

F. A. WINSLOW.

SEALING MEANS.

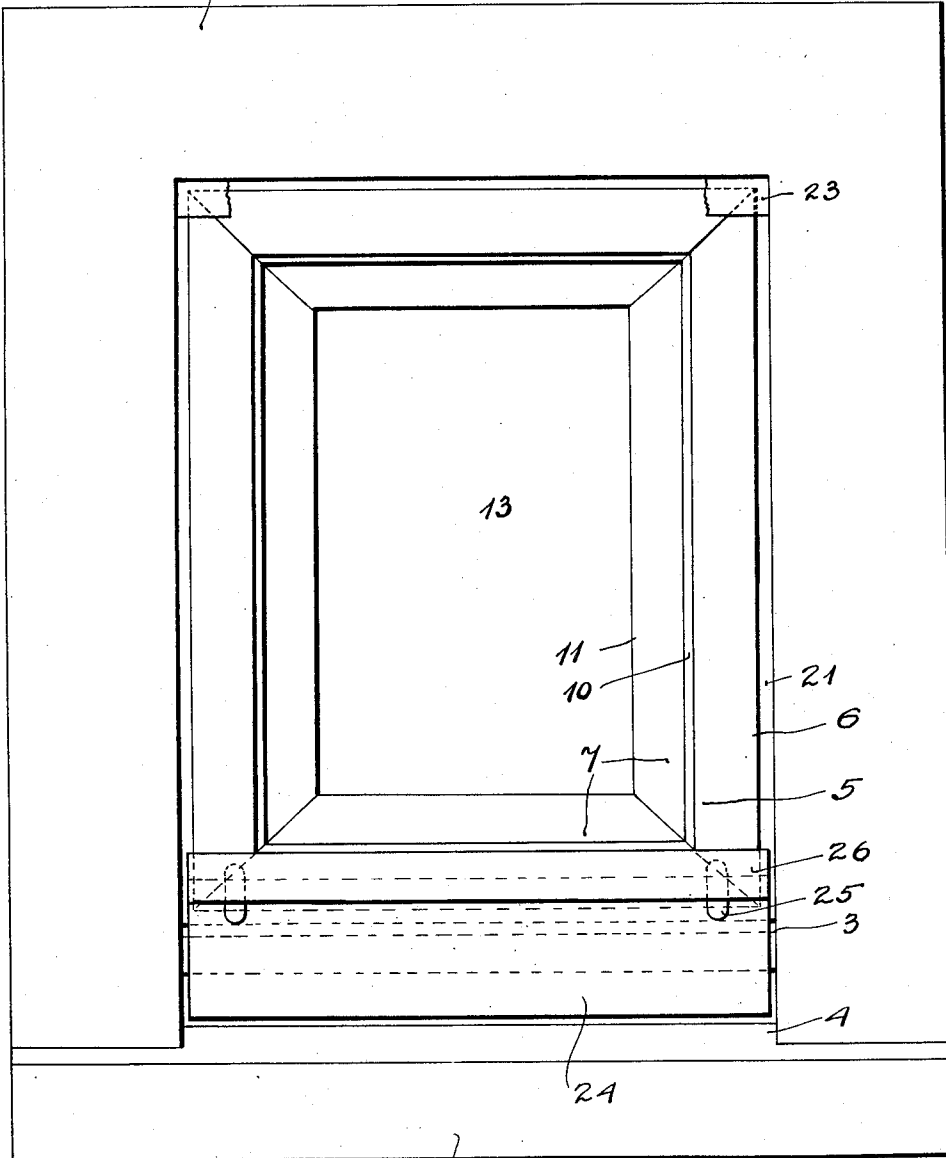
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938,193.

