

J. B. Gray.

Weather Strips.

N^o 37,749.

Patented Feb. 24, 1863.

Fig. 3

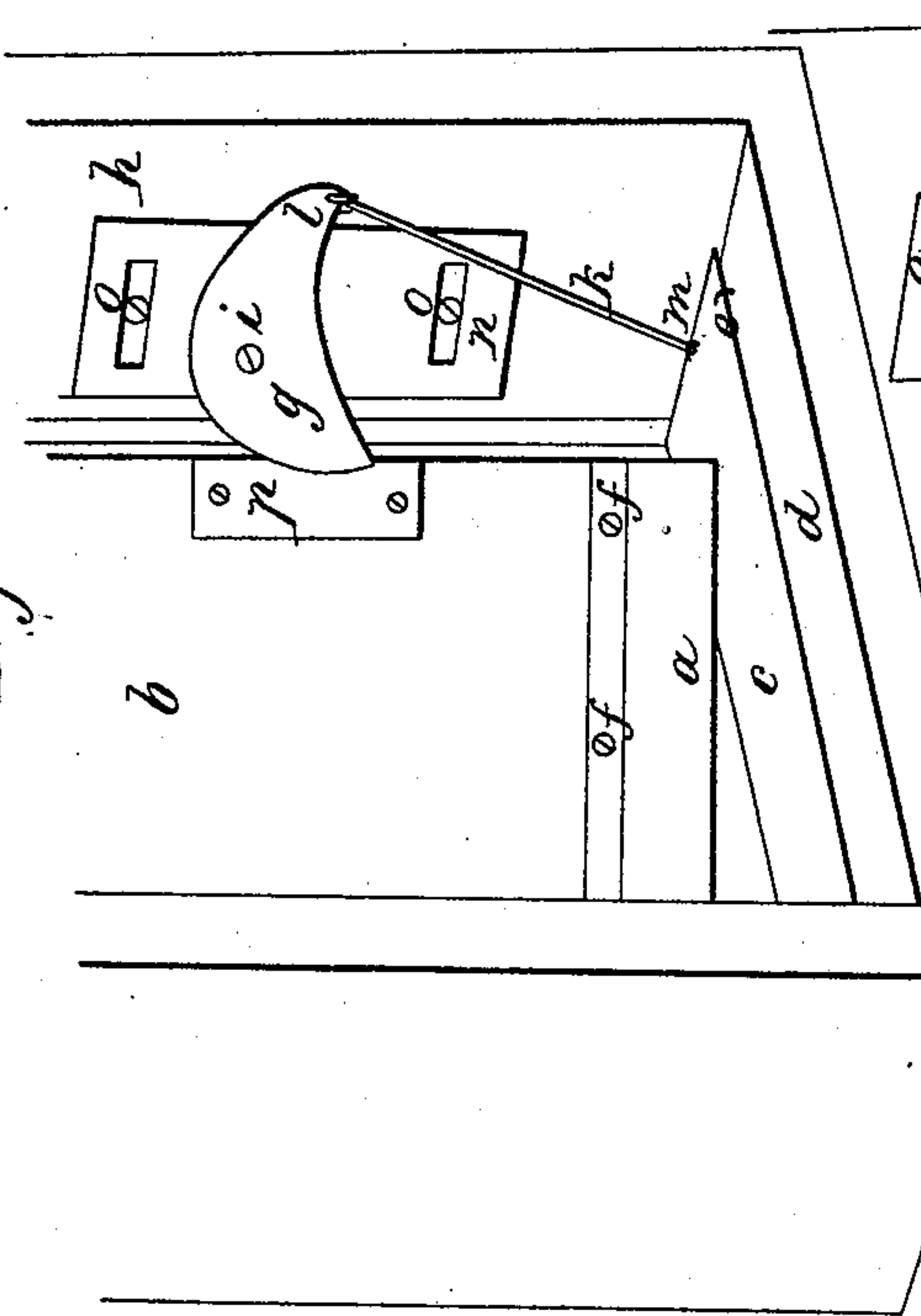


Fig. 4

