

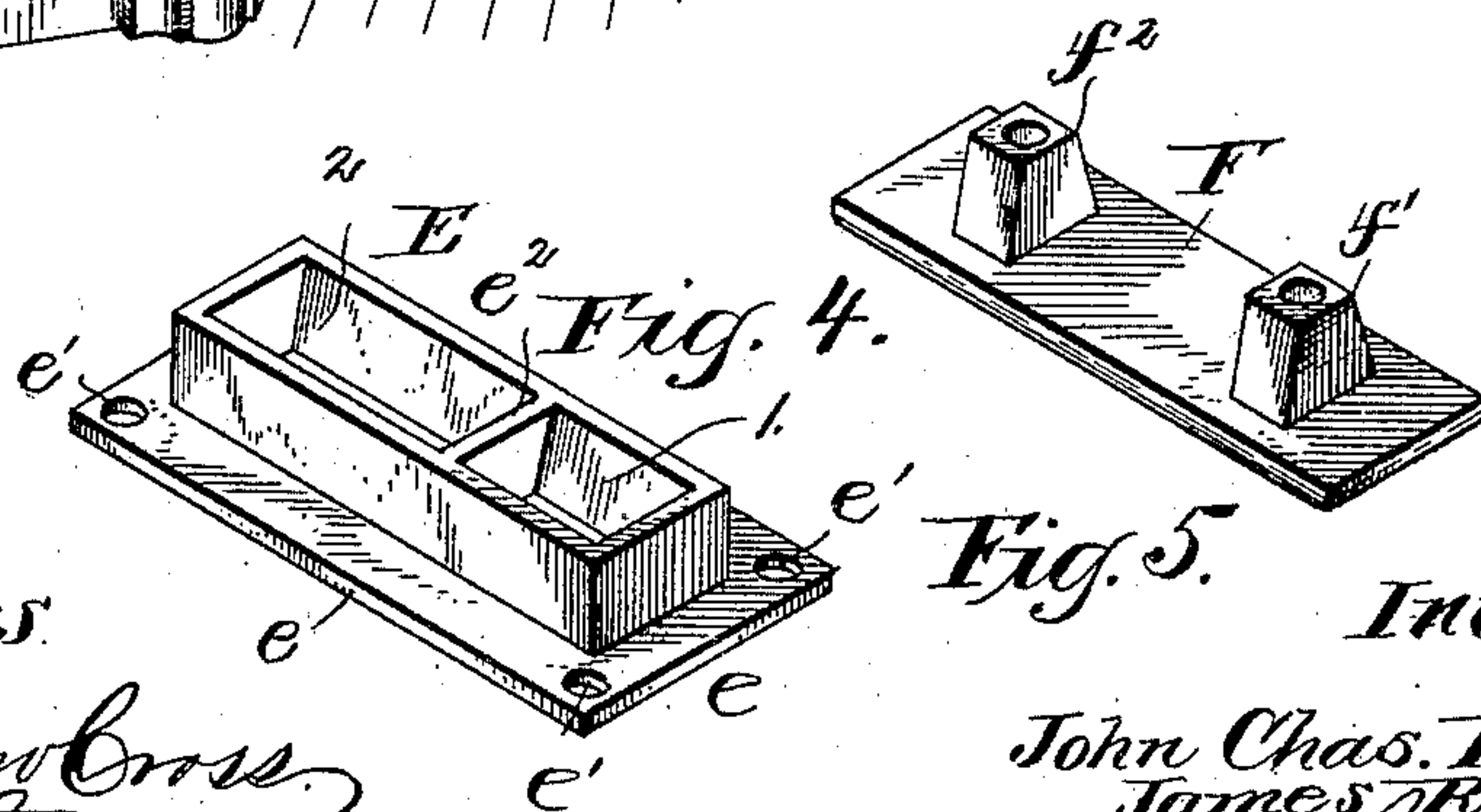
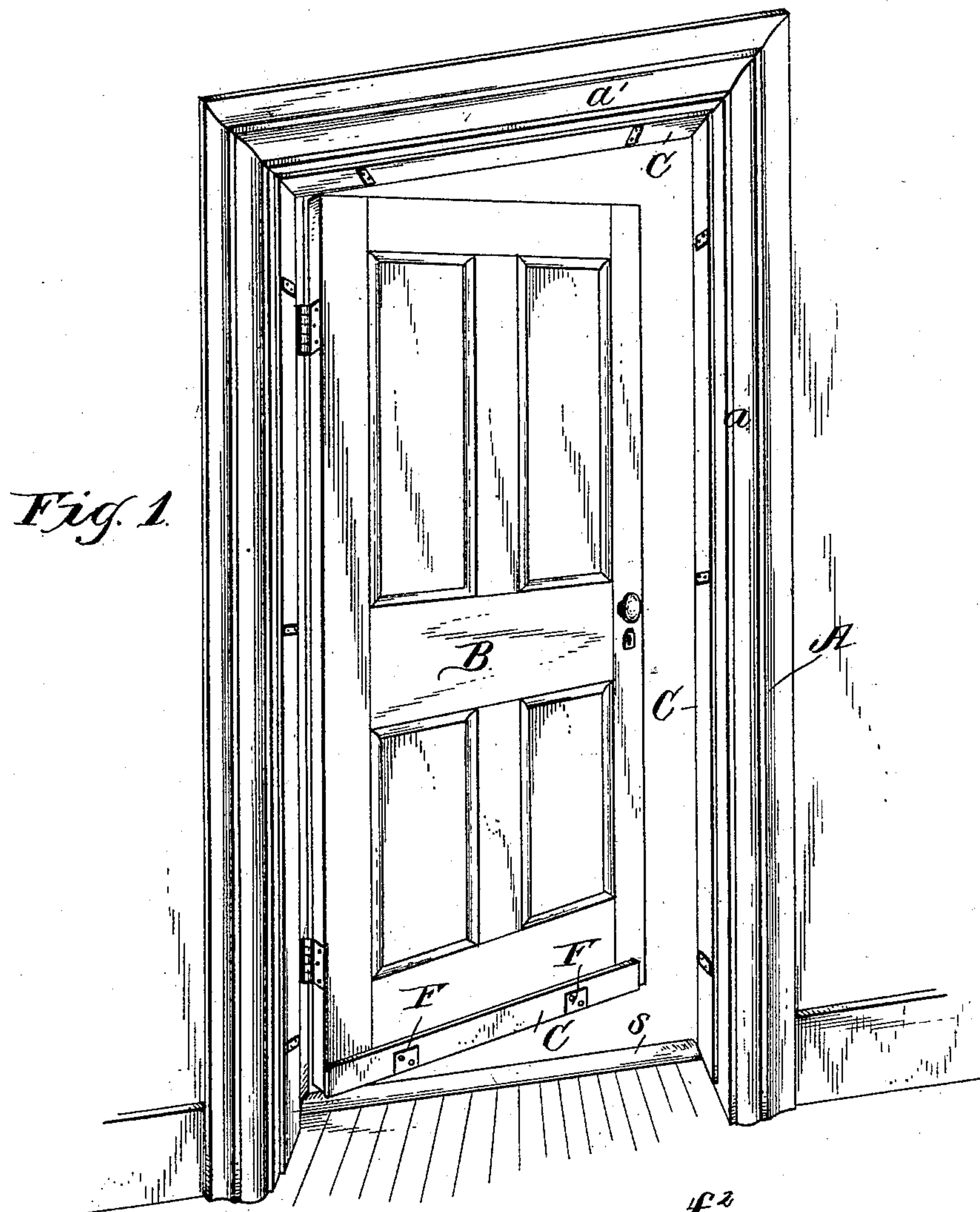
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3 Sheets—Sheet 1.

