July 7, 1964 F. L. MICHAELS 3,139,652

ASTRAGAL

Filed May 16, 1962 2 Sheets-Sheet 1

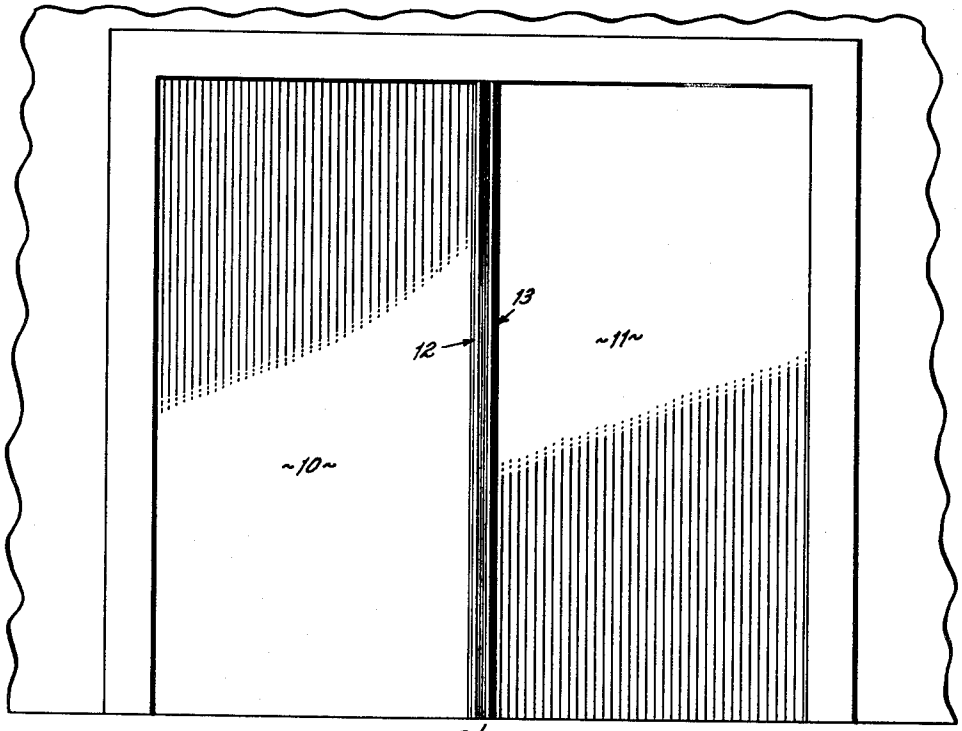


Fig. 1

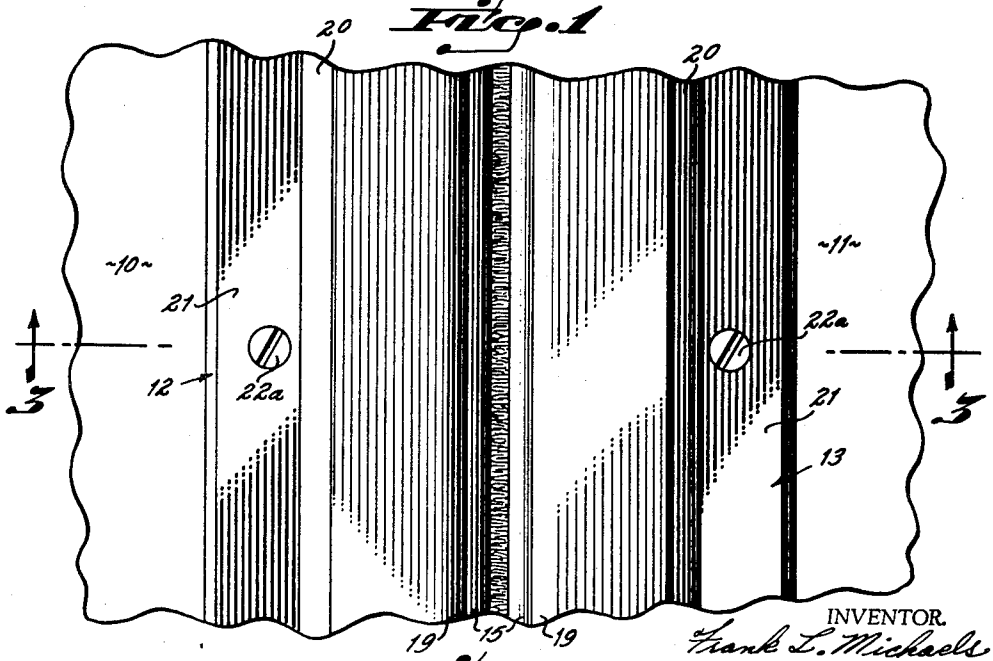


Fig. 2

INVENTOR.
Frank L. Michaels
BY
Wood, Herron & Evans
ATTORNEYS

July 7, 1964 F. L. MICHAELS 3,139,652

ASTRAGAL

Filed May 16, 1962 2 Sheets-Sheet 2

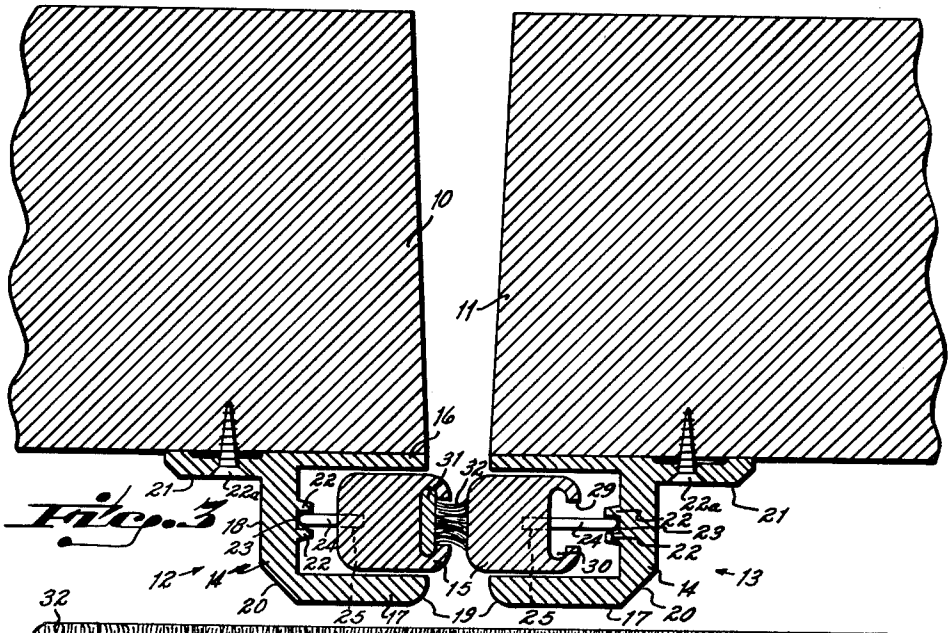


