

Sept. 4, 1928.

1,683,377

C. H. WILSON

WATER BARRIER FOR WINDOWS AND THE LIKE

Filed Nov. 28, 1927

2 Sheets-Sheet 1

Fig. 1

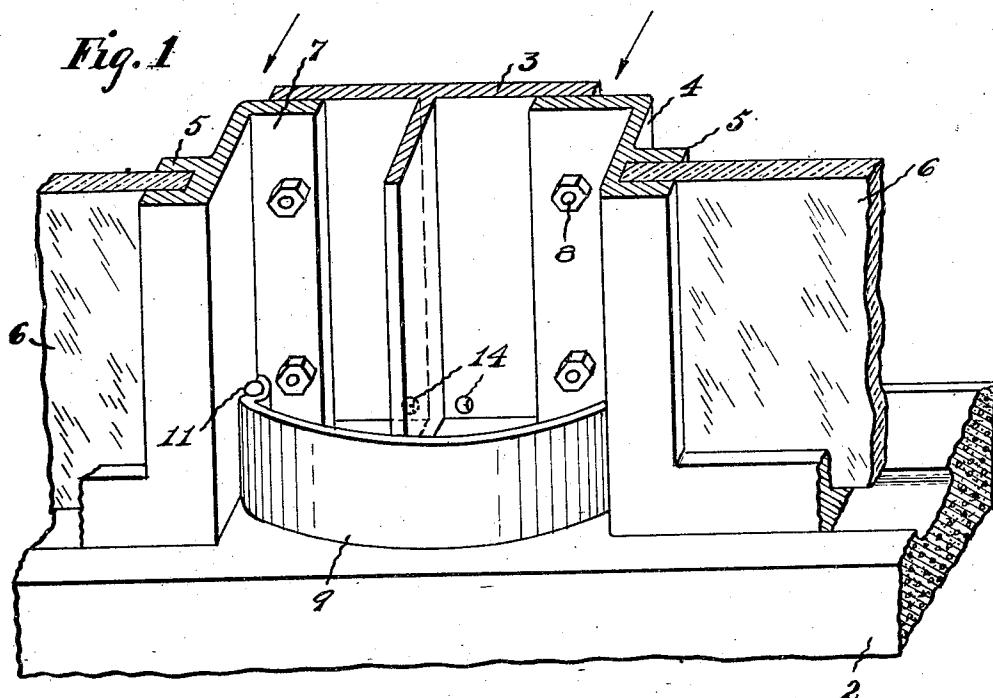
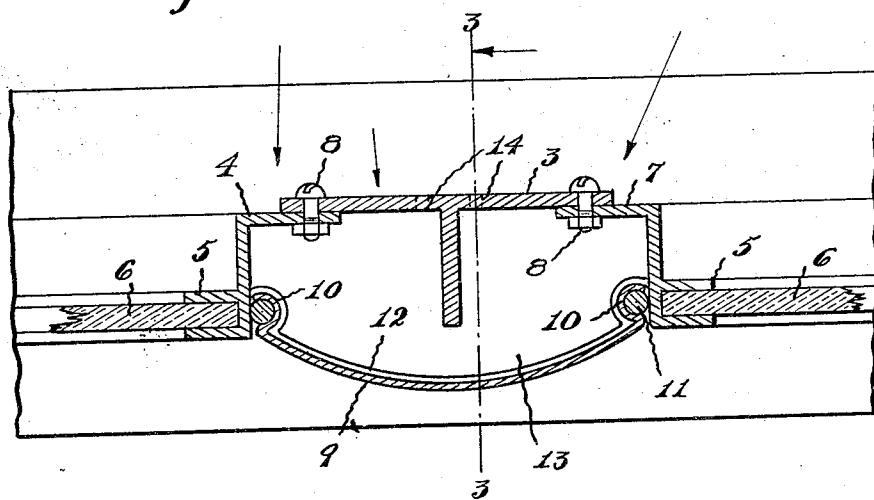