J. C. & J. REID.
WEATHER STRIP.

No. 398,187.

Patented Feb. 19, 1889.



Witnesses.
J. Thomson Cross.
Milt. E. Rouze

Fig. 5. Inventor:
John Chas. Reid and
James Reid.
per. Henry O'Byrne
Atty.

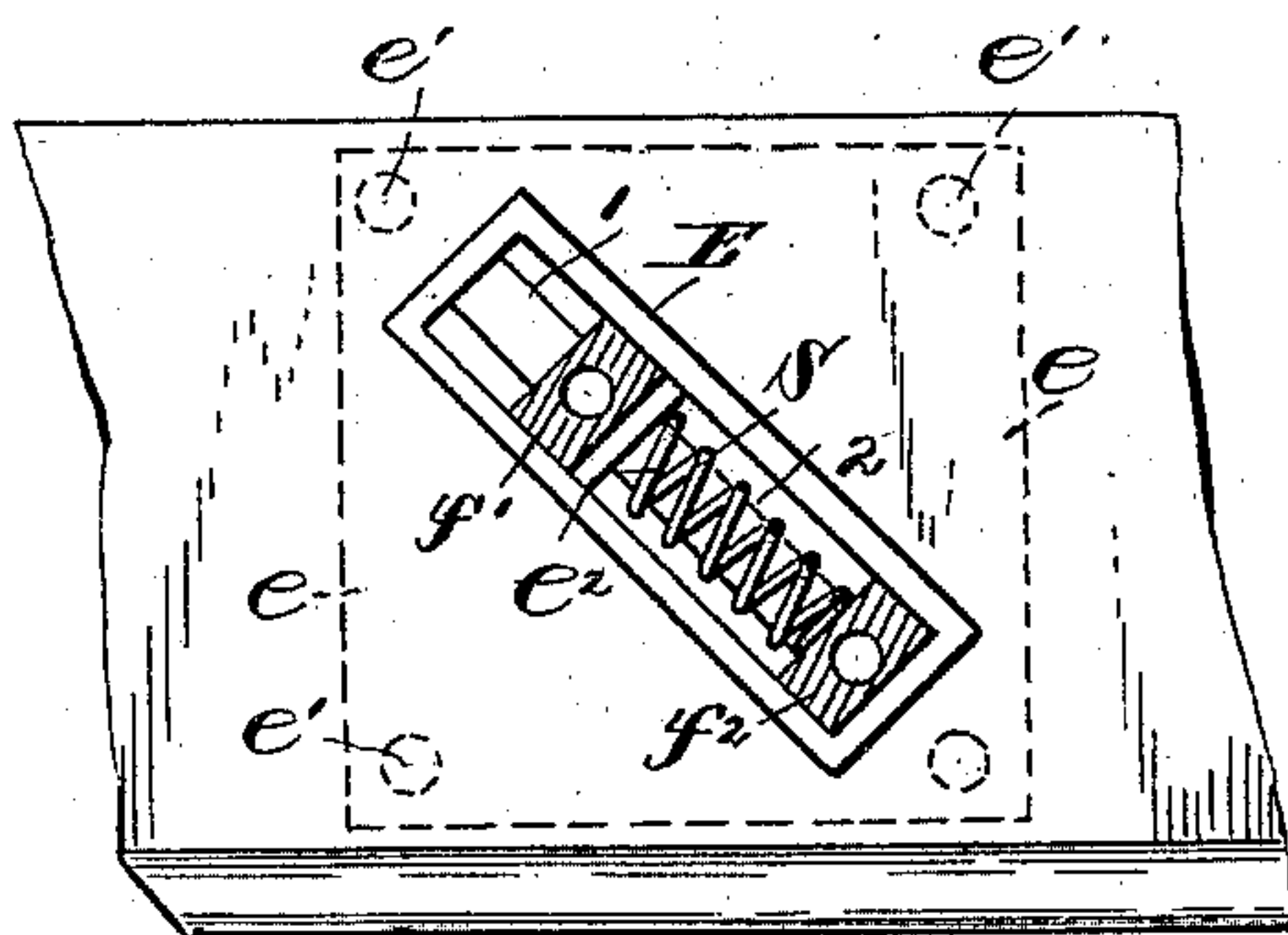
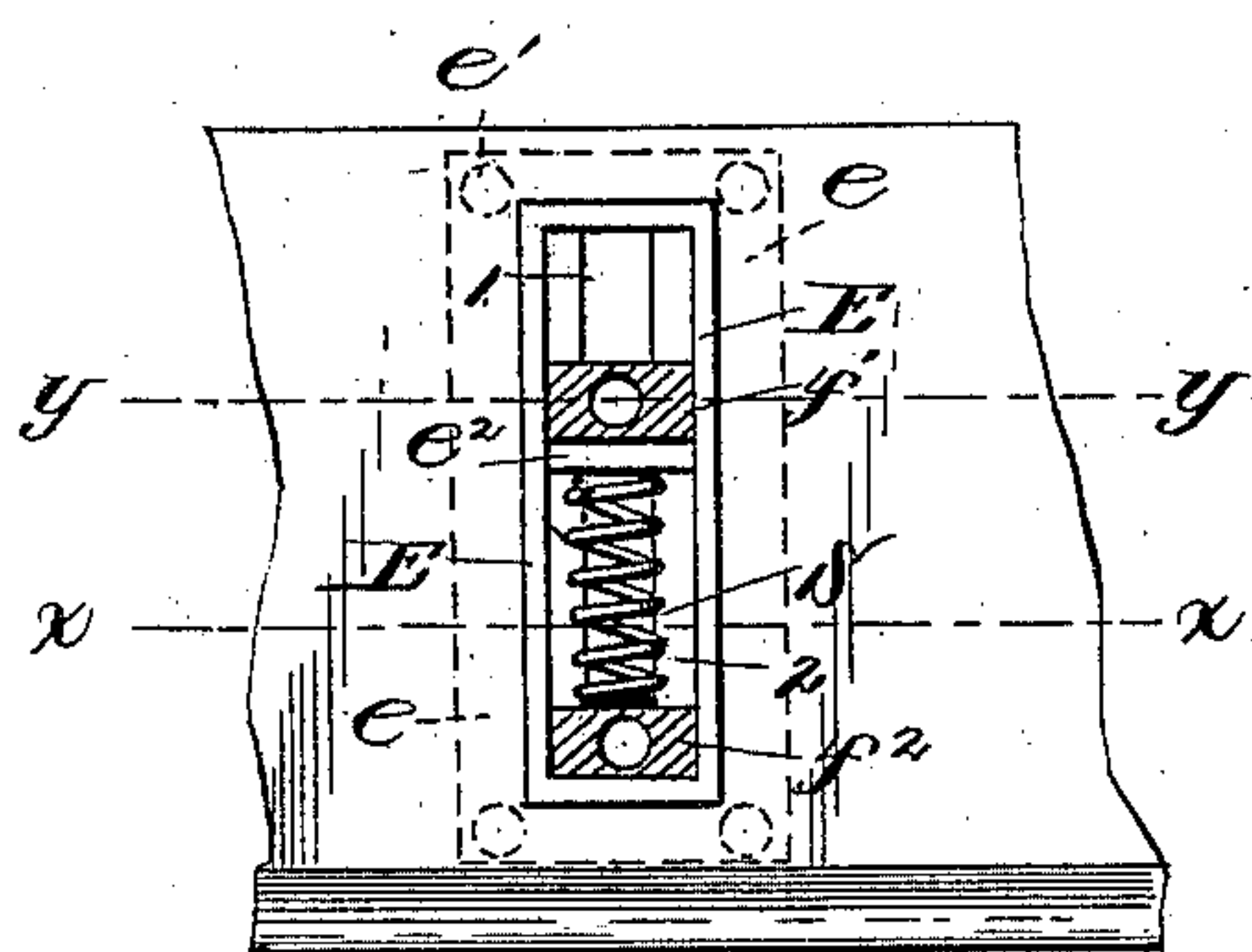
