Aug. 24, 1954 A. T. KUNKEL 2,686,943

WEATHER STRIPPING

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FIG. 1

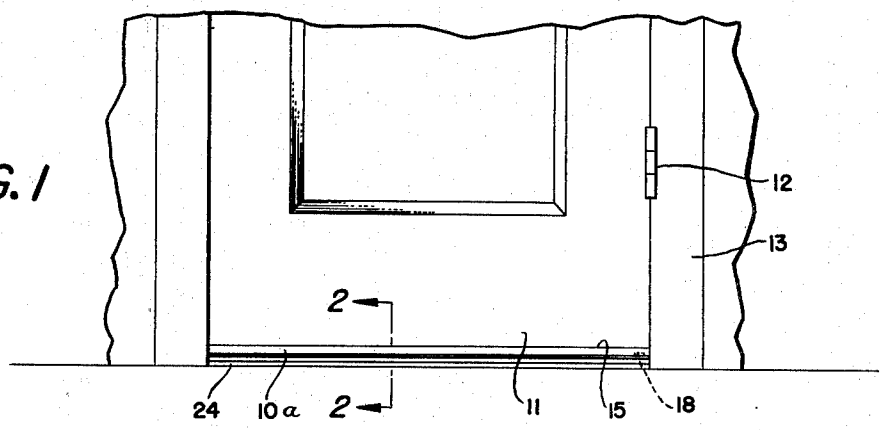



FIG. 2

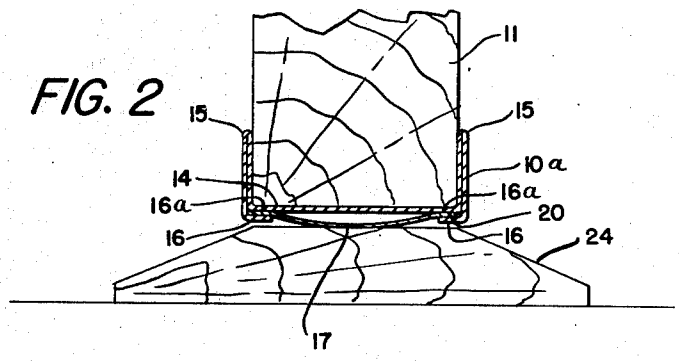



FIG. 3

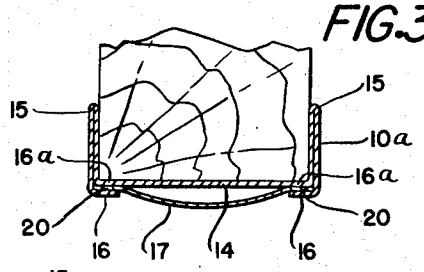



FIG. 4

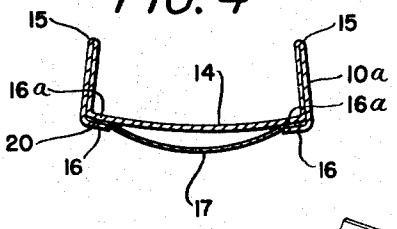
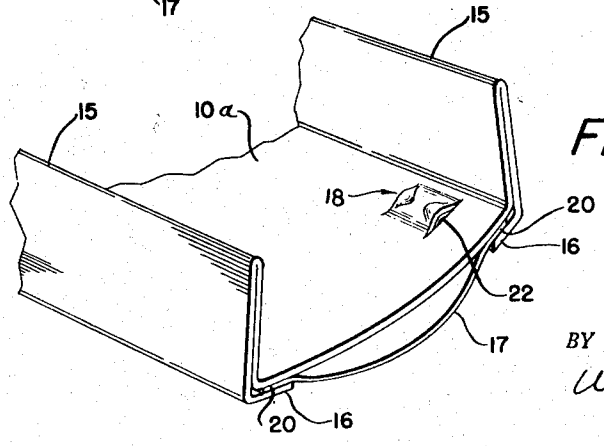



