June 26, 1945. W. A. BARROWS 2,379,269

PORCELAIN ENAMELED PANEL MOUNTING

Filed Sept. 25, 1943

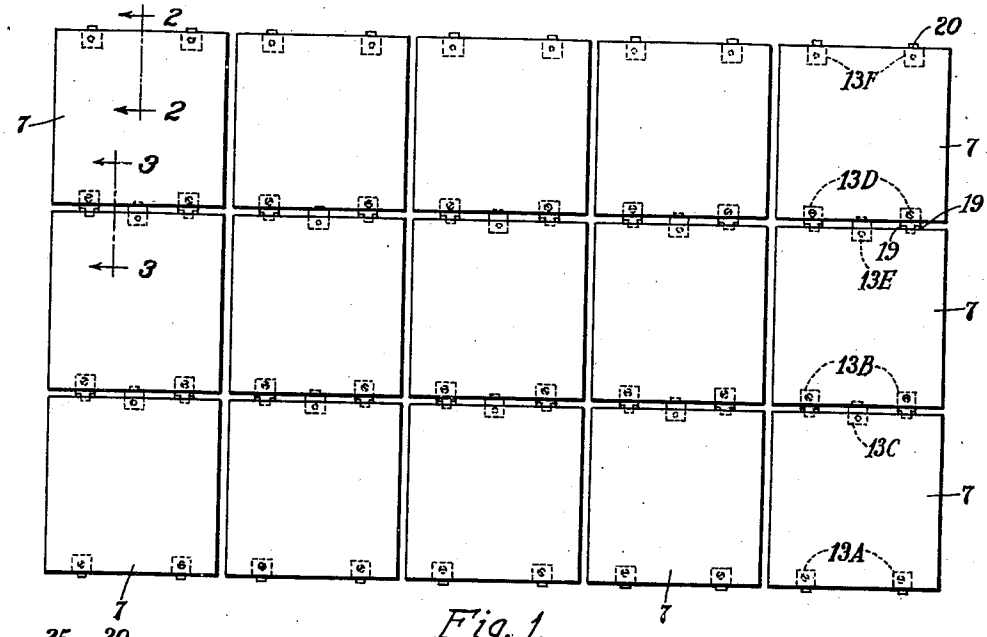


Fig. 1.

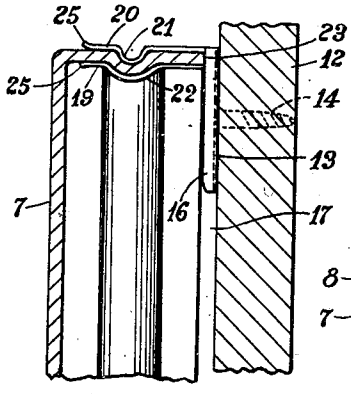


Fig. 2.

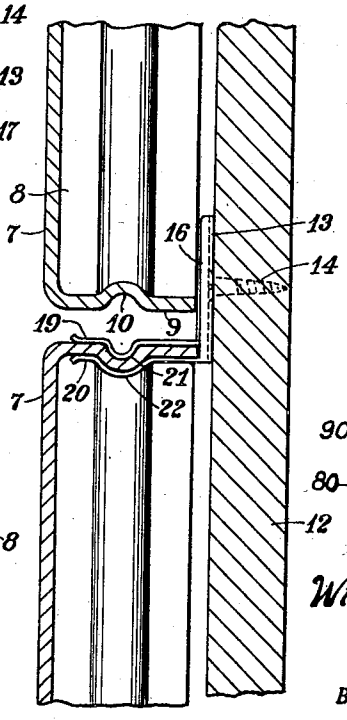


Fig. 3.

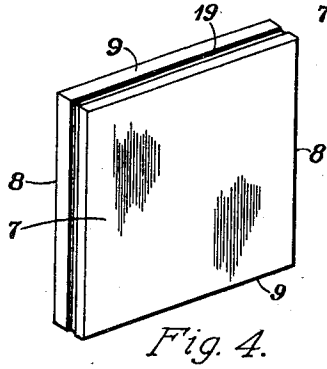


Fig. 4.