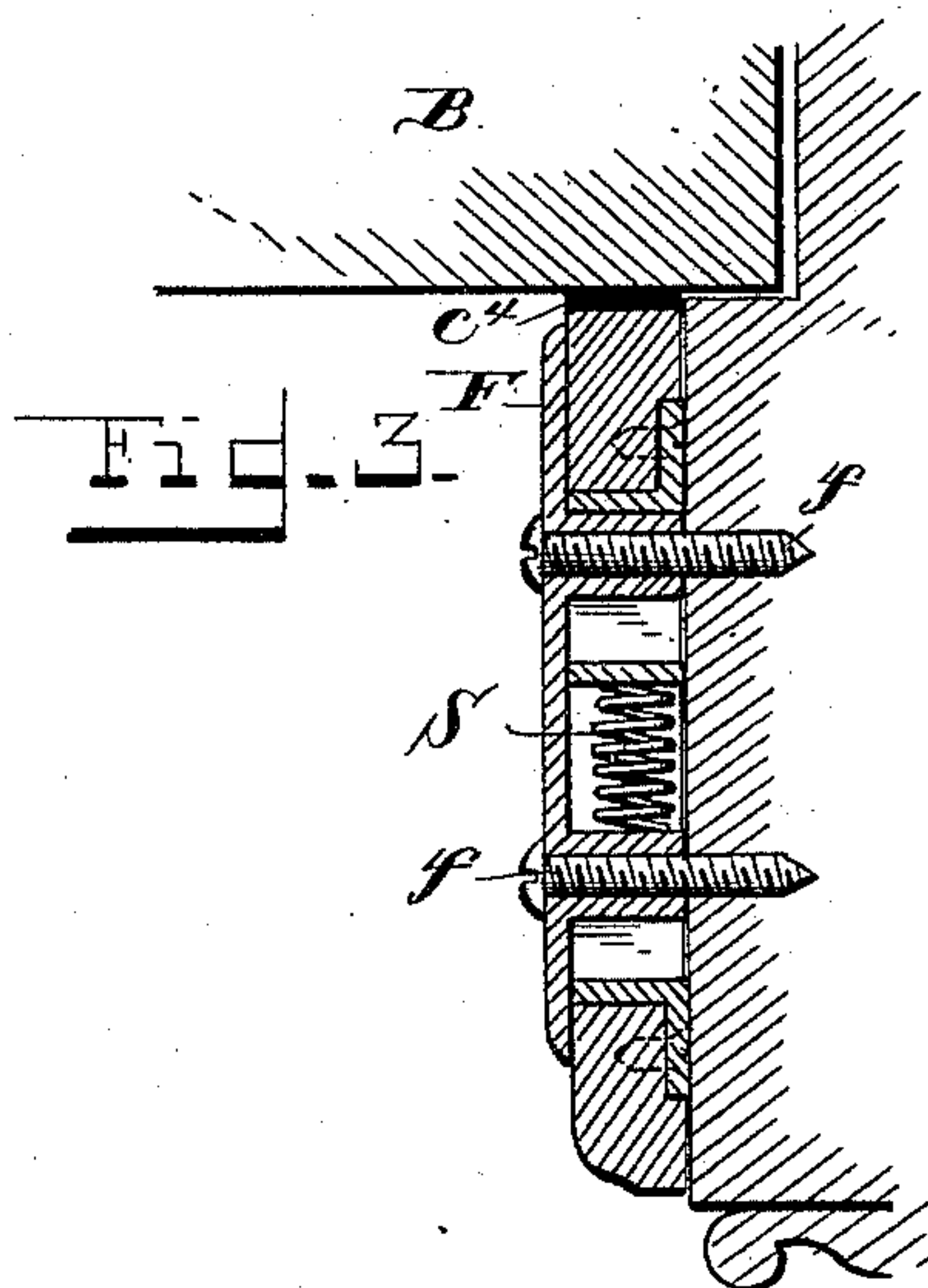
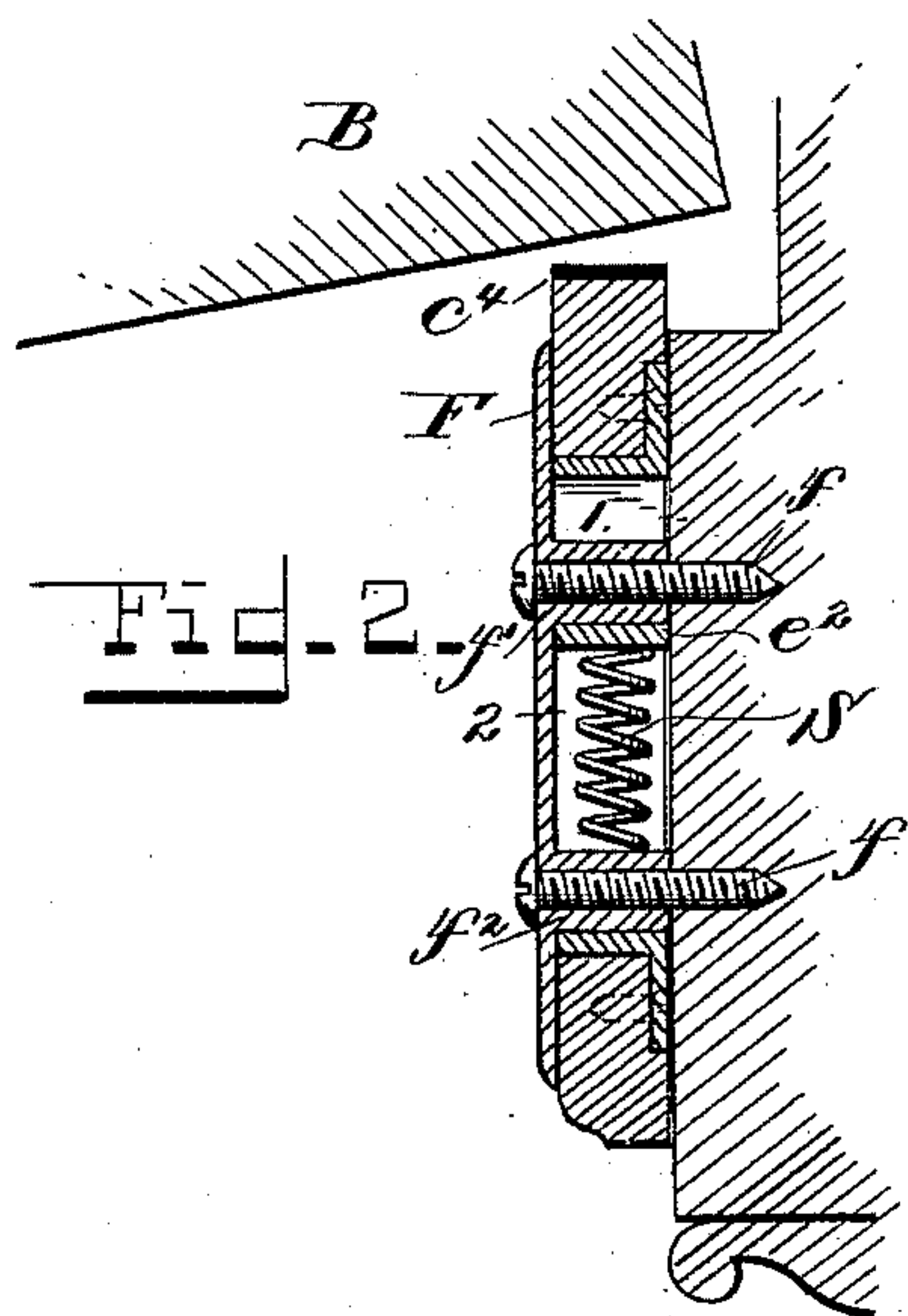
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J. C. & J. REID.
WEATHER STRIP.

