

J KAMMERER.
WEATHER STRIP.
APPLICATION FILED MAR. 20, 1911.

1,059,612.

Patented Apr. 22, 1913.

2 SHEETS—SHEET 1.

Fig. 1

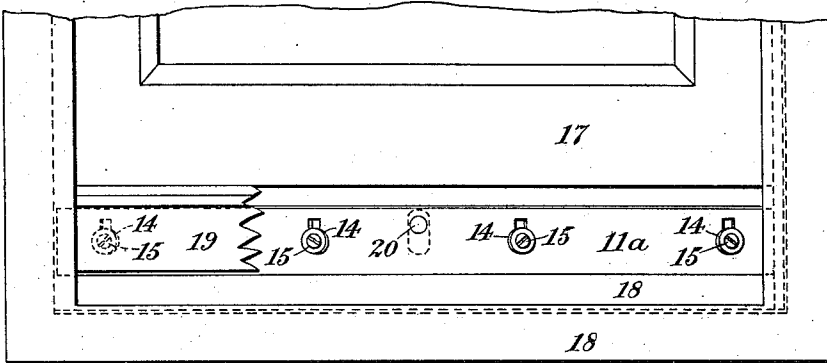


Fig. 2

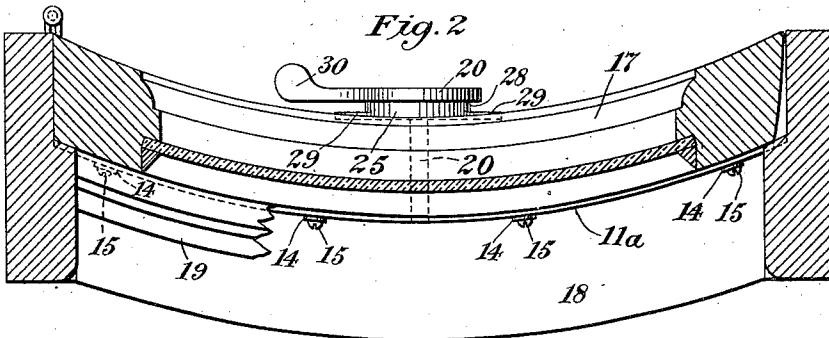
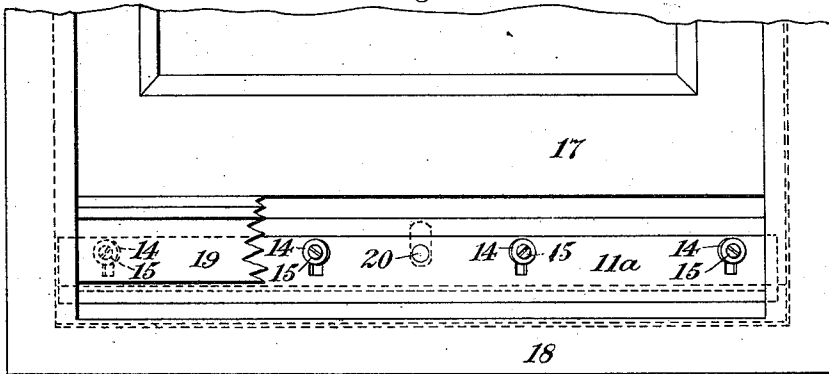


Fig. 3



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2 SHEETS—SHEET 2.