Fig. 2



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Fig. 3

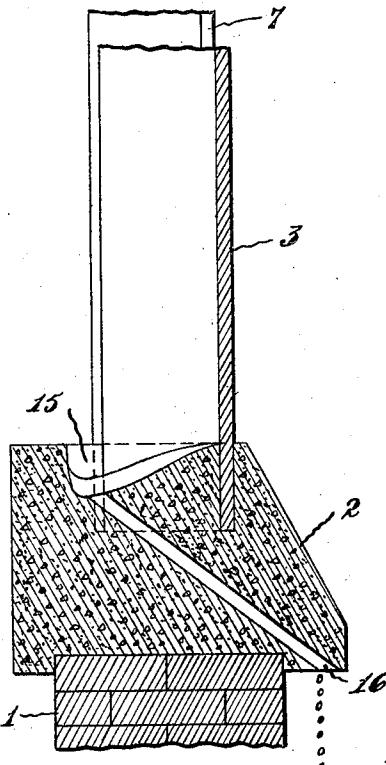
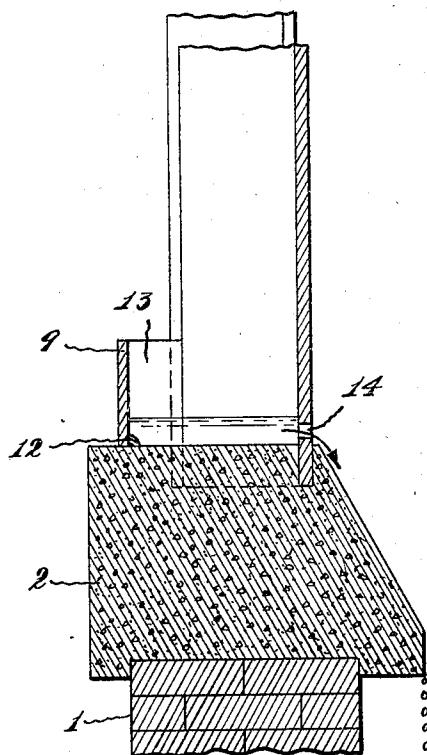
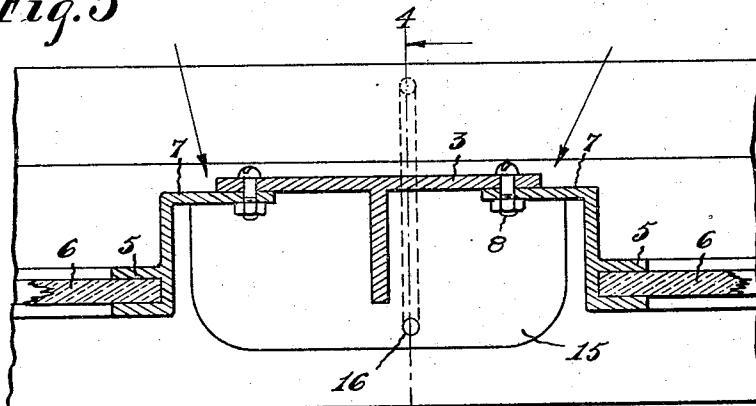


Fig. 5



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UNITED STATES PATENT OFFICE.

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WATER BARRIER FOR WINDOWS AND THE LIKE.

Application filed November 28, 1927. Serial No. 236,203.

My invention relates to water barriers, and more particularly to a form which is specially adapted for use in connection with metal casing windows or other similar openings in concrete buildings.

The principal object of my invention is to provide a simple and efficient weather barrier which will prevent rain which may be blown in through the crevices between the window and its frame from passing interiorly into the building and down the walls and onto the floor.

