

No. 741,415.

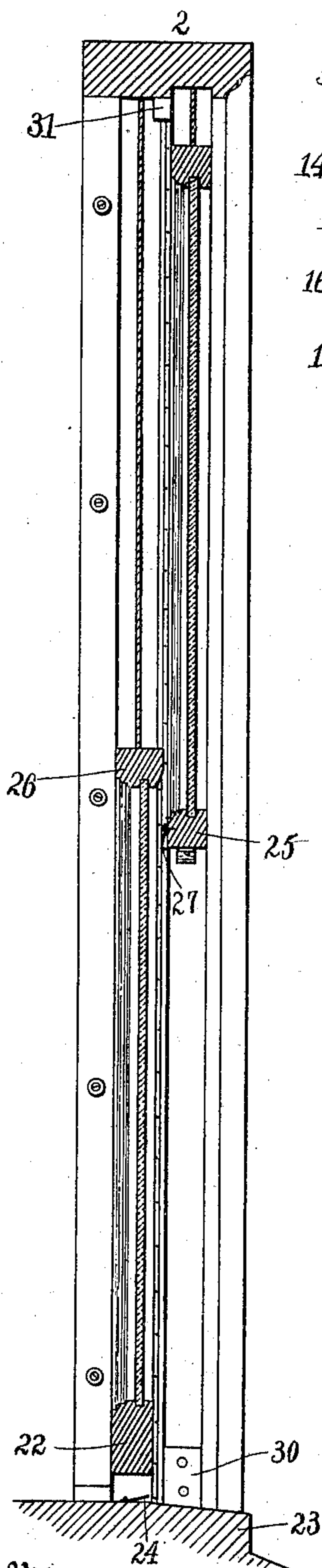
PATENTED OCT. 13, 1903.

J. F. SCHUPP.
WEATHER STRIP FOR WINDOW SASHES.

APPLICATION FILED MAY 25, 1903.

NO MODEL.

FIG. 1.



Witnesses
Rehman
Chas. W. King

FIG. 2.