Patented Oct. 26, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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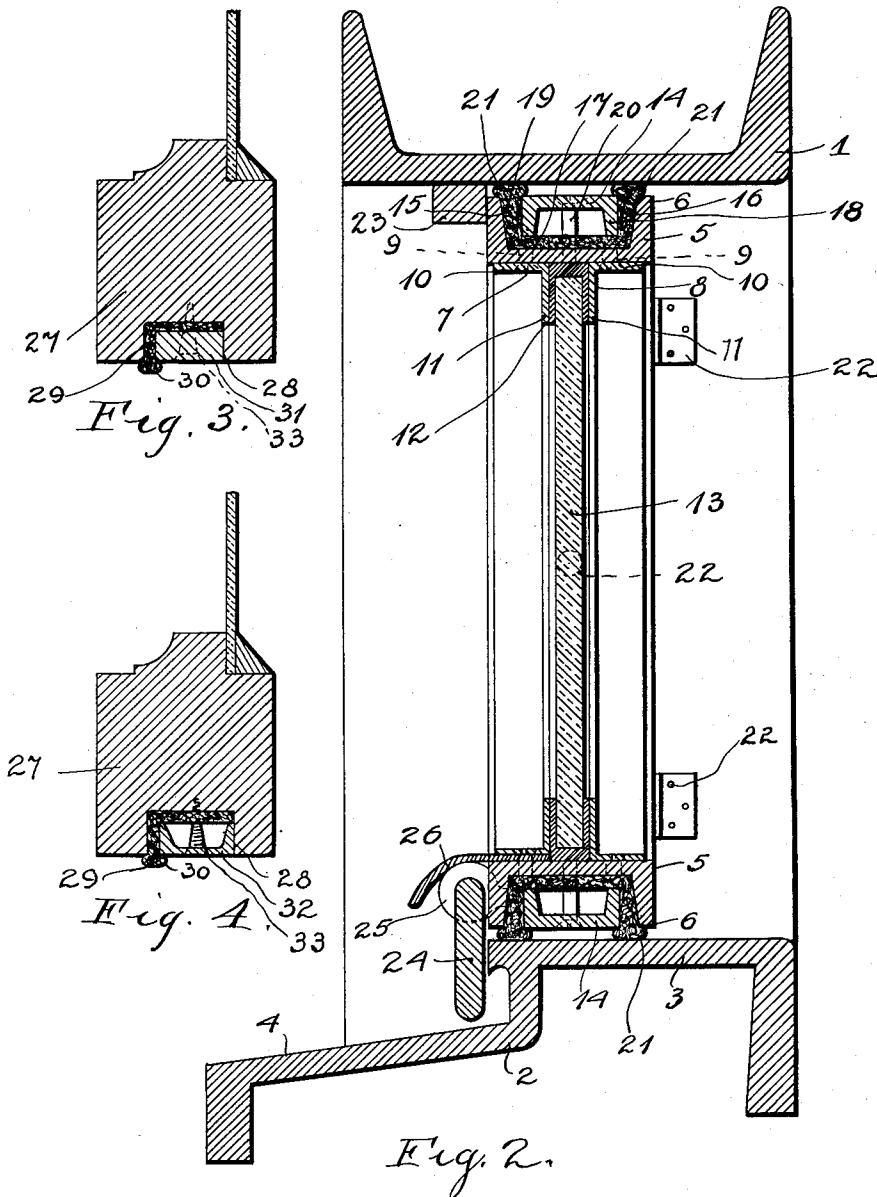
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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SEALING MEANS.

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Specification of Letters Patent.

Patented Oct. 26, 1909.

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To all whom it may concern:

Be it known that I, FRANCIS A. WINSLOW, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Sealing Means, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to means for sealing the meeting edges of windows, doors and the like, with their surrounding frames, and is particularly adaptable to windows, doors and the like, built of metal.

One way of sealing the meeting edges has been to provide grooves in the surfaces of the movable member, in which grooves strips of felt or other material are inserted and secured, the ends projecting and engaging the frames. Other similar arrangements have also been used, but they have all proven inefficient as their utility is soon destroyed. The felt soon loses its elasticity or wears away, and there being only a single band of weather material, its weathering qualities are soon lost. Another objection is that where a weather strip is inserted within a groove, it must be placed very securely therein in order that it will not pull out in opening and closure of the movable member. It is usually secured in the groove by being glued or by means of screws passing through the weather material. Where screws are used, the engaging surface of the strip is broken and destroyed, and where glue is used as a securing means, it is very difficult to remove the strip when it is desired to replace it.