Another object of my invention is to provide a water-tight, trough-like pool forming structure upon or in the sill of a window interiorly of an adjacent the window frame structure so that rain water seeping or capillary creeping in through the window frame will accumulate in the trough-like structure and then be discharged automatically to the outside of the building, against wind pressures. This latter feature is of particular importance, and is mainly due to the provision of a pool-forming structure of sufficient volumetric capacity that the water trapped therein, as herein described, creates sufficient head to overcome exterior wind pressure exerted against the small area of the drain holes provided for the exterior discharge of water thus accumulated.

Other objects of the invention are to improve generally the efficiency of such devices and to provide a device or apparatus of this kind which is economical, durable and reliable in operation, and economical to manufacture.

Still other objects of the invention will appear as the description proceeds, and while herein details of the invention are described and claimed, the invention is not limited to these, since many and various changes may be made without departing from the scope of the invention as claimed in the broader claims.

In the accompanying drawing, which forms part of this specification, and in which like characters refer to like parts throughout the several views;

Fig. 1, is a perspective fragmentary view of a present day standard type of construction of metal casing for windows especially adapted for concrete buildings of factory or office type showing one form of water barrier associated with the window sill and frame;

Fig. 2 is a plan view of Fig. 1, showing

the retaining means for the water barrier more clearly;

Fig. 3, is a sectional view along line 3-3 of Fig. 2, and shows the water discharge means in its relation to the water barrier;

Fig. 4, is a sectional view along line 4-4 in Fig. 5 of a modified form of my device in which the water barrier is shown as part of the concrete window sill and the discharge outlet passing through the sill;

Fig. 5 is a plan view of the modified form of my device as shown in Fig. 4.

In the construction which I have shown in Fig. 1, 2 and 3, a window aperture is shown in a masonry wall 1, part of which is seen in Fig. 3. A sill 2, viewed from the interior of the building, as in Fig. 1, supports thereon a metal window structure, shown in fragmentary fashion in Fig. 1.

I do not limit myself to metal casings. The material might be wood or another substance through which water may seep. The window casing is usually, in the case of concrete buildings made of rolled structural steel. The casing is divided at its center by a mullion 3 of T iron. The mullion acts as a strut in the window opening. A pair of iron angled window frames 4 having channel seats 5 to receive the glass panes 6 therein, are flanged as at 7, and are bolted by bolts 8 to the mullion 3 on the inside thereof. Altho I have shown these particular structural shapes I wish to make it clear that I am not limited to such shapes. Neither am I limited to glass panes. The panes might be made of other well known window materials.

When a "blowing" rain storm hits the exterior of the mullions 3, as shown by the arrows in Figs. 1 and 2, the rain beats into and through the crevices between the mullions 3 and the flanges, since it is not customary to introduce packing between the flanges and mullion. It is found that the water seeps through the entire length of the flange joint and flows onto the sill 2 and then down the wall 1 and finally upon the floor. Such water is a source of annoyance and often great damage in factories and warehouses. In Figs. 1, 2 and 3, I have shown one method of eradicating this heretofore uncorrected fault in this commonly used structure.

A piece of flat strip metal 9, Fig. 2, is bent as shown with two vertical gutters 10 on each end. The bent structure is slightly springy and a little larger than the space be-

tween the frames 4, so that the vertical gutters 10 are packed with a watertight material as rubber or tarred cord 11, Fig. 2, and sprung or wedged, as shown, into position. 5 The strip 9 is pressed to a seat with the sill 2 as shown in Figs. 2 and 3, with a substance as tar or putty to render same watertight at the sill contact line 12, thus forming a basin. Any storm water seeping into the 10 pocket or trough 13 is thus effectively dammed against flowing down the wall 1 and onto the floor.

To speedily and automatically empty the basin of accumulated water, a pair of holes 15 14, Figs. 2 and 3, are drilled through the mullion 3, the approximate positions of these discharge apertures being indicated by Figs. 1 and 3. These apertures while they are small permit collected water to 20 drain to the outside of the building, notwithstanding wind pressure. There is a continuous and steady dripping away of the pool of water through the aperture 14.

