April 2, 1963 L. TINFLOW 3,083,420

WEATHER RESISTANT DOOR SADDLE

Filed April 21, 1960

Fig. 1

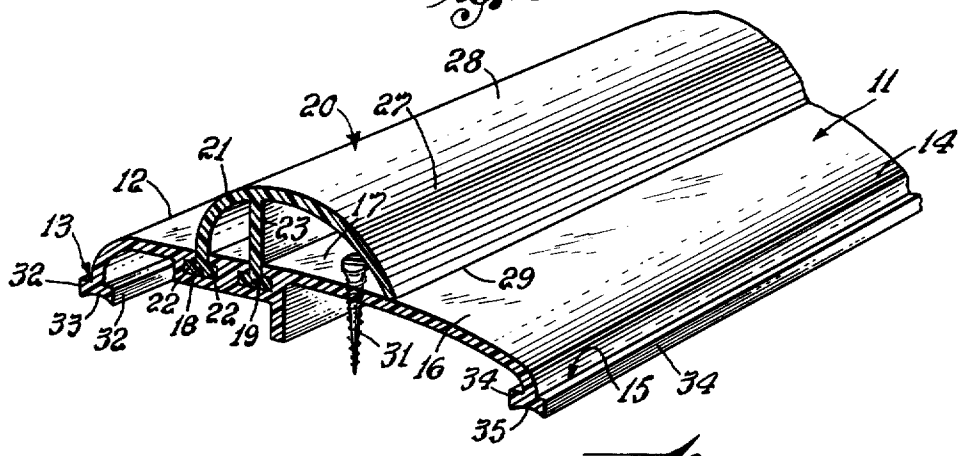


Fig. 2

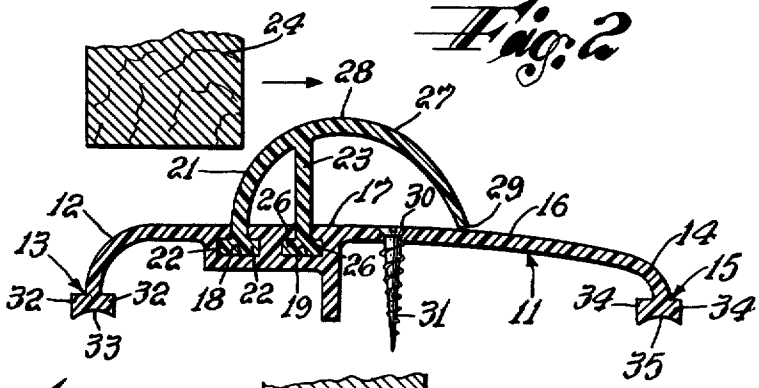


Fig. 3

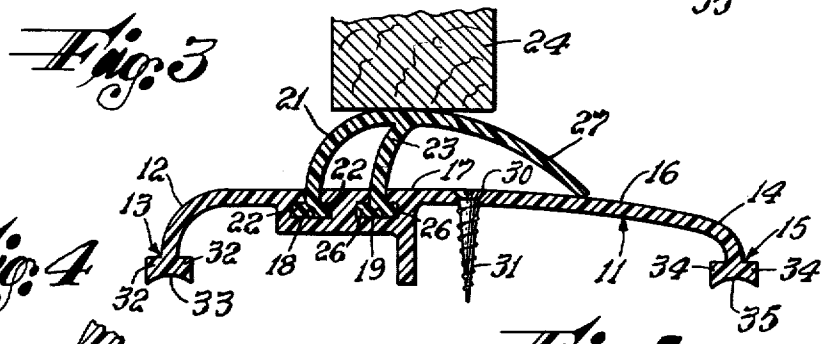
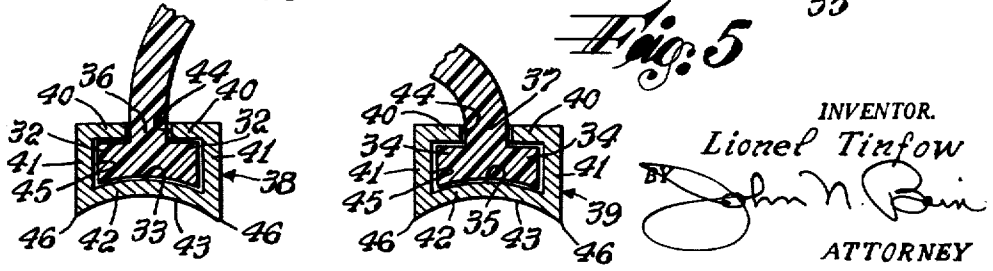


