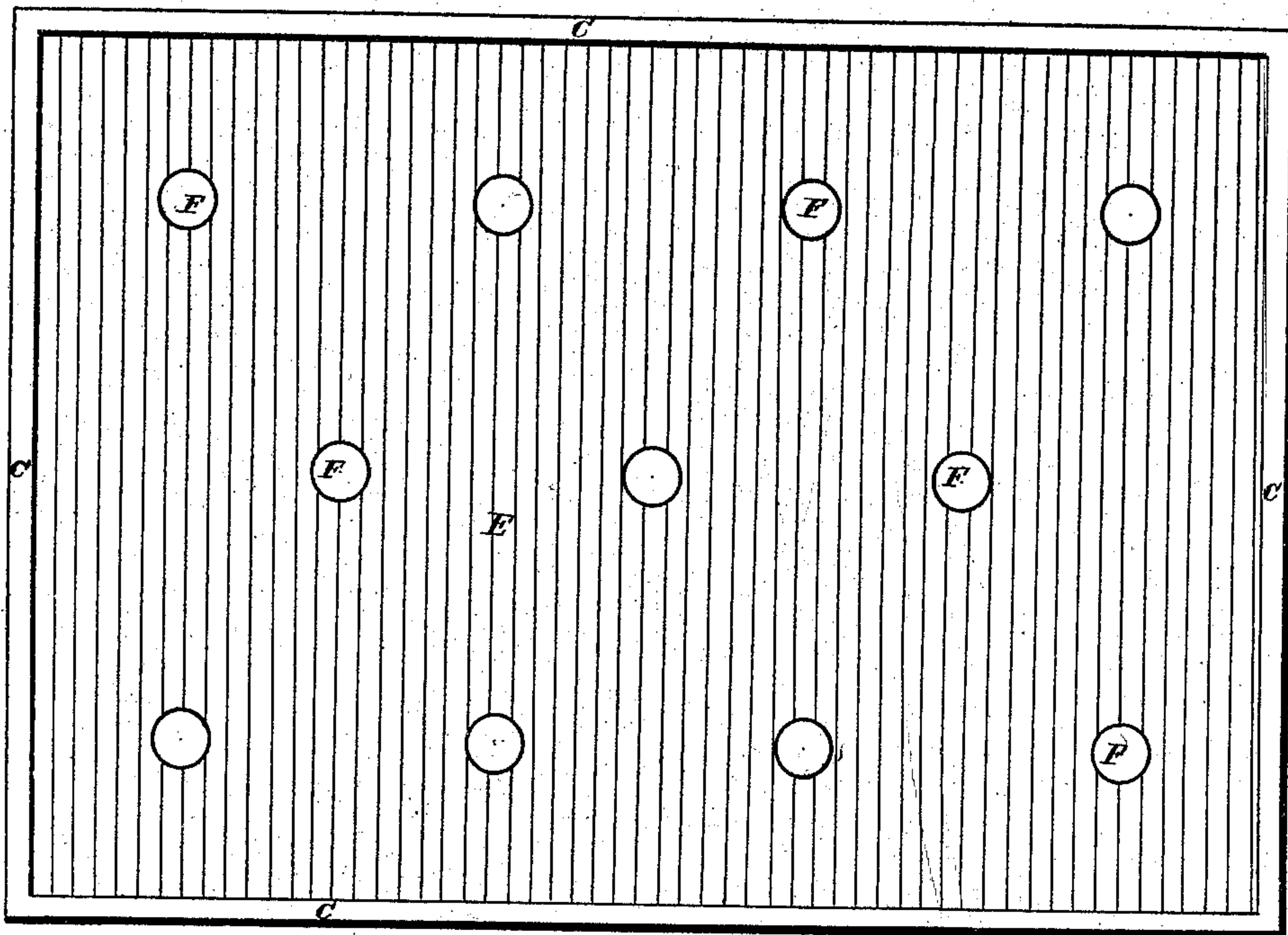


Fig. 2.