Fig. 4

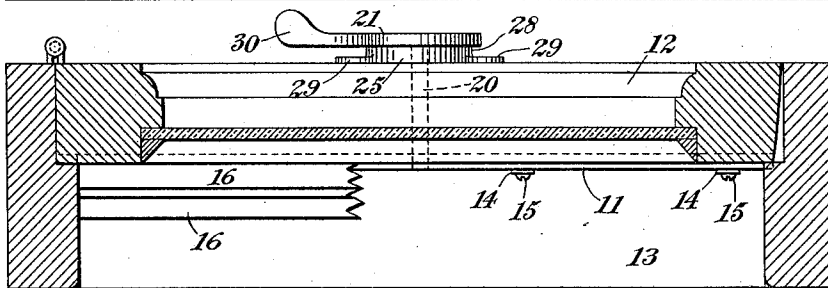
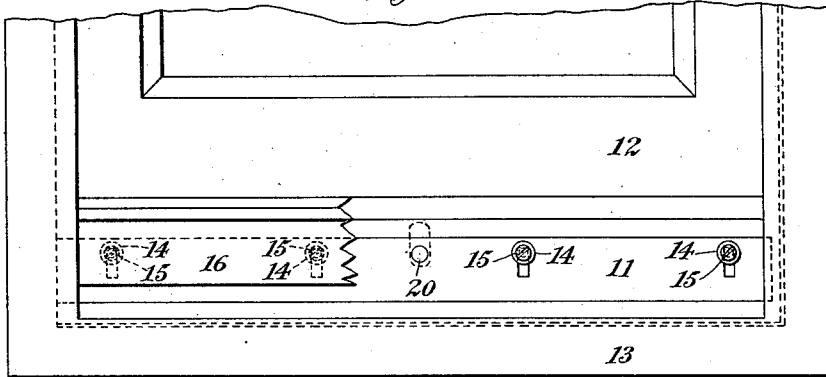


Fig. 5

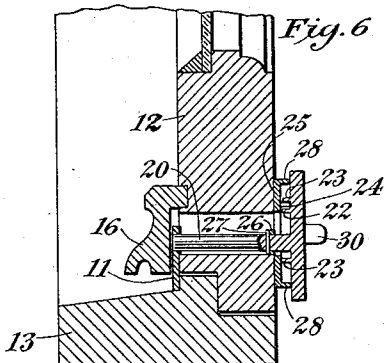


Fig. 6

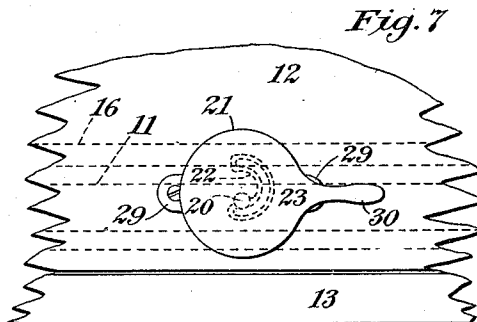


Fig. 7

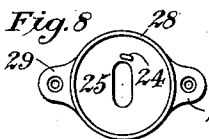


Fig. 8

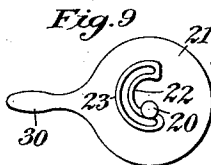


Fig. 9

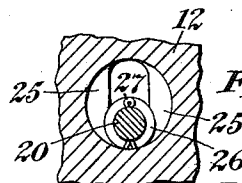


Fig. 10

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UNITED STATES PATENT OFFICE.

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WEATHER-STRIP.

1,059,612.

Specification of Letters Patent.

Patented Apr. 22, 1913.

Application filed March 20, 1911. Serial No. 615,455.

To all whom it may concern:

Be it known that I, JACOB KAMMERER, a citizen of the United States, residing at the borough of Manhattan, city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Weather-Strips, of which the following is a specification, reference being had therein to the accompanying drawings, forming part thereof.

My invention relates to weather-tight joints for parts which are relatively transversely movable, such as a swinging window sash and its sill or a door and its sill, and is particularly applicable at the bottoms of casement windows, these windows, particularly when curved or bowed, presenting unusual difficulties to the weather strip manufacturer.

The objects of my invention are strength and simplicity of construction; inexpensiveness of manufacture; convenience, durability and non-liability to derangement in use; non-defacement and in fact ornamental appearance both from within and without the building; and a high degree of effectiveness in excluding wind, rain and dust.

Other objects of my invention will hereinafter appear.