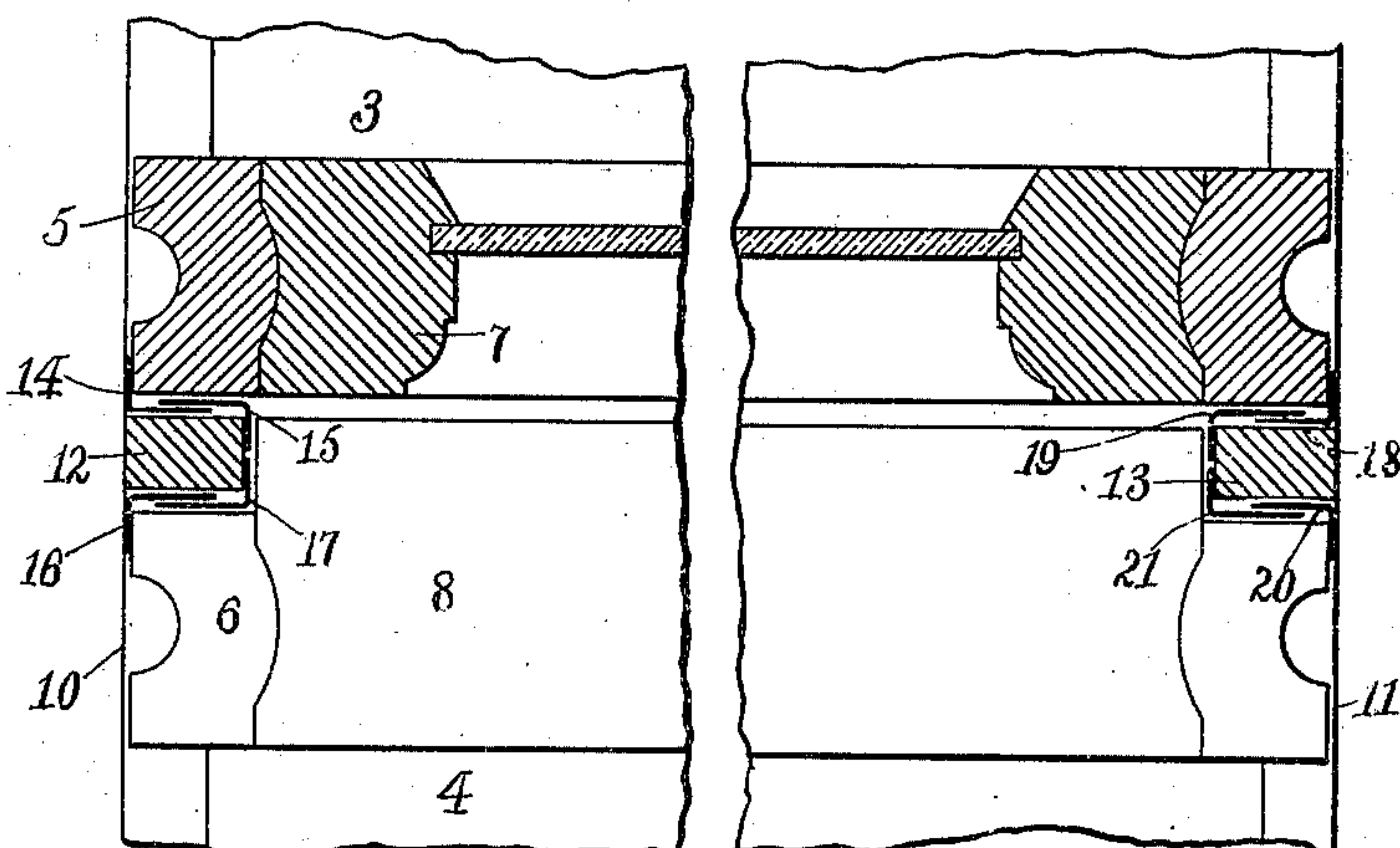


FIG. 3.

