July 15, 1952 J. WATSON ET AL 2,602,973

ALL-WEATHER DOORSILL SEAL

Filed Oct. 16, 1950

Fig. 1.

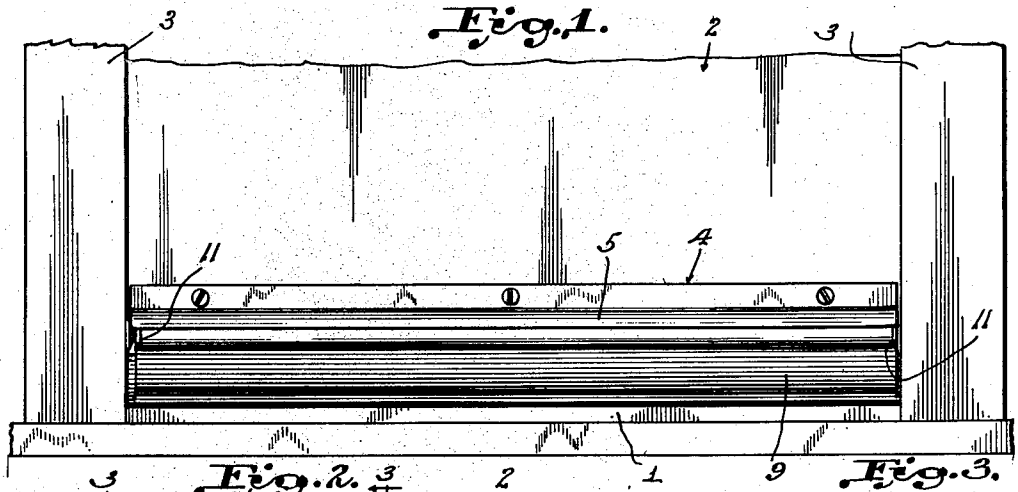


Fig. 2.

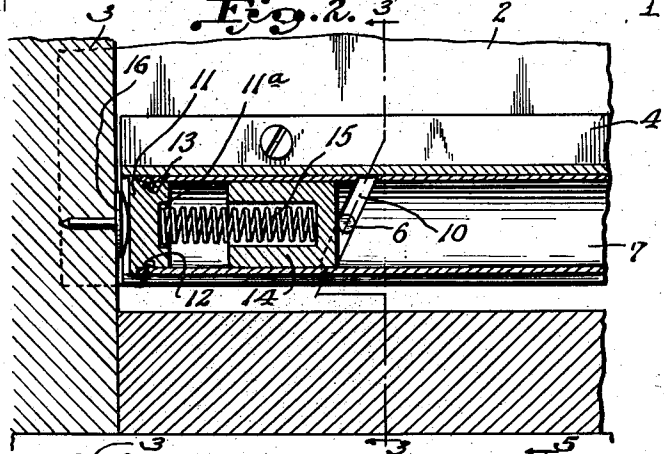
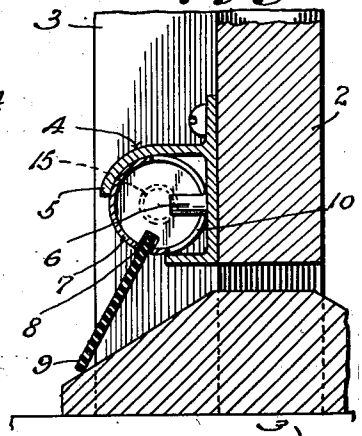


Fig. 3.



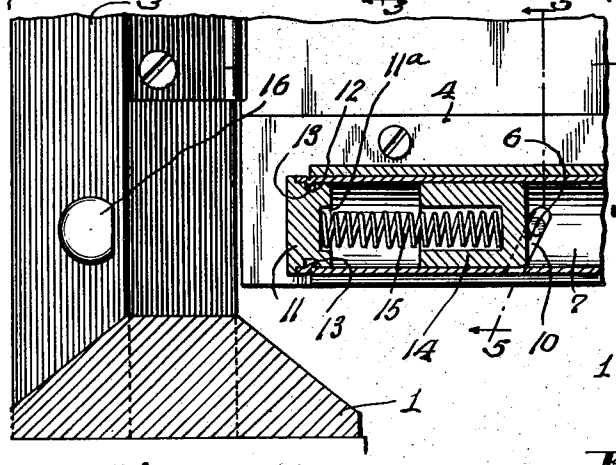


Fig. 4.

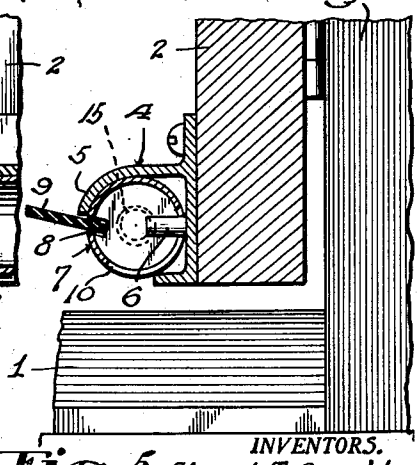


Fig. 5.

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ALL-WEATHER DOORSILL SEAL

James Watson, Boca Raton, Stewart T. Oswald, Fort Lauderdale, and Samuel Scott Watkins, Boca Raton, Fla., assignors, by direct and mesne assignments, of one-half to said Oswald and one-half to Seal-A-Door, Inc., a corporation of Florida

Application October 16, 1950, Serial No. 190,324

3 Claims. (Cl. 20—68)

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This invention relates to an all-weather doorsill seal.