FIG. 5




INVENTOR.
ALOYSIUS T. KUNKEL
BY
William Cleland
ATTORNEY

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FIG. 6

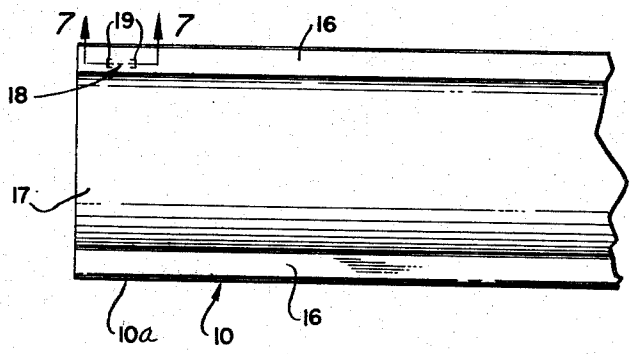



FIG. 7

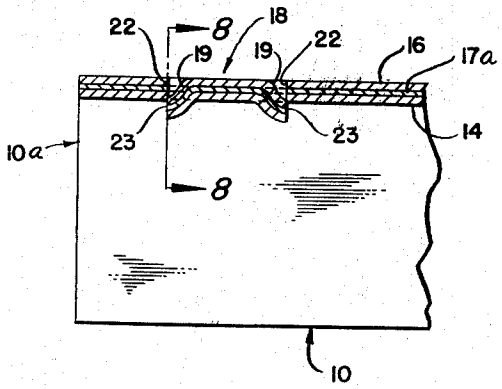



FIG. 8

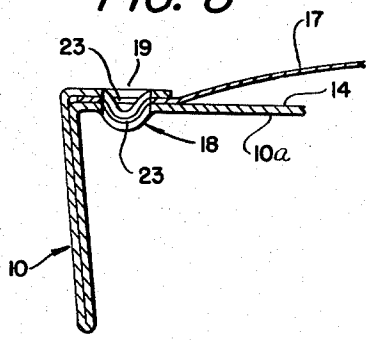
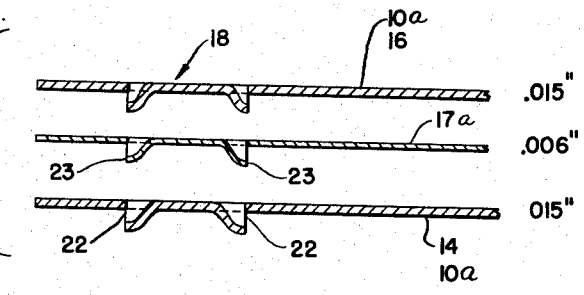



FIG. 9




*INVENTOR.*
ALOYSIUS T. KUNKEL

*BY*
William Cleland

ATTORNEY

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# UNITED STATES PATENT OFFICE

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## WEATHER STRIPPING

Aloysius T. Kunkel, Akron, Ohio

Application May 6, 1952, Serial No. 286,301

3 Claims. (Cl. 20—69)

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This invention relates to weather stripping, and in particular to weather stripping for the bottoms of doors.

The invention is an improvement over prior Kunkel Patent No. 2,095,669.

One object of the invention is to provide an improved weather sealing strip, of the type shown in said prior patent including a laterally arched spring strip yieldingly retained on a flat channel member attached to the bottom edge of a door, for weather sealing the same, the improvement being the provision of efficient and effective stop means for preventing the spring-strip from creeping along the channel member in either direction, and particularly in the direction away from the hinged end of a door upon the hinge end of the spring-strip being scuffed against a floor or other surface.

Another object of the invention is to provide a weather sealing strip as described in the preceding paragraph, wherein said stop means is adapted to be provided simultaneously with continuous formation of the strip and will not interfere with progressive cutting of the continuously formed strip into predetermined lengths thereof.