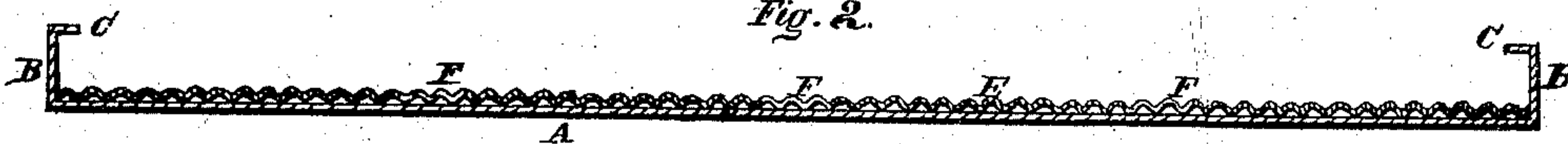
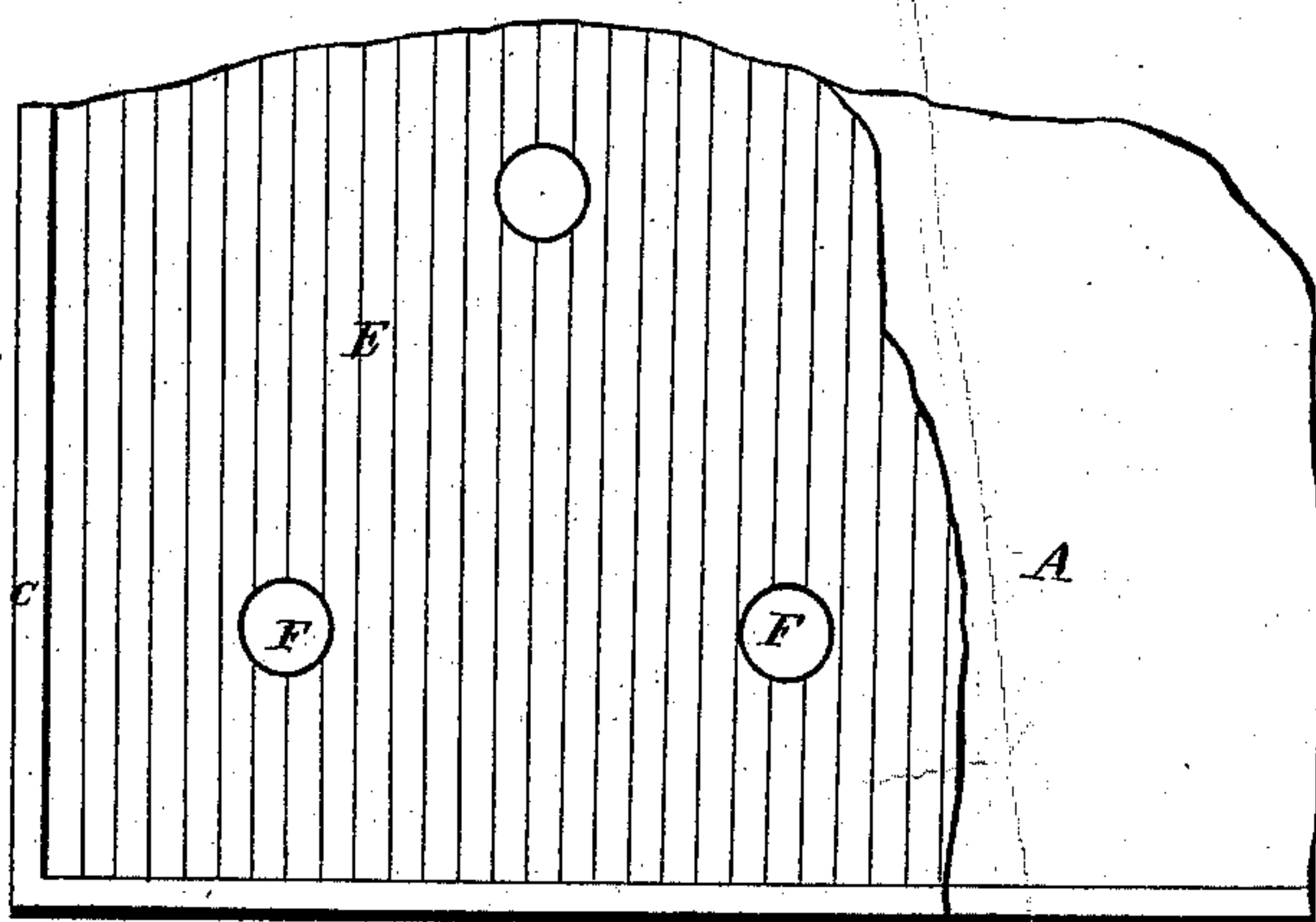


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN STRENGTHENING SHEET METAL.