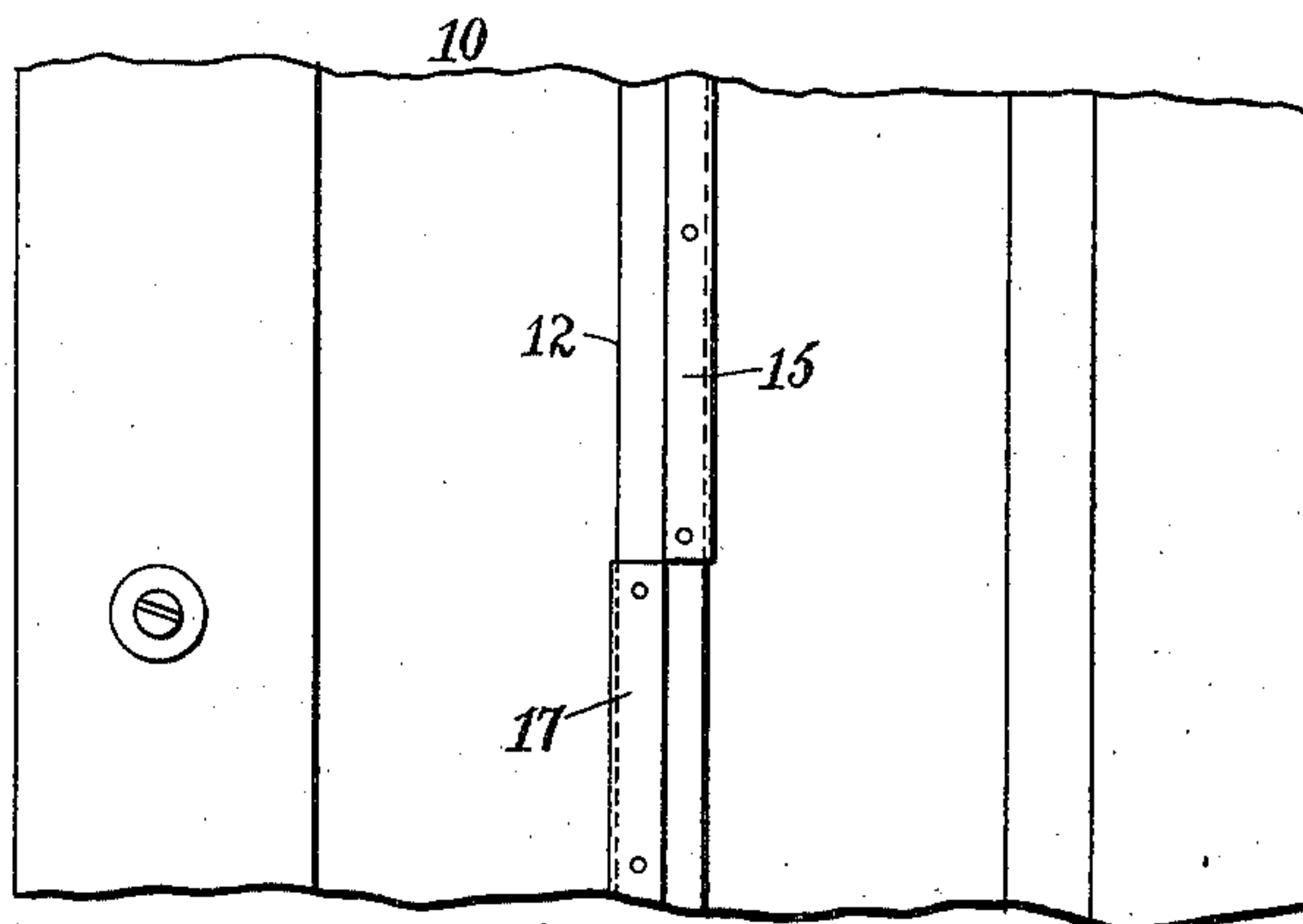
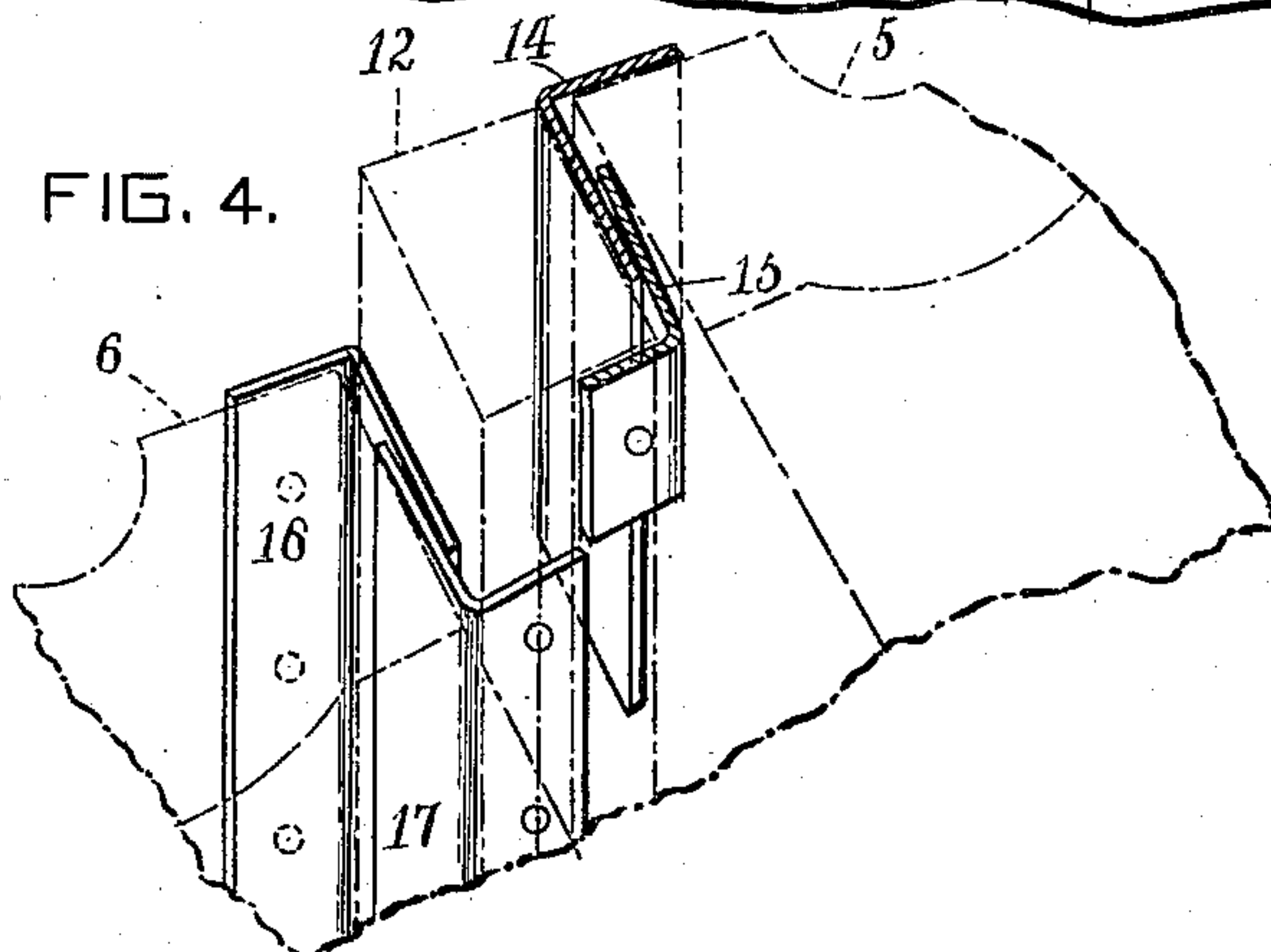


