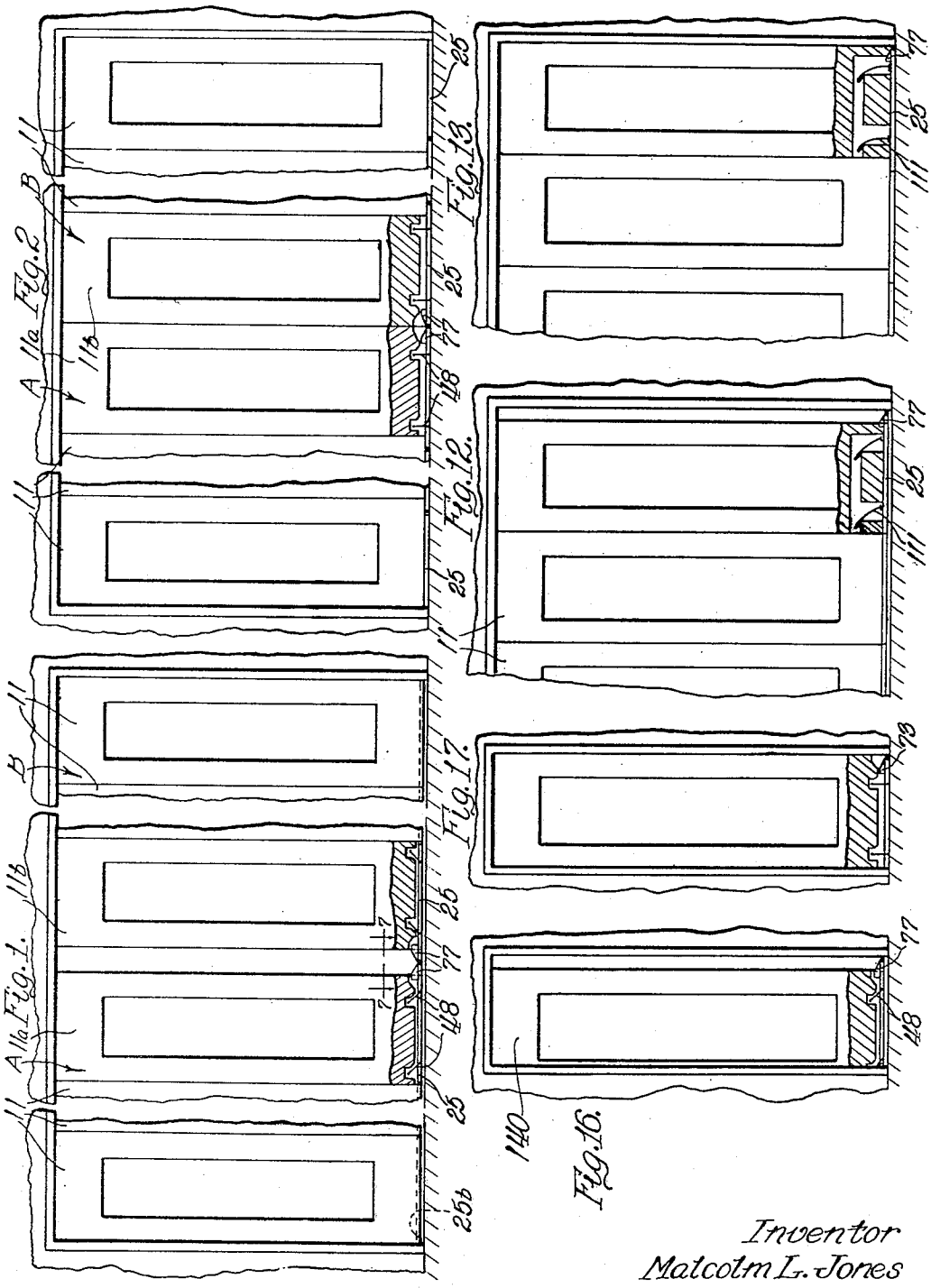
Nov. 14, 1939. M. L. JONES 2,180,112

PARTITION DOOR

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Fig. 4.

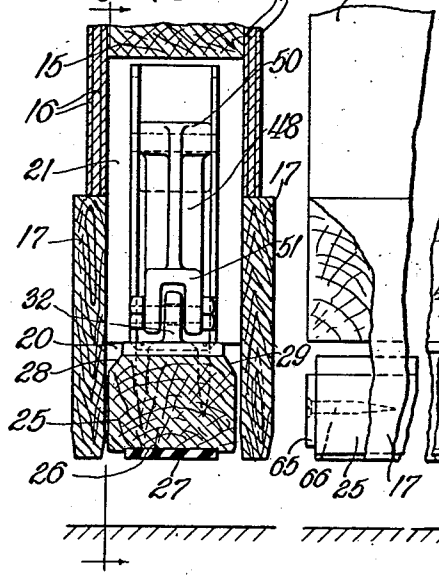
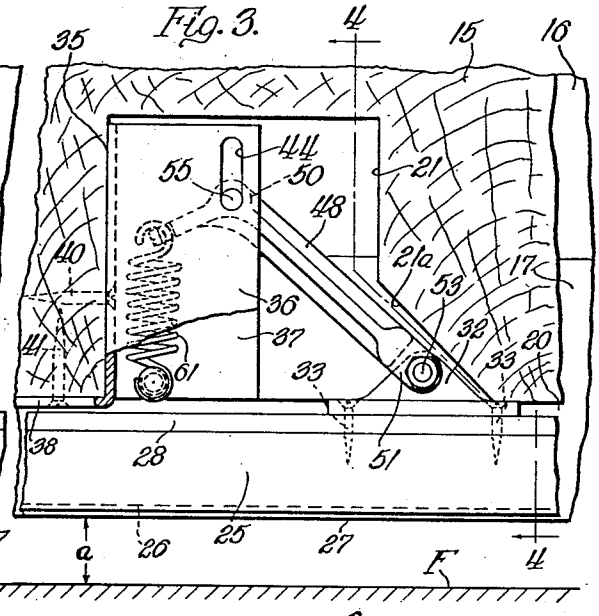
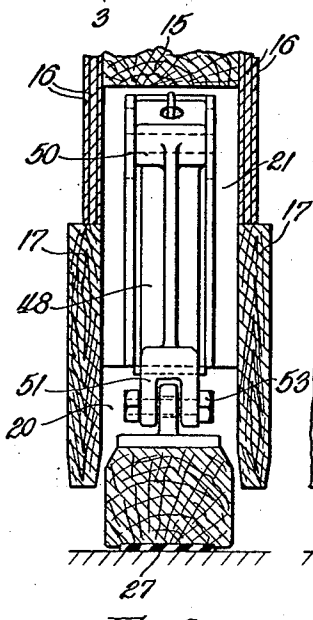


Fig. 3.





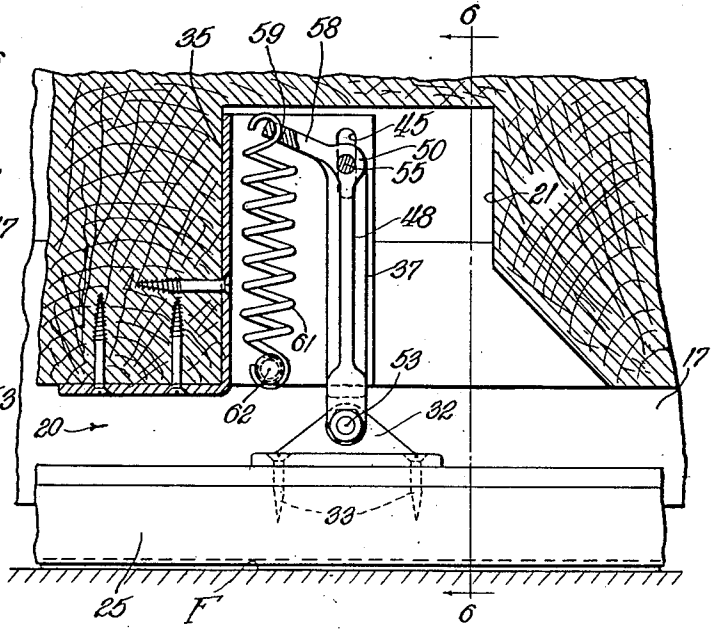


Fig. 6.