My invention includes an improved cam mechanism for actuating a transversely movable sealing-strip, and more particularly includes a stationary member and a rockable member provided with interengaging means for effecting transverse movement of a stud which actuates the sealing-strip, and more particularly such stationary member is a slotted anchor-plate in the slot of which the sealing-strip actuating stud is guided, and the rockable member is a cam-disk having interengaging relation with the anchor-plate.

My invention also includes several features of construction and combinations of parts, as will appear from the following description.

I shall now describe the weather-strip mechanisms illustrated in the accompanying drawings and embodying my invention and shall thereafter point out my invention in claims.

Figure 1 is an outside elevation of the lower part of an outwardly bowed casement window having such weather strip mechanism thereon, with the drip-ledge partly broken away and the sealing-strip in raised

or non-sealing position. Fig. 2 is a horizontal section of the same, the sealing-strip being in lowered and sealing position, as indicated by the position of the actuating handle, and the drip-ledge being partly broken away. Fig. 3 is an outside elevation, similar to Fig. 1 but with the sealing-strip in lowered and sealing position. Fig. 4 is an elevation similar to Fig. 3 of a straight casement window. Fig. 5 is a horizontal section of the same. Fig. 6 is a central vertical section as viewed from the right in Figs. 4 and 5. Fig. 7 is a partial inside elevation, as viewed from the right in Fig. 6. Fig. 8 is a side elevation of the anchor-plate of the cam mechanism, looking toward the face thereof which coacts with the cam-disk. Fig. 9 is a similar view of the rockable cam-disk, looking toward the face thereof which coacts with the anchor-plate. Fig. 10 is an enlarged vertical longitudinal section through the lower middle part of the sash, showing the strip-actuating stud and the opening and slot in which it works.

My invention is equally applicable to bowed and straight swinging windows, and is shown as applied to both of these styles of windows, the weather-strip mechanism, however, in each case being substantially the same. The only difference in construction is that in the curved or bowed casement window, illustrated in Figs. 1, 2 and 3, the sealing-strip is correspondingly curved or bowed, while in the straight casement window, illustrated in Figs. 4 to 7, inclusive, the sealing-strip is straight, the actuating mechanism for the sealing-strip being the same in each instance, and being more particularly shown in Figs. 6 to 10, inclusive. It is to be noted that my invention is also applicable to other forms or styles of windows or other devices having transversely relatively movable parts.

For convenience of description, the embodiment of my invention in the window construction illustrated in Figs. 4 to 10, inclusive, will be first described and then both constructions will be contemporaneously treated.

The weather-strip mechanism includes the weather-strip proper or sealing-strip and the actuating mechanism therefor. Referring to Figs. 4 to 10, inclusive, the sealing-strip 11 is a straight strip of suitable metal, such as brass, of proper width and thickness. The strip 11 is located at the outside of the

5 window, and when in lowered position effectively breaks or covers the joint or crack between the lower sash rail 12 and the window sill 13. The window sill 13 has a shoulder
10 formed thereon having an outer vertical sealing surface flush with or in alignment with the outer surface of the sash rail 12, when the window sash is closed, as particularly shown in Fig. 6; and the sealing-
15 strip 11 is also shown as resting at its lower edge upon and making tight connection with the sill 13 which slopes downward and outward from its line of contact with the
20 sealing-strip. The sill 13 and the sash rail 12 also have the usual coacting rabbets forming stop-shoulders, as seen in Fig. 6. The sealing-strip 11 is adapted to be raised from the
25 sealing or joint-covering position shown in Figs. 4 to 7, inclusive, to a position above the shoulder on the sill 13 and with its lower edge flush with the adjacent rabbeted edge of the sash rail 12, as shown in Fig. 1, which illustrates the curved, but otherwise similar, sealing-strip 11^a. When the sealing-strip 11 is thus raised the sash may be freely swung inward.

