

No. 715,619.

Patented Dec. 9, 1902.

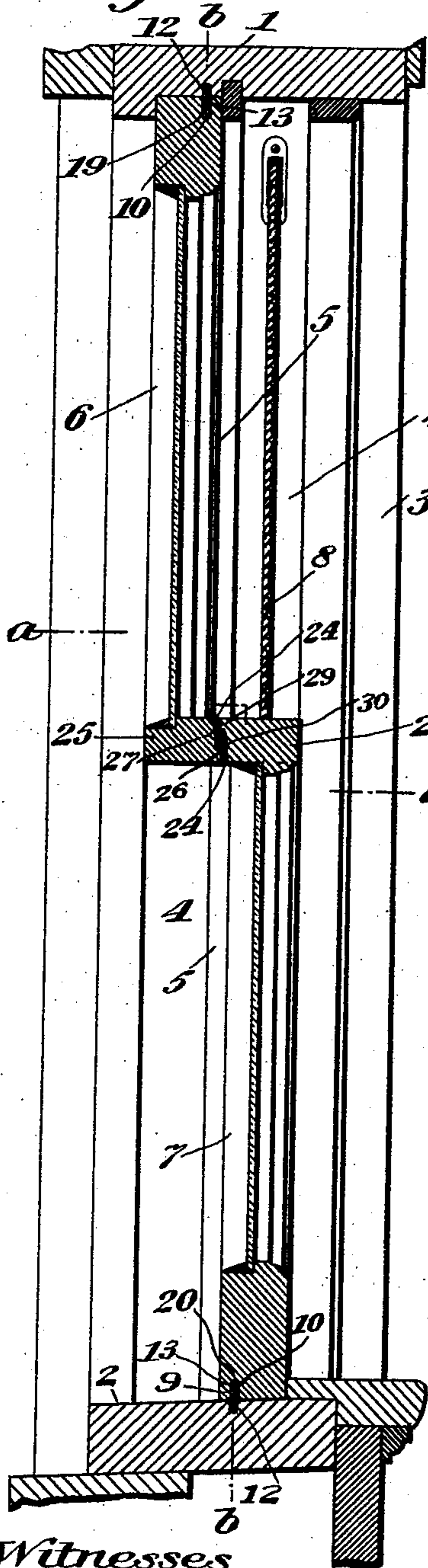
M. B. STANFIELD.
WEATHER STRIP.

(Application filed Mar. 24, 1902.)

(No Model.)

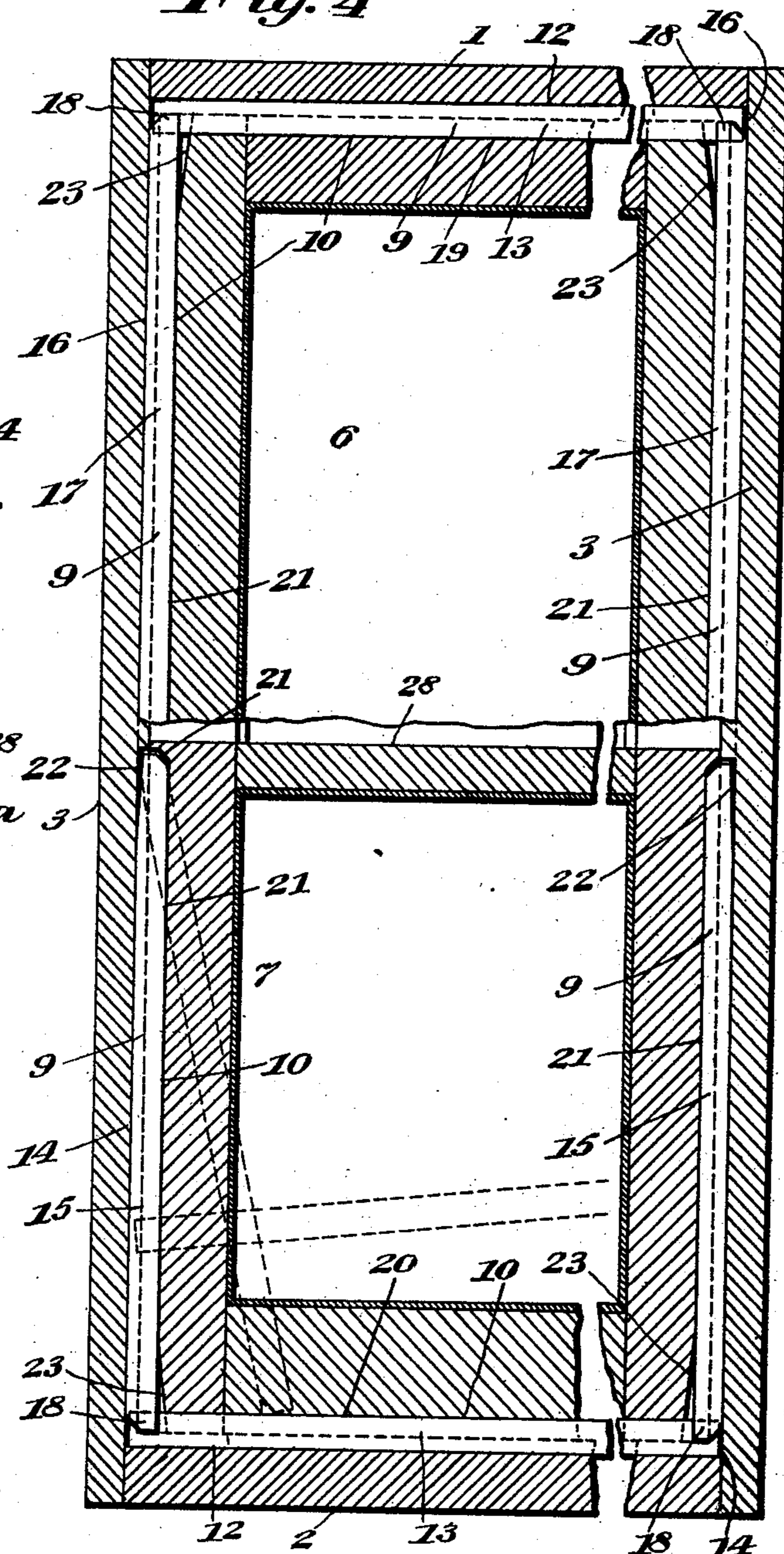
2 Sheets—Sheet 1.