Fig. 4

Fig. 5



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WEATHER RESISTANT DOOR SADDLE

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It is almost universal practice to provide a doorway threshold with a saddle of some sort. In the case of a doorway leading to the outdoors, the saddle should be provided with weather-seal means to prevent cold air and water from passing between the bottom of the door and the top of the saddle. There is available a number of saddles provided with weather-seal means one of which employs an extruded metal base member or saddle with a weather-seal insert fabricated of vinyl or some other suitable synthetic material. Such inserts are in the shape of a simple, inverted U and are secured in grooves provided in the top of the saddle.

The inverted, U-shaped weather-seal is dimensioned to impinge on the bottom of the door thereby creating a weather resistant joint. However, the bottom of the door should be beveled along its leading edge in order to avoid putting portions of the seal under compression. However, beveling the bottom of a door is a difficult and time-consuming procedure, with the result that few carpenters will take the trouble to so do.

Failure to bevel the bottom edge of the door results in excessively rapid wear and early failure of the seal. In the case of a weather-seal fashioned in the shape of an inverted U, the door will compress at least one leg causing an angular bend at the point of compression. It must be borne in mind that although vinyl and like materials are highly flexible, they are very resistant to compression. Thus, the door will impinge heavily on the seal at the point of compression causing excessive friction wear and rapid failure of the weather-seal insert. Even if the door is beveled, the U-shaped weather-seal structure tends to put at least one leg in compression to a considerable degree and to cause a sharp, angular bend at that point. This problem is further compounded as the weather-seal ages and becomes even less resilient and flexible and more subject to friction wear. In addition to excessively rapid wear, the U-shaped weather seal causes enough friction to make closing the door difficult.

Therefore, it is among the objects and advantages of my invention to provide a weather resistant door saddle in which no portion of the seal is subject to compression or sharp, angular bends.

It is another object of my invention to provide a weather resistant door saddle in which the bottom of the door need not be beveled or otherwise unusually formed to prevent or minimize damage to the weather-seal.

Yet another object of my invention is to provide a weather resistant door saddle in which friction forces between the bottom of the door and the weather-seal are minimal without impairing the weather sealing characteristics of the saddle.

A further object of my invention is to provide a weather resistant door saddle in which the seal presents a smooth, uninterrupted, gradually curved, resiliently flexible, convex surface that greatly reduces the risk of tripping.

Still another object of my invention is to provide a weather resistant door saddle in which the weather-seal forms a weather-tight cover for the screws or other means by which the saddle is secured to the floor.

Yet another object of my invention is to provide a weather resistant door saddle in which the screws or other means by which the saddle is secured to the floor are readily accessible without removing the weather-seal.

A still further object of my invention is to provide a weather resistant door saddle in which removable, resiliently flexible floor-seals may be slidably applied to the front and rear lateral edges of the saddle to form a water-tight joint between the saddle and the floor.

Yet a further object of my invention is to provide a weather resistant door saddle in which the saddle slopes gradually downwardly both forwardly and rearwardly from a lateral ridge intermediate its front and rear edges to prevent the collecting of water on the saddle.

These objects and advantages, as well as other objects and advantages may be achieved by my invention, one embodiment of which is illustrated in the drawings in which:

FIGURE 1 is a view in perspective showing one embodiment of my invention of a weather resistant door saddle.

FIGURE 2 is a side elevational, cross-sectional view of the assembly shown in FIGURE 1 with a door displaced therefrom.

FIGURE 3 is a side elevational, cross-sectional view of the assembly shown in FIGURE 1 showing a door overlying the weather-seal.