FIG. 4.



Inventor
Johann Friedrich Schupp
By his Attorney
Rehman

UNITED STATES PATENT OFFICE.

JOHANN FRIEDRICH SCHUPP, OF ASTORIA, NEW YORK.

WEATHER-STRIP FOR WINDOW-SASHES.

SPECIFICATION forming part of Letters Patent No. 741,415, dated October 13, 1903.

Application filed May 25, 1903. Serial No. 158,662. (No model)

To all whom it may concern:

Be it known that I, JOHANN FRIEDRICH SCHUPP, a citizen of the United States, and a resident of Astoria, in the county of Queens and State of New York, have invented certain new and useful Improvements in Weather-Strips for Window-Sashes, of which the following is a specification.

This invention relates to weather-strips for window-sashes; and its main object is to provide at the joints between the window-sashes and the window-frame, &c., durable means for effectually preventing the entrance of cold air when high winds are prevailing.

On a cold day when a high wind is blowing it is extremely difficult to prevent a considerable reduction in the temperature of outside rooms, particularly in tall office-buildings, especially when the wind is blowing directly against the windows of the exposed rooms. At such times the cold air finds its way around and between the ordinary sliding window-sashes at every point at which there is a joint, even when these joints are covered by weather-strips of the ordinary type. I have found that in such cases cold air can only be kept out of the exposed room when weather-strips are employed which effectually close each opening or joint through which air ordinarily finds an entrance and maintain a constant pressure against the adjacent surfaces between which such joint or space is formed. The only material which I have found adapted for this purpose is sheet metal, which may be cut in strips and securely fastened near one edge to one element of the window and so shaped or located as to exert a considerable pressure against a coacting or complementary element of the window when these two elements are brought close together—as, for example, when the sliding sashes are in their closed positions with respect to the adjacent parts of the window-frame. These metal strips therefore constitute spring-tongues adapted to press against that element of the window which is movable with respect to such a strip, and in every case I prefer to employ a metal strip which at the free edge thereof where it presses against a coacting element of the window has a rough or raw edge, every point of which is sufficiently irregular and yielding with respect to

every other point in such edge to maintain itself in engagement with the adjacent surface, and thereby prevent the admission of air past said edge at any point in the length thereof.

