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C. G. RAIBLE

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DOOR SEALING DEVICE

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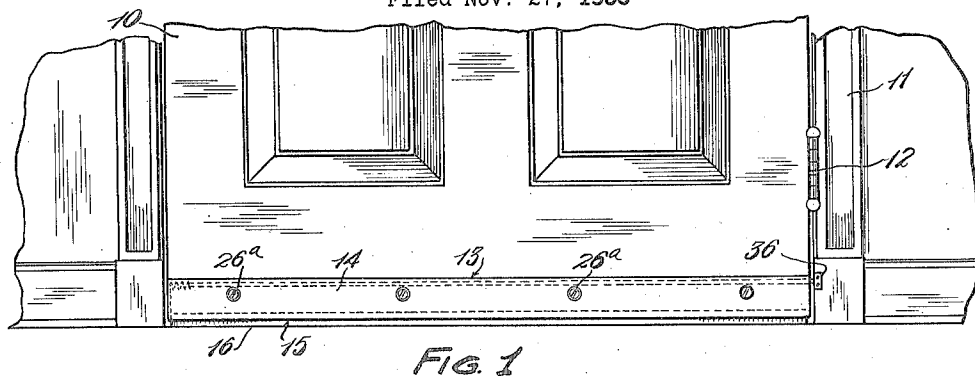


FIG. 1

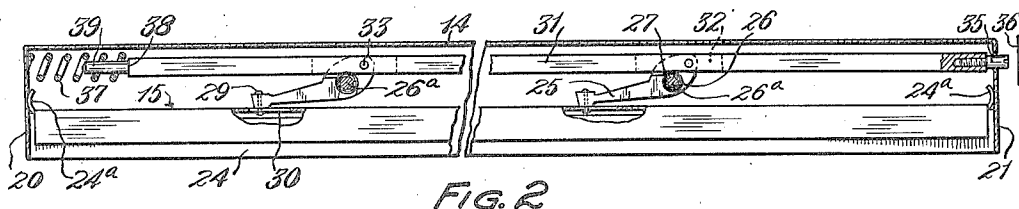


FIG. 2

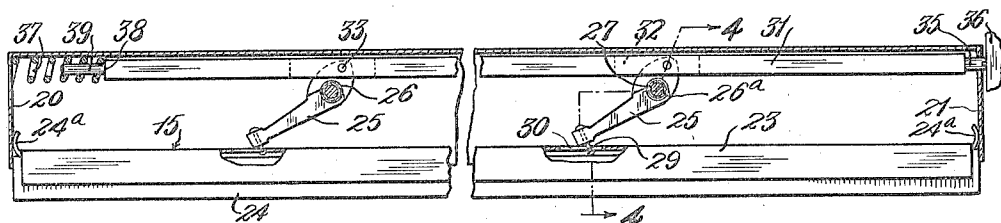


FIG. 3

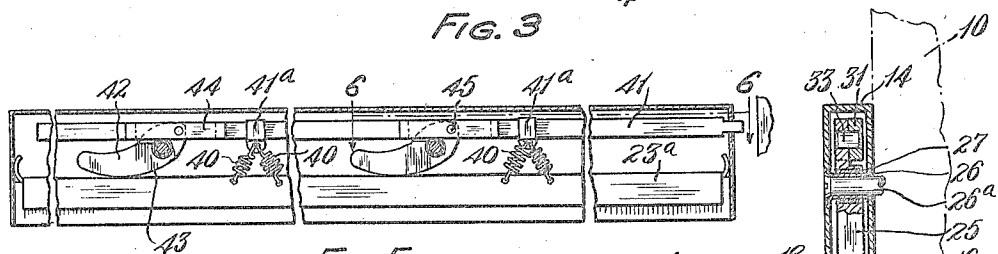


FIG. 4



FIG. 5

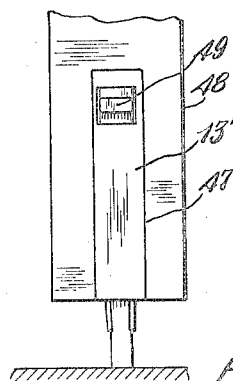


FIG. 6

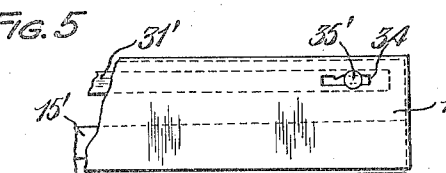


FIG. 7

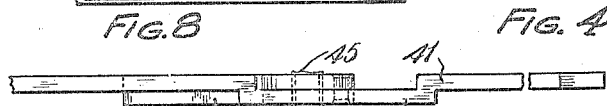


FIG. 8

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DOOR SEALING DEVICE

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Application November 27, 1936, Serial No. 112,933

1 Claim. (Cl. 20—68)

This invention relates to a sealing device and as its principal object aims to provide an improved sealing device for use on doors or the like, and which is movable relative to the door and adapted to be projected to sealing position or retracted therefrom by such relative movement.