Other objects of the invention will be manifest from the following brief description and the accompanying drawings.

Of the accompanying drawings:

Figure 1 is a front elevation of a door hinged in a door frame, and the door having mounted at the bottom thereof a length of weather sealing strip embodying the features of the invention.

Figure 2 is a transverse cross-section through the strip as applied to the door in closed position, taken substantially on the line 2—2 of Figure 1.

Figure 3 is a view corresponding to Figure 2, but with the door in open position.

Figure 4 is a similar transverse cross-section of the strip as it appears when removed from the door.

Figure 5 is an enlarged fragmentary top perspective view, at one end of a said length of weather stripping, and illustrating an improved locking device in accordance with the invention.

Figure 6 is a bottom view, on a reduced scale, of the portion of weather stripping shown in Figure 5.

Figure 7 is an enlarged longitudinal cross-section, taken substantially on the line 7—7 of Figure 6.

Figure 8 is a transverse cross-section, taken substantially on the line 8—8 of Figure 7, on the same scale.

Figure 9 is an exploded view of the layers in Figure 7 through which the locking device indentations are formed in nesting relation.

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Referring to Figures 1, 2 and 3, of the drawings, the numeral 10 designates a length of weather stripping mounted at the bottom of a door 11, hinged at 12 within a door frame 13.

As shown in the drawings generally, the improved stripping 10 includes an elongated channel member 10a formed of strip sheet material, such as steel, copper, brass, bronze, plastic, etc., having a relatively flat web portion 14 for fitting against the bottom edge of the door 11, and spaced angularly extending side flanges 15, 15 arranged to be yieldingly expanded against the opposite side edges of the door. The flanges 15 are reversely folded upon themselves, for reinforcing purposes, and further extended to provide longitudinal side flanges 16, 16 overlying the underside of web in spaced relation thereto, to provide laterally spaced guide channels 16a at opposite side of the channel member. Mounted against the flat underside of web 14 is an elongated, laterally arched strip 17 of spring metal, such as stainless steel, bronze or the like having flat marginal portions 17a along opposite sides, freely slidably received in said guide channels with sufficient clearance to permit the strip 17 to float therein, so that it may be laterally flattened by pressure at any point along its length, against the web 14.

Because the spring strip 17 is free to float in the guide channels 16a, when the stripping 10 is mounted on a door, there is also a tendency for the spring strip 17 to slide along the channel member 10a, due to engagement of the hinge end of the spring strip with a rug or other floor surface when the door is being closed. To obviate this difficulty, a suitable combined indenting and cutting tool (not shown) may be utilized to provide two-way locking devices 18 at substantially widely spaced points along the continuous strip material, to have one such device 18 on each length cut therefrom, as for use of the lengths as door strips as shown in Figure 1, for example. Each said device may constitute longitudinally closely spaced, oppositely disposed, nesting indented portions 19, 19 in the interengaging layers constituted by one flange 16 of channel member 10a, a corresponding marginal portion 17a of spring strip 17, and the web portion 14. The opposite nesting indentations 19, 19 extend between closely spaced slits 21, 21 cut through all said layers by said tool, these slits defining inwardly opposed spaced shoulder portions 22, 22 and correspondingly outwardly opposed edges 23,

23 of the indented portions, whereby spaced said shoulder portions of at least one said layer of the mounting member 10a are oppositely engageable by opposing said edges 23 of the spring strip to prevent corresponding longitudinal sliding movement of the spring strip with respect to the mounting member.

In use of the strip 10, as for weather sealing the bottom edge of a door 11, the indentation device, indicated at 18 in Figure 1, is completely effective to prevent the tendency for the spring strip 17 from creeping longitudinally outwardly of the guide member 10a in the manner previously discussed each time the door is closed. The nesting relationship of the indentations 19, 19 as best shown in Figures 5 to 9, is such that there will be sufficient play between cooperating portions whereby there will be no material interference with full floating or flattening action of spring strip 17 when the same is compressed against a threshold 24, as shown in Figure 2. The double indented portions, moreover, are effective to retain the spring strip 17 against longitudinal displacement in either direction in the guide member 10a at all times, such as when the sealing strip as a whole is being handled in storage or in shipment.