Specification forming part of Letters Patent No. **184,086**, dated November 7, 1876; application filed
March 27, 1876.

To all whom it may concern:

Be it known that we, ANSON OLIVER KITTREDGE, WILLIAM HENRY CLARK, and WILLIAM JAMES CLARK, of Salem, in the county of Columbiana and State of Ohio, have invented a certain new and Improved Mode of Strengthening Sheets of Metal; and we do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawings, making a part of the same.

The nature of this invention consists of a mode of strengthening and stiffening sheets of metal, for doors, signs, panels, &c., requiring a firm, smooth, and stiff surface.

In using sheet metal for signs, doors, panels, and other broad surfaces, it is important that such sheets of metal should be free from buckle and warpings, and that it should have a firm, rigid character. These qualifications cannot well be obtained by a single thin sheet, as the thinness precludes these conditions, in view of which it becomes necessary to use duplicate or laminated sheets, that they may re-enforce each other. In order to do this it is necessary that two or more sheets should in some way not only be united to each other at their edges, but also at their surfaces, so that the two sheets may, when thus put together, be of the strength and firmness of a single sheet, equal in thickness to both of them. This important feature, however, has not heretofore been done.

When two sheets have been used they have been united only at their edges, the surface not in any way connected, except by rivets, which mars both surfaces of the sheets; hence the united strength of the two sheets is not obtained, and the punching with the riveting of such plates tends to injure the integrity of them.

The purpose of this invention is to fasten the surfaces of two sheets to each other to secure the united strength of both. To this end the edges of the outer sheet A are turned up at right angles, as will be seen at B, Fig. 2, representing a transverse section of a panel, in which A is the outer or plain surface, also shown in Fig. 3. The upturned edges referred to are turned inwardly over the sheet, as seen at C, thereby forming a strong frame for the panel.

To strengthen and make rigid this single sheet of metal A, a re-enforcing, E, is laid

thereon, fitting closely in the frame alluded to, as shown in Fig. 1. Said re-enforcing may be either plain or corrugated, as the one shown in the drawing.

Along through the middle of the sheet E are made more or less holes or perforations F, through which may be seen the plain sheet A. The two sheets when placed together, as above described, are thus secured by soldering. The solder is chopped into the perforations or holes F onto the sheet A, to which it adheres, also adhering to the sides of the holes. A small portion of the solder is allowed to spread on the sheet E immediately about the edge of the holes, by which means the two sheets are strongly fastened together. The re-enforcing sheet, by virtue of its corrugated character, greatly strengthens the sheet A, rendering it firm and rigid, free from the looseness and buckle peculiar to a single sheet of metal.

The edges of the sheet E may be soldered to the inside of the frame, thereby adding to the strength of the union of the sheets.

The two sheets of metal form a panel of the frame, which, together with the frame, can be used for a door, blind, or a shutter, it being of sufficient firmness and strength for that purpose. Otherwise, two sheets may be united and used for a panel to be set in any appropriate frame, or for any other similar use, requiring more strength and firmness than is afforded by one sheet of metal.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The mode of strengthening a sheet of metal by laying thereon a perforated sheet of metal, and filling the perforations thereof with solder, and spreading it upon the sheets, so as to secure the said plates to each other, substantially as and for the purpose set forth.

2. The sheet A and perforated sheet E, secured together by soldering through the perforations F, in combination with the sides B and inturned edge C, formed of the sheet A and soldered to the sheet B, substantially as and for the purpose set forth.

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Witnesses:

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