Fig. 5.

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Fig. 7.

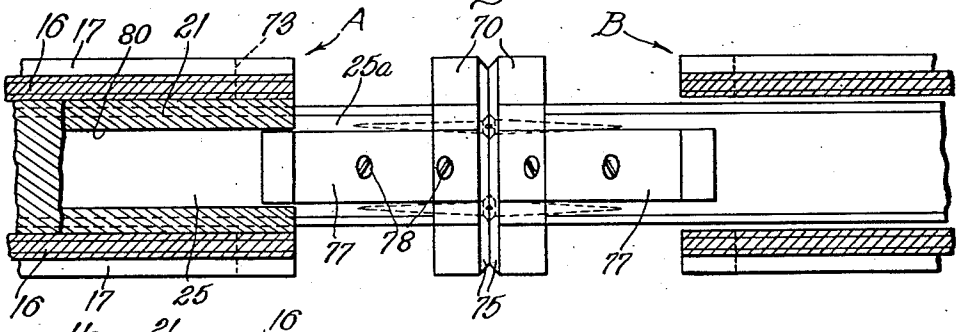


Fig. 8.

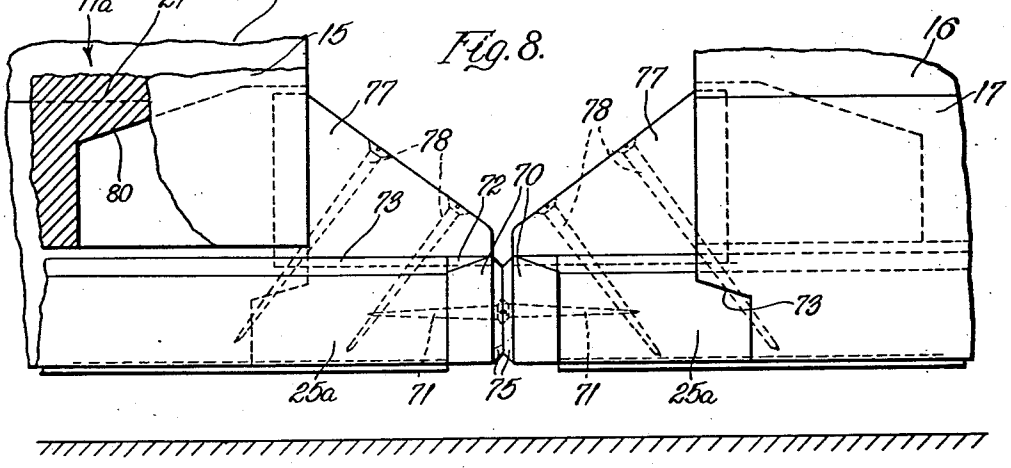
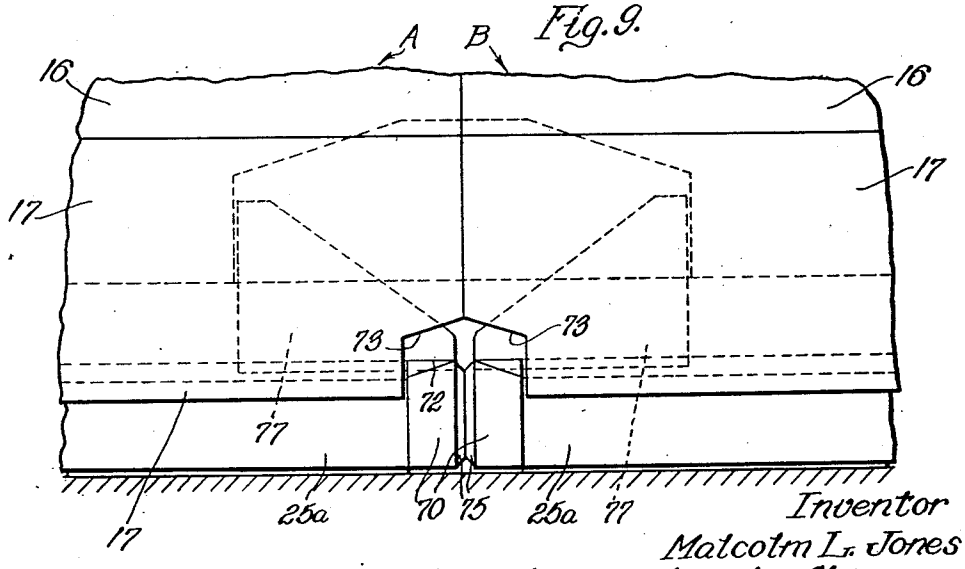


Fig. 9.



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Fig. 11.

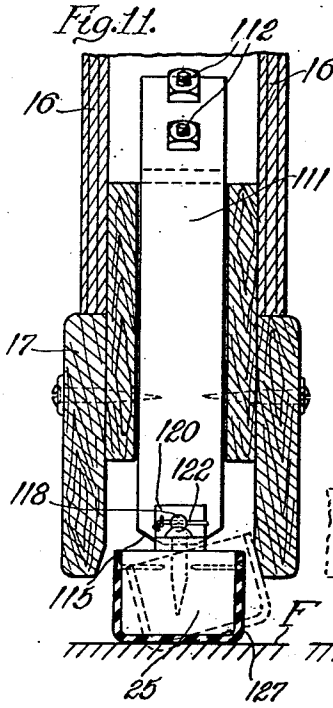


Fig. 10.

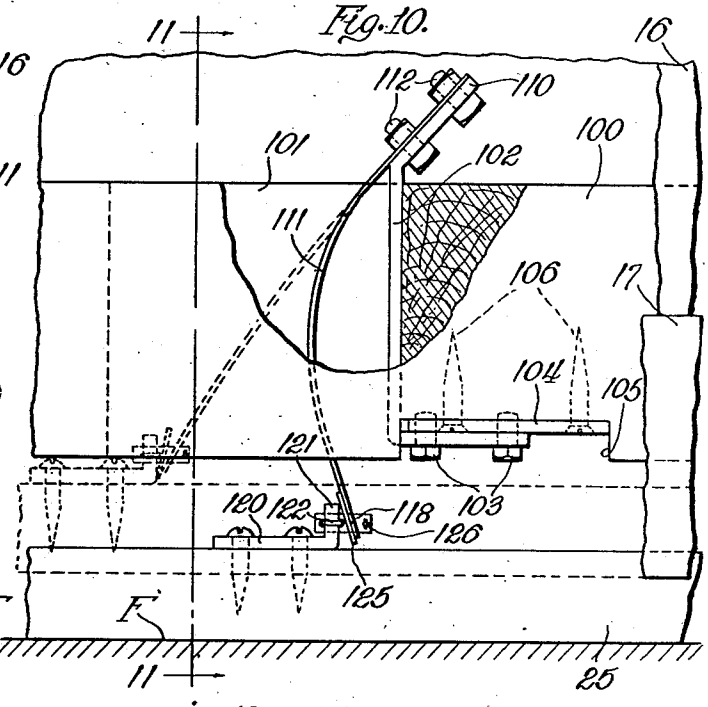


Fig. 14.