The improved locking or retaining device 19 is adapted to be formed at spaced points as described, simultaneously with continuous forming and assembling of the weather stripping 10 to completion. No separate trimming or forming operations are necessary, and hence there is no waste material or expensive labor costs, as in the use of known prior art devices for similar purposes.

Modifications of the invention may be resorted to without departing from the spirit of the invention or the scope of the appended claims.

What is claimed is:

1. The combination in a weather strip wherein an elongated relatively flat mounting member having a thin web and inturned guide portions along laterally opposite marginal edges thereof is adapted to be attached along the edge of a closure member or like structure, and a laterally arched spring strip of thin springy material having opposite marginal edge portions engaged between corresponding said guide portions and said web with the convex side of the spring strip presented outwardly to retain the spring strip in full floating position on the member to be yieldingly flattened against said outer face of the web, of nesting indentations in superposed layers constituting portions of a said inturned guide portion, said spring strip and said web, said indentations defining in the superposed layers longitudinally spaced straight shoulder portions and offset shoulder portions opposed thereto, the respective opposing shoulder portions of each indentation facing in longitudinally opposite directions to the corresponding shoulder portions of the other indentation, whereby each indentation provides a straight shoulder portion on the mounting member engageable by the corresponding offset opposed shoulder portion of the spring strip to prevent corresponding longitudinal movement of the spring strip with respect to said mounting member.



2. The combination in a weather strip wherein an elongated relatively flat mounting member having a thin web and inturned guide portions along laterally opposite marginal edges thereof is adapted to be attached along the edge of a closure member or like structure, and a laterally arched spring strip of thin springy material having opposite marginal edge portions engaged between correspondingly said guide portions and said web with the convex side of the spring strip presented outwardly to retain the spring strip in full floating position on the member to be yieldingly flattened against said outer face of the web, of nesting indentations in superposed layers constituting portions of said spring strip and said mounting member, said indentations being defined between longitudinally spaced slitted portions in said superposed layers and each slitted portion defining a straight shoulder portion and an offset shoulder portion opposed thereto, the respective opposing shoulder portions of each indentation facing in longitudinally opposite directions to the corresponding shoulder portions of the other indentation, whereby each indentation provides a straight shoulder portion on the mounting member engageable by the corresponding offset opposed shoulder portion of the spring strip to prevent corresponding longitudinal movement of the spring strip with respect to said mounting member.

3. The combination in a weather strip wherein an elongated relatively flat mounting member having a thin web and inturned guide portions along laterally opposite marginal edges thereof is adapted to be attached along the edge of a closure member or like structure, and a laterally arched spring strip of thin springy material having opposite marginal edge portions engaged between corresponding said guide portions and said web with the convex side of the spring strip presented outwardly to retain the spring strip in full floating position on the member to be yieldingly flattened against said outer face of the web, of longitudinally spaced, oppositely disposed, nesting indented portions provided in the interengaging layers of a said inturned guide portion, said spring strip and said web, said indented portions being defined between oppositely disposed, longitudinally closely spaced slitted portions in said superposed layers and each slitted portion defining a straight shoulder portion and an offset shoulder portion opposed thereto, the respective opposing shoulder portions of each indented portion facing in longitudinally opposite directions to the corresponding shoulder portions of the other indented portion, whereby each indented portion provides a straight shoulder portion on the mounting member engageable by the corresponding offset opposed shoulder portion of the spring strip to prevent corresponding longitudinal movement of the spring strip with respect to said mounting member.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| Number | Name | Date |
|---|---|---|
| 2,095,669 | Kunkel | Oct. 12, 1937 |
| 2,166,889 | Churchill | July 18, 1939 |