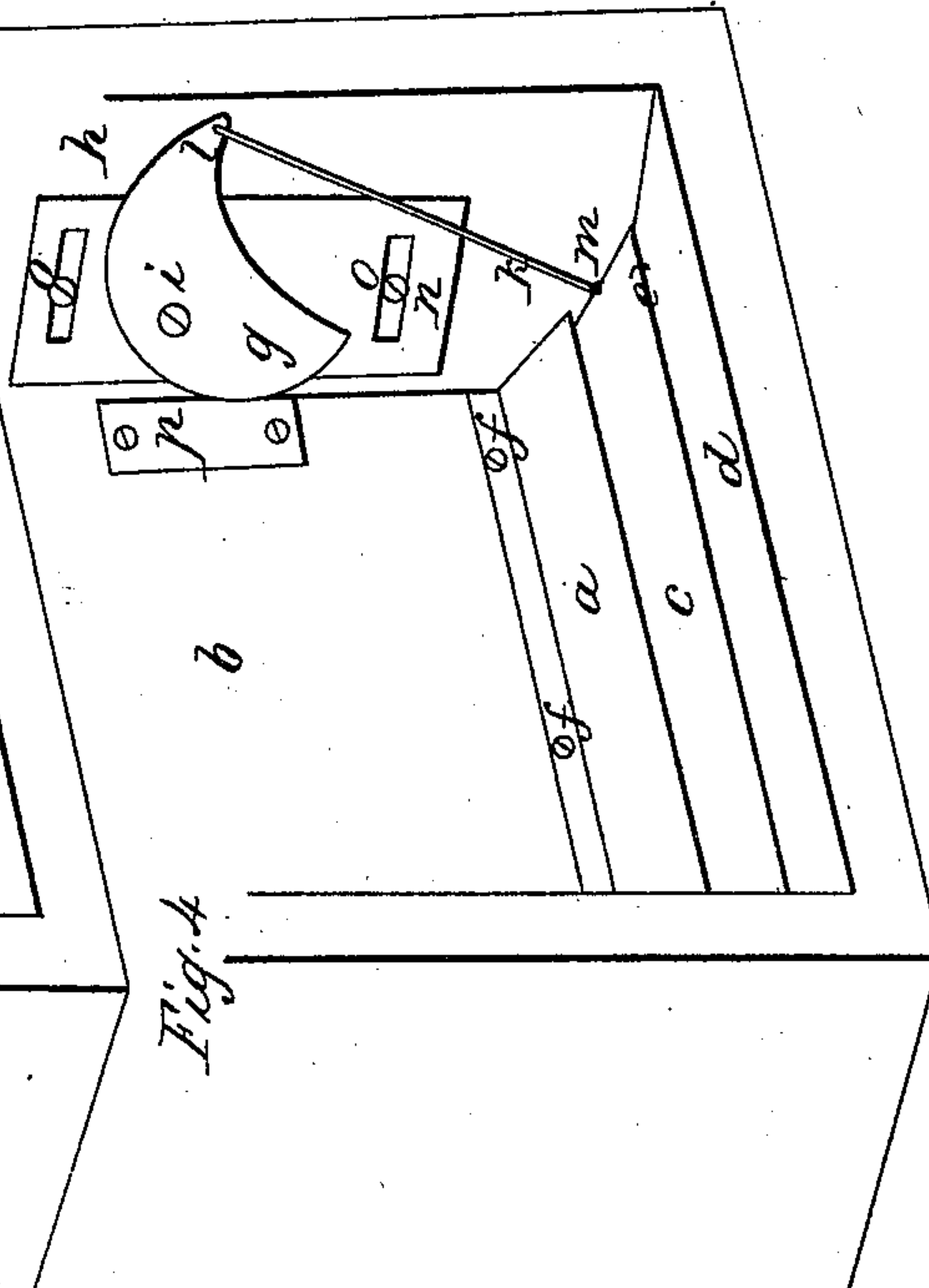


Fig. 1