The sealing-strip 11 is supported and guided on the lower rail 12 by combined guiding and supporting means, shown as washers 14, and retaining screws 15 passing
30 through these washers and also passing freely through the strip 11, which is shown having transverse guide-slots for receiving the screws 15, of which a plurality are provided, shown in the drawings as four.

35 The sash rail 12 is provided at its outer side with a drip-ledge 16 which is cut away at its inner side to form a strip-receiving channel for the transversely-movable sealing-strip 11 for which the recessed drip-ledge 16 constitutes a protective housing, in addition to performing the protective function of the usual drip-ledge. Also the drip-ledge 16 substantially conceals the sealing-strip 11, particularly when the sealing-strip is in the elevated or retracted position (Fig. 1).

In the construction shown in Figs. 1, 2 and 3, the sealing-strip 11^a has transverse
50 guide-slots therein and is curved or bowed to correspond with the bow or curvature of a bowed window sash upon the lower rail 17 of which the strip 11^a is supported and guided by the washers 14 and retaining screws 15 engaging in the transverse guide-slots of the strip 11^a, four sets of these combined guiding and supporting means being shown. The sealing-strip 11^a and the lower sash rail 17 are coactive with a correspond-
60 ingly longitudinally curved, shouldered and rabbeted sill 18 of similar transverse section to the sill 13. The sash rail 17 is provided with a drip-ledge 19 forming also a protective housing for the sealing-strip 11^a.

65 The actuating mechanism, like construc-

tions of which are employed for actuating the sealing-strips 11 and 11^a of the two above described window constructions, will now be described. Referring more particularly to Figs. 4 to 10, inclusive, an opening
70 is cut through the lower sash rail 12 for the reception and free movement of a vertically-movable strip-actuating stud 20 which extends through the sash rail, and the outer end of which pivotally engages in a stud-receiv-
75 ing hole near the upper edge of and at a median location longitudinally in the sealing-strip 11, as shown in the drawings. At its inner end the actuating-stud 20 rigidly carries a rockable disk 21 and is shown as
80 formed in one piece therewith. The rockable stud-actuating disk 21 is provided at its side adjacent to the window sash with parallel curved ridges 22 and 23 joined at their ends to form between them an arcuate
85 groove forming a cam-track arranged eccentrically to the stud 20 throughout a little more than a semi-circle. This cam-track or cam-groove receives a guide-lug 24 project-
90 ing outward between the ridges 22, 23, from an anchor-plate 25 stationarily carried by the sash rail 12. The anchor-plate 25 has, substantially centrally thereof, a guide-way or stud-guiding vertical slot, through which
95 projects the strip-actuating stud 20 and in which this stud is vertically guided. In Figs. 1, 3 and 4, this vertical stud-guiding slot is shown by broken lines, while in Fig. 8 it is shown in full. By reason of the cam action of the cam-ridges 22, 23 upon the lug
100 24, the rocking of the disk 21 will cause the stud 20 to move vertically and carry with it the sealing-strip 11. The rockable disk 21 and the anchor-plate 25 are held in coöperative relation by a collar 26 on the stud 20
105 (see Figs. 6 and 10) engaging the inner face of the anchor-plate adjacent to the stud-guiding slot therein and constituting a guide-shoulder, the collar 26 being retained in place by a pin 27 through the stud 20. A
110 peripheral flange 28 is provided on the anchor-plate 25, the edge of this flange forming a guiding surface coactive with the inner surface of the rockable disk 21. These coactive
115 guiding surfaces are coöperative with the guide-shoulder formed by the collar 26 to compel the strip-actuating stud 20 to travel bodily in its vertical movements and to obviate any longitudinal rocking or angular movement of such stud. The anchor-plate
120 25 is provided with lateral ears 29 for receiving retaining screws by which it is secured to the sash rail 12. The rockable disk 21 may be conveniently rocked, to thereby positively raise or lower the sealing-strip 11, by
125 means of a combined actuating-handle and indicating-pointer 30 carried by the disk 21 and shown as formed in one piece therewith. The rockable disk 21 and its handle 30 are adapted to rock through substantially a half
130

