

No. 630,216.

Patented Aug. 1, 1899.

G. B. GROVER.
WEATHER STRIP.

(Application filed Sept. 6, 1898.)

(No Model.)

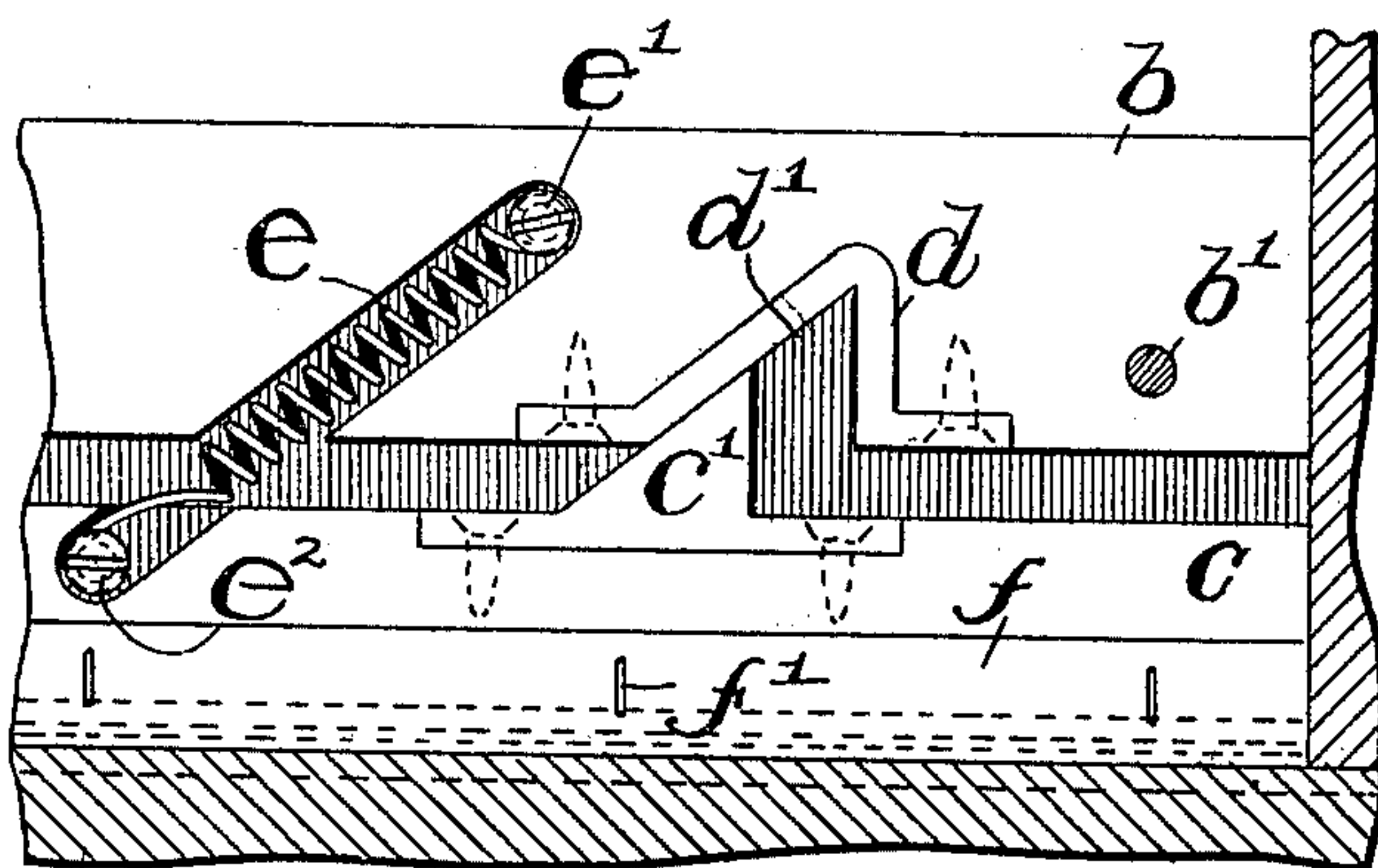