No. 398,187.

Patented Feb. 19, 1889.



Witnesses:
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Inventor:
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James Reid
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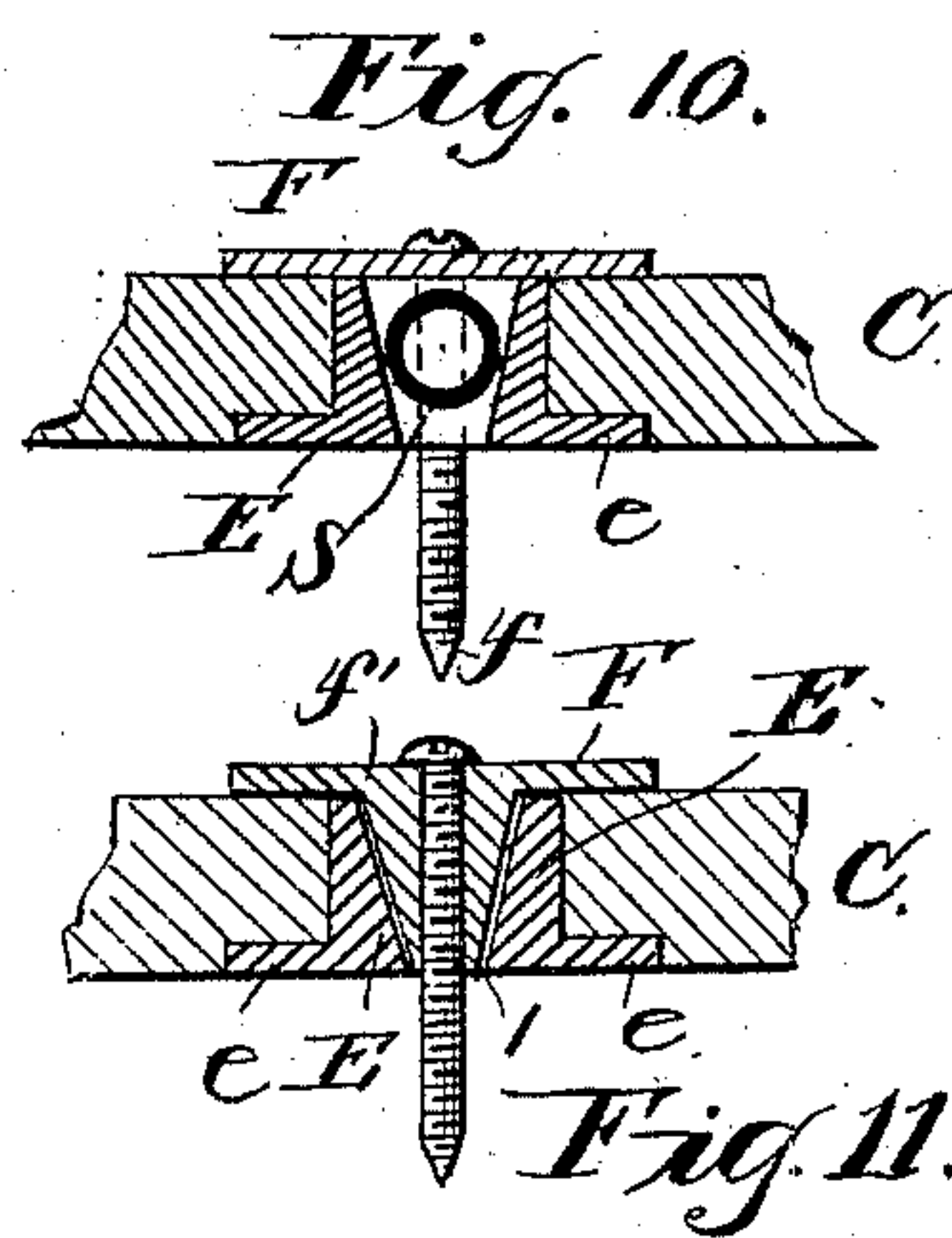