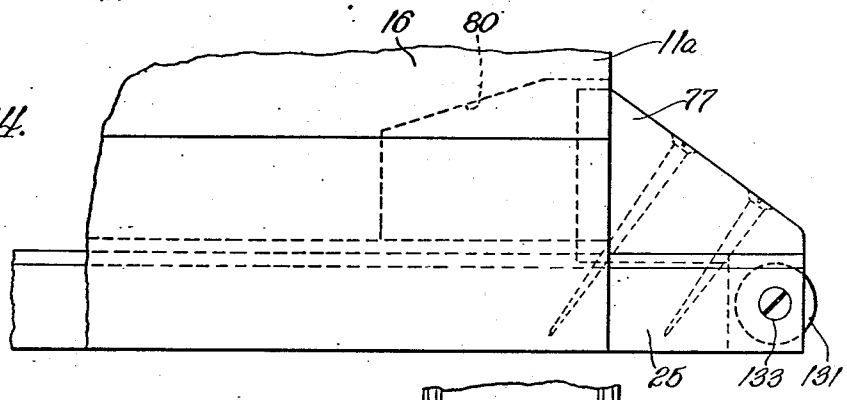
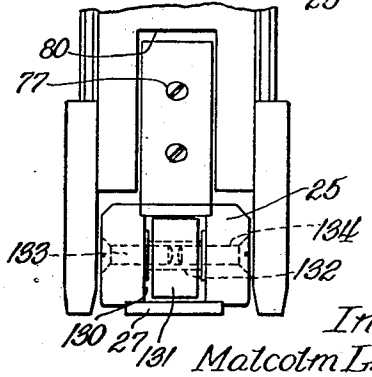


Fig. 15.



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Fig. 18.

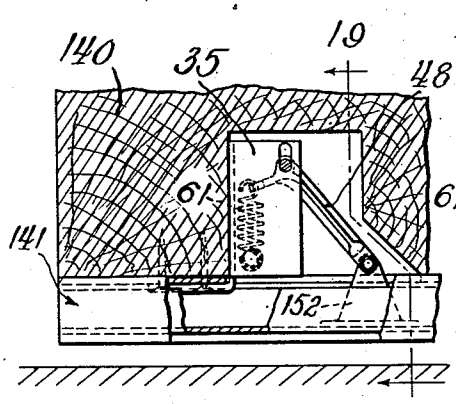


Fig. 19.

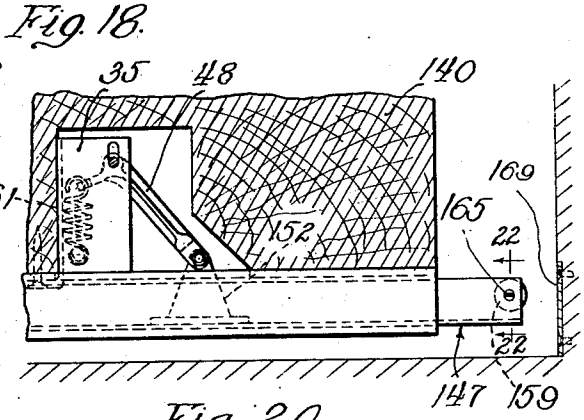


Fig. 20.

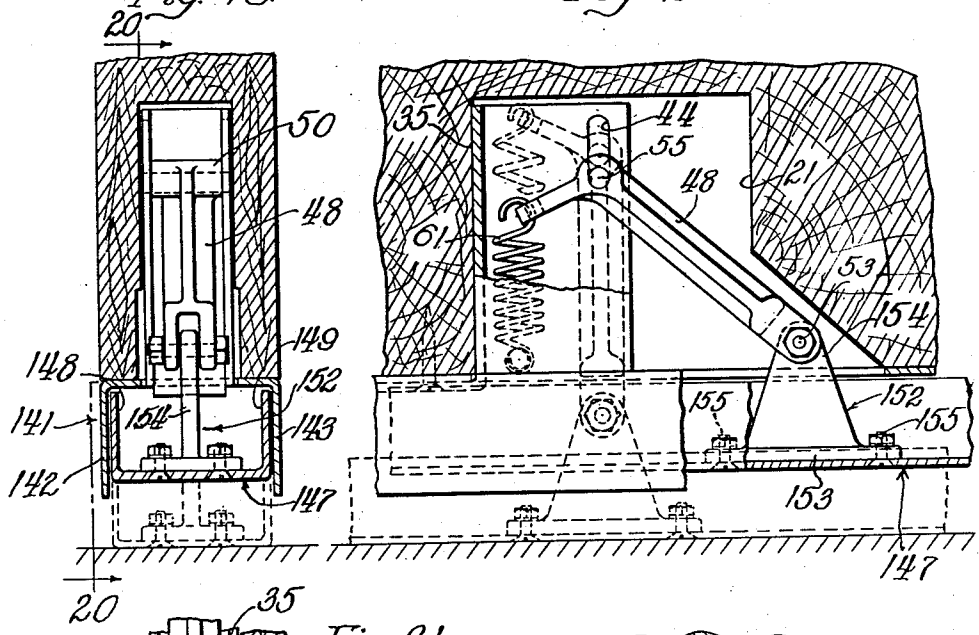


Fig. 21.

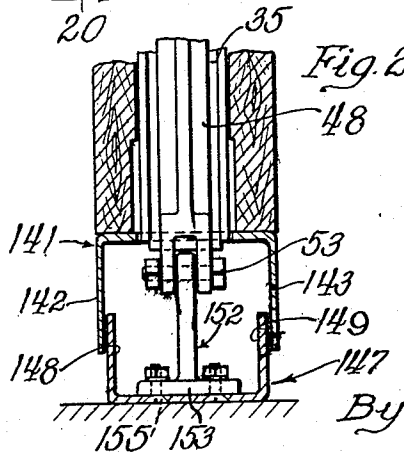
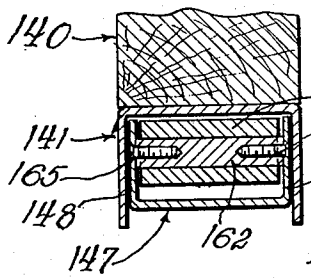


Fig. 22.



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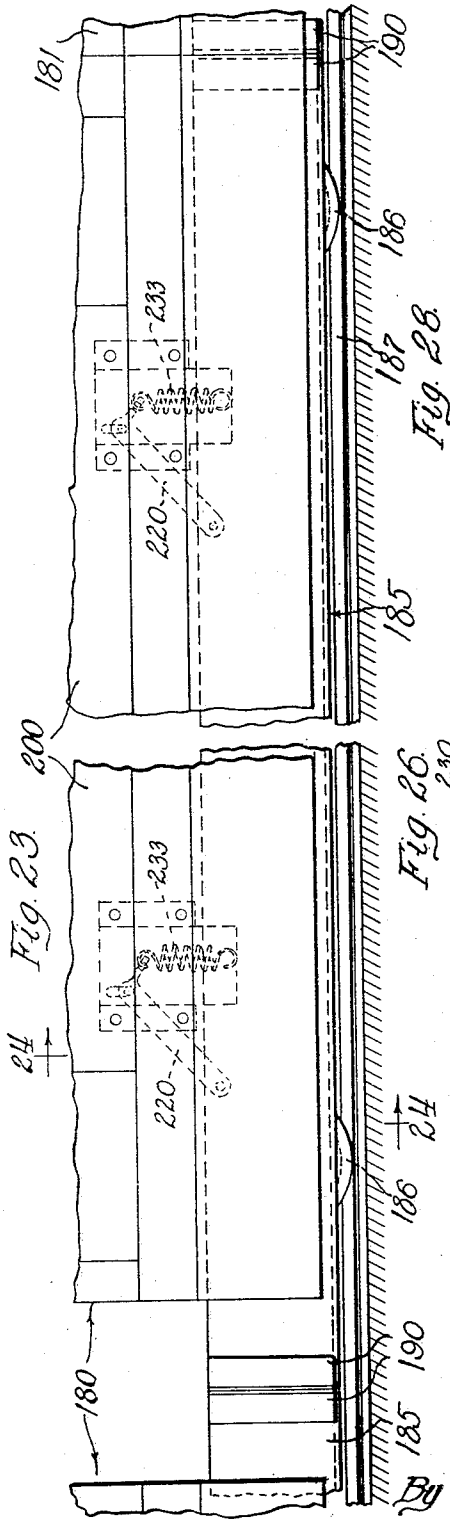