In Figs. 4 and 5 I have shown an alternative form of construction. Instead of using a strip of metal to form a basin, I may make the trough or basin a part of the sill. As shown in Fig. 4, on an entirely new job a basin or trough 15 is moulded into the 30 sill 2. Instead of providing a discharge aperture in the mullion 3, a passage 16 is run through the sill by inserting a pipe into the sill in the manner shown in Fig. 4 before the concrete sets. It is understood that 35 the passage can be found in any other manner. It is to be noted that the passage 16 is located a little to one side of the center, Fig. 5, in order to miss the strengthening rib of the mullion.

40 Only two forms of characteristic, specific, pool forming structures with external automatic discharge are herein disclosed. One is adapted to be applied to buildings already erected, and the other is designed to be applied to new buildings, in the course of 45 construction. Various modifications of my herein disclosed devices may be devised as associate seepage controls for doors, window and similar openings in buildings, without avoiding my herein claimed improvement in the art.

50 As in the structure shown in Figs. 1, 2 and 3 the water collected in trough 15 drains off through the passage 16 to the outside of the building.

55 What I claim is:

1. A water barrier adapted to be used on a window sill in conjunction with a window frame subject to rain seepage on the 60 interior thereof comprising a plate adapted to be sprung into operable position with respect to said sill and frame providing a trough like chamber thereby, gutter means integral with said plate, means associated with said gutter means adapted to retain

said plate in watertight condition in sprung position relative to said frame and sill, and means at the line of contact of said plate and sill to render said trough like chamber watertight, means in said frame providing 70 an outlet discharge the exterior of the window for water accumulated in said trough like chamber thru rain seepage.

2. A water barrier adapted to be used with a window frame subject to rain seepage and 75 associated with a window sill comprising a plate adapted to be fixedly sprung against said frame whereby a trough like chamber is formed with the sill and frame, means providing a watertight contact between said 80 sprung plate and said frame and sill, whereby rain water collected in said trough-like chamber will not flow by said barrier plate.

3. In a device as claimed in Claim 2, means 85 associated with said frame providing a discharge outlet for rain water accumulated in the trough like chamber to the exterior of said window frame.

4. A device of the class described adapted to be used in connection a window frame and 90 sill including a resilient member adapted to be sprung into fixed position relative to said sill and frame to form a trough-like chamber and means associated with said resilient member and cooperating with said 95 sill and frame to render said member watertight.

5. A window frame water barrier comprising a flexible plate, gutter members associated with said plate at the ends thereof, and elastic means associated with said gutters, said plate cooperating with said frame to form a trough-like chamber therewith said elastic means adapted to render said 100 plate watertight.

6. In a construction of the class described the combination with a sill and window frame immovably set in said sill, of means cooperating with said sill and frame to provide a basin on one side of said window frame to collect water seeping through the vertical joints between the mullion of said frame and said frame, and means for discharging water from said basin to the other side of said frame than the side on which 110 side basin is located.

7. A water barrier adapted to be used with a mullion between metal window frames fixedly set in a masonry sill comprising dam means associated with said sill and window frames and cooperating with said mullion to form a trough like chamber to collect water seeping between said mullion and frames, and means cooperating with said chamber providing a discharge outlet 120 for water accumulated in said chamber to the exterior of said frames.

8. In a device of the class described a window frame, water barrier means associated with a portion of said frame which is nor- 130

5 mally subject to vertical rain seepage, means cooperating with said water barrier means for providing an outlet for rain accumulated by said barrier means and means associated with said barrier means to render the same watertight.

9. A water barrier adapted for use with window structures normally subject to vertical rain seepage comprising a resilient 10 means adapted to cooperate with a window sill whereby a trough is formed therewith,

arcuate retaining means associated with the aforesaid means and cooperating with the said window structure to fixedly hold said trough means in operable position and means associated with said arcuate means to render said resilient means watertight. 15

Signed at New York, in the County of New York and State of New York this 26th day of November, A. D. 1927.

CHARLES H. WILSON.