J. KAMMERER.

WEATHER STRIP.

APPLICATION FILED APR. 20, 1909.

996,345. Patented June 27, 1911.

Fig. 1

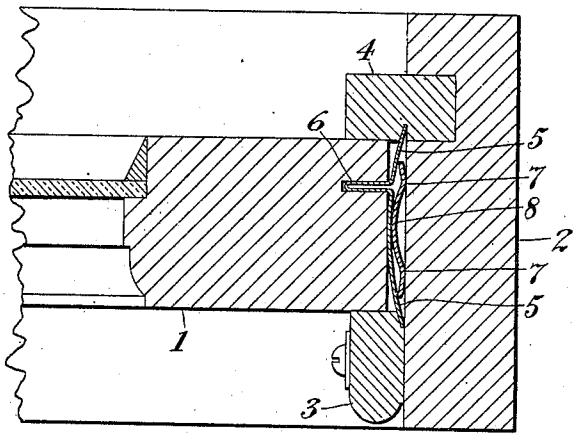
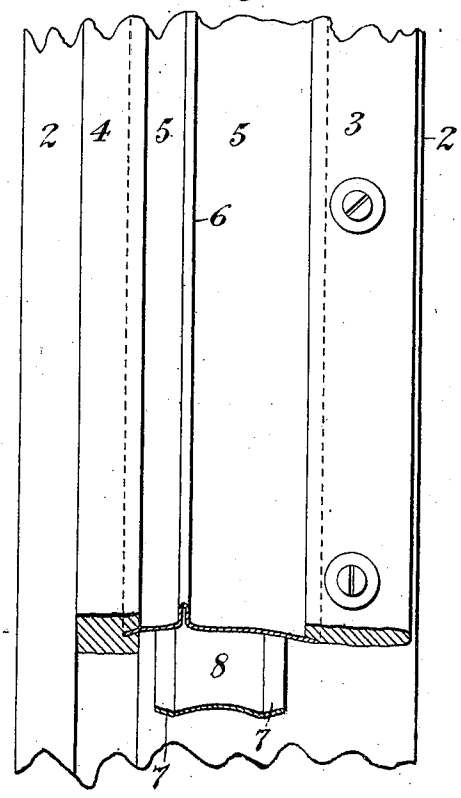


Fig. 2



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JACOB KAMMERER, OF NEW YORK, N. Y.

WEATHER-STRIP.

996,345. Specification of Letters Patent. Patented June 27, 1911.

Application filed April 20, 1909. Serial No. 491,006.

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 a certain new and useful Improvement 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 strips and is particularly adapted for application at the edges of sliding sashes.

The objects of my invention are simplicity and inexpensiveness of construction, durability, prevention of rattling and binding, and a high degree of efficiency in excluding wind and rain and dust.

Other objects and advantages will appear from the following description.

My invention includes, as a new article of manufacture, a sheet metal weather strip which is continuously curved or bowed from edge to edge and which is folded or bent at a substantial distance from the edges so as to form a longitudinal rib projecting from the convex side of the curve, the side walls of such rib being internally spaced at the point where they join the curved portion to thereby increase the resiliency of the curved portion when the weather strip is clamped to a supporting part at its edges.

My invention also includes, in combination with such a strip or outer member as above described and in combination with a pulley stile provided with sash guides for guiding a sash and clamping in place the said strip or outer member, an inner sheet metal member formed, as hereinafter described and claimed, so as to resiliently support the outwardly curved outer member at a transversely median point and also at lateral points.

My invention also includes other advantageous features and several details of construction as will hereinafter appear.

I shall now describe my invention with reference to the accompanying drawings and shall thereafter point out my invention in claims.

Figure 1 is a horizontal section through the window frame and sash and through the weather strip. Fig. 2 is a side elevation, partly broken away, of a portion of the window frame as viewed from the left of Fig. 1, the sash being omitted.

In the illustrated embodiment of my invention my improved weather strip is shown as applied at the edge of a sash 1 adapted to slide in a frame having a pulley stile 2 provided with a usual stop bead 3 and parting strip 4. The weather strip is shown as consisting of two members or as formed in two parts, an outer member or sealing part and an inner member or supporting part. The outer member or sealing part of the weather strip includes a yieldable sealing portion 5, which is transversely curved continuously from edge to edge. The curved portion 5 is provided intermediate of its edges and at the outer side of the curve at a point spaced a substantial distance from each edge with a fold forming a U-shaped sealing rib 6 projecting outwardly from the outwardly curved portion and shown as having parallel side walls internally spaced one from the other. The curved portion 5 curves outwardly from the pulley stile 2 and has its edges firmly clamped thereto, one of such edges being shown as seated in a slot in the parting strip 4, which in turn is seated in a groove in the pulley stile 2, as is usual; and the other edge of the curved portion 5 is shown as clamped beneath the inner edge of the stop bead 3, which is shown as secured by screws to the pulley stile 2. Therefore, the inner member 5 is firmly clamped in position at its edges and bows or curves outwardly away from the pulley stile 2 at all points between the stop bead 3 and the parting strip 4. This outwardly curved outer member 5 is adapted to yield inwardly at its median portion toward the pulley stile 2, and the sealing rib 6, being carried by the outwardly curved portion, is adapted to yield inwardly therewith, the internally spaced side walls of the rib permitting additional yielding of the curved portion.