Fig. 23

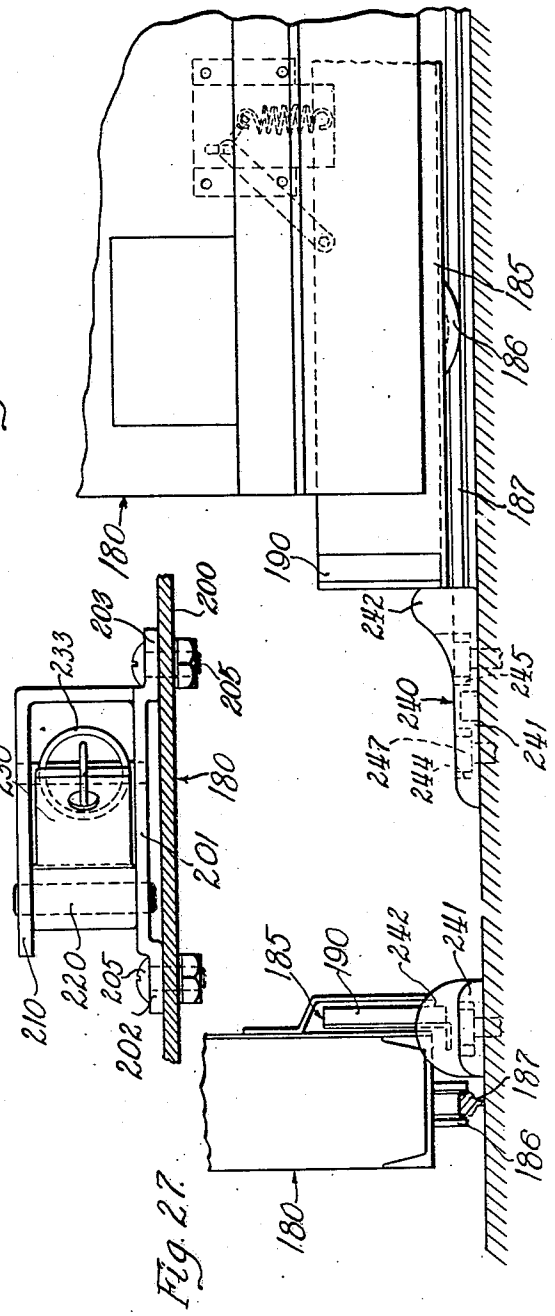


Fig. 28

Fig. 26.

Fig. 27.

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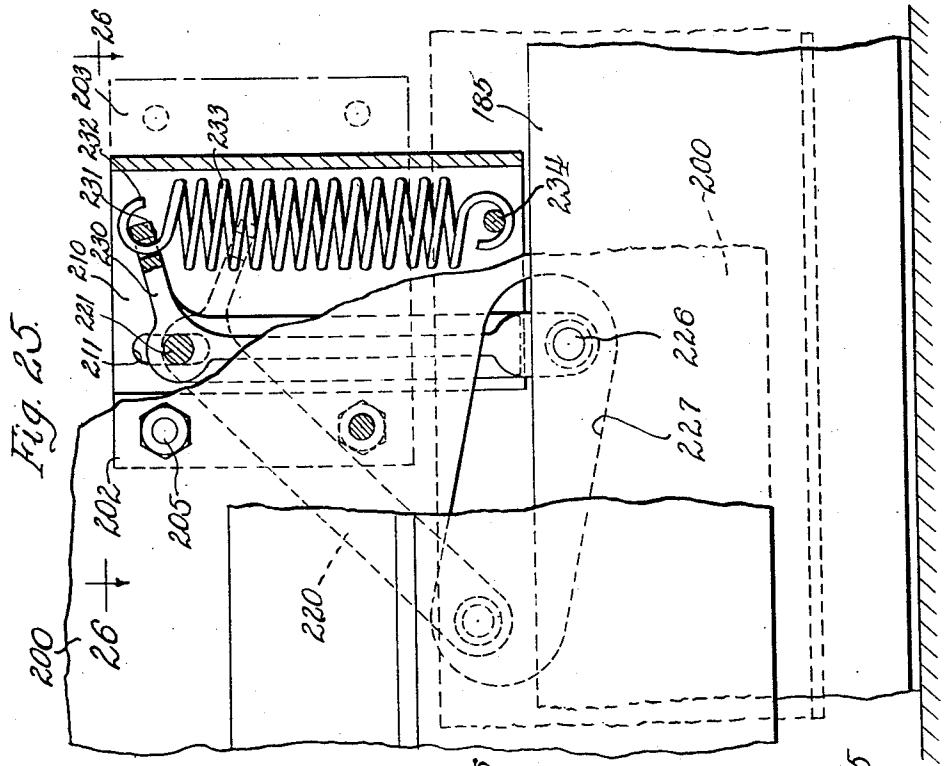


Fig. 25.

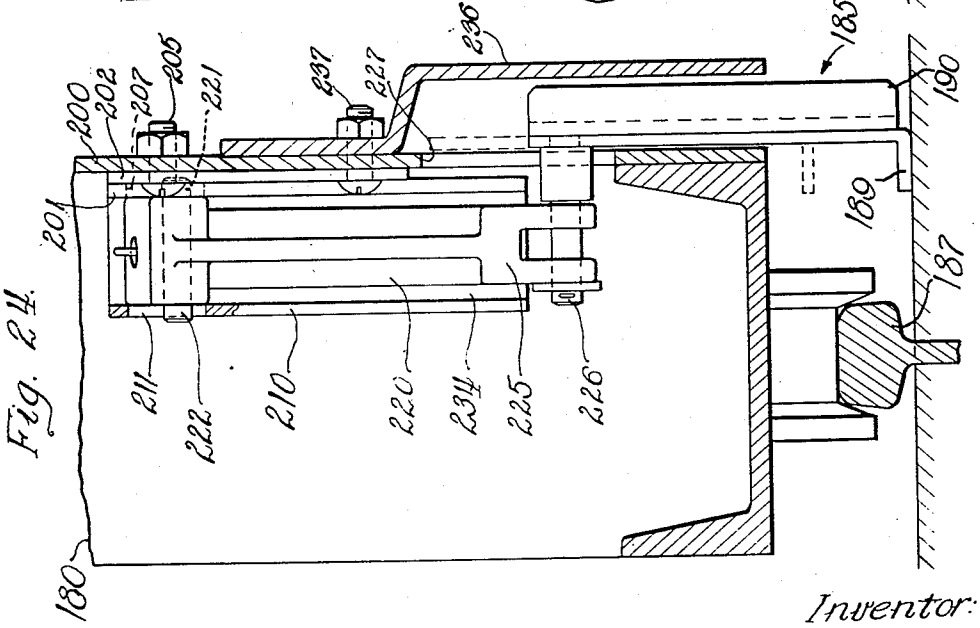


Fig. 24.

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Patented Nov. 14, 1939 2,180,112

UNITED STATES PATENT OFFICE

2,180,112

PARTITION DOOR

Malcolm L. Jones, Aurora, Ill., assignor to Richards-Wilcox Manufacturing Company, Aurora, Ill., a corporation of Illinois

Application September 10, 1937, Serial No. 163,211

17 Claims. (Cl. 20—20)

The present invention relates to folding or sliding doors, partitions, and the like, and more particularly to garage, hangar, and other doors, and to partitions arranged to close off sections of auditoriums, gymnasiums, school rooms, halls, and other spaces.

The principal object of the present invention is the provision of a sliding or folding door construction having means for sealing the lower edge of the door panels tightly against the floor, even though the latter may be irregular or the supporting truss or other means carrying the doors out of position. Another object of the present invention is to provide floor sealing means which is automatic in operation and which embodies few moving parts. It is a further object of the present invention to provide floor seals which are actuated when the door completes its closing movement.

A further object of the present invention is the provision of horizontally shiftable floor sealing members carried at the bottom of each door panel and so connected therewith that when the panels are extended into their closed position the floor sealing members are all shifted downwardly into sealing contact with the floor, and in this connection it is an additional object of the present invention to have the sealing members serve as interlocking means for the lower portions of the panels when the sealing members are shifted into floor engaging relation. It is also an object of the present invention to connect the sealing members with their associated panels by spring means which yieldingly mounts the sealing members so that uneven floor surfaces, a sagging truss or other conditions are accommodated without disturbing the effectiveness of the sealing members.