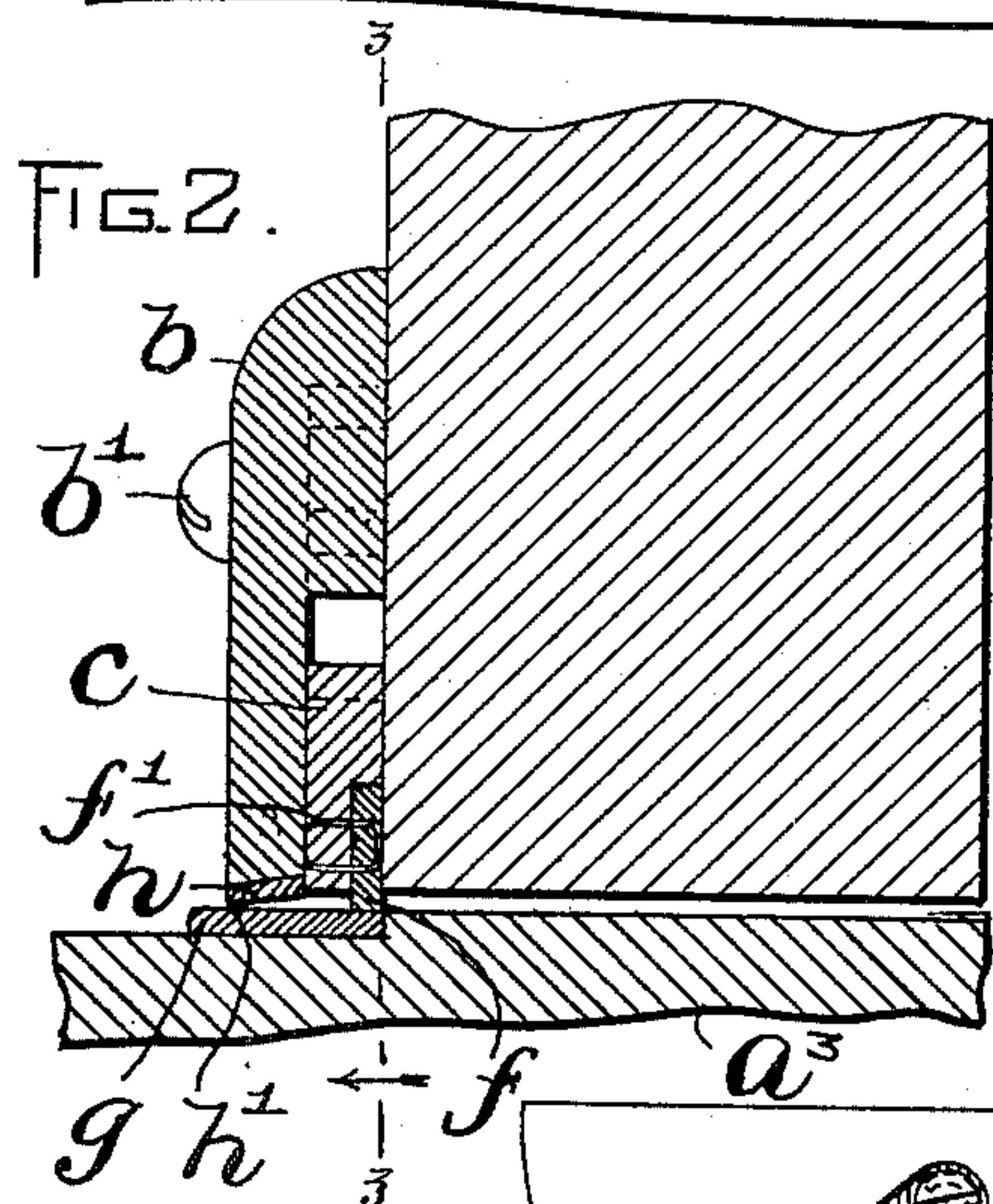