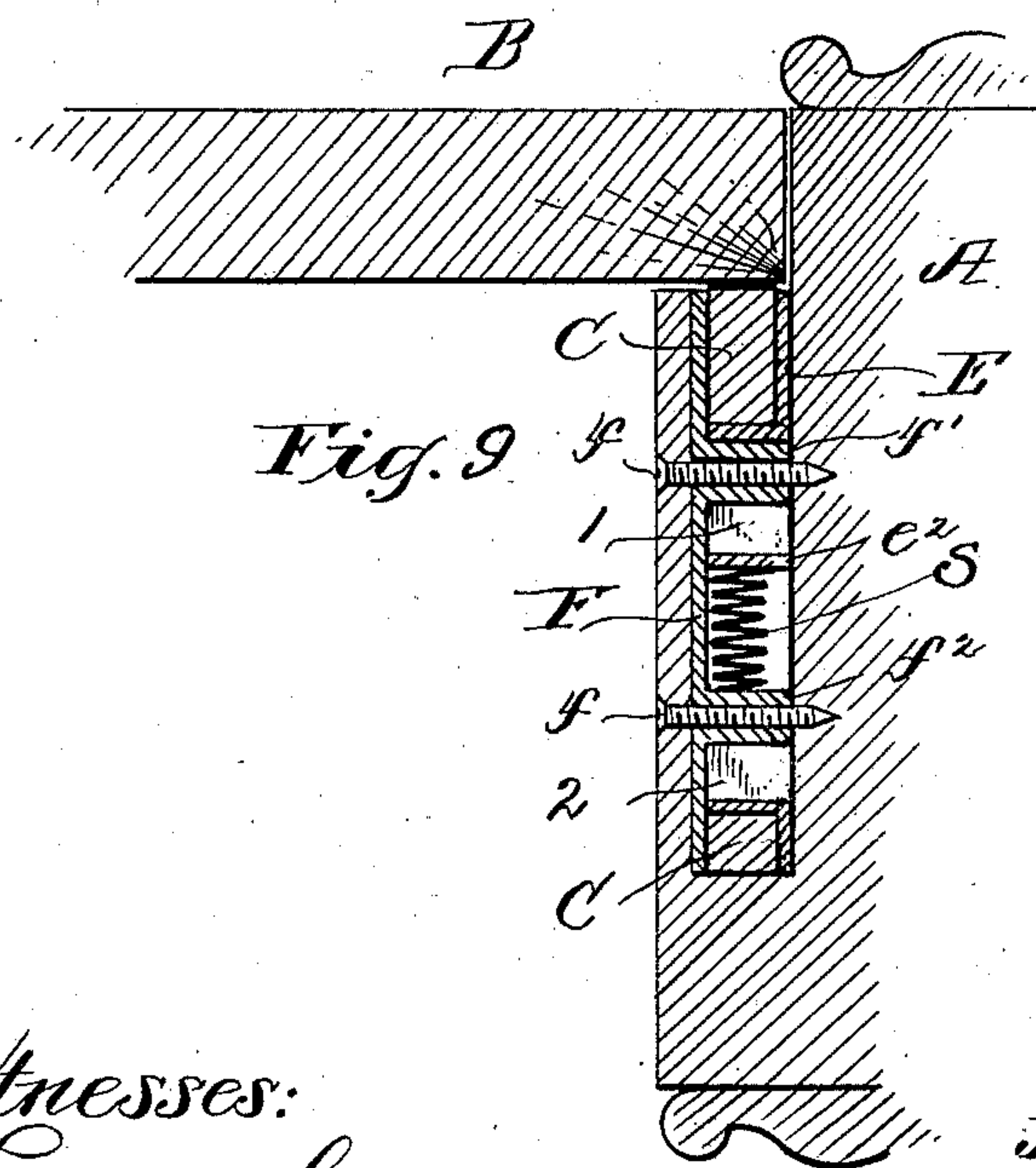
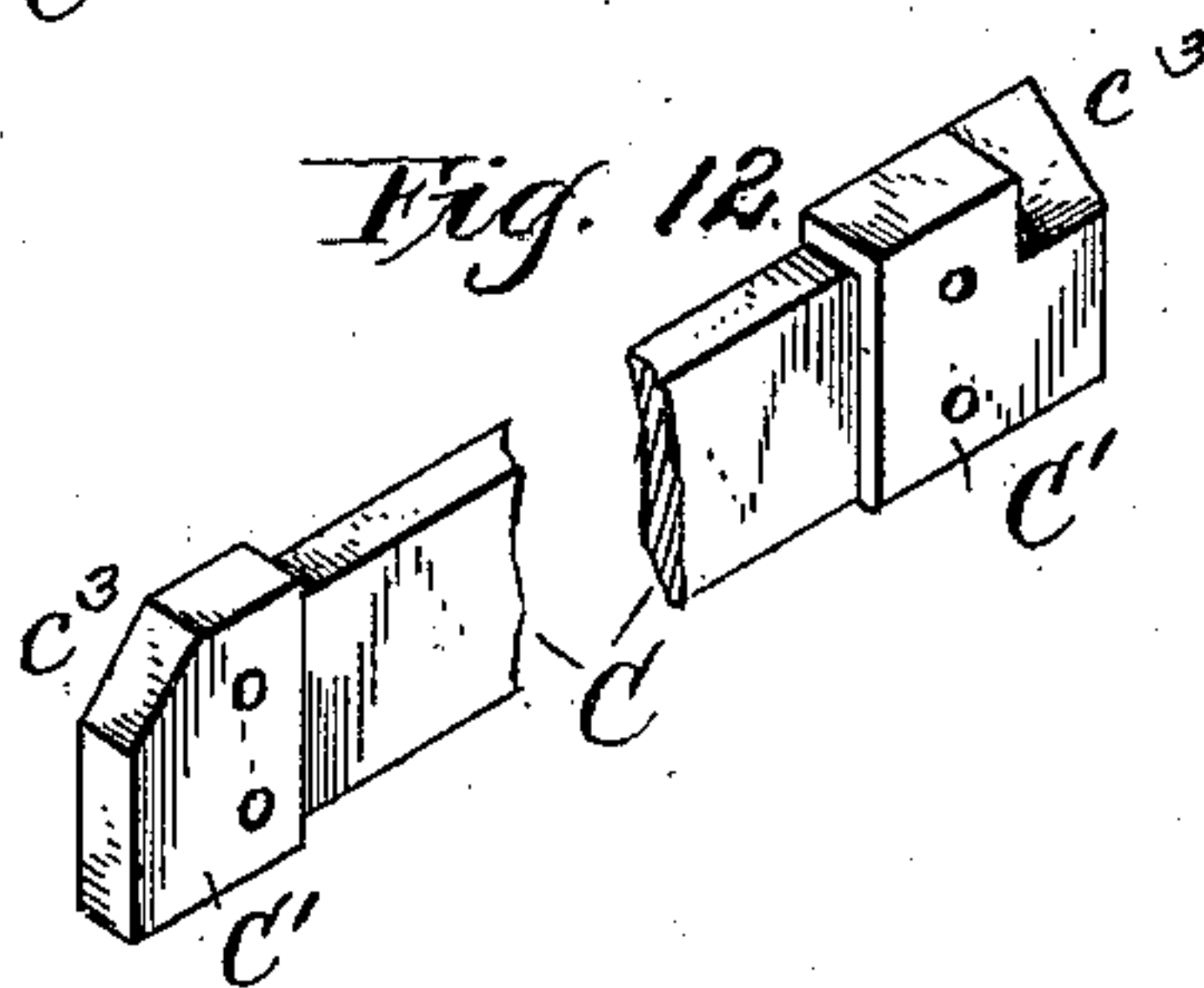
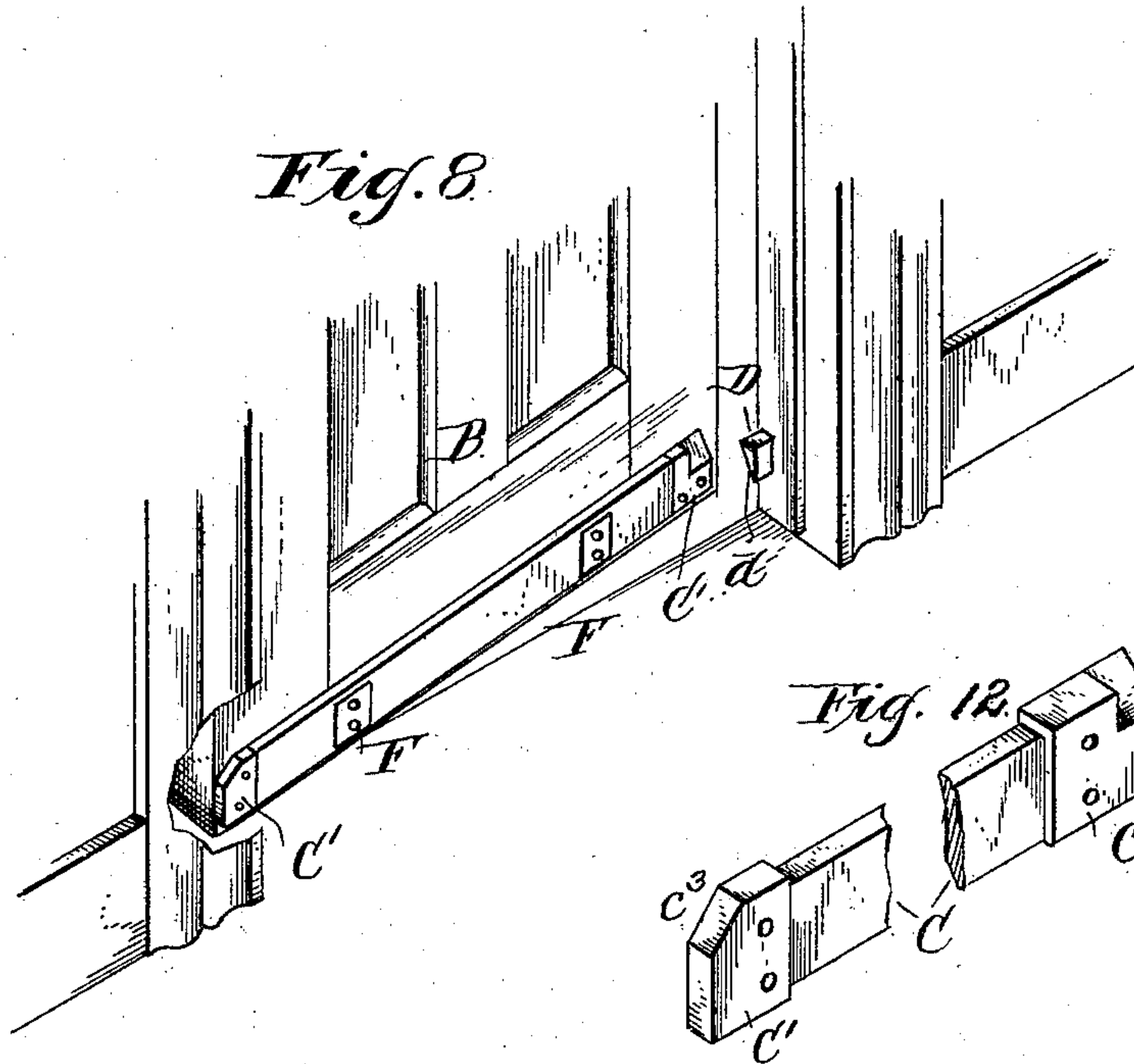
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J. C. & J. REID.
WEATHER STRIP.