These and other objects and advantages of the present invention will be apparent to those skilled in the art after a consideration of the following detailed description, taken in conjunction with the accompanying drawings.

In the drawings:

Figure 1 is a fragmentary elevation, illustrating the present invention as applied to a folding partition having two door units folding toward opposite jambs, the doors being shown as they approach their extended closed position but before the floor seals have been forced down against the floor;

Figure 2 is a view similar to Figure 1 and shows the doors completely extended or closed and the floor seals down;

Figure 3 is an enlarged fragmentary sectional view, taken approximately along the line 3—3 of Figure 4, showing one of the spring units that normally holds the associated sealing member in elevated position;

Figure 4 is a section taken approximately along the line 4—4 of Figure 3;

Figure 5 is a view similar to Figure 3 but illustrating the relation of the parts when the floor sealing member has been forced downwardly into engagement with the floor;

Figure 6 is a section taken approximately along the line 6—6 of Figure 5;

Figure 7 is a fragmentary section, taken at an enlarged scale along the line 7—7 of Figure 1 and shows the abutting ends of the floor sealing members for the leading panels of the two door units as they approach their closed position;

Figure 8 is a fragmentary elevation of the parts shown in Figure 7;

Figure 9 is a view similar to Figure 8 but shows the parts as they are disposed when the door panels are fully extended into their closed position and the sealing members forced downwardly into engagement with the floor;

Figure 10 is a view similar to Figure 3 but shows a modified form of sealing member supporting means, embodying a spring arm, rather than a pivoted arm as shown in Figure 3;

Figure 11 is a section taken along the line 11—11 of Figure 10;

Figures 12 and 13 illustrate the application of the form of the present invention shown in Figure 10 to a door employing a single folding panel unit;

Figure 14 is an enlarged view of a portion of the sealing member construction employed in the construction shown in Figures 12 and 13;

Figure 15 is an end view of the construction shown in Figure 14;

Figures 16 and 17 illustrate the application of the present invention to a single sliding door panel;

Figure 18 shows another form of the present invention as applied to a single sliding door, such as a garage door;

Figure 19 is an enlarged section taken along the line 19—19 of Figure 18;

Figure 20 is a section taken approximately along the line 20—20 of Figure 19;

Figure 21 is a section similar to Figure 19, showing the sealing member in floor engaging position;

Figure 22 is an enlarged section taken along the line 22—22 of Figure 18;

Figure 23 illustrates the application of the

sealing members to a side face of the associated door panel, a construction particularly adapted for relatively large doors, such as those employed in airplane hangar door openings and the like, in which the doors are mounted on rollers or other means disposed along their bottom edges;

Figure 24 is a section taken approximately along the line 24—24 of Figure 23;

Figure 25 is a side view of one of the sealing member supporting units shown in Figures 23 and 24;

Figure 26 is a top view of one of the brackets, taken approximately along the line 26—26 of Figure 25;

Figure 27 is an end view of one of the stops employed with parallel straight sliding door panels; and

Figure 28 is a side view of the construction shown in Figure 27.

Referring now to the drawings, particularly Figures 1 to 9, inclusive, the door construction shown in these figures as illustrating the principles of the present invention embodies two units A and B, each consisting of a plurality of hingedly connected panels 11, the leading panel for each unit being indicated at 11*a* and 11*b*, respectively. The several panels or doors 11 may be of any suitable construction, such as is illustrated in Figures 4 and 6, in which the door is made up of a wood core frame including a lower rail 15, two or more layers of veneer 16 of any suitable material and baseboards 17. Whatever the construction of the door panels may be, according to the principles of the present invention each is provided with a slot 20 and two or more recesses 21 along the lower edge of the door, as best shown in Figures 1 and 3. In the preferred construction especially adapted for fairly high but relatively narrow door panels, each panel is provided with two recesses 21.

A floor sealing member is disposed in the slot 20 of each of the panels, and each sealing member consists of an elongated horizontally disposed bar 25, preferably of wood, and of a length that is substantially equal to the width of the panel in all cases except the leading panels 11*a* and 11*b*, which will be referred to later. The bottom surface of each of the sealing bars 25 has a shallow groove 26 cut therein to receive and retain a strip 27 of gum rubber or similar material. The upper corners of the sealing member 25 are beveled, as at 28 and 29, and a pair of link brackets 32 are fastened by screws 33 or the like to the upper face of the sealing bar. As best shown in Figure 3, the recess 21 is cut away, as at 21*a*, to accommodate the bracket 32 when the sealing member 25 is in its retracted or upper position, substantially wholly within the door slot 20 and clearing the floors by a substantial amount, as indicated at *a* in Figure 3.

Each recess 21 in the bottom of the door panel receives a generally vertically disposed U-shaped bracket 35 having side wings 36 and 37 and an attaching lug 38. One or more screws 40 serve to secure the intermediate portion of the U-shaped bracket 35 to one vertical side of the recess 21, and one or more screws 41 fasten the attaching lug 38 to the bottom of the panel rail 15. The side wings 36 and 37 are provided with transversely registering slots 44 (Figure 3) and 45 (Figure 5) near the outer edges of the bracket. A pivot arm 48 is connected between the bracket 35 and the adjacent link bracket 32, and each link 48 includes apertured upper and lower ends 50 and 51, the latter being bifurcated, as best shown in Figure 4, and disposed on opposite sides of the upstanding portion of the link bracket 32. A pivot bolt 53 passes through alined openings in the bifurcated end 51 and the link bracket 32. The other end 50 of the link 48 carries a pin 55 which at opposite ends extends into the two vertical slots 44 and 45, the link 48 being thus mounted for both pivotal and sliding movement relative to the door bracket 32 associated therewith. The upper end of each link 48 carries an extension 58 which is apertured, as at 59, and receives the upper end of a biasing spring 61, the lower end of which is anchored to a pin 62 fixed in any suitable manner to one or both of the side wings 36 and 37. Preferably, the pin 62 is headed so as to prevent the lower end of the spring 61 from accidentally becoming detached.

As best indicated in Figure 3, each end of each of the sealing members for the door panels 11 is provided with a bumper plate 65, such as the one shown in Figure 3, fastened in place by screws 66 or the like. Each of the leading panels 11*a* and 11*b* have sealing bars that in their retracted or upper position extend outwardly from the leading edge of the panel, as indicated at 25*a* in Figures 7 and 8, and the other ends of the sealing bars 25 for the leading panels carry bumper plates 65 and terminate substantially flush with the edge of the panel opposite the leading edge when the sealing members for the leading panels are in their retracted or upper position. The forward or leading ends 25*a* of the sealing members 25 for the leading panels are each provided with a transversely disposed bumper block 70, preferably but not necessarily formed of wood. Each bumper block 70 is fastened in position to the end of the associated sealing member 25 by screws 71 or the like. Each block 70 extends laterally to the plane of the face of the panel, and at its upper edge is beveled, as at 72, to fit in a recess or notch 73 in the lower forward edge of each baseboard 17 when the panels are fully extended and the sealing members are forced down against the floor (Figure 2). Metal plates 75 are mounted on the abutting surfaces of the blocks 70 and may be fastened by the same screws 71 that hold the block in position. The purpose of having each of the blocks 70 extend laterally at its ends to points substantially flush with the door panel is to insure that the sealing members for the leading panels of the two units A and B will abut when the doors approach their closed position. Also, this construction presents a neat and safe appearance when the doors are fully closed. A generally triangular member 77 is fastened, as by screws 78, to the upper side of the sealing bar section 25*a* and serves to protect this end of the sealing member when the end extends outwardly. The panels 11*a* and 11*b* are provided with a recess 80 to receive the block 77 when the doors are fully extended, as shown in Figure 9.