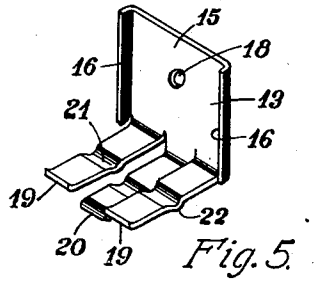


Fig. 5.

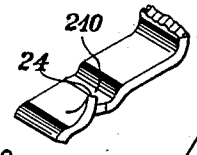


Fig. 6.

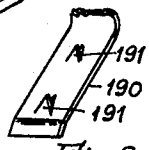


Fig. 8.

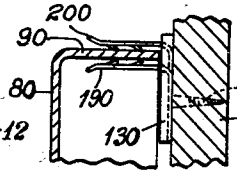


Fig. 7.

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PORCELAIN ENAMELED PANEL MOUNTING

William Austin Barrows, Hamilton County, Ohio

Application September 25, 1943, Serial No. 503,827

10 Claims. (Cl. 189—88)

This invention relates to porcelain enameled panels, and to an improved method and means for effecting the mounting and application of such panels for architectural and similar purposes.

An object of the invention is to provide a new method and means for simplifying and expediting the application of porcelain enameled panels, and for reducing costs in connection therewith.

Another object is to provide for such improvements as will enhance the appearance of the finished paneling job, due to the latitude provided for adjusting the relative positions of the panels during application thereof to a wall or other support, and to the relative independency of panels whereby any panel may be shifted, removed, or applied without disturbing adjacent panels.

Another object of the invention is to provide means of the character stated, the several elements of which may be standardized to the maximum extent possible in the interests of cost, ease of application, and simplicity, thereby dispensing with the need for special tools and highly developed skill in mounting of the panels.

The foregoing and other objects are attained by the means described herein and disclosed in the accompanying drawing, in which:

Fig. 1 is an elevational view of a group of panels mounted and arranged in accordance with the present invention.

Fig. 2 is an enlarged cross-sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is an enlarged cross-sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is a perspective view of one of the panels constituting the group of Fig. 1.

Fig. 5 is a perspective view of a mounting clip forming part of the invention.

Fig. 6 is a fragmental perspective view of a mounting clip tongue, such as may modify the clip of Fig. 5.

Fig. 7 is a view of a modification of Fig. 2.

Fig. 8 is a view of a modification of Fig. 6.

Prior to the present invention, it was customary to decorate or remodel various kinds of surfaces, particularly store fronts and the like, by applying thereto metallic panels of one type or another, the mounting of which was usually effected by means of clips adapted to hold the panels to the surface undergoing decoration or refacing. Usually, the clips were permanently fastened to the surface or supporting area for the panels, and with the use of various expedients the panels were fastened to the mounting clips. In the majority of instances, various difficulties were encountered in properly mounting the clips and panels due to irregularities in the supporting surface and limitations concerning the placement of the clips thereon, all of which often resulted in defective mounting which sometimes marred the appearance of the finished paneling job even though executed by skilled workmen. In other cases, the mountings were such as to require certain definite spacings between panels, which resulted in the loss of flexibility or latitude in making a given number of panels cover the area to be faced. Such limitations, as encountered in the mounting of facing panels, often required special fitting and skilled workmanship, and in some cases special panel sizes or constructions, all of which added to the cost of the job both as to materials and labor.

In accordance with the present invention, means have been provided for the incorporation of flexibility or latitude in the mounting of panels, so that relatively unskilled workmen might secure better results and a finer degree of accuracy, than was heretofore possible with the employment of skilled labor. Moreover, the means herein disclosed for the mounting of panels has the advantage of expediting the work and reducing the cost thereof to a practical minimum. Other advantages will be pointed out as the description proceeds.

The character 7 in all drawing views, indicates a metallic panel which is preferably in the form of a four sided pan, all of the surfaces of which carry a suitable coating of porcelain enamel or similar material. In the main, the mounting of the panels involves applying clips such as is illustrated by Fig. 5, to the flanges of the panels, and thereafter fixing the clip bases to a wall or other supporting structure. The fingers or tongues of the clip resiliently grip the panel flanges. As will presently be explained in greater detail, some but not all of the clips are to be fixedly secured to the wall or other support undergoing the application of panels.