No. 398,187.

Patented Feb. 19, 1889.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN CHARLES REID AND JAMES REID, OF LEEDS, COUNTY OF YORK,
ENGLAND.

WEATHER-STRIP.

SPECIFICATION forming part of Letters Patent No. 398,187, dated February 19, 1889.

Application filed April 7, 1888. Serial No. 270,000. (No model.) Patented in England August 22, 1887, No. 11,410.

To all whom it may concern:

Be it known that we, JOHN CHARLES REID and JAMES REID, subjects of the Queen of Great Britain, and residents of Leeds, in the
5 county of York, England, have invented certain new and useful Improvements in Weather-Strips, (for which we have obtained a patent in Great Britain, No. 11,410, dated August 22, 1887,) of which the following is a
10 full, clear, and exact specification thereof.

Referring to the drawings, Figure 1 is an isometric view of a door-frame and door, illustrating the application of our invention. Figs. 2 and 3 are sections of a portion of the door-frame and door, showing the position of the weather-strip when the door is open and closed,
15 respectively. Figs. 4 and 5 are isometric views, on a larger scale, showing the spring-box and the part thereof that serve to connect it with a door. Fig. 6 is a top plan view of the spring-box, the covering-plate being removed. Fig. 7 is a like view illustrating the arrangement of the spring-box to impart
20 to the weather-strip a motion at an angle to a straight line. Fig. 8 is an isometric view of a portion of a door-frame and door, illustrating a mode of imparting motion to the weather-strip. Fig. 9 is a section of a portion of a door-frame, illustrating a different mode of
25 applying the weather-strip. Figs. 10 and 11 are transverse sections of the spring-box and weather-strip, taken on lines *xx* and *yy*, respectively, of Fig. 6; and Fig. 12 shows the beveled plates at the ends of the weather-strip shown in Fig. 10.
30

Like letters of reference indicate like parts wherever such may occur in the drawings.

The invention relates more particularly to means for rendering doors of dwellings air or
40 draft proof; and it consists in the combination, with the door and door-frame, of spring-actuated weather-strips, whereby said strips are held against their bearing-surfaces to prevent the passage of air and dust, substantially
45 as hereinafter fully described, and as set forth in the claims.

Referring to Fig. 1, A indicates the door-casing; B, the door, and C the weather-strips. As shown, one of the weather-strips is secured
50 to the lower edge of the door, one to the jamb-

lining *a*, and the other to the lintel-lining *a'*. These weather-strips are arranged to slide either in a direction at right angles to their longitudinal axis or in a direction at a more or less acute angle to said axis. For instance,
55 the weather-strip at the bottom edge of the door and that on the lintel-lining *a'* of the casing are so arranged as to move upwardly and outwardly, respectively, and, if properly mitered or rabbeted, form a tight joint with
60 the weather-strip on said jamb-casing *a*, which latter strip moves in a plane at right angles to the vertical.