In the drawings accompanying this specification and forming part of the present application, Figure 1 is a substantially central vertical section of a window, showing my invention applied thereto. Fig. 2 is an enlarged horizontal transverse section, the section being taken through the upper sash of the window. Fig. 3 is an enlarged sectional detail illustrating in edge elevation the manner in which the weather-strips are applied to the parting-strip for coöperation with the upper and lower sashes of the window. Fig. 4 is an enlarged detail illustrating the angular metallic strips which close the joints between the upper and lower sashes at one side of the window-frame, the parts being in perspective.

Similar characters designate like parts in the different figures of the drawings.

In carrying my invention into effect it may be applied to windows having the ordinary sliding sashes or to windows in which combination sliding and swinging sashes are employed. In the drawings I have illustrated a window having such combination-sashes, and in the construction illustrated joints or spaces between adjacent members of the window are closed at both sides of the window—that is to say, where the side edges of the upper and lower sashes slide up and down in contact with or adjacent to the parting-strips of the window-frame—and other joints or spaces are closed at the bottom of the window where the lower sash rests on the sill and also at the center of the window between meeting-rails of the sashes. The means employed for closing all of these joints or spaces are of the same general type—that is to say, at each point where a space is to be closed a thin metallic strip is fastened near one edge thereof to one member of the window in such a manner that air cannot be forced between said strip and the member to which it is fastened, even when a high wind is blowing, while the free portion or body of the strip is resilient and is preferably under tension when the joint at which it is located is closed and has

a rough edge, formed by cutting the sheet metal in the ordinary manner, every point in such edge being adapted to lie close against a coacting member of the window and press
5 against the same at every point in the length of the strip, and thereby effectually prevent the passage of air between such rough or raw edge of the metal strip and that member of the window with which it is in yielding en-
10 gagement.

2 designates in a general way a window-frame in which a pair of sashes 3 and 4 are fitted to slide up and down, the sash 3 being the upper one and being located outside the
15 lower sash 4 in the usual manner. Both of the sashes 3 and 4 shown herein are combination sliding and swinging sashes, the outer side rails 5 and 6 of the sashes constituting the main sliding portions thereof, while the
20 frames proper, which are designated by 7 and 8, are so mounted between the pairs of rails 5 and 6 as to be capable of swinging relatively thereto. The sides of the window-frame are designated by 10 and 11 and have the usual
25 parting-strips 12 and 13. The joints or spaces between the outer rails of the sashes 3 and 4 and the parting-strips 12 and 13 are the principal points at which it is necessary to place weather-strips, these points forming the long-
30 est and principal openings through which air can obtain access to a room by passing around the outside of the sash. In the construction shown each space between the outer rail of the window-sash and the adjacent surface of the
35 parting-rail or window-frame is closed by a resilient metallic weather-strip located in the space between the fixed and movable members of the window, this strip being securely fastened near one edge thereof to one of the com-
40 plementary members of the window, while the free portion or body thereof is a substantially flat member the edge of which is in yielding sliding engagement with and presses firmly against the adjacent surface of the comple-
45 mentary member of the window. I prefer to place in each joint or space between the fixed and movable members of the window-frame—that is, between the parting-rail and the side of the window-frame on the one hand and the
50 outer rail of the window-sash on the other hand—a pair of overlapping metallic weather-strips angular or substantially L-shaped in cross-section, one of which is preferably secured to the parting-strip and the other to the
55 outer rail of the upper or lower sash, with which it coöperates. 14 designates such an angular metallic weather-strip fastened to the rail 5 of the upper sash, and hence movable with said sash. The short edge of this strip
60 is preferably nailed to the rail 5, the nails being sufficiently close together to prevent access of air between the metallic strip and the surface with which it is in contact. The long edge of the strip 14 is preferably in yielding
65 sliding engagement with one side edge of the parting-rail 12, and the normal angle made by the sides of the strip 14 is preferably such that