rotation. When the handle 30 is at the right as viewed from within the building and as shown in Figs. 2, 5, 6 and 7, then the sealing-strip will occupy its lowered or protective position; and, conversely, when the protective strip is at its upper positions, the handle 30 will be at the left. The strip-actuating mechanism may be assembled at the shop or factory, by putting in place the collar 26 and retaining pin 27, and the actuating mechanism may afterward be handled as a unit. In practice it is convenient to make the strip-actuating stud 20 of extra length and afterward cut off whatever surplus there may be at the outer end, according to the thickness of the sash rail or other transversely-movable part upon which the weather-strip mechanism is to be installed. It should be noted that in addition to its functions as a weather-strip, the mechanism acts as a sash lock, either in place of or in addition to any other suitable lock that may be employed.

The placing of the combined strip-guiding and strip-retaining means, such as the washers 14 and screws 15, at a plurality of spaced locations along the sealing-strips 11 and 11^a, including locations adjacent to the ends and at intermediate points, assures the secure guiding and holding of the strips and enables them to form a tight seal when lowered, and also compels each strip 11 or 11^a to move throughout its length in response to power applied at a point intermediate of its ends. This feature is of particular utility in reference to a curved or bowed window, such as is shown in Figs. 1, 2 and 3, this style of window having heretofore given great trouble in this respect. Should one end of the strip 11 or 11^a either rise or be depressed ahead of the other end thereof, the movement of the advance end will be limited by the contact of the screw 15 with the end of the screw-receiving slot in the sealing-strip and the slight longitudinal angular movement of the strip will be corrected by the movement of the other end thereof.

It is obvious that various modifications may be made in the constructions shown in the drawings and above particularly described within the principle and scope of my invention.

I claim:

1. A weather-strip mechanism for transversely relatively movable parts, such mechanism comprising, in combination, an

anchor-plate fixed to one of the parts and having therein a guide-slot for a strip-actuating stud, a transversely movable sealing-strip spaced a substantial distance from the anchor-plate, the guide-slot in the anchor-plate being arranged in the direction of movement of said sealing-strip, a rockable cam-disk pivotally and slidably mounted on the anchor-plate, the anchor-plate being provided with a lug and the cam-disk with a cam engaging the lug, and a strip-actuating stud carried by the cam-disk and projecting through and guided by the guide-slot of the anchor-plate and also projecting across the intervening space and engaging the sealing-strip to move the sealing-strip transversely with a right line thrust by reason of the rocking of the rockable cam-disk and the rectilinear movement of the strip-actuating stud in the guide-slot.

2. A weather-strip mechanism for transversely relatively movable parts, such mechanism comprising, in combination, an anchor-plate fixed to one of the parts and having therein a guide-slot for a strip-actuating stud, a transversely movable sealing-strip spaced a substantial distance from the anchor-plate, the guide-slot in the anchor-plate being arranged in the direction of movement of said sealing-strip, a rockable cam-disk for moving the sealing-strip transversely, the anchor-plate being provided with a lug and the cam-disk with a cam engaging the lug, a strip-actuating stud carried by the cam-disk and projecting through and guided by the guide-slot of the anchor-plate and also projecting across the intervening space and engaging the sealing-strip to move the sealing-strip transversely with a right line thrust by reason of the rocking of the rockable cam-disk, and the rectilinear movement of the strip-actuating stud in the guide-slot, and a guide-shoulder carried by the stud and engaging the anchor-plate adjacent to the guide-slot to hold the anchor-plate and the cam-disk in interengaging relation, the cam-disk and the anchor-plate having coacting guiding surfaces coöperative with the guide-shoulder.

In testimony whereof I have affixed my signature in presence of two witnesses.

JACOB KAMMERER.

Witnesses:

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BERNARD COWEN.