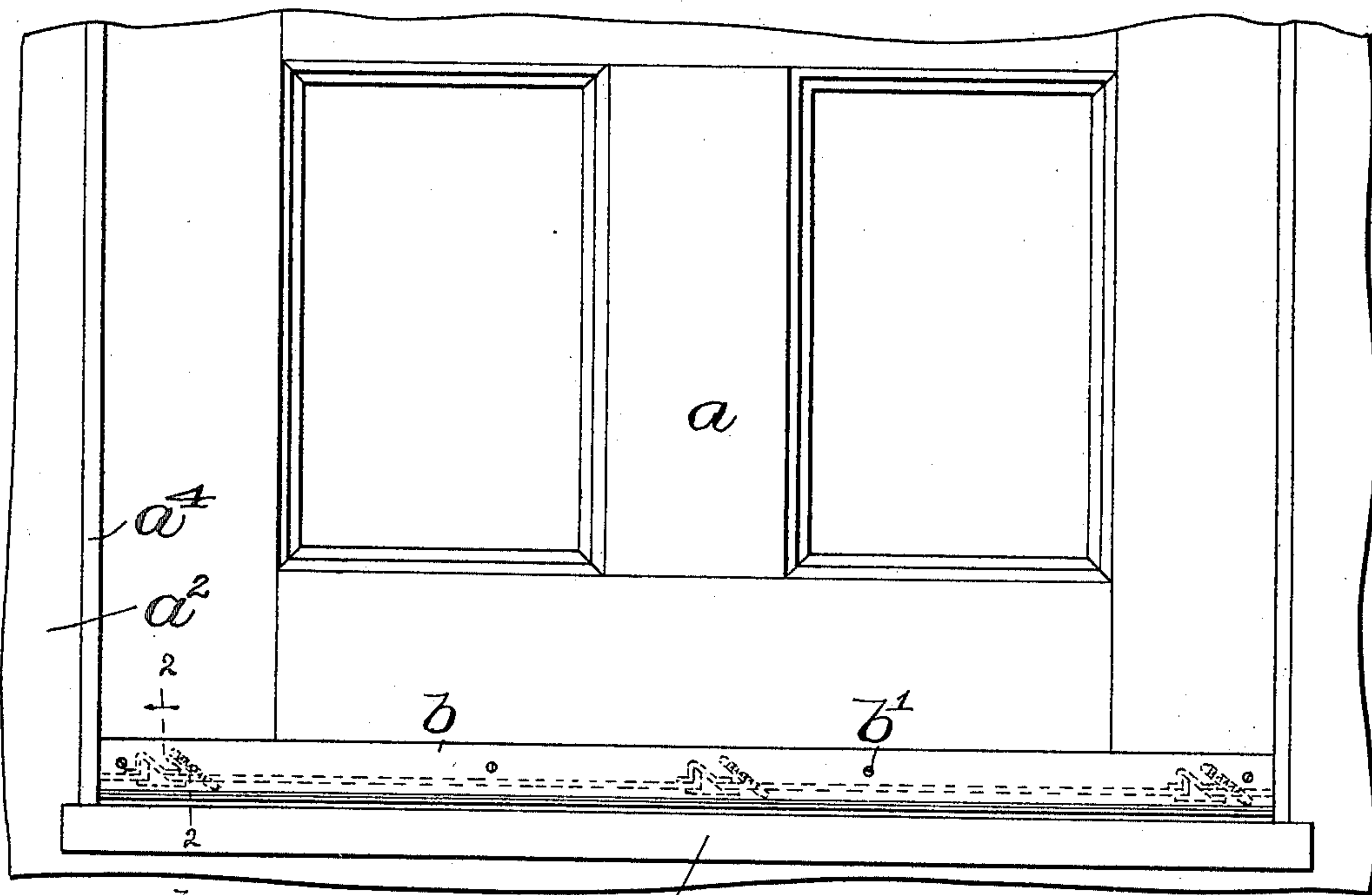
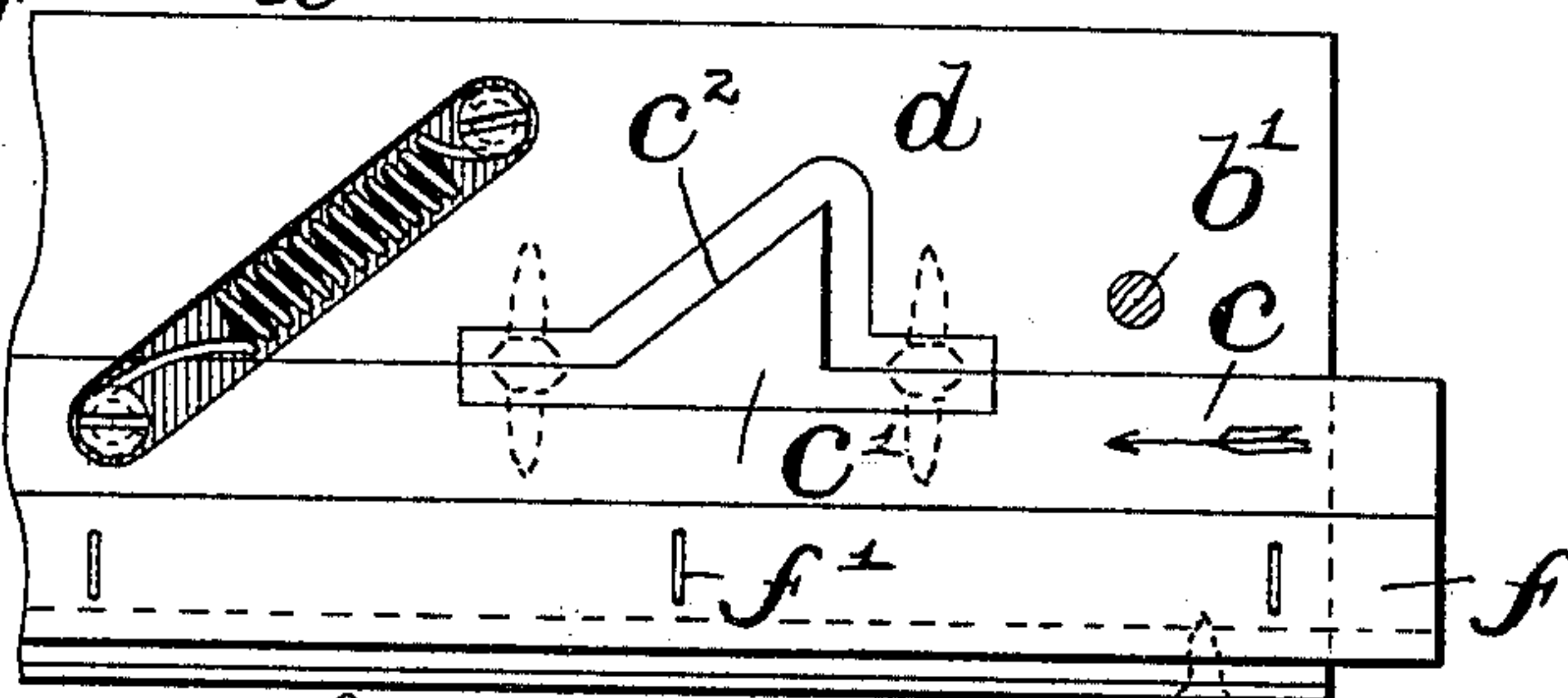