The operation of the door construction so far described is substantially as follows:

The door units A and B are moved from their open or folded position to their extended or closed position by any suitable means, either electrically, mechanical, or otherwise, and as the two door units approach their closed position they are disposed in the relations shown in Figure 1, in which it will be noted that the lower edges of each of the panels clear the floors by a substantial amount and that the ends 25*a* of the two sealing members associated with the leading panels 11*a* and 11*b* extend forwardly so that the blocks 70 abut one another when the doors

reach the position shown in Figure 1. In this position, however, the arms or links 48 for the several floor sealing members are angled downwardly and forwardly with respect to the direction of movement, being held in this position by the springs 61. It will also be noted that each of the sealing members for the several panels 11 have their ends substantially flush with the two vertical edges of the panels, this being desirable in order that the sealing members shall not interfere with the folding or sliding movement of the panels. The rear end of the sealing bar for the last panel may terminate short at the inner edge as at 25b in Figure 1, if desired, since there is no other panel with which it can interlock. As the door units A and B are moved into their fully extended or closed positions, such movement, in effect, causes the leading sealing members 25 to shift horizontally in the slots of the panels in which they are disposed, and these sealing members, in turn, force all of the other sealing members to shift horizontally in their slots in a similar manner until the parts reach the position shown in Figure 2. At this time, the downward swinging of the several links 48 rocking about the axes 55 causes the sealing members to be forced down against the floor, under the bias of the springs 61, as will be understood by referring to Figures 5 and 6, the slots 45 in the brackets 35 permitting some latitude in the vertical position of the links 48 while continually maintaining the latter in such a position that the spring 61 urges the sealing member 25 down against the floor. In this way, unevenness of the floor is accommodated, as well as any sagging in the supporting truss or other means upon which the panels are carried. It will be noted, particularly from Figures 3 and 5, that the action of the springs 61 is two-fold. First, before the doors are moved into their extended or closed position, the effect of the springs is to swing the arms 48 about the pivots 55 in the bottom of the recesses 44, 45 in a generally upward direction, holding the sealing members elevated, as mentioned above. However, when the sealing members are moved relative to the panels, with the arms 48 substantially vertical, the effect of the springs 61 is to force the sealing members downwardly. In other words, the same springs, in one position, hold the associated sealing member elevated, but when the abutment block or other means forces the sealing member to move longitudinally, the springs react against such abutment block or other means and then force the sealing member down into floor-engaging relation. Each arm is independent of the other arm associated with the same sealing member, that is, one end of the sealing member may be higher than the other, but in each case the spring biased arms force the ends of the sealing member downwardly independently of whether the other end of the sealing member moves as far downwardly away from the edge of the door panel as the first end. The limit of the action of the springs 61 in forcing the ends of the sealing members downwardly is defined by the lower end of the slots 44 and 45. That is, neither spring 61 can force the associated end of the arm 48 downwardly after the associated pin 55 engages the lower end of the slots. The provision of the gum rubber strip 27 insures that the sealing members will grip the floor under the influence of the springs 61 so as to eliminate any tendency for the lower edges of the panels to be forced out of position by any lateral stress. From Figure 5 it will be noted that the links 48 are substantially vertical when the sealing members 25 are lowered, thus making it possible for substantially the whole effect of the springs 61 being applied to maintain the sealing members 25 down against the floor.

When the door units A and B are opened, the movement of the units away from one another permits the several springs 61 to immediately swing the arms 48 upwardly, carrying the sealing members away from the floor before the panels are called upon to pivot. In this way, the gum rubber strips are not subjected to any great amount of abrasion so that their effectiveness in sealing the bottom edges of the panels is retained over long periods of time. It will be noted that the operation of the floor seals is entirely automatic, both in the lowering of the seals and in the raising thereof during the closing and opening of the door units.

Figures 10 and 11 illustrate a modified form of arms for supporting the several sealing members 25 in the slots along the bottom edges of the panels. Insofar as the same constructional features of the door panels are employed in the form shown in Figures 10 and 11 as in the door construction described above, the same reference numerals have been used. In this form, the lower rail of each of the door panels is indicated at 100 and terminates a small distance above the lower edge of the door and, in effect, provides a groove or slot along the bottom edge of the door to receive the associated sealing bar 25. The rail 100 is provided with two or more recesses 101, and a bracket 102 is fastened in a notch 105 disposed at one end of the recess 101. The plate 104 is fastened to the bottom edge of the rail 100 by any suitable means, such as screws 106. The bracket 102 includes an upper and angularly deflected section 110 to which the upper end of a resilient arm 111 is fastened, as by bolts 112. Preferably, the arm 111 is formed of spring steel. Each arm 111 has its lower end formed with beveled corners, as at 115, and with an opening therein to receive a pin 118 that is carried by a bracket 120 fixed to the upper edge of the sealing member 25. Preferably, the pin 118 is loosely disposed in an opening formed in the upwardly extending section 121 of the bracket 120 and is held in position therein by a wire 122 or the like. A washer 125 is disposed between the lower end of the spring arm 111 and the bracket 120, and the pin 118 carries a cotter 126 which serves to retain the spring arm 111 in a connection with the associated bracket 120. The pins 118 are disposed horizontally and two pins (Figures 12 and 13) for each panel, taken together, establish a horizontal axis about which the sealing member 25 can swing laterally, as indicated in dotted lines in Figure 11. This permits the sealing member to accommodate irregularities in the floor surface. The sealing bar 25 may have its bottom and sides covered with gum rubber 127, if desired.

In operation when the sealing member 25 is shifted horizontally when the doors move into their closed position (to the left as viewed in Figure 10) the sealing member moves horizontally and downwardly from the dotted line position to the full line position by virtue of the spring arms 111 acting as a link. However, by virtue of their resiliency, the several sealing members may be disposed in a position either closer or farther away from the lower edge of the associated panel, but in substantially the same horizontal position relative to the associated panel supporting the same, thus accommodating un-

evenness of the floor. Also, the resiliency of the arms 111 serves automatically to return the sealing members to their upper or retracted position when the doors are moved out of their fully closed position.

The spring arm construction shown in Figures 10 and 11 and described above may be applied to a partition construction of the type shown in Figures 1 and 2. However, in Figures 12 and 13 I have illustrated this form of supporting means for the sealing members as applied to a door construction employing only one shiftable unit. However, so far as the panels are concerned, the panels shown in these two figures may be of exactly the same construction as the panels 11 and 11*a* described above in connection with Figures 1 and 2. In a single unit construction, however, it is desirable to employ slightly different abutment means for the forward end of the sealing member for the leading panel. Referring now to Figures 14 and 15, the leading panel 11*a* has its sealing member 25 provided with a bifurcated end 130 in which a roller 131 is disposed. Preferably, the roller is provided with a sleeve or bushing 132 which receives the inner ends of two screws 133 and 134 which are inserted from opposite sides of the sealing member 25 to serve as a pivot for the roller 131. This end of the sealing member 25 may carry a protecting triangular block 77, substantially like the one described above, and to accommodate this, the panel 11*a* may have a recess 80.

As best illustrated in Figures 12 and 13, as the door panel unit first approaches its extended or closed position, the roller 131 engages the jamb at that side of the door opening, and as the panel unit is extended further, the sealing member for the leading panel is forced inwardly, resulting in the shifting and downward movement of all of the associated floor seals, in the manner described above.

Either of the above described floor seals can, if desired, be applied to a single sliding panel, such as the panel 140 shown in Figures 16 and 17. In these figures I have shown the same type of floor seals as illustrated in the door construction shown in Figures 12 and 13.