Another object of my invention is to provide a sealing device of simple and inexpensive construction which can be readily applied to a door or the like and which has a sealing element adapted to be projected or extended in response to closing movement of the door.

Still another object of my invention is to provide an improved sealing device embodying an elongated sealing member and adapted to be applied to a door with such sealing member substantially coextensive with an edge of the door and also having means engageable with the door frame to shift the member to sealing position during closing movement of the door.

Yet another object of my invention is to provide an improved sealing device comprising an elongated casing adapted to be applied to a door adjacent an edge thereof and having therein an elongated sealing member and means whereby such member is projected and retracted in response to movements of the door toward and from its closed position.

It is also an object of my invention to provide an improved sealing device comprising an elongated casing having therein a correspondingly elongated sealing member and operating levers pivoted to act on the sealing member to project the same, and in which the levers are adapted to be swung by movement of an actuating member having a part extending from the casing.

Still another object of my invention is to provide a door sealing device, of the type referred to, which is contained in a recess provided interiorly of the door adjacent an edge thereof.

My invention may be further briefly summarized as consisting in certain novel combinations and arrangements of parts hereinafter described and more particularly set out in the appended claim.

In the accompanying sheet of drawings,

Fig. 1 is a partial side elevation showing a door and door frame and also showing my novel sealing device applied to the door adjacent its lower edge.

Fig. 2 is a longitudinal sectional view taken through my sealing device.

Fig. 3 is a similar longitudinal sectional view of the device but showing the sealing member in its projected or extended position.

Fig. 4 is a transverse sectional view taken through the device as indicated by line 4—4 of Fig. 3.

Fig. 5 is a longitudinal sectional view taken through another form of my sealing device.

Fig. 6 is a view taken as indicated by line 6—6 of Fig. 5 and further illustrating the construction of the actuating means.

Fig. 7 is an edge view of the lower portion of a door showing my sealing device mounted in a recess of the door instead of against an outer face thereof, and

Fig. 8 is a partial side elevation showing my improved sealing device adapted for manual operation.

In the accompanying drawing to which more detailed reference will now be made, I have shown what I regard to be preferred forms of my sealing device, but before proceeding with the detailed description it should be understood that the invention may be applied to various uses and may be embodied in various other devices and constructions.

In Fig. 1 of the drawing I show a door 10 which is hinged at one side edge thereof to a door frame 11 as by means of hinges 12. My improved sealing device 13 is shown applied to the inner face of the door adjacent its lower edge. As will be presently explained more in detail, this sealing device may include a casing 14 which has a slot-like opening along its lower edge and is adapted to be mounted on the door with its slot-like opening substantially coextensive with the lower edge of the door. The device also includes a sealing member 15 movable in the casing and adapted to be partially projected or extended therefrom into sealing engagement with the floor 16 when the door is moved to its closed position.

As illustrated in Figs. 2, 3 and 4 of the drawing, the casing 14 may be an elongated, generally flat, sheet metal member of channel-like cross section having spaced side walls 18 and 19 between which the sealing member is movable. The casing is preferably closed at its ends by walls 20 and 21 of substantially the same depth as the side walls 18 and 19.

The sealing member 15 may comprise an elongated sheet metal stiffening member or holder 23 of substantially channel-like cross-sectional shape and a strip 24 of flexible or resilient sealing material, for example sponge rubber, which is gripped or otherwise held in the stiffening member. The sealing member is also generally flat and of a thickness to be freely slidable in the casing so that it can be projected from, or

retracted into, the slot-like opening along the lower edge thereof. The frame or holder 23 of the sealing member may have curved, finger-like integral extensions 24a adjacent its ends which slidably engage the end walls of the casing and provide a means for guiding the movements of the sealing member therein.