FIGURE 4 is an enlarged, side elevational, cross-sectional view of the front, lateral edge of the door saddle and a removable floor-seal.

FIGURE 5 is an enlarged, side elevational, cross-sectional view of the rear lateral edge of the door saddle and a removable floor seal.

Referring now to the drawings in detail, my invention comprises a door saddle **11** which may be fabricated conveniently by extruding some suitable metal such as aluminum. The saddle **11** is provided with a gradually rounded, lateral, front face portion **12**, which slopes upwardly and rearwardly from its front, lateral edge **13**. The saddle **11** is also provided with a gradually rounded, lateral, rear face portion **14** which slopes upwardly and forwardly from its rear, lateral edge **15**. Immediately forward of the rear face portion **14** and contiguous thereto, there is an intermediate face portion **16** which slopes very gradually, upwardly and forwardly to meet the rearmost portion of the front face portion **12** to present a smooth saddle surface without discontinuity. There is a lateral ridge **17** at the intersection of the intermediate face portion **16** and the front, face portion **12** from which all portions of the saddle **11** slope downwardly. Of course, the ridge **17** need not be angular but may be gradually rounded as is shown in the drawings.

The saddle **11** is provided with a pair of generally parallel, lateral, inverted T-shaped grooves **18**, **19** immediately rearwardly of the front face portion **12**, which extend across the width of the saddle **11**. A resilient, flexible, generally convex, weather-resistant seal **20** is slidably secured within the grooves **18**, **19** and extends laterally across the width of the saddle **11**. The seal **20** is comprised of a convex face member **21**. The bottom, lateral edge of the face member **21** is provided with a pair of lateral ribs **22**, **22** which collectively closely conform in both shape and size to the inverted, T-shaped groove **18**, the same being slidably secured therein. The convex front face member **21** curves upwardly and rearwardly from the groove **18** to join with a resilient, flexible, intermediate leg **23**. The intermediate leg **23** may be straight and rises generally vertically from the groove **19** in the saddle **11** when the seal **20** is not engaged with the door **24**. The bottom lateral edge of the intermediate leg **23** is provided with a pair of lateral ribs **26**, **26** which collectively closely conform in both shape and size to the inverted T-shaped groove **19**, the same being slidably secured therein. A resilient, flexible, generally convex rear face member **27** is formed integrally with the rear of front face member **21** without discontinuity and curves first gradually upwardly and rearwardly to a topmost ridge **28** and then gradually downwardly and rear-

wardly to a bottom, lateral edge 29. Of course, the topmost ridge 28 is not angular but is gradually rounded such that the seal 20 generally presents a smooth, generally, convex surface without discontinuity or angles. The bottom lateral edge 29 of the rear face member 27 abuts against the intermediate face portion 16 of the saddle 11 with moderate pressure but is free to slide rearwardly thereon in response to general deformation of the seal 20 from pressure exerted by a closing door 24.

The saddle 11 is provided with a plurality of holes 30 to the rear of the groove 19 to accommodate screws 31 by means of which the saddle 11 may be secured to the floor. The rear face member 27 of the seal 20 is so dimensioned and shaped that it abuts against the intermediate face portion 16 of the saddle 11 at some point to the rear of the screw holes 30. In this manner, the seal 20 prevents water from penetrating under it and through the holes 30 to rot the floor beneath the saddle 11. At the same time, the screws 31 are readily accessible by merely lifting up the resiliently flexible rear face member 27 of the seal 20. In the drawings, I have shown the intermediate leg 23 of the seal 20 to be located somewhat in front of the topmost ridge 28 of the seal 20, however, the intermediate leg 23 could be positioned beneath the ridge 28 or slightly to its rear without impairing the utility or function of the seal 20.