Fig. 1



Witnesses
J. D. Thome
L. M. Jones

Fig. 4



Inventor
Melville B. Stanfield,
by John Elias Jones,
his attorney.

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2 Sheets—Sheet 2.

Fig. 3

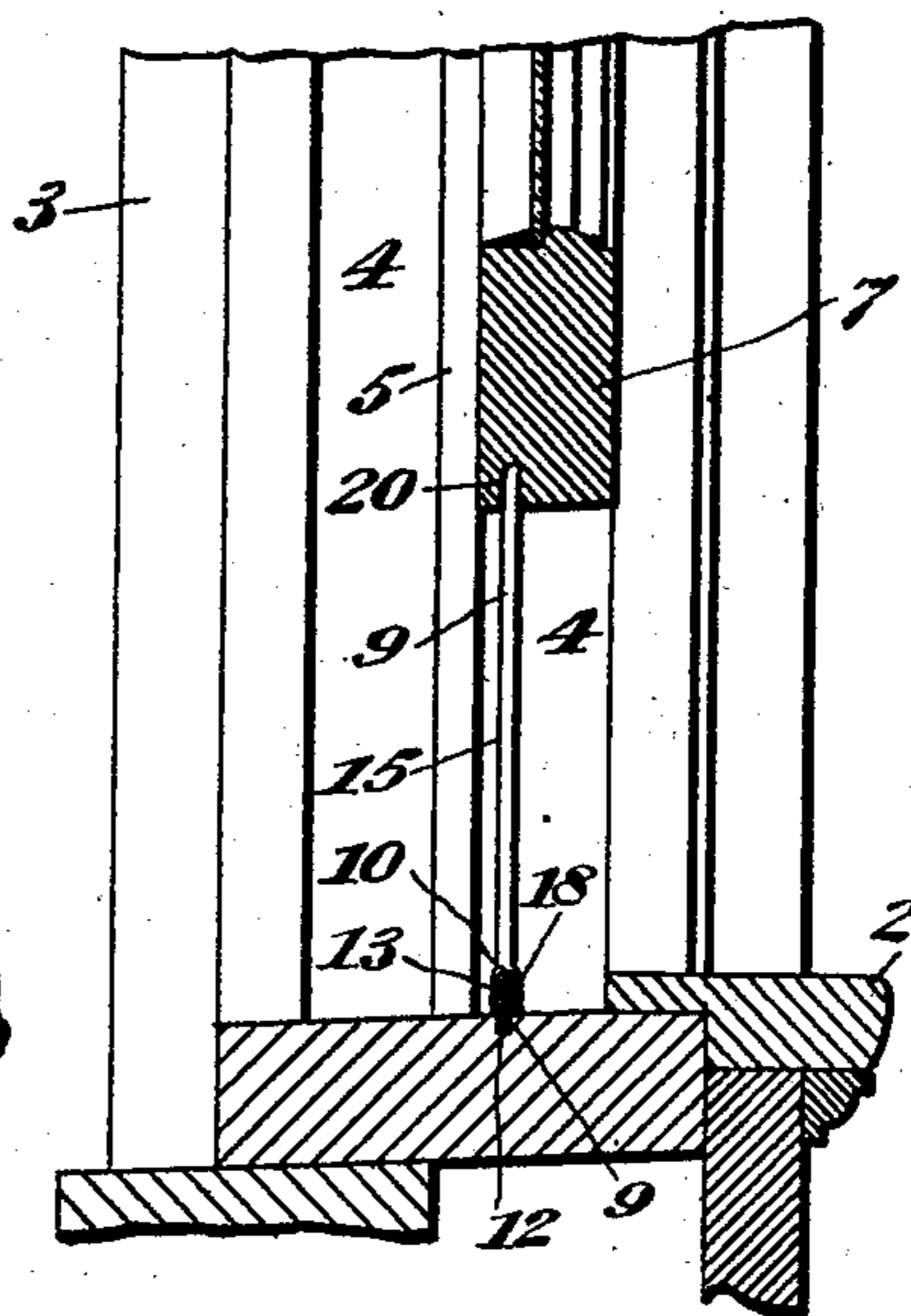


Fig. 2

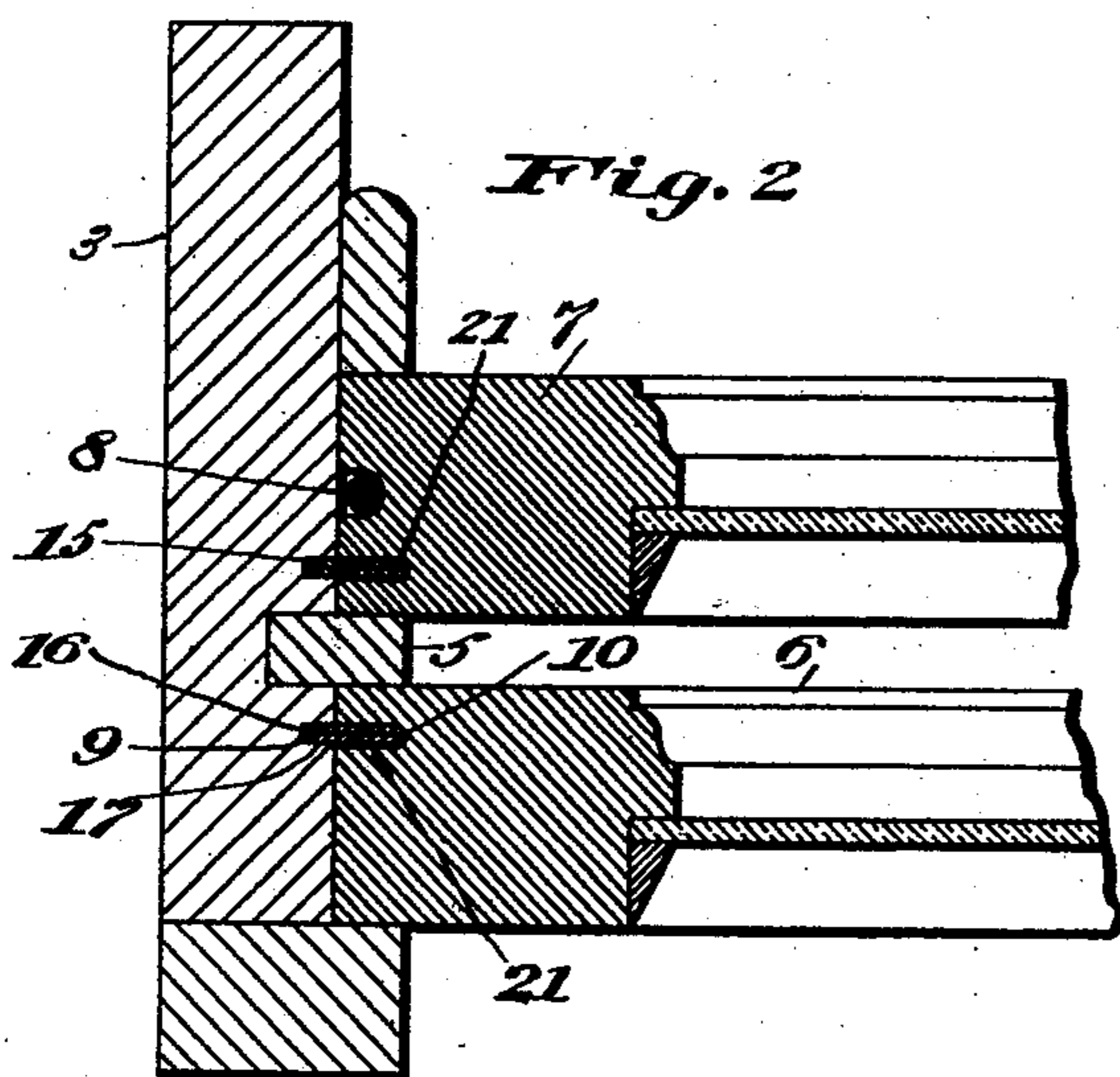