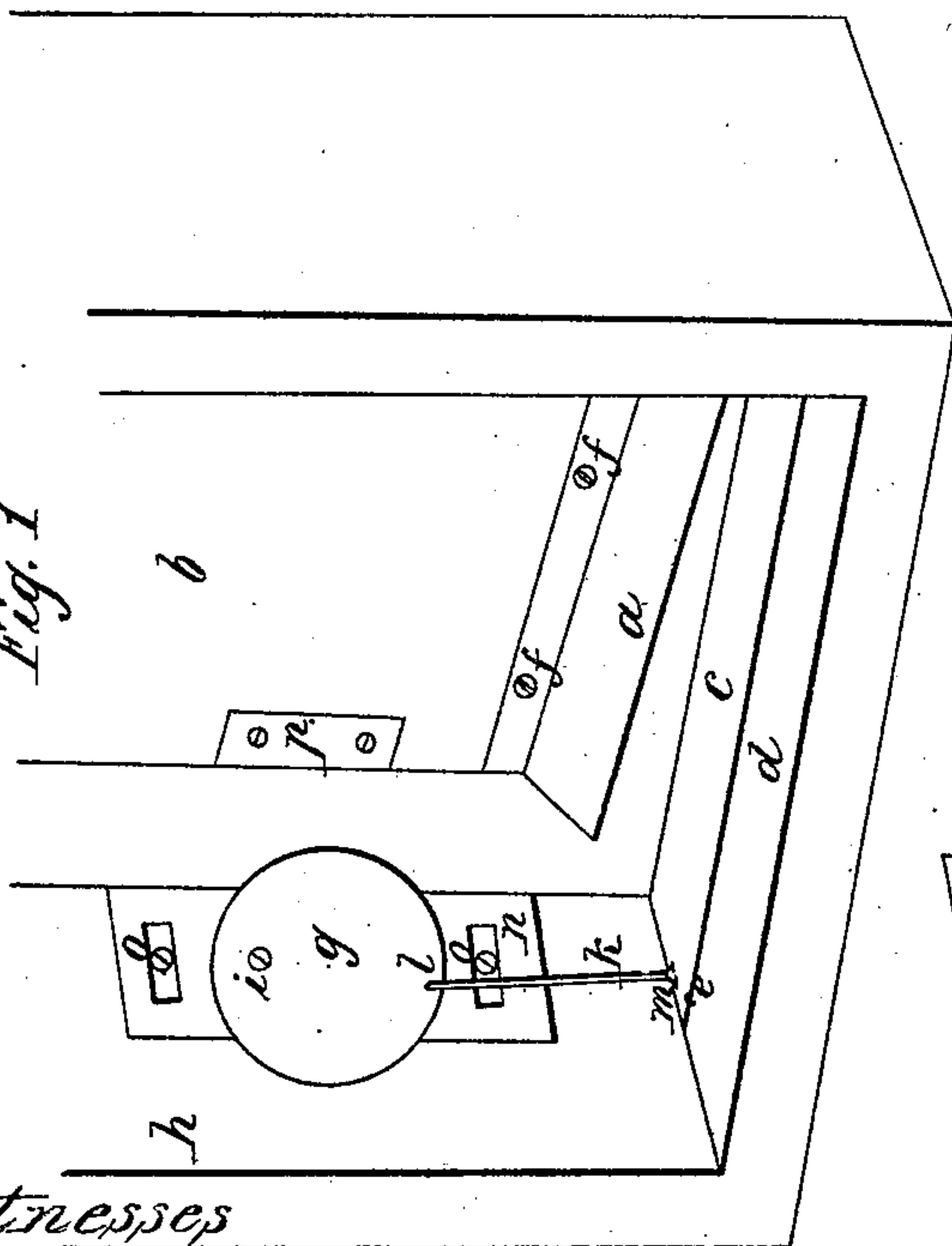
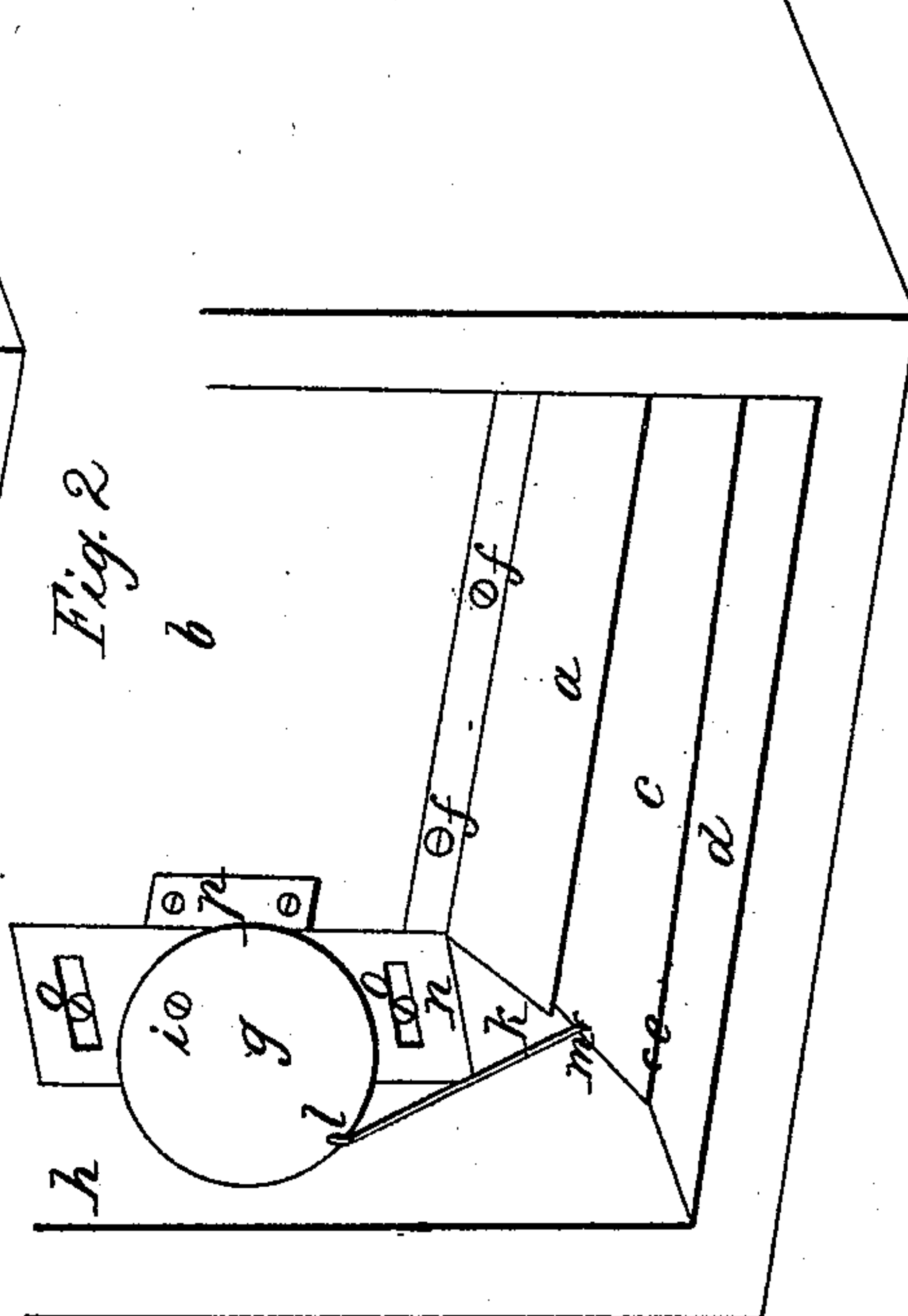