The saddle 11 is provided with a pair of relatively thin, lateral ribs 32, 32 extending across its width at its front lateral edge 13 and a pair of lateral ribs 34, 34 extending across its width at its rear lateral edge 15. The front lateral edge 13 and the rear lateral edge 15 are each provided with a generally semicircular groove 33, 35 respectively at the bottom thereof and extending across the width of the saddle 11. The front face portion 12 of the saddle 11 is provided with a relatively short straight portion 36 immediately above the ribs 32, 32 and generally perpendicular thereto; the rear face portion 14 is similarly provided with a relatively short straight portion 37 immediately above the ribs 34, 34 and generally perpendicular thereto as is best shown in FIGURES 4 and 5.

A floor seal 38 is slidably secured to the front lateral edge 13 of the saddle 11 and a second floor seal 39 is slidably secured to its rear lateral edge 15. Floor-seals 38 and 39 are each comprised of a pair of separated, generally parallel, horizontal top legs 40, 40 and a pair of generally vertical side legs 41, 41 formed integrally with the respective top legs 40, 40. The bottom 42 of each floor seal 38, 39 is formed integrally with the respective side legs 41, 41 and is provided with an external, generally semi-circular external groove 43. Each floor seal 38, 39 is provided with a longitudinal slot 44 between the separated top legs 40, 40 which communicates with a channel 45 which closely conforms in both shape and size to the ribs 32, 32 and groove 33 and ribs 34, 34 and groove 35 of the saddle 11. It should be noted that relatively sharp edges 46, 46 result at the point of intersection of the side legs 41, 41 and 41, 41 and bottoms 42, 42 of the respective floor seals 38, 39. The height of the short vertical portions 36, 37 of respectively the front face portion 12 and rear face portion 14 of the saddle 11 should be at least as great as the thickness of the top legs 40, 40 and 40, 40 of the respective floor seals 38, 39; this in order that the said seals will remain slidably secured to the saddle 11.

In operation, the weather-seal 20 is slidably inserted in the grooves 18, 19. The seal 20 may be extruded of vinyl or some other suitable, resilient, flexible material in long segments and cut to fit saddles of different widths. The floor seals 38, 39 may be applied to the saddle 11 by sliding them over the ribs 32, 32 and 34, 34 respectively. As in the case of the weather-seal 20, the floor seals 38, 39 may be fabricated of vinyl, or some other suitable material in long segments and cut to accommodate saddles of different widths. After the seals 20, 38 and 39 have been applied to the saddle 11, the saddle 11 is positioned on the threshold of the doorway in such a manner that the front face member 21 of the seal 20 opposes the direction of motion of a closing door 24. The saddle 11 is then secured in place by the screws 31 which may be made accessible by merely lifting the rear face member 27 of the seal 20. As the saddle 11 is screwed tightly to the floor, the pointed edges 46, 46 and 46, 46 of each of the floor seals 38, 39 form a watertight joint between the saddle 11 and the floor. In the alternative, the floor seals 38, 39 may be omitted and a bead of calking applied to the curved grooves 33, 35 in the bottom of the front and rear edges 13, 15 of the saddle 11 before it is secured to the floor.

FIGURE 2 of the drawings, shows my weather resistant door saddle with the door 24 in an open position. In this position, the intermediate leg 23 of the seal 20 is erect and under slight tension, thus holding the rear face member 27 in abutment with the rear face portion 16 of the saddle 11 to prevent water seepage into the screw holes 30. As the door 24 is closed, it will first strike the gradually rounded front face member 21 of the seal 20, bending it rearwardly and slightly downwardly. The rear face member 27 bends downwardly and its lateral edge 29 slides rearwardly over the rear face portion 16 of the saddle 11. When the door is closed, the seal 20 assumes a less than normal convex configuration and the intermediate leg 23 is bent to the rear and slightly downwardly. The rear lateral edge 29 of seal 20 slides rearwardly along the intermediate face portion 16 remaining in contact with the saddle 11 at all times. Since the seal 20 is fabricated of resilient, flexible material such as vinyl, it tends to return to its normal, convex configuration as is shown in FIGURE 2. Thus, the seal 20 resiliently engages the bottom of the door 24 along its entire length to form a weather resistant joint therewith. It should be noted that no portion of the seal 20 is ever under compression in any manner whatsoever, nor is any portion bent at a sharp angle. Thus, the amount of friction between the seal 20 and the bottom of the door 24 is minimal while, at the same time, the natural resilience of the seal 20 maintains a secure weather-tight joint.