For actuating the sealing member 15 to project or extend the same from the lower edge of the casing, I provide a plurality of levers 25 which are mounted for swinging or rocking movement within the casing by means of transverse pivots. These pivots may be in the form of a hollow or eyelet rivet 26 extending through the side walls 18 and 19 of the casing with a bushing 27 disposed around the stem of the rivet to prevent the side walls from being deflected inwardly and binding against the movable parts contained in the casing. These hollow rivets also provide convenient openings for screws 26a with which the device may be held against the face of a door, as illustrated in Fig. 1. The levers 25 may have their lower ends connected with the sealing member 15 as by means of pin and slot elements 29 and 30 so that the sealing member is suspended from the levers.

For rocking the levers 25 on their pivots to cause the sealing member 15 to be extended from the casing or retracted thereinto, I provide an elongated actuating member or bar 31 which is shiftable in the casing and with which the upper arms of the levers may be connected. The operating connection between this member and the levers may be formed by providing the member with longitudinal slots 32 into which the upper arms of the levers extend and a transverse pin 33 which extends through each lever arm and pivotally connects the same with the slotted portion of the actuating member.

It is a feature of my invention that this actuating member 31 has a part 35 extending from the casing 14, for example through an opening of the end wall 21 for engagement with the door frame 11 or a striker plate 36 mounted thereon, or through a side wall as a knob 35' for manual operation of the sealing member as illustrated in Fig. 8. The projecting part of the actuating member 31 may be an integral part of this bar or if desired it may be a member screwed into the bar and adjustable to vary the extent of travel of the sealing member 15. When the projecting part is a manually operable knob, as in Fig. 8, it may project through a slot 34 which has an angularly extending portion for retaining the sealing member in its extended position.

For retracting the sealing member 15 into the casing 14 I employ spring means, preferably in the form of a coiled compression spring 37, which acts against the member 31 to shift the same in a direction to cause lifting of the sealing member by the levers 25. This spring may be arranged as shown in Figs. 2 and 3 between the end wall 20 of the casing and a shoulder 38 provided on the bar. The spring may be retained in place by a stem-like extension 39 of the bar extending thereinto.

Instead of having the sealing member suspended from the rocking levers it may be desirable to suspend the sealing member by means of tension springs 40. These springs may have their lower ends connected with the frame or holder part 23a of the sealing member and their upper ends connected with the casing itself or

with the actuating bar 41 by means of a saddle-like part 41a through which the bar is slidable. Instead of the levers shown in Fig. 2 I may employ levers of the form represented by the lever 42 of Fig. 5 of which the lower arm may be provided with a rounded or cam-like portion 43 for rocking engagement with the frame of the sealing member. It may also be desirable to simplify the connection between the swinging levers and the actuating member and this may be accomplished by providing the actuating member with an offset section 44, as illustrated in Fig. 6, with which the upper arm of the lever is connected by means of the pivot pin 45.

With the arrangement which I have illustrated it will be noted that the rocking levers have arms of unequal length so that a relatively short travel of the actuating member or bar will be amplified and will result in a greater extent of movement of the sealing member.

In some instances it may be desirable to have the sealing device concealed by the structure of the door instead of having it exposed as it is when secured against the face of the door by means of screws or the like, as shown in Fig. 1. Such concealment of the sealing device may be readily provided for by locating the device 13' within a recess 47 formed interiorly of the door 48 along the lower edge thereof, as shown in Fig. 7. This arrangement for the sealing device is also desirable for the reason that it locates the projecting actuating part 49, which engages the door frame or striker substantially in the central plane of the door.

From the foregoing description and the accompanying drawing it will now be readily seen that I have provided a sealing device of simple and inexpensive construction which can be readily applied to a door or the like and which has a sealing member adapted to be projected and retracted either manually, or automatically in response to movements of the door toward and from its closed position. Since the sealing member of my device will, when operated automatically, be retracted into the casing as soon as the door begins to swing open, it will be readily seen that the sealing member will not scrape over the surface of the floor or carpet to cause marring or wear and will not cause rumpling or displacement of a rug or mat located adjacent the door opening.

While I have illustrated and described the improved sealing device of my invention, it will be understood, of course, that I do not wish to be limited to the precise details of construction and arrangements of parts herein disclosed, but regard my invention as including such changes and modifications as do not constitute a departure from the spirit of the invention and scope of the appended claim.

Having thus described my invention, I claim: In a sealing device of the character described the combination of an elongated hollow casing having end and side walls and a slot-like opening, and an elongated sealing member in said casing adapted to be partially projected through said opening comprising a channel-shaped metal bar and a packing strip carried thereby, said metal bar having curved integral finger-like extensions forming bearing portions at the ends thereof for guiding engagement with the end walls of the casing.

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