the long side or edge of such metallic strip is resilient and constitutes a spring-tongue, which constantly presses against the adjacent
70 surface of said parting-strip, and hence effectually prevents access of air at such point. In a similar manner a coacting complementary metallic strip angular in cross section and overlapping the long side or edge of the
75 strip 14 coöperates with the parting-strip 12 and the outer rail 5 of the upper sash to prevent access of air between the short edge of the strip 15 and the inner surface or edge of the parting-strip 12, to which it is secured, 80
and also to prevent entrance of air at the point where the long side or spring-tongue of the strip 15 presses against the rail of the upper sash. The angular metallic strips 14 and 15 thus securely seal four points at which air will
85 ordinarily enter when a high wind is blowing and the joints are not properly closed. The overlapping ends of the long sides or spring-tongues of these strips may also be so close together as to be substantially in contact and
90 prevent entrance of air between the adjacent metal surfaces. The construction of these weather-strips and the manner in which they are fastened to the members of the window and coöperate therewith and with each other
95 are such as to seal in a simple manner a large number of points at which air might otherwise obtain entrance and to form an extremely tortuous and difficult path to be traversed by an air-current before reaching the
100 point of entrance to a room.

As the lower window-sash 4 coöperates with the opposite side of the parting-strip 12 from that with which the sash 3 coacts, the metallic strips for closing the space or gap between
105 the lower sash and such parting-strip are necessarily located at the side of the parting-strip opposite the metallic strips 14 and 15. The means shown herein for closing the joint between the outer rail 6 of the lower sash and
110 the parting-rail 12 are similar to those just described with respect to the upper sash, one angular metallic strip 16, similar to the strip 14, being secured to the outer edge of the rail 6 and having its free edge in contact with one
115 side of the parting-strip 12, while a second angular metallic strip 17, similar to the strip 15, is fastened to the inner edge of the parting-strip and has a body portion or long side in the form of a spring-tongue overlapping
120 the corresponding long side or spring-tongue of the strip 16 and pressing against the adjacent surface of the sash-rail 6. By referring to Figs. 3 and 4 it will be seen that the strip 15 extends substantially from the center of
125 the parting-strip upward and overlaps the outer side or edge of said parting-strip, while the angular metallic weather-strip 17 extends downward from said central point and overlaps the inner edge or side of the parting-rail.
130 For the sake of clearness the positions of the strips 14, 15, 16, and 17 in Fig. 2 and the relations of the parts with which they coöperate are slightly distorted or exaggerated.

The metallic strips which cooperate with the parting-strip 13 are substantially identical in construction and operation with those just described and are designated, respectively, by the numerals 18, 19, 20, and 21.

The point between the bottom rail 22 of the lower sash 4 and the window-sill 23 may be closed by a substantially flat metallic strip 24, which is preferably nailed securely to the sill and in its normal position extends upward at a considerable angle to the adjacent surface of the sill and has a body portion formed with a rough or raw edge adapted to press firmly against the under side or surface of the bottom rail 22 when the lower sash is brought down against the strip 24 to close the window. It is evident that a spring-tongue formed by bending the strip 24 so that it normally assumes the position shown in Fig. 1 will be bent down flat against the sill when the lower sash is closed against it.