The purpose of my invention is, first to provide more than one band of weather material to thereby insure more perfectly sealed joints, and secondly to provide better means for securing the weather material in position, which will enable it to be more easily and readily removed when worn, and replaced with fresh material. Broadly, my invention consists in providing a comparatively wide groove about the edge of the movable member, in which grooves strips of felt or other packing material are clamped by clamping strips which are smaller than the groove, the ends of the weather material strips extending beyond the edge of the movable member to form several weather

bands. A very simple and efficient way is to surround the movable member by channel irons having their flange extending outwardly. Within the grooves of the channel irons and having a smaller section than the channel irons are smaller channel irons arranged with their flanges extending inwardly and the weather strip material is arranged between the channel irons and clamped to the larger channel irons by the smaller channel irons, the ends of the strip material extending outwardly and engaging with the surrounding frame to form thus two weather bands or beads.

The drawings will clearly illustrate my invention.

Figure 1 shows a front view of a window to which my invention is applied; Fig. 2 is a sectional view taken on line 2-2 of Fig. 1; Fig. 3 shows a modified arrangement, and Fig. 4 shows another modified arrangement.

In Figs. 1 and 2 the upper part of the frame and the sides may be of channel irons 1 of suitable size, while the sills or base 2 of the frame I have shown of special design, having the inner sill part 3 and the outer, lower sill part 4, the window engaging between the upper channel iron and the inner sill 3. The window sash body is built up of channel irons 5. These irons may be four in number and mitered and secured together at their ends, or the entire sash body can be formed of one piece of channel iron in any suitable manner, these channel irons being disposed with their flanges 6 extending outwardly. Within the sash body are two rims or frames 7 and 8 composed of angle iron which are secured, as by means of screws 9, to the inner face of the sash body along one flange 10, and whose other flanges 11 are disposed opposite each other, as shown, to form a groove 12 for receiving the glass 13. By removing enough of the angle irons on one side glass can readily be inserted or removed. Surrounding the sash body and disposed within its channel are clamping strips or bars 14, also in the form of channel irons. The dimensions of the channel strips 14 are such that when they are in place within the channels of the irons 5, there will be the flaring grooves 15 and 16 between the flanges of the channel irons, and the space 17 between the ends of the flanges 18 of the channel strips 14 and the web of the channel irons 5. The outer faces of the strips 14

are also preferably in line with the outer ends of the channel irons 5. Within the grooves between the channel irons, the packing or weather material 19 is disposed. In its simplest form this weather material is primarily in the form of ordinary strips of felt, rubber or other suitable material. The clamping bars 14 are removed and the weather strips laid in the main channel irons 5, whereupon, the clamping channel irons are inserted within the weather strips and secured to the main channels, as by means of screws 20, drawing up of the screws causing the weather material to be securely clamped in place; the clamping action being mainly between the ends of flanges 18 and the web of channel irons 5. The width of the felt strips may primarily be such that after they have been inserted between the channel irons they will project beyond the channel irons a distance greater than the space between the sash and the frame, so that when the sash is inserted in the frame the weather material will be compressed into the flaring grooves 15 and 16, the extending ends forming two weather bands or beads 21. Being thus compressed, the weather material will for a very long time retain its elasticity and weathering qualities, thus insuring for a long time a tight weather fit between the sash and window frame. The sash to which I have shown my invention applied is of the swinging style, the sash being shown swinging from hinges 22 secured to the side of the frame. A stop 23 may be provided on the frame for receiving the sash when it is being closed. With this arrangement, when the sash is to be opened it is swung inwardly over the sill. The lower part of the frame is most exposed to the weather, and auxiliary weather means may be provided. I have shown this auxiliary means in the form of a flap 24 which is pivoted by means of suitable pivots 25 to the lower channel section of the sash body. A strip 26 of steel is provided to form a hood over the flap and outer face of the lower sill section to prevent access of moisture, dirt, etc. between the flap and channel. This hood can easily be held in place, as shown, by inserting its inner edge under the outer lower angle iron section.