Fig. 5

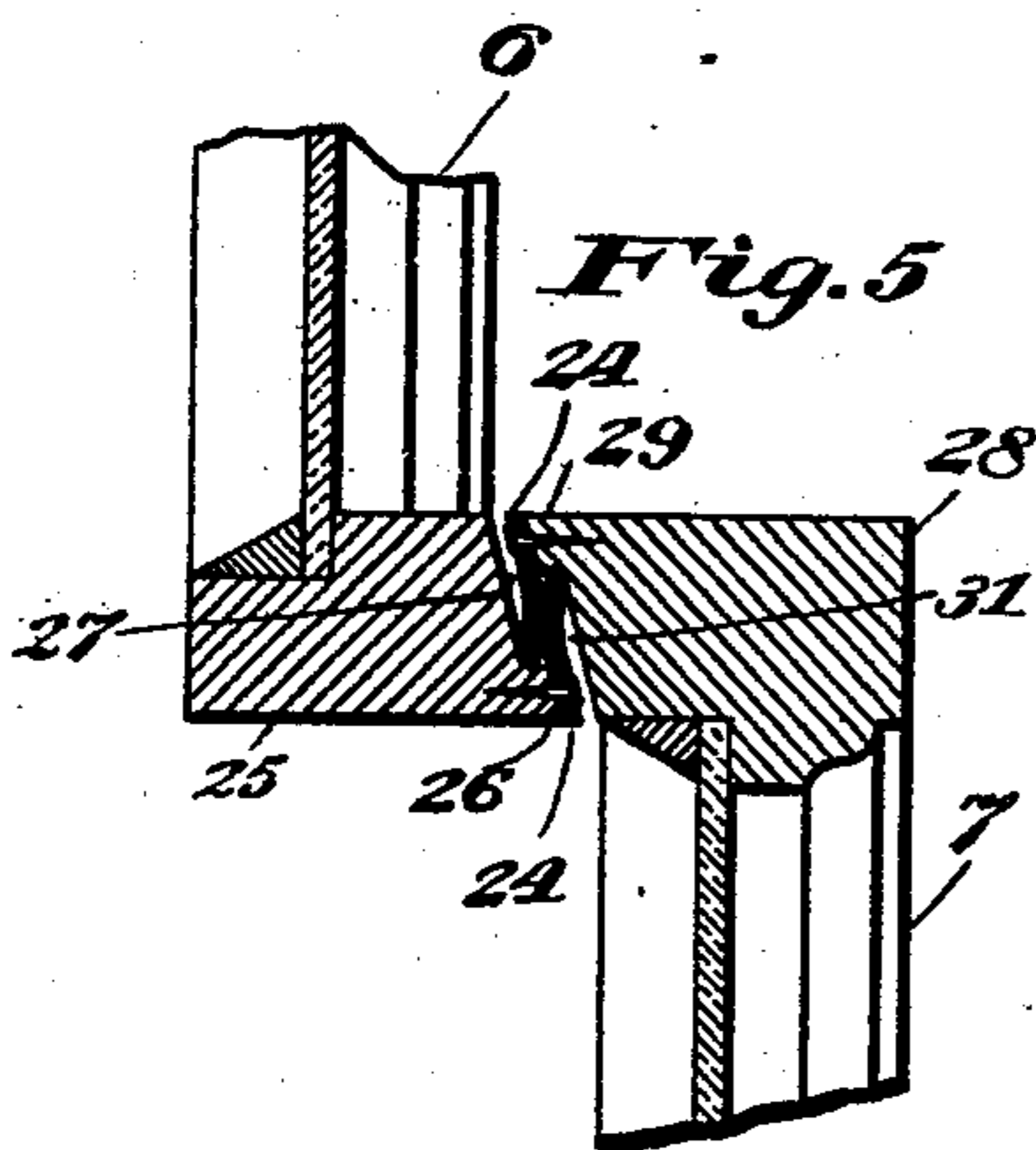


Fig. 6

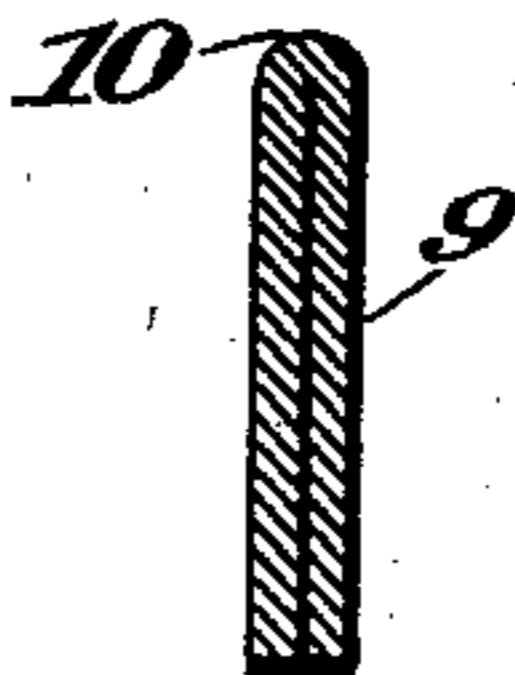
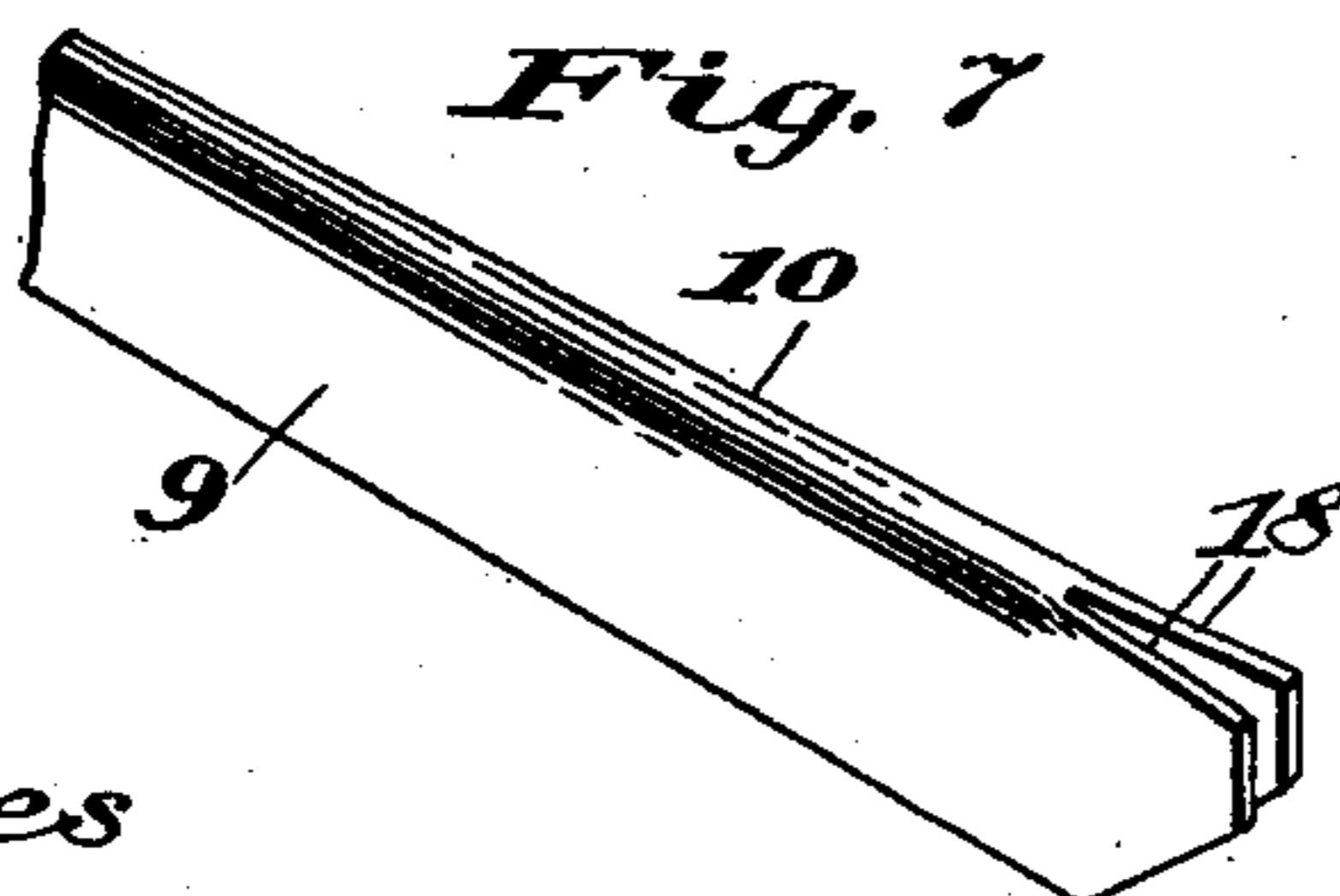


Fig. 8



Fig. 7



Witnesses

J. H. House

L. M. Jones

Inverdor

Melville B. Stansfield
by John Elias Jones,
his attorney.