The foregoing description is merely intended to illustrate an embodiment of the invention. The component parts have been shown and described. They each may have substitutes which may perform a substantially similar function; such substitutes may be known as proper substitutes for the said components and may have actually been known or invented before the present invention; these substitutes are contemplated as being within the scope of the appended claims, although they are not specifically catalogued herein.

I claim:

1. A weather resistant door saddle comprising,

(*a*) a saddle,

(*b*) a resilient, flexible, normally, convex seal,

(*c*) a first edge on the seal secured to the saddle, the first edge on the seal being immovable in a direction generally perpendicular thereto.

(*d*) an integral leg on the bottom of the seal secured to the saddle,

(*e*) a second edge on the seal opposite the first edge adapted to engage and slide over the upper surface of the saddle in a direction generally perpendicular to the first edge in response to pressure exerted adjacent to the first edge by the bottom of a closing door,

(*f*) the seal assuming a less than normal convex configuration while engaging the bottom of the door along its entire length,

(*g*) means on the saddle to secure the saddle to a floor located between the leg and the second edge on the seal,

(*h*) a first edge on the saddle,

(*i*) a second edge on the saddle,
(*j*) means on the saddle for producing a weather resistant joint between the first and second edges of the saddle and the floor.

2. A weather resistant door saddle comprising,
(*a*) a saddle,
(*b*) a resistant, flexible, normally convex seal,
(*c*) a first edge on the seal secured to the saddle, the first edge on the seal being immovable in a direction generally perpendicular thereto,
(*d*) an integral leg on the bottom of the seal secured to the saddle,
(*e*) a second edge on the seal opposite the first edge adapted to engage and slide over the upper surface of the saddle in a direction generally perpendicular to the first edge in response to pressure exerted adjacent to the first edge by the bottom of a closing door,
(*f*) the seal assuming a less than normal convex configuration while engaging the bottom of the door along its entire length,
(*g*) a first edge on the saddle,
(*h*) a second edge on the saddle,
(*i*) a pair of ribs on the first and second edges of the saddle respectively,
(*j*) a groove in the bottom of the first and second edges of the saddle respectively, and
(*k*) means on the saddle for securing the saddle to a floor located between the leg and the second edge on the seal.

3. A weather resistant door saddle comprising,
(*a*) a saddle,
(*b*) a resilient, flexible, normally convex seal,
(*c*) a first edge on the seal secured to the saddle,
(*d*) an integral leg on the bottom of the seal secured to the saddle,
(*e*) a second edge on the seal opposite the first edge adapted to engage and slide over the upper surface of the saddle in a direction generally perpendicular to the first edge in response to pressure exerted adjacent to the first edge by the bottom of a closing door,
(*f*) the first edge on the seal being immovable in a direction generally perpendicular thereto,
(*g*) the seal assuming a less than normal convex configuration while engaging the bottom of the door along its entire length,
(*h*) a first edge on the saddle,
(*i*) a second edge on the saddle,
(*j*) a pair of ribs on the first and second edges of the saddle respectively,
(*k*) a resilient, flexible, channeled floor seal slidably engaged to each pair of ribs on the first and second edges of the saddle, and
(*l*) means on the saddle to secure the saddle to a floor located between the leg and second edge on the seal.

4. A weather resistant door saddle comprising,
(*a*) a saddle,
(*b*) a resilient, flexible, normally convex seal,
(*c*) a first edge on the seal secured to the saddle,
(*d*) an integral leg on the bottom of the seal secured to the saddle,
(*e*) a second edge on the seal opposite the first edge adapted to engage and slide over the upper surface of the saddle in a direction generally perpendicular to the first edge in response to pressure exerted adjacent to the first edge by the bottom of a closing door,
(*f*) the seal assuming a less than normal convex configuration while engaging the bottom of the door along its entire length,
(*g*) a first edge on the saddle,
(*h*) a second edge on the saddle,

(*i*) a pair of ribs on the first and second edges of the saddle respectively,
(*j*) a groove in the bottom of the first and second edges of the saddle respectively,
(*k*) a resilient, flexible floor seal having a channel closely conforming to the said ribs and grooves on the first and second edges of the saddle respectively slidably mounted on each of said pair of ribs, and
(*l*) means to secure the saddle to a floor located between the leg and second edge of the seal.