Fig. 3

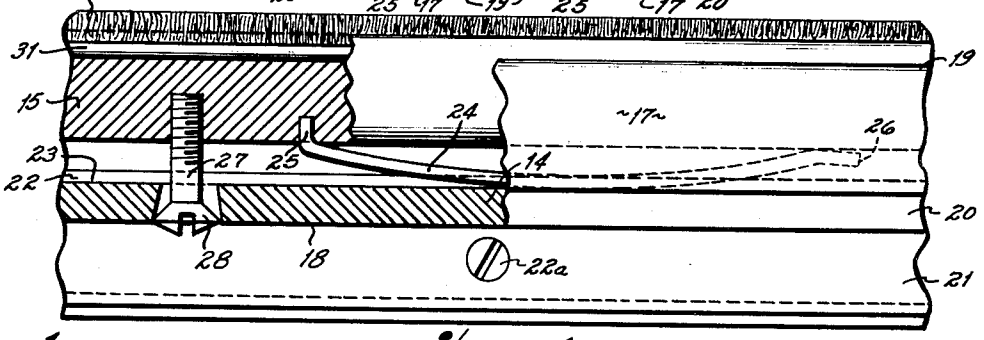


Fig. 4

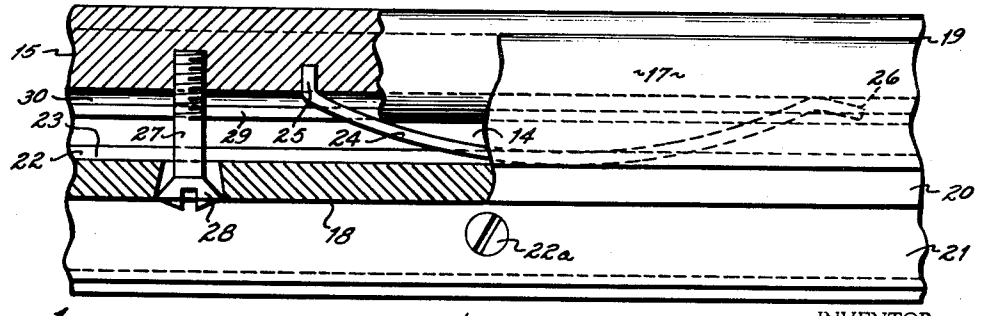


Fig. 5

INVENTOR.
Frank L. Michaels
BY
Wood, Herron & Evans
ATTORNEYS

United States Patent Office 3,139,652
Patented July 7, 1964

3,139,652

ASTRAGAL

Frank L. Michaels, Hebron, Ky., assignor to The Michaels Art Bronze Company, Inc., Erlanger, Ky., a corporation of Kentucky