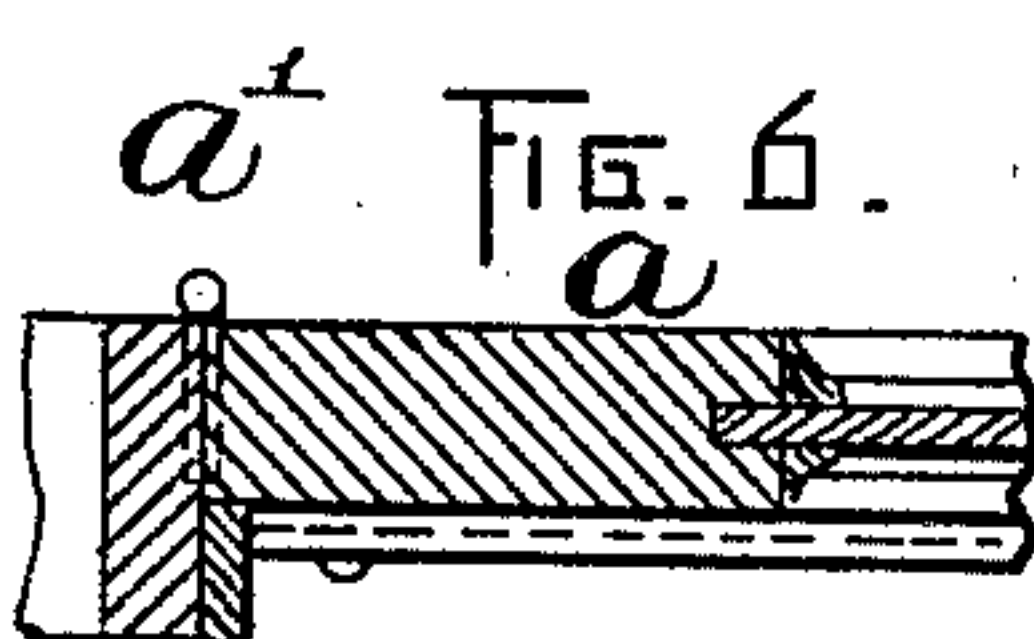
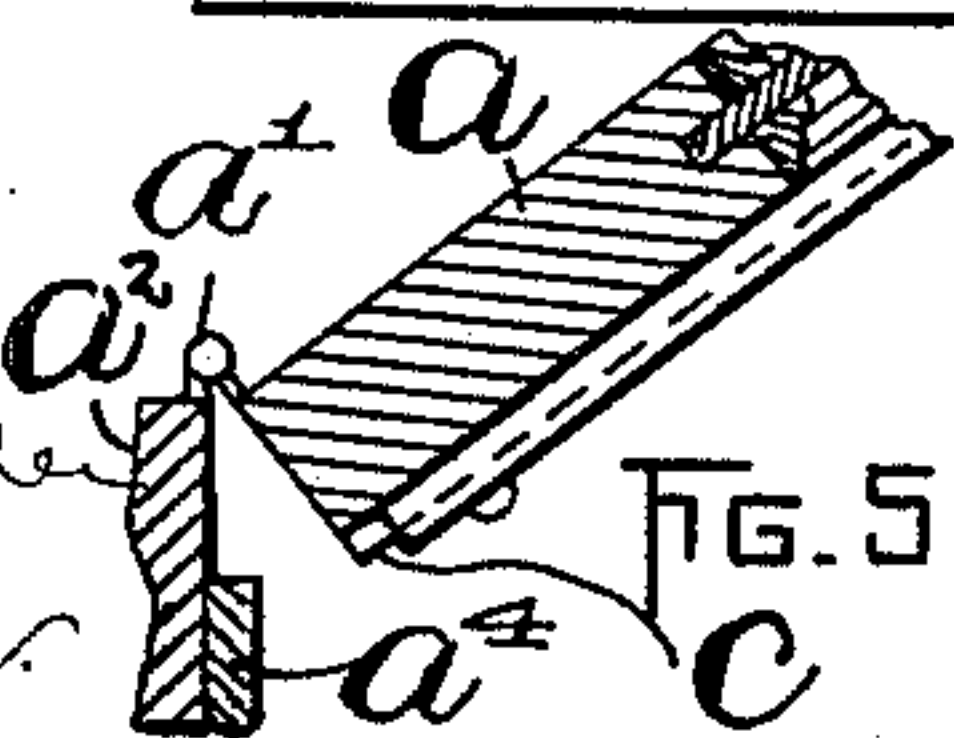