The meeting-rails of the upper and lower sashes are designated by 25 and 26, respectively. The joint or space between these meeting-rails is preferably closed by an angular resilient metallic strip which is secured to the vertical face of one of the meeting-rails and is in close contact therewith, this strip being normally sprung away from the vertical and lower faces of such rail, but adapted to lie snugly against the same when the window is closed. This metallic angular strip is designated by 27 and has a long arm preferably nailed to the vertical face of the lower meeting-rail 25, so as to prevent entrance of air between said metallic strip and the rail, while at its extreme free end or edge said metallic strip has a short arm or edge substantially at a right angle to the body of the strip for the purpose of engaging the underside of said meeting-rail and also effectually closing the space between this surface and the metallic strip when the sashes are closed. This angular weather-strip is forced to its working position in yielding engagement and close contact with the vertical and lower faces of the meeting-rail 25 by the substantially vertical but usually slightly beveled face of the meeting-rail 26 when the two sashes are slid to their extreme closed positions. The extent to which the upper sash may be lowered and the lower sash raised is preferably limited by a pair of stops 30 and 31, placed at suitable points, preferably at the sides of the window-frame in the grooves in which the sashes work.

In order to obtain the best results, all of the metallic weather-strips herein described are preferably made of thin sheet metal, such as sheet copper or zinc, such a strip being capable of maintaining close contact with the surface to which it is secured and also with the cooperating surface against which it is yieldingly pressed, besides wearing well when exposed to the elements.

One of the most important features of my present invention is the provision at all points at which it is necessary or desirable to

close a joint or space between a fixed and a movable member of a window of weather-strips which accomplish the desired result of keeping out cold air during a high wind and which are placed and kept in position without requiring the cutting away of portions of the window-frames and sashes and consequent spoiling of these parts. The practical importance of making a window weather-tight without spoiling the window cannot be overestimated, and the value of the devices herein shown for accomplishing the results referred to has been fully demonstrated by long use under the most adverse conditions met with in tall office-buildings in cold and windy weather.

What I claim is—

1. The combination with a window-frame embodying parting-strips at opposite sides thereof, of a sliding window-sash cooperative with said frame, and a pair of resilient metallic weather-strips located between the frame and the sash and adapted to close a joint between the sash and a parting-strip, said strips being secured to, and in contact with the surfaces of, said frame and sash respectively and each having a substantially flat body the free edge of which overlaps the free edge of the other strip and at its inner side is in yielding sliding engagement lengthwise thereof with the inner side of the other strip, the outer side of the strip secured to the sash being in yielding sliding engagement lengthwise thereof with the frame and the outer side of the other strip being in yielding sliding engagement lengthwise thereof with the sash.

2. The combination with a window-frame having parting-strips at opposite sides thereof, of a sliding window-sash cooperative with said frame and parting-strips, and pairs of resilient metallic weather-strips, each pair being located, and adapted to close a joint, between the sash and a parting-strip and consisting of strips substantially L-shaped in cross-section one secured to the inner edge of the parting-strip and having its free edge in yielding sliding engagement with the adjacent surface of the sash and the other secured to the outer edge of the sash and having its free edge in yielding sliding engagement lengthwise thereof with the adjacent surface of the parting-strip and overlapping the free edge of said first strip, the inner sides of the overlapping portions of said strips being also in yielding sliding engagement in the direction of their length.

3. The combination with a window-frame having parting-strips at opposite sides thereof, of sliding upper and lower sashes cooperative with said frame and parting-strips, and two pairs of resilient metallic weather-strips at one side of said window, each pair being located, and adapted to close a joint, between a parting-strip and a sash, one pair consisting of two overlapping angular strips one of which is secured to one sash and the

other of which is secured to the inner edge of
said parting-strip and overlaps one side edge
of said strip, and the other pair consisting of
two overlapping angular strips one of which
5 is secured to the other sash and the other of
which is secured to the inner edge of said
parting-strip and overlaps the other side edge
of said strip.

Signed at New York, in the county of New
York and State of New York, this 9th day of 10
March, A. D. 1903.

JOHANN FRIEDRICH SCHUPP.

Witnesses:

C. S. CHAMPION,
S. CHAMPION.