UNITED STATES PATENT OFFICE.

MELVILLE B. STANFIELD, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF
TO THOMAS K. CHRISTIE, OF CINCINNATI, OHIO.

WEATHER-STRIP.

SPECIFICATION forming part of Letters Patent No. 715,619, dated December 9, 1902.

Application filed March 24, 1902. Serial No. 99,769. (No model.)

To all whom it may concern:

Be it known that I, MELVILLE B. STANFIELD, a citizen of the United States of America, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Weather-Strips, of which the following is a specification.

This invention relates to certain improvements in weather-strips, and more especially that class of weather-strips which are designed for use in connection with sliding window-sashes; and the object of the invention is to provide a weather-strip of this general character of a simple and inexpensive nature and of a light and durable construction adapted to produce a tight joint between the edges of the sash and the window-frame or casing to prevent the passage of air or dust between the sash and frame.

The invention consists in certain novel features of the construction, combination, and arrangement of the several parts of the improved weather-strip whereby certain important advantages are attained and the device is made simpler, cheaper, and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In the accompanying drawings, Figure 1 is a sectional view taken vertically through a sash-frame having my improved weather-strip applied thereto. Fig. 2 is a transverse section through one edge of the sash and casing in the plane of line *a a* in Fig. 1. Fig. 3 is a partial sectional view similar to Fig. 1, but showing the lower sash in partially-raised position. Fig. 4 is a vertical section through the sash and frame in the plane of line *b b* in Fig. 1. Fig. 5 is a sectional view taken through the meeting-rails of the sashes. Fig. 6 is a sectional view through a piece of the improved weather-strip, showing the preferred construction thereof. Fig. 7 is a partial view of one of the lengths of the weather-strip, showing the forked end thereof. Fig. 8 is a sectional view similar to Fig. 6 and showing a modified construction of the improved weather-strip.

In the views 1 and 2 represent, respectively,

the head and sill of the window-frame to which the improved weather-strip is applied, and 3 3 indicate the casings at the sides of the frame, these latter having the usual grooved guideways 4 4 for the sash formed upon opposite sides of the parting-strip 5.

6 and 7 indicate, respectively, the upper and lower sashes arranged to slide in the guideways 4 4 of the window-casings.

8 8 represent the sash-cords of the sashes.

The improved weather-strip is constructed from thin sheet metal, the preferred construction being shown in cross-section in Fig. 6, the sheet metal being in the form of an elongated strip 9, folded over upon itself, so as to give it a double thickness, whereby one edge of said folded or two-ply strip is made smooth and rounded, as shown at 10 in the drawings, without requiring any finishing to remove rough edges from the strip. In some cases, however, a strip 11 of single thickness of metal may be employed, as indicated in Fig. 8 of the drawings.

In applying the improved weather-strip to the window the metal strip 9 is cut into suitable lengths to extend along the head and sill of the window-frame and also along the sides of the sash, and one edge of each length of such weather-strip is held in a groove or kerf produced in that part of the window-frame along which it is extended, while the opposite edge portion of such length of the improved weather-strip is permitted to project above or beyond the surface of the window-frame in position to extend across and bridge over the space or crack between the frame and the sash and to be engaged within a groove or saw-kerf produced in the edge portion of the sash itself.

12 12 represent the kerfs or grooves produced in the head and sill of the window-frame to receive the corresponding lengths or sections 13 13 of the improved weather-strip 9, and said kerfs or grooves are of a width or breadth adapted to snugly receive the lengths or sections 13, so that when said lengths or sections are forcibly pressed into the grooves or kerfs they will be retained therein without additional fastening or holding means, although, if desired, such additional fastening or holding means may be

provided as well. The depth of each groove or kerf will preferably be sufficient to receive and house about half the width of the improved weather-strip 9, the other half of the width of said weather-strip being permitted to project freely above or beyond the surface of the window-frame, at a right angle thereto, in position to be engaged in a groove or kerf produced in the corresponding edge portion of the sash.