Figures 18 to 22, inclusive, illustrate a form of the present invention which is particularly suitable for use on a garage or warehouse door of the single sliding or sliding-in-pairs types. However, the same kind of construction could be applied to folding partition doors as well as doors of other types. In Figures 18 to 22, inclusive, the lower rail of the door is indicated by the reference numeral 140, and along the lower edge of the rail of each door is a channel member 141 fastened thereto in any suitable manner. The channel 141 has downwardly disposed flanges 142 and 143 which serve as a slot to receive a sealing member 147 that is disposed between the flanges 142 and 143. The member 147 is also in the form of a channel, and is provided with upwardly extending flanges 148 and 149 telescoping within and between the flanges 142 and 143 of the door channel 141. The sealing member 147 is supported by substantially the same spring-biased swinging arm units as described above in connection with Figures 3 to 6, and hence a further description of these parts is not necessary. The channel sealing member 147 carries two brackets 152, each consisting of a base section 153 and an upstanding portion 154, the latter being apertured to receive the associated pivot bolt 53 by which the lower end of the swinging arm 48 is connected to the bracket 152. The latter is fastened in any suitable manner, as by bolts 155, to the base of the channel sealing member 147.

At the leading edge of the door the sealing channel 147 extends outwardly and carries a roller 159 between the sealing member flanges 148 and 149. Preferably, although not necessarily, the roller 159 is mounted for rotation on a shaft section 162 held in place between the flanges 148 and 149 by any suitable means, such as screws 165 and 166. As best shown in Figure 18, a portion of the roller 159 extends beyond the forward end of the sealing member 147, and in the doorway at one side a steel wall plate 169 is fastened.

In operation, when the door is moved into its closed position, the roller 159 engages the wall plate 169 so that further closing movement of the door acts through the spring biased arms 48 to force the sealing member with a positive pressure downwardly into engagement with the floor, the springs 61 being arranged to exert a continuous force urging the sealing member 147 downwardly, as best indicated in dotted lines in Figures 19 and 20. For doors, such as garage and warehouse doors, it is usually not necessary to have rubber sealing strips along the bottoms of the sealing members.

Figures 23 to 27 illustrate the application of the principles of the present invention to an airplane hangar door unit of the type that includes panels which roll on one or more rails set into the floor. In this type of door construction, due to the presence of the bottom rollers, the use of what might be termed interior mounted arms, such as those described above, for supporting the sealing member along the bottom of the door, may not be desirable. Therefore, according to the present invention, the sealing member and the supporting means therefor are disposed on one face of the door, rather than in a position between the inner and outer faces of the door panel.

Turning now to Figures 23 to 25, inclusive, the reference numeral 180 indicates the two leading door panels for center parting doors, and the reference numeral 181 indicates the succeeding door panels. Each of the doors 180 and 181 carries a floor sealing member 185 that is mounted against the outside face of the door, as best indicated in Figure 24, and each door is supported by rollers 186 which run on track 187. Each sealing strip 185 preferably is formed of sheet metal, having a lower laterally extended flange 189 that is adapted to be forced into contact with the floor. Also, there is an abutment angle 190, which will be referred to later, at each end of each of the sealing members 185.

The means for supporting the floor sealing members on the several door panels is quite similar to the structure described above. Referring now to the door 180 shown in Figures 24 and 25, secured to the plate 200 forming the outer face of the door 180 is a generally U-shaped bracket member 201 having apertured sections 202 and 203. Bolts 205 serve to secure the bracket 201 in position against the inner surface of the door plate 200. The bracket 201 is provided with a slot 207 adjacent its upper end. An auxiliary bracket 210 is secured in any suitable manner to the back side of the bracket 201, and is provided with a slot 211 directly opposite the slot 207 in the bracket structure 201.

A swingably mounted arm 220 is provided with trunnions 221 and 222 that are received in the slots 207 and 211, whereby the arm 220 has both

swinging and generally vertical bodily movement between the bracket sections 201 and 210. The lower end of the link is formed with a bifurcated section 225 which receives a pin 226 that extends outwardly through an opening 227 in the door plate 200. The outwardly extended end of the pin 226 is riveted or otherwise fastened to the floor sealing member 185. As best shown in Figure 23, two swinging arm supporting units are provided for each floor sealing member. The inner end of the arm 200 is extended, as at 230 in Figure 25, and is apertured, as at 231, to receive the upper end 232 of a biasing spring 233, the lower end of which is engaged over a pin 234 fastened to the lower portions of the bracket sections 201 and 210. The floor sealing member 185 is enclosed in a protecting housing 236 fastened to the door face plate 200 by any suitable means, such as screws or bolts 237, as best shown in Figure 24.

The springs 233 exert a force on the extended ends 230, tending to swing the arms 220 into the positions shown in dotted lines in Figures 23 and 25, the length of the slot 227 accommodating the swinging movement of the pin 226 by which the sealing members that are disposed on the outside of the door plate 200 are supported from the arms 220 that are mounted on the inside of the door panel 200.

In operation, as the two door units are brought up to their closed position and the leading door sections approach one another, the two abutment members 190 on the leading ends of the floor sealing members 185 come into engagement, as shown in Figure 23. Then further closing movement of the door units toward one another serves, in effect, to force each floor sealing member 185 inwardly or backwardly with respect to the travel of the doors. This relative movement of each floor sealing member relative to the door panel which supports it causes the arms 220 to swing downwardly, in a counterclockwise direction as viewed in Figure 23, against the force of the springs 233 until the arms 220 are disposed substantially vertically, as indicated in full lines in Figure 25. This swinging movement of the arms forces the sealing member 185 down into engagement with the floor, as shown in full lines in Figures 24 and 25. The slots 207 and 211 permit the associated arm to take a number of positions, thereby providing for unevenness in the floor. As in the forms of the invention previously described, the movement of one sealing member downwardly into floor engaging relation shifts the other floor sealing members downwardly and inwardly, the abutment members 190 serving to receive and transmit the thrust from one sealing member to the other, as will be clear from the description of previous modifications.

As indicated in Figure 23, the doors are preferably supported on rollers operating on tracks, and where single doors are used, or where the doors operate on two, three or four or more parallel runs of straight track, as is frequently the case in door constructions for airplane hangars, with the doors on one track overlapping the doors on the next track, it is necessary to provide a contact member attached to the floor to operate the sealing strip or strips, and in Figures 27 and 28 I have shown such a member in the form of a casting 240 having a base section 241 and an upstanding shoulder section 242, the base section 241 having recesses 244 and 245 to receive the heads of leg screws 247 or other means by which the member 240 is attached rigidly and firmly into the floor. In operation, as the panel or panels approach their closed position the forward end of the sealing member engages the stop 240, further movement of the door panel serving to cause the arms 220 to force the sealing members down into sealing engagement with the floor.

While I have shown and described above the preferred means in which the principles of the present invention have been illustrated, it is to be understood that my invention is not to be limited to the particular details shown and described above, but that, in fact, widely different means may be employed in the practice of the broader aspects of my invention.

What I claim, therefore, and desire to secure by Letters Patent is:

1. A weather strip construction for a movable door panel, comprising a horizontally shiftable sealing member disposed along the lower edge of said panel, arm means connected at their inner ends to the door and held thereby against horizontal movement relative thereto, said arm means being connected at their lower ends to said sealing member for swinging movement relative thereto as said sealing member is shifted horizontally along the lower edge of the door panel, and a spring connecting each of said arm means with said panel for biasing the arm means to yieldingly hold said sealing member out of contact with the floor during movement of said door, and means for shifting said sealing member horizontally against the action of said springs, the corresponding swinging movement of said arm means forcing said sealing member downwardly into floor engaging position.

2. A weather strip construction for a movable door panel, comprising a sealing member disposed along the lower edge of the door, a plurality of arms pivotally connected at their lower ends to said sealing member, means establishing a vertically extending sliding pivot for the upper end of each of said arms, spring means biased between the upper pivoted ends of each of said arms and said panel, said spring means independently urging said sliding pivots to take the lower position to hold said sealing member and said arms to take the position out of contact with the floor, and means for shifting said sealing member horizontally along the lower edge of the door, said arms acting against said springs and yieldingly forcing said sealing member down into engagement with the floor, said sliding pivots permitting the sealing member to accommodate unevenness in the floor surface.