The weather-strips are so connected to their respective supports as to project slightly be-
65 yond the edges thereof, and are held in that position by a spring. For instance, the weather-strip along the lower edge of the door projects beyond said lower edge, so that when the door is closed the lower horizontal edge
70 of said strip will come in contact with the sill, the weather-strip being forced upwardly by contact with the sill, the spring-power holding the bearing-edges of the strip firmly in
75 contact with the sill and the weather-strip on the lock side of the jamb-casing *a*.

The weather-strip on the jamb-casing and lintel-lining project over the rabbet into which the door fits, so that when the door is closed
80 said strips will be forced back against the stress of their springs, by which they will be firmly held against the vertical and upper horizontal edges of the door.

The weather-strips may, if desired, have their bearing-edges covered with felt, cloth,
85 rubber, or equivalent material, *c*¹, to make a more perfect joint, and said weather-strips, instead of being secured to the outer face of the door and casing, may be secured in grooves or recesses formed in the under side of the
90 door or lintel lining or in the jamb-lining, as shown in Fig. 9, so as not to deface the door or frame, in which case the closing of the door will force the weather-strips into the recesses against the stress of their springs, which will
95 hold the bearing-faces of the strips firmly against the sill and vertical and upper horizontal faces or edges of the door, the jamb-strip being suitably cut away, so as not to interfere with the lock.

The weather-strip along the lower edge of the door may also be so actuated by its spring as to hold it off the sill, and in this case abutment plates or stops D, provided with beveled actuating-faces d , as shown in Fig. 8, may be secured to the jamb-lining on the lock and hinge side of the door, respectively, the weather-strip being provided at its opposite ends with similar plates, C' , provided with inclined or beveled faces c^3 , Fig. 12, that come in contact with the inclined faces on the abutment-plates, whereby the weather-strip is forced down on the sill in the act of closing the door.

The means employed to give play to the weather-strips will now be described. These consist of a box or casing, E, provided with an encompassing-flange, e , having screw-holes e' , said casing being divided into two parts, 1 and 2, by a partition, e^2 . This casing is fitted in a slot in the weather-strip C, with its flanges on the inner side of said strip and flush therewith, and is secured to the strip by means of screws passing through the screw-holes e' of the encompassing-flange of the casing, which thus forms substantially an integral part of the weather-strip.

F is a plate that has perforated or hollow lugs f' f^2 formed thereon for the passage of the fastening-screws.

When the two parts E and F are assembled, the perforated lug f' projects into part 1, while the lug f^2 projects into the part 2 on opposite sides of the partition e^2 , and between the lug f^2 and the partition e^2 is interposed a spring, S. To prevent the spring from falling out of the casing E, we preferably make the same tapering in cross-section, as best shown in Figs. 10 and 11, the perforated lugs being similarly shaped and preferably rectangular to afford better bearings therefor within the casing, as well as for the spring S. This plate F is rigidly secured by screws f to the part to which the weather-strip is applied, as to the door, jamb, or lintel-casing, as hereinbefore described, and it is obvious that this plate serves as a retaining device for the strip, allowing it at the same time a certain amount of motion limited by the space 2 and its contained spring. It will also be readily seen that according to the position of these parts relatively to the weather-strip and the part to which it is applied said strip will be held projected beyond the edge of such parts or not. For instance, if the weather-strip is to be applied along the lower edge of the door, so that the bearing-edge thereof will project beyond said lower edge of the door, so that said strip will be forced up against the stress of the spring by contact with the sill s on closing the door, the spring S is placed between the partition e^2 and the lug f^2 . If, on the contrary, the strip is to be held flush with the edge of the door, and is to be forced down against the stress of its spring by the plates D, then the spring S is placed between the partition e^2 and the lug f' , as will be readily understood.

Under some circumstances it may be desirable to impart to the strip C a motion on a line at an angle to a vertical or horizontal, in which case the spring-box E is constructed relatively to its encompassing-flange e , so as to lie at the required angle to the edges of said flange, as shown in Fig. 7.

We have hereinabove described our invention in its application to doors; but it will be understood that we do not limit ourselves to such, as it may be applied for like purposes to many other objects—as, for instance, to windows or to box-lids to render such more or less air-tight and dust-proof.

Having described our invention, what we claim is—

1. The combination, with a door or the like and a weather-strip, of a casing rigidly connected therewith and having its open chamber divided by a partition, of a guide-plate provided with perforated lugs extending into said chamber on opposite sides of the partition, said guide-plate being rigidly secured to the door by screws passing through said perforated lugs, and a coiled spring arranged in said chamber to exert its power upon one of the lugs, substantially as and for the purposes specified.

2. The combination, with a door or the like and a weather-strip, of a casing rigidly connected therewith and having its open chamber made tapering inwardly and divided by a partition, of a guide-plate provided with correspondingly-tapering perforated lugs extending into said chamber on opposite sides of the partition, said guide-plate being rigidly secured to the door by screws passing through said perforated lugs, and a coiled spring arranged in said chamber to exert its power upon one of the lugs, substantially as and for the purposes specified.

3. The combination, with a movable element and a stationary element, of means for forming a tight joint along the meeting edges of said elements, comprising a weather-strip, the flanged casing E, secured thereto, said casing being made tapering in cross-section and divided into two unequal parts by a stationary partition, the guide-plate F, connected with the movable element and provided with correspondingly-tapering perforated lugs f' f^2 , and the coiled spring S, said parts being constructed and arranged for co-operation substantially as and for the purposes specified.

In testimony that we claim the foregoing we have hereunto set our hands this 19th day of September, 1887.

JOHN CHARLES REID.
JAMES REID.

Witnesses:

WILLIAM VEVERS,
L. R. BARKER,
A. R. C. RIDGWAY,
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