14 14 indicate the kerfs or grooves produced in the guideways 4 of the casings in which the lower sash 7 is adapted for movement, and 15 15 indicate the lengths or sections of the improved weather-strip 9, which are held in said kerfs or grooves in a way similar to that described with respect to the lengths or sections 13 13 at the head and sill of the window-frame.

16 16 represent the kerfs or grooves in the guideway for the upper sash, and 17 17 represent the lengths or sections of weather-strip held in these kerfs or grooves.

The lengths or sections 15 and 17 of weather-strip are of course extended parallel with the direction of movement of the respective sashes along their guideways 4 4, and the sections or lengths 15 15 for the lower sash are alined and extended in the same plane with the length or section 13 of weather-strip at the sill of the window-frame, while the lengths or sections 17 17 for the upper sash are alined and extended in the same plane with the section of weather-strip at the head of the window-frame.

The lengths or sections 13 13 of weather-strip at the head and sill of the window-frame are made somewhat longer than the space between the casings 3 3, in which the sashes play, so that the end portions of said lengths or sections, as shown in Fig. 4, are extended into the extremities of the kerfs or grooves for the vertically-extended lengths or sections 15 and 17. In placing the lengths or sections 13 13 in position in their kerfs or grooves it will in consequence of this excessive length be necessary to first cant them at an angle, as shown in dotted lines in Fig. 4, to permit their ends to be engaged in the kerfs 14 and 16, after which they may be slipped into their own kerfs or grooves 12 in the head and sill of the window-frame.

The lengths or sections 15 and 17 of the improved weather-strip which are carried by the casings 3 3 of the window-frame are slightly greater in length than the extent of movement of the sashes, so that when the respective sashes are opened to their extreme positions one end of each of said lengths or sections 15 and 17 will be held against displacement from its kerf or groove by being engaged between the sash and casing. The opposite or upper and lower ends, respectively, of the lengths or sections 17 and 15, have their two plies or thicknesses slightly separated from each other by slits extended up or along their rounded outer edges 10, so that forks

are produced upon the ends of said lengths or sections, as indicated at 18, and these forks are engaged upon opposite sides of the adjacent lengths or sections 13 13 at the head and sill of the window-frame in such a way as to insure against accidental displacement of the lower and upper ends of the vertical sections or lengths 15 and 17 and also to prevent removal of the horizontal lengths or sections 13 of the weather-strip until after the said vertical lengths or sections shall have been first removed from their kerfs or grooves.

The upper rail of the upper sash 6 of the window is provided with a kerf or groove 19, extended along it in alinement with the length or section 13, carried upon the head of the window-frame, and the projecting portion of said section or length 13 is adapted, when said upper sash is pushed to its uppermost position, to be received into said kerf or groove 19 and to fit snugly but not tightly therein. The lower rail of the lower sash 7 of the window is also provided with a similar groove or kerf 20 to receive the projecting portion of the section or length 13 of weather-strip upon the sill of the window-frame when the said lower sash is in its lowered position. The sides of each sash 6 and 7 are also provided with vertical grooves or kerfs 21 21, in which the projecting portions of the vertical lengths or sections 17 and 15 upon the casings are received in a similar way. By this arrangement of the improved weather-strip it will be seen that the several lengths or sections thereof are so arranged as to extend over and bridge across the intervals or spaces between the sash and the several parts of the window-frame, so that the passage of air or dust through the spaces between the parts is prevented altogether. It will also be seen that the several lengths or sections of the weather-strip being arranged to fit snugly into the grooves or kerfs in the sashes form an efficient antirattler to prevent rattling of the sashes in the window-frame and at the same time interfere in no way with the ready and convenient movement of the sashes. Also, since the several lengths or sections of the weather-strip are made to project from the casing and head and sill of the window-frame, there is no liability of accumulations of dirt or dust affecting the operation of the device in any way, there being no crevices in the frame in which such dust or dirt may accumulate.

In applying the vertical lengths or sections 15 and 17 of the improved weather-strip to their kerfs or grooves the sashes will be first slid along their guideways to extreme opened positions, and then one end of each section will be inserted and pushed into the coincident grooves or kerfs of the casing and sash until the lower end of such section or length is adapted to be engaged with its forks on opposite sides of the corresponding section or length 13 at the head or sill of the window-frame. The vertical length is then pushed

over from an inclined position, as shown in dotted lines in Fig. 4, to a vertical position, as shown in full lines in said figure, the said section or length when in its vertical position being properly engaged and held in its corresponding kerf or groove of the casing 3. To permit ready introduction of these vertical lengths or sections of the weather-strip in their grooves or kerfs, their ends may be cut away or beveled on their edges next the casing 3, as shown at 22 in Fig. 4, and for a similar purpose the kerfs or grooves in the sashes may be made deeper at the upper and lower rails of the respective upper and lower sashes, as indicated at 23 in Fig. 4. The grooves or kerfs 21 in the sides or stiles of the sashes are not produced exactly at the central portions of said sides or stiles, as in such an event they would interfere with the sash-cords 8 and the fastenings thereof. The said grooves or kerfs 21 are therefore produced in the edges of the sash-stiles at about midway between the sash-cords and the adjacent surfaces of the parting-strip or bead 5, as shown in Fig. 2.