An object of the invention is the construction of an efficient device which will cause a seal on the floor or a seal against a door-sill, for the purpose of keeping out driving rains, snows, and cold air.

Another object of the invention is the construction of an efficient device that can be positioned in different places, such as on a door that opens from the left, or on doors opening outwardly.

A still further object of the invention is to produce an efficient device that will fit tightly the door and jamb, as well as sealing the door against drafts and other disagreeable conditions. Further, this device will function with or without a door-sill.

Also the device will help to eliminate outside noises.

With the foregoing and other objects in view, this invention comprises certain novel constructions, combinations, and arrangements of parts as will be hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the drawings:

Figure 1 is a view in front elevation of a device constructed in accordance with the present invention.

Figure 2 is an enlarged fragmentary longitudinal sectional view of the device.

Figure 3 is a transverse sectional view taken on line 3—3, Fig. 2, and looking in the direction of the arrows.

Figure 4 is a fragmentary, longitudinal, section view of the device, showing the same in an open position.

Figure 5 is a transverse, sectional view, taken on line 5—5, Fig. 4, and looking in the direction of the arrows.

Referring to the drawings, in which the preferred embodiment of this invention is illustrated, 1 designates the sill, 2 is the door, and 3 is the door frame.

Fixedly secured to the door 2, near the bottom thereof, is a housing 4. The housing 4 is provided with an apron 5. Extending from the inner face of the housing 4, and projecting horizontally therefrom is a cam pin 6.

A hollow cylinder 7 is in the housing 4. This cylinder 7 has a slot 8 extending its full length. In this slot 8 is clamped and held in an operating position a weather-strip 9. This weather-strip 9 is formed of any suitable material, such as rubber.

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The metal cylinder 7 is formed of suitable material to permit a slight expansion while the weather-strip 9 is being inserted in the slot 8 and upon releasing the cylinder after the weather-strip has been inserted, the cylinder's slot-edges will clamp directly upon the weather-strip, securely fastening said weather-strip upon the cylinders. The cylinder 7 is also provided with an inclined cam slot 10, into which extends the cam pin 6.

The hollow cylinder 7 is provided at each end with a socketed plug 11. This plug 11 has an annular groove 12, into which is snapped the inwardly extending tits 13, formed on the cylinder 7. The resiliency of the cylinder 7 permits this action of placing the tits 13 in the annular groove 12. A cup-shaped spring holder 14 is loosely mounted in the cylinder 7. This spring holder always bears at its outer closed end against the cam pin 6. Extending at one end into the cup-shaped spring holder 14 is a coil spring 15, and the opposite end of said spring extends into the socket 11a of plug 11, as clearly shown in Figures 2 and 4.

A metal abutment 16 is placed on the door frame 3 in a registering position with the plug 11. Therefore, when the door is closed, as shown in Figure 2, the abutment 16 will be pressing against the plug 11. The weather-strip 9 will be engaging the sill 1 (Fig. 3). When the door is opened, the spring 15 will force the cylinder to slide outwardly, resulting in cam pin 6 being placed near the top of cam slot 10, whereupon the weather-strip will be held raised, as shown in Fig. 5. Therefore, it will be understood that the cylinder 7 has both a sliding and a rotary movement within the housing 4.

The inclined cam slot 10 and the cam pin 6 constitute cam means for assisting in turning the weather-strip 9 to a closed or open position.

The operation is as follows: When the door is moved from its open position (Fig. 4) to its closed position (Fig. 2), the plug 11 will have engaged the abutment 16, causing the cylinder to slide inwardly, and by reason of the cam pin 6 being in the inclined slot 10, the cylinder 7 will also rotate, placing the weather-strip 9 against the sill or floor.

While we have described the preferred embodiment of the invention and illustrated the same in the accompanying drawings, certain minor changes or alterations may appear to one skilled in the art to which this invention relates during the extensive manufacture of the same, and we, therefore, reserve the right to make such changes or alterations as shall fairly fall within the scope of the appended claims.

What we claim is:

1. In a device of the class described, the combination of a housing provided with a cam pin, a rotatable and slidable hollow cylinder in said housing, said cylinder provided with a cam slot, said cam pin in said slot and extending into said cylinder, closure means on one end of said cylinder, a cup-like spring holder loosely mounted in said cylinder and bearing at its closed end against said extended cam pin, a cushioning member extending at one end into said cup-like spring holder and bearing at one end against said closure means, and a weather-strip mounted on said cylinder.

2. In a device of the class described, the combination of a housing provided with a cam pin only on its inner face, a rotatable and slidable hollow cylinder in said housing, said cylinder provided with a cam slot, said cam pin in said cam slot and extending into said cylinder, a plug provided with an annular slot mounted in one end of said cylinder, said cylinder provided with inwardly extending tits in said annular slot, a cup-like spring holder in said cylinder and bearing at its closed end against said extended cam pin, said plug provided with a socket, a coil spring having one end in said socket and its other end in said cup-like spring holder, and a weather-strip extending into said hollow cylinder, substantially as shown and described.

3. In a device of the class described, the combination of a housing provided with an inwardly extending cam pin, a rotatable and slidable hollow cylinder in said housing, said cylinder provided with a cam slot, said cam pin extending through said cam slot, and projecting into said cylinder beyond its inner wall, a plug provided with a socket in its inner face and closing the end of said cylinder nearest to said cam pin, a spring holder provided with a closed end against the extended inner end of said cam pin and with an open end registering with the socket in said plug, a coil spring only between said spring holder and plug, and said coil having one end in the socket of said plug and also having one end extending into said spring holder through its open end.

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The following references are of record in the file of this patent:

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