FIG. 4.



WITNESSES:

E. D. Scheldt
C. C. Stecher



INVENTOR:

George B. Grover
by
Wright Brown & Quincy
Assoc.

UNITED STATES PATENT OFFICE.

GEORGE B. GROVER, OF LYNN, MASSACHUSETTS.

WEATHER-STRIP.

SPECIFICATION forming part of Letters Patent No. 630,216, dated August 1, 1899.

Application filed September 6, 1898. Serial No. 690,273. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. GROVER, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Weather-Strips, of which the following is a specification.

This invention has relation to weather-strips, and has for its object to provide certain improvements in the same whereby they will not be affected by ice and snow, nor be exposed to the weather, nor offer any appreciable resistance in closing the door, and their general efficiency will be enhanced.

To these ends my invention consists of a weather-strip, of which one form is illustrated upon the drawings forming a part of this specification, and shall now be described in detail and finally pointed out in the claims hereunto appended.

Of the drawings, Figure 1 represents in front elevation the lower portion of a door to which my invention is attached. Fig. 2 represents an enlarged section taken on the line 2 2 of Fig. 3. Fig. 3 represents a section on the line 3 3 of Fig. 2, the strip being depressed and the door closed. Fig. 4 represents a similar view, the parts being shown in the positions occupied by them when the door is open. Figs. 5 and 6 represent sectional views illustrating the operation of the device.

Upon the drawings the door *a* is hung upon the hinges *a'* in the frame *a²* and swings over the sill *a³*. To the outer face of the door, at its lower edge, is secured what I shall term for distinction the "cap," it consisting of a strip *b*, through which the fastening-screws *b'* are passed into the door. This cap is rabbeted or cut away on its inner face to receive the movable strip *c*, which fits snugly between it and the door, as shown in Fig. 2, and which is adapted to move longitudinally and downward.

The strip *c* is provided with two or more (preferably three) cams *c'* *c'*, secured to its upper edge. These cams are preferably cast metal and are set in recesses provided for them in the strip *c*. Each has an inclined edge *c²* and fits in a socket *d*, secured in a recess in the cap-strip *b*. The sockets are provided with inclined edges *d'*, against which the edges *c²* bear, and they are held in place

by screws. (Shown in dotted lines in Fig. 3.)

By this arrangement it will be seen that when the weather-strip *c* is moved longitudinally in the direction of the arrow in Fig. 4 it will be forced downwardly into the position shown in Fig. 3. The cams and the sockets are so placed in their respective parts that their outer surfaces are flush with the faces of the cap-strip *d* and the weather-strip *c*.

For the purpose of normally holding the strip *c* in its raised position when the door is open I provide spiral springs *e*, each having one end attached to a stud or screw *e'* in the cap-strip and its other end attached to a similar stud or screw *e²* in the weather-strip. The bodies of these springs lie in inclined grooves or recesses formed in the two strips.

The strip *c* is rabbeted or recessed in its inner face to receive a strip of rubber *f*, whose lower edge projects slightly lower than the edge of the strip *c* and which is secured in place preferably by staples *f'* passed through it and through the weather-strip and having their ends clenched. When the door is open, the weather-strip *c* is drawn by the spring into the position illustrated in Figs. 4 and 5, the end of the strip *c* projecting slightly beyond the end of the cap-strip. When the door is closed, the said projecting end strikes against the strip *a⁴* on the door-frame and is forced longitudinally and downward to bring the rubber strip firmly into contact with the sill *a³*. By this arrangement I obtain a powerful leverage on the weather-strip, and the pressure against the end of the same is direct and not as though it struck against a wedging surface, the said strip being moved toward the free edge of the door. Where the sill is at all worn or where it does not extend beyond the inner face of the door, I provide an additional strip *g* and secure it to the floor beside the main sill, so as to receive the strip *f* when the weather-strip *c* is forced downwardly upon the closing of the door.

The lower edge of the cap-strip *b* is slightly beveled, and there is attached thereto a thin strip of steel or other suitable metal *h*, having a cutting or scraping edge *h'*.