To close the space or interval between the meeting-rails of the sashes 6 and 7, each such rail is provided with a length or section 24 of weather-strip preferably, also, of the construction shown in detail in Fig. 5. The lower part of the meeting-rail 25 of the upper sash 6 is formed with an overhanging part or offset 26, to which the lower portion of the section or length 24 of weather-strip for that sash is secured, by means of nails or the like, with its upper edge extended above such offset, so that a recess 27 is produced between said upwardly-extended part of the length or section 24 and the front face of the said rail 25, as shown in Fig. 1. The rail 28 of the lower sash 7 is provided with an offset or projecting part 29 along its upper portion, and to said offset is nailed or otherwise secured the upper edge portion of the section or length 24 of weather-strip for that sash, with its lower edge portion extended below said offset 29 and separated by a recess 31 from the rear side of said rail 28, in which recess 31 the upper edge portion of the section or length 24 of the upper sash is engaged when the sashes are in closed position, the lower edge portion of the section or length 24 of weather-strip for the lower sash being in this position of the parts engaged in the recess between the rail of sash 6 and the length 24 of weather-strip carried thereon. The sections or lengths 24 of weather-strip are bent or curved so as to permit them to readily play one over the other in the movement of the sashes.

From the above description it will be seen that the improved weather-strip constructed according to my invention is of an extremely simple and inexpensive nature and is especially well adapted for use, since it effectually closes the crevices and cracks between the window frame and sashes and prevents the entry of dust and cold air. The device

is furthermore very easy of application to the window and when in position requires no special fastenings, since the several lengths or sections of the weather-strip by interlocking with each other at the angles of the window-frame effectually hold each other in position without the employment of extraneous fastening or securing devices. The device is also of such a nature as not to be readily deranged or liable to become broken when in use and does not mar or spoil the appearance of the window in any way. It will also be obvious from the above description that the device is capable of some modification without material departure from the principles and spirit of the invention, and for this reason I do not wish to be understood as limiting myself to the precise form and arrangement of the several parts as herein set forth in carrying out my improvements in practice.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of a window-frame having horizontal and vertical portions, a sash mounted for sliding movement in said window-frame and having its stiles and one of its rails formed with correspondingly-arranged grooves or kerfs, lengths or sections of weather-strip each formed from a strip of metal bent or folded upon itself to produce two plies, said lengths or sections being extended along the vertical portions of the window-frame with edge portions engaged in the grooves or kerfs of the sash-stiles, and a section or length of weather-strip extended along one of the horizontal portions of the window-frame with an edge portion for engagement in the groove or kerf of the sash-rail, the two plies of each of the vertically-arranged lengths or sections being separated to produce forks at the extremities of said lengths or sections and said forks being engaged upon opposite sides of the end of said horizontally-arranged length or section to hold the sections in relation, substantially as set forth.

2. The combination of a window-frame having vertical portions provided with grooves or kerfs, a sash mounted for sliding movement in the frame and having stiles provided with grooves or kerfs coincident with the grooves or kerfs in the frame, and lengths or sections of flat metallic weather-strip extended along the vertical portions of the frame with edge portions engaged in the grooves or kerfs thereof and their opposite edge portions engaged in the grooves or kerfs of the sash-stiles, the grooves or kerfs in the sash-stiles being each made of greater depth at one end than at the other to permit removal of the weather-strip sections when the sash is moved to open position, substantially as set forth.

3. The combination of a window-frame having vertical portions provided with grooves or kerfs, a sash mounted to slide in the frame and having stiles formed with grooves or kerfs

coincident with the grooves or kerfs in the
frame, and lengths or sections of flat metallic
weather-strip extended along the vertical por-
tions of the frame with edge portions in the
5 grooves or kerfs thereof and other edge por-
tions in the grooves or kerfs of the sash-stiles,
each of said weather-strip sections being made
at one end tapered to permit ready removal

thereof when the sash is moved to open posi-
tion, substantially as set forth. 10

Signed at Cincinnati, Ohio, this 20th day of
March, 1902.

MELVILLE B. STANFIELD.

Witnesses:

THOS. K. CHRISTIE,
JOHN ELIAS JONES.