Fig. 2



Witnesses

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IMPROVEMENT IN MODE OF OPERATING WEATHER-STRIPS.

Specification forming part of Letters Patent No. 37,749, dated February 24, 1863.

To all whom it may concern:

Be it known that I, JAMES B. GRAY, of Hudson, in the county of St. Croix, in the State of Wisconsin, have invented a new and useful apparatus for operating weather-strips, to prevent water from running under the doors of and into houses; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification.

The weather-strips referred to consist of two strips or plates of iron, brass, or other metal—sometimes perhaps of wood—of a thickness of from one-sixteenth to one-fourth of an inch, and of a width of from one-half to three inches, and of a length equal to the distance between the jambs of the doorway in which they are to operate, of which strips one, the upper or door strip, (marked *a* in the several figures of said drawings, hereinafter explained,) is fastened, as in said drawings shown, to the door *b*, on the outside, by screws, near the upper edge of the strip, and just below the line of the fastening is bent along its whole length, to project out from the plane of the door and downward, at an angle which will shed water freely, the lower or projecting edge coming down about to the level of and parallel with the bottom line of the door. The other, that is, the lower or sill strip, (marked *c* in said drawings,) is attached, as therein shown, to the door-sill *d*, by small staples, as shown at *e*, one prong of which enters the sill through a hole in the strip, and the other prong enters the sill just outside of the strip, the staple and the hole through the strip being so adjusted as to admit of the strip's turning freely on the axis of its outer edge, at which it is so attached to the sill, the strip so attached lying, when the door is open, flat on the sill, at a place which, when the other or inner edge of the strip is turned upward by the operation of said apparatus, will admit of that edge meeting and being overlapped by the projecting edge of the upper or door strip, the door being closed.

In the accompanying drawings, Figure 1 shows in perspective the lower portion of an ordinary outside door and doorway, presenting to view (from the outside) that side of the door to which the handle or latch is attached,

and the jamb which that side of the door meets in closing, and the portion of the door-sill being on the same side with that jamb and outside of the perpendicular plane of the closed door. In that figure the door *b* is represented as open, and having such upper or door-strip, *a*, fastened to it with screws (as at *f*) in the manner above described. The lower or sill strip, *c*, is shown lying flat on the sill *d*, and attached thereto by staples (as at *e*) in the manner above described. The eccentric *g* is a circular plate, but may be of other different shapes, of brass, copper, or other metal, and may be made of other substances, as wood, of sufficient thickness to prevent its being bent by the action of the door closing against it, and is hung to the jamb *h* on a pivot, as at *i*, on which it turns freely, the plane surfaces of the eccentric and the jamb being parallel. The eccentric is so hung far enough above the sill so that it will not be in the way of the lower strip turning up, and may be hung at any higher altitude on the jamb, and must be hung so that a segment of it will, (as shown in Fig. 1,) when the door is open, project in-doorward beyond that part of the jamb against which the door strikes in closing. The eccentric is connected with the lower or sill strip by the wire *k*, looped or fastened into the bottom of the eccentric, as at *l*, and into the end of said strip, as at *m*, and is so fastened to the strip at a sufficient distance from its inner or doorward edge, at least so as not to interfere with the lapping sufficiently of the upper strip onto the lower when the door is closed. The projection, as aforesaid, of a segment of the eccentric must be such that, (given the point on the eccentric to which one end, and given the point on the sill-strip to which the other end, of the wire is attached,) when the farthest point of projection is pushed down flush with the part of the jamb against which the door strikes, the point at which the wire is attached to the eccentric will be carried far enough to turn up by means of the connecting-wire, the sill-strip (turning on the axis of its outer edge) far enough for it to meet the door or upper strip on its under side as the door closes. The eccentric may vary in size; for practical purposes, may have its longest radius from one to four inches in length. Between the eccentric and the wood-work or other material of the jamb

is a thin metal plate, *n*, intended to serve the purpose of a washer, to protect the material of the jamb from the abrasion resulting from the motion of the eccentric. This washer, of course, is not essential to the working of the eccentric, but extending the washer so that it will reach above and below the eccentric, as shown in the figure, and having the washer pierced for a screw wherewith to screw it onto the jamb, as shown at *o*, the hole so pierced being elongated, so that after the washer is screwed to the jamb it may be loosened by a turn of the screws, so as to admit of the washer sliding, and thus regulating the projection (above referred to) of the eccentric. The eccentric in such case being pivoted onto the washer only, we have a valuable adjunct to the other machinery. The guard *P* is a thin plate of metal fastened onto the door at the point where in closing it would strike the eccentric, and is so fastened to the door to prevent the abrasion or indentation of the door by its action against the eccentric. When the door *b* is being closed, it strikes against the eccentric *g* at the point of its farthest projection, as aforesaid, causing the eccentric to turn from the door on the pivot *i* until that point is brought down flush with that part of the jamb *h* against which the door strikes in closing, and thus the point *l*, to which the wire *k* is attached on the eccentric, moves in the direction opposite the door and upward, so as, by means of the wire, to turn the sill-strip *c* on the axis of its outer edge (which edge is held close to the sill *d* by the staples *e*) until the other or indoorward edge of that strip meets the other or door-strip at its under side, as the door is closed, the upper strip laps over the under one, and in this position the strips remain while the door is closed, and in this position the strips are shown in Fig. 2, which is a perspective view of a door closed, showing the same parts of a door and doorway, door sill and jamb, and all the above-mentioned appliances and apparatus attached thereto, which are shown in Fig. 1, the same letters showing the same parts, pieces, and things in all the figures of the drawings. Fig. 2 shows also the position of the eccentric *g* and the wire *k* when the door is closed. When the door is opened, thus removing the pressure thereof from the eccentric, the latter falls back, projecting again, as shown in Fig. 1, beyond that part of the jamb against which the door strikes in closing, and the sill-strip falls flat on the sill.