The construction and arrangement as described are simple but efficient and durable. The entire sash is built of stock material and is therefore comparatively inexpensive. In the arrangement of the packing, as shown, the weather protecting efficiency is increased at least two-fold over the prior arrangements in which but one strip of packing is employed. The same arrangement may also be applied to sliding and pivoted windows instead of to swinging windows, as shown, and also to doors and the like.

Sometimes the sash is very narrow and sufficient space would not be available for two weather bands or beads, or two bands may not be necessary. In Figs. 3 and 4 the sash 27 is of the form shown and has a rectangular groove 28 about its periphery in which the weather strip 29 is applied extending along the bottom and one side thereof, to form a single weather bead or band 30, rectangular clamping strips 31 being shown in Fig. 3 as used to clamp the weather material in the groove, while in Fig. 4 the clamping strip is in the form of channel irons 32, the strips 31 and 32 being secured to the sash part as by means of screws 33. Other arrangements are also possible, which would still come within the scope of my invention.

I desire to secure the following claims by Letters Patent:

1. In devices of the class described, the combination of a window frame, a window sash for engaging in said frame, the body part of the sash of the window being of channel iron with its flanges extending outwardly, resilient packing material within the channel irons, and clamping frames engaging within the channel irons to form grooves having outwardly divergent sides and to clamp the packing material therein.
2. In devices of the class described, the combination of the window frame, a window sash engaging within the frame, the body part of the sash of the window being formed of channel irons with their flanges extending outwardly, rims secured to the interior of the sash body for receiving glass, resilient packing material disposed within the flanges of the sash, and clamping members in the form of channel irons engaging within the channels of the sash to form grooves having outwardly divergent sides and for clamping therein the packing material.
3. In devices of the class described, the combination of the window frame, a window sash for moving in said frame, the body part of the sash being built of channel iron with its flanges extending outwardly, two rims of angle iron secured at one flange to the interior of the main sash part, the other flanges of the rims forming a groove for receiving a window pane, clamping members in the form of channel irons disposed within and secured to the channel irons of the sash, and packing material clamped between the channel irons and engaging the sides of the frame.
4. In devices of the class described, the combination of a window frame, a window sash for moving in the frame, channel irons forming the body part of the window sash, resilient packing material disposed within the channel irons and having two edges extending outwardly to form two weather beads about the window, and clamping strips engaging in and secured to the channel

irons to form grooves having outwardly divergent sides and to clamp therein the packing material.

5 5. In devices of the class described, the combination of a window frame, a window sash therein, the body part of the sash of the window being formed of channel iron with its flanges extending outwardly, clamping members in the form of channel irons of 10 smaller dimension than the main channel irons and adapted to engage within the main channel irons to form therewith a groove, packing material disposed in said groove with its ends extending outwardly beyond 15 the main flange ends and into engagement with the sides of the frame, and means for securing the clamping members to the main flanges to clamp the packing material in place.

20 6. As a means for closing the aperture between a movable frame and its inclosing casing, a groove in the periphery of the frame, having outwardly divergent sides, resilient material secured in said groove at or near the 25 bottom thereof and adapted when not compressed to occupy only a part of the said groove, said resilient material adapted to be compressed into said groove by the casing when the frame is in a closed position in the 30 casing.

7. As a means for closing the aperture be-

tween a movable frame and its inclosing casing, a groove in the periphery of the frame, a strip of folded resilient material secured in said groove by a clamping member contained in said fold, said clamping member 35 so conformed that its sides and the adjacent sides of the grooves are outwardly divergent, the edges of said strip projecting beyond the frame to engage the casing when the 40 frame is in a closed position in the casing, said engagement serving to compress said resilient material into the openings between said clamping member and the frame.

8. As a means for closing the aperture be- 45 tween a movable frame and its inclosing casing, a groove in the periphery of the frame, compressible material in said groove, clamping means for securing said material at or near the bottom of the groove, the walls ad- 50 jacent to said material being divergent so as to permit compression of said material between them when the frame is in a closed position in the casing.

In witness whereof, I hereunto subscribe 55 my name this 2nd day of October A. D., 1907.

FRANCIS A. WINSLOW.

Witnesses:

CHARLES P. SAXE,
PHILIP G. CARTER.