3. A weather strip construction for a movable door panel, comprising a horizontally shiftable sealing member disposed along the lower edge of the door panel, a plurality of members disposed at an angle to the lower edge of the door panel and pivotally fastened to the door panel at their inner ends, means connecting the lower ends of each of said members to said sealing member for pivotal movement about a longitudinal axis, whereby said sealing member can pivot laterally of the door panel, and means for shifting said sealing member horizontally, said pivoted members acting when the sealing member is shifted horizontally to force the sealing member downwardly into floor engaging relation.

4. A weather strip construction for a movable door panel having a recess in its leading edge adjacent the bottom of the door panel, comprising a sealing member carried along the lower edge of the door panel for horizontal shifting movement relative thereto and having an end project-

ing outwardly from the leading edge of the door panel adjacent said recess, means for shifting the sealing member horizontally, means for forcing said sealing member downwardly into floor engaging relation when said sealing member is shifted horizontally along the lower edge of the door, and an angled protecting block fixed to the projecting end of said sealing member and adapted to be moved into the recess in the door panel when said sealing member is shifted longitudinally inwardly of the panel.

5. A weather strip construction for a movable door panel having a plurality of recesses in its lower edge, comprising a plurality of spring arms fixed at their inner ends in said recesses and disposed at an angle to the lower edge of the door, a horizontally shiftable sealing member disposed along the lower edge of the door and normally projecting outwardly of the latter at one end, and means pivoting the sealing member to the lower ends of said spring arms for generally lateral swinging movement about an axis parallel to the lower edge of the door, horizontal movement of said sealing member in one direction causing said spring arms to force said sealing member downwardly of the door panel into floor engaging relation.

6. In a center parting door construction, a weather construction for two oppositely movable door panels, a horizontally shiftable sealing member for each of said panels, a pair of pivot arms fastened to the bottom of each panel and carrying the associated sealing member for lateral and downward shifting movement, and abutment portions carried by the forward ends of said sealing members and projecting from the leading edges of the panels, the abutment portions being adapted to engage one another and to shift said sealing members when the door panels are extended into their closed position, the pivot arms being arranged at such an angle that when the sealing members are shifted as the door panels move into their closed position said sealing members are forced downwardly into floor engaging relation.

7. In a center parting door construction, weather strip construction for two oppositely movable sections, each consisting of a plurality of hingedly connected door panels, said weather strip construction comprising a horizontally shiftable sealing member for each of said panels, a pair of pivot arms fastened to the bottom of each panel and carrying the associated sealing member for lateral and downward shifting movement, an abutment portion carried by the forward end of the sealing member of the leading panel of each section, and projecting from the leading edge thereof, the ends of the other sealing members being in abutting engagement when the panels are extended, the abutment portions of the leading panels being adapted to engage one another and to shift all of the sealing members of the panels of both sections when the latter are moved into their closed position, the pivot arms being arranged at such an angle that when the sealing members are shifted as the door panels move into their closed position said sealing members are forced downwardly into floor engaging relation.

8. A weather strip construction for door comprising a recessed door panel having an apertured plate forming a side portion thereof, comprising a sealing member shiftable horizontally and carried by said panel on the outer face thereof adjacent said plate, and means disposed within said recess and having a portion extending outwardly through the aperture in said plate and connected with said sealing member for forcing the latter downwardly into floor engaging relation.

9. A weather strip construction for a door having a slot in the general plane of the door in the bottom rail thereof, comprising a sealing member shiftably carried by the door, means for shifting said sealing member horizontally longitudinally in said slot, and spring means biased by said horizontal movement and acting between the door and the sealing member and reacting against said shifting means for forcing the sealing member downwardly into floor engaging relation, said spring means being capable of forcing either end downwardly relative to the other end.

10. A weather strip construction for a door panel having a slot at its lower edge and recesses extending inwardly of the door panel from the slot, comprising a bracket fixed in the top of the slot adjacent each recess and having a part extending upwardly into the recess, a horizontally shiftable sealing member disposed in said slot and movable both longitudinally and vertically therein, biased arm means disposed in each recess and connected at its upper end to said upwardly extending bracket part therein and at its lower end to said horizontally shiftable sealing member, and means for moving said sealing member horizontally in said slot, said arm means being disposed at an angle whereby when the sealing member is shifted horizontally the arm means forces said sealing member downwardly.

11. A weather strip for a door panel, comprising a sealing member shiftable horizontally and carried by said panel, a pair of links pivoted to said sealing member and having vertically floating pivotal connection with the door panel, and means acting through said links when said sealing member is shifted horizontally for forcing the links and said sealing member downwardly for shifting the latter into floor engaging position.

12. A weather strip for a movable door panel comprising a sealing member shiftable horizontally along the lower edge of the door panel, a pair of rigid arms pivoted at their lower ends to said sealing member, means carried by the door panel and establishing a pivotal connection between the upper ends of said arms and the door panel which is capable of generally vertical shifting movement, and means connected with said panel and said arms for forcing each end of the sealing means downwardly into floor engaging position independently of the position of the other end of the sealing member when said member is moved horizontally.

13. A weather strip for a movable door panel, comprising a sealing member disposed along the bottom of the door and shiftable horizontally when said door panel moves into its closed position, and a pair of rigid lever arms pivotally connected at their lower ends to the sealing member adjacent the opposite ends thereof and at their upper ends pivotally mounted in vertically extending slots in the door panel and disposed in such an angular position that horizontal shifting movement of the sealing member inwardly of the door serves to force said sealing member downwardly into floor engaging position, said vertically extending slots providing for vertical shifting of the opposite ends of the sealing member relative to each other to provide for unevenness in the floor surface.

14. A weather strip construction for a plurality of hingedly connected door panels, comprising a sealing member horizontally shiftable at the lower edge of each of said panels, means for shifting each of said members horizontally relative to the associated door panel, lever arm means operative by horizontal shifting movement of each sealing member for forcing the latter downwardly into floor engaging position when the partition moves into its closed position, and longitudinally and laterally extending pivot means connecting said lever arm means with the sealing member and the door panel to provide for lateral and longitudinal tilting of the sealing member to accommodate unevenness of the floor in both longitudinal and lateral directions.

15. A weather strip construction for door panels, comprising a horizontally shiftable sealing member carried at the lower edge of each panel, each of said sealing members being adapted to abut one another when the panels are extended and the sealing member carried by the leading panel having a portion projecting forwardly from the edge of the leading panel to be engaged by an adjacent part of the door so that when the partition moves into its closed position said leading sealing member is shifted horizontally, thereby shifting all of said sealing members relative to their respective panels, and means connecting each sealing member with the associated panel so that when the sealing member associated with each panel is shifted horizontally, it is also moved downwardly into floor engaging relation.

16. A weather strip construction for a plurality of door panels, each panel having a slot in its lower edge, a sealing member fitting snugly in the slot in each panel and carried therein for horizontal shifting movement, and means for shifting all of said sealing members horizontally so as to carry one end of each through the slot in an adjacent panel when the partition moves into its closed position to thereby lock the lower edges of the several panels against shifting laterally relative to each other.

17. A weather strip construction for a door panel having means serving as a slot at its lower edge, comprising a horizontally shiftable sealing member movably carried in said slot, a pair of laterally rigid leaf spring arms supporting the sealing member in the slot, and means for shifting said sealing member horizontally in said slot against the bias of said arms, the latter being disposed at such an angle that the horizontal movement of the sealing member causes the arms to force the sealing member downwardly into floor engaging relation, said leaf spring arms being flat and serving to prevent bodily lateral movement of the sealing member while accommodating longitudinal movement of the latter relative to the door panel.

MALCOLM L. JONES.

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CERTIFICATE OF CORRECTION.

Patent No. 2,180,112. November 14, 1939.

MALCOLM L. JONES.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 5, second column, line 46, claim 2, strike out the words "to hold said sealing member" and insert the same after "position" in line 47, same claim; page 6, first column, line 29, claim 6, after "weather" insert strip; line 47, claim 7, before "weather" insert a; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 2nd day of January, A. D. 1940.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)