In Fig. 3 the hinge side of a door, doorway, sill, and jamb is shown in perspective, with the strips, upper and lower, attached as above described, the door being represented as open, and the eccentric *g*, wire *k*, and washer *n* and guard *p* being shown as attached on that side in the same manner and occupying the same relative positions and performing the same offices or serving the same purposes, as shown in Fig. 1 and above described, as to the other side, except that in Fig. 3 the eccentric is shown as of a semicircular or crescent shape,

and the wire is attached to the eccentric at a point which will have the farthest perpendicular motion when the part of the eccentric which projects beyond that part of the jamb against which the door closes is pressed down flush with the edge of that part of the jamb as the door closes. The wire, being attached to that point of the eccentric, might, if the latter were circular, interfere with it in its motion upward; also, the eccentric, when attached to that side of the jamb—that is to say, to the jamb on the hinge side of the doorway—should be beveled on the edge against which the door strikes, on the side toward the jamb, so as to slide more easily or with less friction against the guard or the door when the latter is closing, and would be advantageously made with that edge considerably thicker than is necessary for an eccentric on the other jamb, so that it may collide with the door at a point as far as practicable from the hinge side, as increasing the distance between that point of collision and the hinge side of the door increases the motion of the eccentric. The sill-strip is raised or turned on the axis of its outer edge in the same manner by the pressure of the door (in closing) against the eccentric when the same is on the hinge-jamb as by the eccentric on the other jamb, as above described, the sill-strip meeting in the manner hereinbefore described the door-strip at its under side, and being overlapped by it, as shown in Fig. 4, which is a perspective view of the same portions of a door, doorway, door-sill, and jamb, and of all the apparatus and appliances thereto above mentioned, as is shown in Fig. 3, but showing the door closed and the lower strip raised to meet the upper strip, as aforesaid, which laps over the lower one, and showing the eccentric turned and pushed out by the striking of the door against it, so that the point which, when the door is open, projects farthest in the manner and direction aforesaid is, with the door shut, flush with that part of the jamb against which the door closes, and showing the point on the eccentric at which the wire is attached so elevated as, by means of the wire connection, to turn up sufficiently the sill-strip. This wire should be firm and stiff enough so that when the door being open the sill-strip falls flat on the sill, as shown in Fig. 3, the wire will support that part of the eccentric to which it is attached, and thus keep the eccentric properly projected, as in Fig. 3. The eccentric applied and adjusted so, as aforesaid, for operation on the hinge-jamb only, or for operation on the opposite jamb only, as shown in the former case in Fig. 3, and in the latter case in Fig. 1, will, in either case, accomplish its office and purpose of bringing up the lower strip to meet the upper one, as aforesaid, without the aid of the other apparatus on the other jamb, but with each apparatus working on its appropriate side the lower strip will be less liable to sag in time at one end, as it might by use at the end next to the jamb having no apparatus at-

tached; and the apparatus can be used and adjusted only on the hinge side and jamb in the case of double doors opening in the middle and swinging back each way.

What I claim as my invention is—

1. The combination of the eccentric *g*, whether used on one or the other or both jambs of the doorway, with the strips *c* and *a*, by

means of the rod or wire *k*, substantially as and for the purposes hereinbefore set forth.

2. The washer *n*, in combination with the eccentric *g*, made, constructed, and used as and for the purposes herein set forth.

Witnesses: JAMES B. GRAY.

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