Filed May 16, 1962, Ser. No. 195,249
2 Claims. (Cl. 20—68)

This invention relates to adjustable astragals which are used for the weather stripping of doors. A typical adjustable astragal of the prior art consists of a bar that is seated in a channel member in slip-fit relation. One side of the bar normally protrudes from the channel and the edges of this side of the bar are rounded. Means are provided to permit the bar to shift in and out, within limits, relative to the channel. Spring members within the channel behind the bar urge the bar towards its outer limit of shifting movement. Thus, when the bar is brought into contact with a surface, to depress the bar into the channel, the spring members maintain tight contact between the bar and the surface. Astragals may be used in different ways. They may be placed on the frame of the door and the door closed against them. They may be mounted on the door and brought into contact with the frame upon the closing of the door. In a double swinging door installation two such astragals may be used, one on the edge of each door where they join, so that the astragals contact each other when the doors are closed. It is also common practice in many types of installations to use strips of pile on the outer edges of the bars to increase their effectiveness as seals. But, this has necessitated providing one type of astragal bar for use when pile strips are employed and providing another type of astragal bar when such strips are not employed.

The primary objective of this invention has been to provide an astragal of improved construction and increased utility, wherein one bar is adapted to be used either with a strip of pile or without such a strip.

Other objectives and features of the invention will be readily apparent to those skilled in the art from the following detailed description of the drawings in which:

FIGURE 1 is a front elevational view of a typical double swinging door installation showing two astragals of this invention on the edges of the door where they join.

FIGURE 2 is an enlarged front elevational view showing a portion only of two mating astragal bars.

FIGURE 3 is an enlarged cross-sectional view taken on the line 3—3 of FIGURE 2.

FIGURE 4 is a fragmentary side elevational view, with parts broken away for illustration purposes, showing an astragal of this invention with the bar having a strip of pile in it.

FIGURE 5 is a view similar to FIGURE 4 showing the same bar in use without such a pile strip.

The present invention is concerned primarily with an adjustable astragal for large, heavy doors of the type more often found in commercial or public buildings than in homes, and it preferably is made of extruded bronze or aluminum. In FIGURE 1 two such swinging doors, identified as **10** and **11**, respectively are shown semi-diagrammatically. These doors mount astragals **12** and **13** at their juncture. As shown in FIGURE 3 each astragal comprises generally a channel member **14** and a bar **15**. As shown each channel member comprises two side walls designated **16** and **17** respectively which are joined by a base or web **18**. Preferably, the exposed edge of side wall **17** is rounded as at **19** and where wall **17** joins the base **18** of the channel the corner is beveled as at **20**. Also, as shown, the side wall **16** continues on into a flange **21** which projects beyond the base **18** to provide a means to secure the channel to a door as by screws, one

of which is shown in FIGURE 3 at **22***a*, or by other fasteners, including bolts.

Inside the channel member the base **18** is configurated to provide two ribs **22—22** extending the full length of the channel member, these ribs defining between them an internal channel **23** of small dimension which is centered on base **18**, being equally spaced from the inner surfaces of side walls **16** and **17** of the channel member. This internal channel **23** receives and seats a plurality of wire springs one of which is shown at **24** in FIGURES 4 and 5. In an installation these springs would be provided on ten to twelve inch centers along the full length of the bar. In this instance, each wire spring is arcuate, being formed on a large radius, and one end **25** thereof is turned at an approximate right angle to the body of the wire and this end is inserted into an appropriate bore in the inner face of bar **15**. The opposite end of the wire spring **24** is turned out as shown at **26** to present an arcuate seat to the inner face of bar **15**. The inner face of bar **15** is also drilled and tapped to receive a plurality of bolts such as the one shown at **27**. This bolt has a head **28** which is seated within a tapered bore within the base **18** of the channel. The purpose of this bolt is to limit the outward movement of bar **15** under the action of wire spring **24**. These bolts are also provided on ten to twelve inch centers. As will be apparent from FIGURE 4 inward movement of the bar **15** brought on by contact with a door frame member or with another astragal bar as shown in FIGURE 3 causes the bar to partially collapse the springs and this also causes the bolts to move outwardly with respect to the base **18** of the channel member.