The inner member of the weather strip includes outwardly turned lateral portions 7 and an outwardly curved median portion 8. The lateral portions 7, at their point of junction with the median curved portion 8, rest against the face of the pulley stile 2, whence they extend outwardly and press against and resiliently support at lateral points the outwardly curved portion 5 of the outer member at both sides of the rib 6. The outwardly curved median portion 8 of the inner member is curved to a shorter radius than the outwardly curved portion 5 of the outer member and presses against the

inner side of and constitutes a resilient support for such outer member. The inner member of the weather strip is constructed of resilient sheet metal, and by reason of its resiliency acts to yieldingly support the outwardly curved outer member. Because of such resilient support a metal may be chosen for the outer member of the weather strip having particular reference to appearance and which is not necessarily highly resilient, the desired additional resiliency being supplied by the resilient inner member, for which a metal may be chosen having particular regard to resiliency, as such inner member is not exposed to view and is protected by the outer member of the device. Sheet zinc has been found suitable for constructing the outer member of the device, and sheet brass for the inner member. In constructing the two members of the device the sheet metal may be stamped by dies or otherwise bent to the required shape. In applying the device to a window, the inner member is placed behind the outer member and, by reason of its resiliency, is held in place by such outer member, needing no other securing means.

The sash 1 is guided between the stop bead 3 and the parting strip 4 and presses at its edge face against the outwardly curved portion of the outer member, the sash 1 having a groove for receiving the sealing rib 6. The resiliency of the parts will at all times maintain a weather-tight seal between the pulley stile 2 and the sash 1, and, because of the fact, as hereinbefore noted, that the sealing rib 6 is carried by the outwardly curved portion 5, the rib 6 can yield with such curved portion and thereby alter its position and move with the sash 1 so that no binding can occur on the rib 6 nor at any point, while the sash will at all times be held with sufficient pressure to prevent rattling of the window. The spacing apart of the side walls of the rib 6 permits such walls to freely yield sufficiently to take up any lateral movement transmitted thereto by the compression of the outwardly curved portion 5. The gradual convex curve of the outwardly curved sealing surface of the outer member produces a surface to which the sealing face of the sash is tangential and which will flatten under pressure in parallelism with the sealing face of the sash, thereby producing a sealing surface, as well as a friction holding and wearing surface of substantial width.

The rib 6 provides an additional seal in addition to that secured by contact of the sash 1 with the outwardly curved portion 5. This rib may be located at any point of the curve where it will be permitted to yield and so that the groove therefor will not be too near to the edge of the sash 1, and such rib is shown as located a little to one side of a median point, thereby giving plenty of room on the sash for the usual sash cord or sash chain.

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

I claim:

1. A weather tight joint comprising, in combination with two relatively movable parts, one of which constitutes a supporting part for a sealing member and the other of which has a plane sealing face coactive with the sealing member; a sealing member continuously outwardly curved substantially from edge to edge and supported at both its edges on the supporting part so that the sealing member bows outwardly from the supporting part substantially from edge to edge of the sealing member and presents a convexly curved sealing surface tangential to the plane sealing face of the other part and which will flatten under pressure into parallelism with the plane sealing face, thereby producing a sealing surface, as well as a holding and friction and wearing surface of substantial width.

2. As a new article of manufacture, a weather strip comprising a strip of sheet metal continuously curved from edge to edge to provide a convexly curved yieldable sealing surface adapted to flatten under pressure to produce a sealing surface as well as a holding and friction and wearing surface of substantial width, and provided at a point spaced a substantial distance from each edge with a fold forming a longitudinal rib projecting from the convex side of the curve, the rib having internally spaced side walls at the point of junction with the curved portion of the weather strip to permit additional yielding of the convexly curved sealing surface of the convexly curved portion and to increase the resilience of such convexly curved portion.

3. A weather-tight joint comprising, in combination with a slidable sash having at its side edge a plane sealing face and having in such side edge a longitudinal groove and a pulley stile provided with guides for the edge of the sash, a sealing member continuously outwardly curved substantially from edge to edge and engaged at its edges by the guides to hold it in place on the pulley stile so that the sealing member bows outwardly at all points between the guides and presents a convexly curved sealing surface tangential to the plane sealing face of the sash and which will flatten under pressure into parallelism with the plane sealing face of the sash and thereby produce a resilient sealing, friction, holding and wearing surface of substantial width, such sealing member being provided with a longitudinal sealing rib projecting outwardly from the curved portion

between the guides and entering the groove, the rib having internally spaced side walls where it joins the curved portion of the sealing member to provide for increased resiliency in the curved portion and to permit additional yielding of the convexly curved sealing surface of such convexly curved portion.

4. A weather-tight joint comprising, in combination with two relatively movable parts, an outer sealing member continuously outwardly curved substantially from edge to edge and supported at both its edges on one of the parts so as to bow outwardly therefrom substantially from edge to edge of the sealing member and adapted to form a seal with the other part, and an inner spring member interposed between the outwardly curved outer member and the part on which it is supported, the inner spring member having an outwardly curved median portion curved to a shorter radius than the outer member and resiliently supporting the median portion of the outer member, such inner member also having its lateral portions turned outwardly to form resilient supports for the outer member laterally beyond the median portion of the outer member.

5. A weather-tight joint comprising, in combination with a slidable sash having in its side edge a longitudinal groove and a pulley stile provided with guides for the edge of the sash, an outer sealing member continuously curved outwardly substantially from edge to edge and clamped in place at its edges by the guides so as to bow outwardly from the pulley stile at all points between the guides and to be yieldable inwardly at its median portion, such outer member being provided with a longitudinal sealing rib projecting outwardly from the outwardly curved portion and adapted to yield inwardly therewith, the rib having internally spaced side walls where it joins the outwardly curved portion to permit additional yielding of the curved portion, and an inner spring member interposed between the outer member and the pulley stile, such inner spring member having outwardly turned edges resiliently supporting the outer member at opposite sides of its rib, respectively, and also having an outwardly curved intermediate portion curved to a shorter radius than the outer member and constituting a resilient support for the intermediate portion of the outer member.

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

JACOB KAMMERER.

Witnesses:

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