5. A weather resistant door saddle comprising,
(*a*) a saddle,
(*b*) a resilient, flexible, normally convex seal,
(*c*) a first edge on the seal secured to the saddle, the first edge on the seal being immovable in a direction generally perpendicular thereto,
(*d*) an integral leg on the bottom of the seal secured to the saddle,
(*e*) a second edge on the seal opposite the first edge adapted to engage and slide over the upper surface of the saddle in a direction generally perpendicular to the first edge in response to pressure exerted adjacent to the first edge by the bottom of a closing door,
(*f*) the seal assuming a less than normal convex configuration while engaging the bottom of the door along its entire length,
(*g*) a first edge on the saddle,
(*h*) a second edge on the saddle,
(*i*) a pair of ribs on the first and second edges of the saddle respectively,
(*j*) a straight portion on the saddle immediately above each pair of ribs and generally perpendicular thereto, and
(*k*) means to secure the saddle to a floor located between the leg and the second edge of the seal.

6. A weather resistant door saddle comprising,
(*a*) a saddle,
(*b*) a resilient, flexible, normally convex seal,
(*c*) a first edge on the seal secured to the saddle,
(*d*) an integral leg on the bottom of the seal secured to the saddle,
(*e*) a second edge on the seal opposite the first edge adapted to engage and slide over the upper surface of the saddle in a direction generally perpendicular to the first in response to pressure exerted adjacent to the first edge by the bottom of a closing door,
(*f*) the seal assuming a less than normal convex configuration while engaging the bottom of the door along its entire length,
(*g*) a first edge on the saddle,
(*h*) a second edge on the saddle,
(*i*) a pair of ribs on the first and second edges of the saddle respectively,
(*j*) a straight portion on the saddle immediately above each pair of ribs and generally perpendicular thereto,
(*k*) a groove in the bottom of the first and second edges of the saddle respectively,
(*l*) a resilient, flexible floor seal having a channel therein closely conforming to the ribs and groove on the first and second edges of the saddle respectively, slidably mounted on each of said pair of ribs, and
(*m*) means to secure the saddle to a floor located between the leg and the second edge of the seal.

7. A weather resistant door saddle comprising,
(*a*) a saddle,
(*b*) a resilient, flexible, normally convex seal,
(*c*) a first edge on the seal secured to the saddle,
(*d*) an integral leg on the bottom of the seal secured to the saddle,
(*e*) a second edge on the seal opposite the first edge adapted to engage and slide over the upper surface of the saddle in a direction generally perpendicular to the first edge in response to pressure exerted

adjacent to the first edge by the bottom of a closing door,

(*f*) the first edge on the seal being immovable in a direction generally perpendicular thereto,

(*g*) the seal being resiliently deformable to assume a less than normal convex configuration while engaging the bottom of the door along its entire length.

8. A weather resistant door saddle comprising,

(*a*) a saddle,

(*b*) a resilient, flexible, normally convex seal,

(*c*) a first edge on the seal secured to the saddle, the first edge on the seal being immovable in a direction generally perpendicular thereto,

(*d*) an integral leg on the bottom of the seal secured to the saddle,

(*e*) a second edge on the seal opposite the first edge adapted to engage and slide over the upper surface of the saddle in a direction generally perpendicular to the first edge in response to pressure exerted adjacent to the first edge by the bottom of a closing door,

(*f*) the seal being resiliently deformable to assume a less than normal convex configuration while engaging the bottom of the door along its entire length,

(*g*) means on the saddle adapted to facilitate securing the saddle to the floor, and

(*h*) means on the saddle for producing a weather resistant joint between the saddle and the floor.

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