Referring now to FIGURE 3 the bar **15** of this invention is generally rectangular in outline. However, the four corners are rounded as shown, and in addition one side of the bar is provided with a slot or groove **29** which extends the full length of the bar. The opposite sides of this slot extend beyond the throat of the slot, providing reentrant areas **30—30**, defining a key-way into which a strip of pile may be locked by sliding the strip of pile into the end of the slot and feeding it along the length of the bar. For this purpose, pile is selected having a base **31** from which the hair-like pile fibers **32** project at right angles.

It is to be noted that the two bars shown in FIGURE 3 are identical in cross-section, the only difference being that in one instance the slot **29** in which the pile is received is exposed at the outer edge of the channel, whereas in the other instance a plain metal surface is exposed, with the slot **29** being within the channel. In this instance therefore, the holes which receive the ends **25** of the wire springs **24** are within the slot in which the strip of pile would otherwise be received. Thus, the one extrusion shape for a bar is all that is required for both types of uses of the bar **15** one in which a pile strip is used and the other in which a pile strip is not used.

In other words, since the side walls of the channel and the sides of the bar are planar the bar may be reversed within the channel by removing the pile strip, if provided initially, from the dove-tail groove.

In a double door type of installation such as the one shown in the drawings it is preferred that one bar carry a strip of pile while the other does not. It is found that if the two strips of pile contact one another there is too much friction between them for easy movement of the door. Also the strips of pile brushing on each other wear out rapidly. For these reasons the type installation shown in FIGURE 3 is preferred and it is in this type of installation wherein the bars of this invention have their greatest utility, inasmuch as they can be used interchangeably either with or without pile strips as desired. It will be apparent, however, that the bars may be utilized in other

types of installations including those in which the channel is half or fully mortised into a door frame or a door.

Having described by invention, I claim:

1. An astragal comprising a channel member having spaced parallel side walls and a base,

means defining a groove on the base within the channel member which is centered between said side walls,

a bar which is generally rectangular in cross section with rounded corners,

one face of said bar having a dove-tail slot therein which extends the full length of said bar,

said bar disposed with the major portion thereof within the channel member in slip-fit relation to said side walls and with the face having said dove-tail slot therein projecting from said channel member,

an arcuate wire spring having the central portion thereof seated within said groove on the base of the channel member and having one end thereof fastened to the bar and the other end resting in slip-fit relation on the inwardly directed face of the bar,

means to limit outward movement of the bar under the action of the spring,

a strip having a base fitting into said dove-tail slot and having pile projecting outwardly beyond the face of the bar from said slot,

and the sides of the bar in slip-fit relation to the side walls of said channel member being planar, whereby the bar may be reversed within said channel member by removing the pile strip from said dove-tail slot, turning said bar through 180° and then reinserting it into said channel member to expose the face of the bar opposite that having the dove-tail slot therein.

2. An astragal comprising a channel member having spaced parallel side walls and a base, the inner surfaces of said side walls being planar,

means defining a groove on the base within the channel member which is centered between said side walls,

a bar which is generally rectangular in cross section with rounded corners, the opposite side faces of said bar being planar and one of said end faces being planar, the other end face having a dove-tail slot therein which extends the full length of said bar,

said bar disposed with the major portion thereof within the channel member in slip-fit relation to said side walls and having one of the end faces thereof projecting from the channel member,

an arcuate wire spring having the central portion thereof seated within said groove on the base of the channel member and having one end thereof fastened to the bar and the other end thereof resting in slip-fit relation on the inwardly directed end face of the bar,

means to limit outward movement of the bar under the action of said spring,

a strip having a base adapted to fit into said dovetail slot and having pile projecting outwardly therefrom and adapted, with the base in said dove-tail slot, to project beyond the face of the bar from said slot,

and said bar as a result of the planar relationships of the inner surfaces of the side walls of the channel member and its opposite side faces adapted to fit in said channel member with either the dove-tail slot projecting outwardly beyond the face of the channel member or the planar end face projecting outwardly beyond said channel member, thereby providing a reversible astragal member in which the pile strip may be inserted in the slot when it is exposed or a planar metal surface exposed.

References Cited in the file of this patent

UNITED STATES PATENTS

1,948,017	Wuebling	Feb. 20, 1934
2,839,797	Anderson	June 24, 1958

FOREIGN PATENTS

19,951	Austria	Apr. 25, 1905
423,086	France	Feb. 6, 1911