It will be observed that the weather-strip is entirely concealed by the cap-strip and is so located in the recess of the same that it is not exposed to the weather. Even where the

weather-strip is depressed it is, by reason of its being secured on the inner face of the door, likewise protected from snow and rain. Consequently the life of the rubber is greatly
 5 prolonged. The cap and strip being constructed of wood are cheaply made, whereas the contacting parts or cams are formed of metal and are set in sockets therein, whereby the whole device is simple and durable. The
 10 cams and V-sockets guide the strip in an inclined rectilinear path, and hence the spiral springs, which are set in sockets in the strip and cap, are arranged parallel to said path of movement, whereby they exert their strain on
 15 the strip at the proper angle and in the said line or path of movement. By this arrangement the sockets for the springs are just wide enough to receive them and the movable parts cannot bind.

20 Where the strip, the cap, and the scraper are all connected, as shown and described, they form an organized weather-strip which is capable of being attached directly to any door without being specially fitted, and pre-
 25 sent an article of manufacture which may be sold ready for attachment.

I find the scraper *h* to be of great advantage in connection with the other parts of my invention, as it clears away whatever deposit
 30 or formation there may be of ice and snow to permit of the door closing and the proper operation of the movable strip *c*, and where ice and snow are encountered by this scraper there is no danger of its stripping the cap
 35 from the door, as the pressure tends to force said cap toward the door, and it is prevented from breaking by the weather-strip *c*, which receives the thrust. This inclined metallic scraper, being secured to the lower edge of
 40 the cap, is located with its operative edge normally below said strip, whereby when the door is closed the ice and snow are stripped or scraped from the door-sill.

The principal advantages of this weather-
 45 strip over the others heretofore proposed or employed are apparent without further comment, its simplicity, its small number of parts, and the ease with which it may be attached to a door by a person unskilled in the
 50 use of tools being among them.

While I have illustrated and described that form of my invention which I believe to be the best for all general purposes, yet it will be understood that I do not limit myself
 55 thereto, as the said invention may be embodied or expressed in other forms which will readily suggest themselves to those skilled in this art.

Having thus explained the nature of the

invention and described a way of construct- 60
 ing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

1. A weather-strip comprising a cap; a de- 65
 pressible strip or member normally concealed behind said cap; means interposed between said cap and said strip for guiding the strip downward against the door-frame; and a
 70 scraper secured to the lower edge of said cap, with its operative edge normally below the lower edge of said strip or member, whereby said scraper frees the door-frame from ice and snow upon closing the door.

2. A weather-strip comprising a cap re- 75
 cessed in its rear face and having provisions for attachment to a door; a depressible strip concealed in the recess in said cap; means in-
 80 terposed between the strip and the cap for guiding the strip downwardly when pressure is exerted against its end; an inclined metallic scraper secured to the lower edge of the said cap with its operative edge below the said strip; and a yielding flexible strip secured to
 85 said depressible strip.

3. A weather-strip comprising a cap re-
 cessed in its rear face and having provisions for attachment to a door; a depressible strip
 90 concealed in the recess in said cap, whereby when the cap is secured to the door the strip is held by the surface of the door and the rear face of the cap against lateral displacement; cams and sockets secured in recesses in said cap and strip for guiding the strip down-
 95 wardly in a rectilinear path; spiral springs arranged parallel to said path for normally holding the strip raised; an inclined metallic scraper secured to said cap with its opera-
 100 tive edge below said strip; and a yielding or flexible packing or strip secured to the lower portion of said depressible strip.

4. A weather-strip comprising a cap re-
 cessed in its rear face and having provisions for attachment to a door; a depressible strip
 105 concealed in the recess in said cap; metallic cams and V-sockets secured in apertures in said cap; spiral springs connecting said strip and cap; and a metallic scraper secured to the lower edge of said cap below said strip; in combination with a supplemental strip *g*,
 110 having provisions for attachment beside a door-sill, substantially as described.

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

GEORGE B. GROVER.

Witnesses:

C. C. STECHER,
 E. BATCHELDER.