With reference to Fig. 4, the panel 7 will be seen to consist of a metallic sheet resembling a shallow pan, the pan having four sides which may be considered rearwardly projecting flanges disposed substantially at right angles to the forward face of the pan or panel. The vertical sides or flanges are indicated by the characters 8, whereas the horizontal sides or flanges bear the reference characters 9. Along the full length of each of the four sides or flanges, there is depressed or otherwise formed therein a longitudinal channel or recess 10 which is located along a line be-

tween the longitudinal edges of the sides or flanges. These channels or recesses make their appearance as ribs or ridges inwardly of the panel flanges, as may readily be understood upon referring to Figs. 2 and 3. The recesses and ribs preferably are coextensive in length, or approximately so, with the length of the flanges, and may be either continuous or interrupted. As will be understood, the panels, inclusive of the recesses, the ridges, and all edges of the form or shape, carry a complete covering or coating of porcelain enamel or other suitable coating material. It is considered unnecessary for the purposes of this disclosure, to specify the various characters of coatings, or to attempt a showing of the coating in the several views of the accompanying drawing.

A building wall or other suitable support for the panels is indicated by the character 12, and may be of wood, brick, stone, or any other material commonly employed in the erection of walls or buildings. To the wall or support element 12, mounting clips such as 13 may be fastened, using common securing means or fasteners of any suitable type, of which the screws 14 may be considered exemplary. The mounting clip, as illustrated by Fig. 5, consists of a substantially flat base 15 having inwardly turned edges 16 that serve, in effect, to increase the thickness of the base 15 for spacing the panel flanges from the wall or support as illustrated at 17 of Fig. 2. The base of the mounting clip may be perforated to receive a fastener, as indicated at 18.

One end of the base 15 is slotted so as to divide the material of the base into a series of tongues or fingers, outermost ones of which are indicated by the characters 19. The free ends of these tongues or fingers may be slightly bent as shown, to facilitate entry of the panel flanges therebetween. The intermediate tongue or finger, only one of which is illustrated in that form of clip shown in Fig. 5, carries the reference character 20. As will be understood, the number of intermediate tongues or fingers may be increased, if desired. The intermediate tongue is seen to be located in a plane spaced from the plane of the endmost tongues or fingers, by a distance approximating the thickness of a panel flange. All of the tongues are disposed approximately at right angles to the plane of the mounting clip base.

Each tongue or finger carries a transverse depression 21 so pressed into the metal as to form a rib on the opposite side of the finger or tongue, as indicated at 22, the recess and rib of each tongue being adapted to correspond with and engage the complementary recesses and ribs of the panel flanges. Recesses 21 are so located upon the tongues or fingers as to engage the cooperative part of a panel flange when the peripheral edge 23 of the flange is in contact with the edges 16 of the mounting clip base flanges. This relationship of parts is clearly indicated by Figs. 2 and 3.

As illustrated by Fig. 6, the several tongues or fingers of the mounting clip might, if desired, be provided with a recess 210 flanked by a sharp pointed projection 24, the object of this construction being to provide means on the tongue or finger capable of digging into the coating, or possibly into the metal of the panel flange itself, thereby to resist with increased power the separation of a panel from the mounting clip. It will be understood that the modified form of mounting clip would have projections such as 24 applied to each of the several tongues or fingers of the clip, and should it be considered necessary or desirable, the tongues or the pointed projecting portions may be tempered or hardened. While as illustrated in the drawing, the projection 24 is formed by merely punching a sliver or point from the material of the tongue, it should be understood that any satisfactory equivalent means may be resorted to for the formation of a pointed projection capable of performing the function stated. The extreme ends of the tongues or fingers may be bent to provide a throat to facilitate entry of the panel flange into the space between the outermost and the intermediate tongues or fingers, this condition being indicated at the locations 25 of Fig. 2.

In the mounting of the panels, it may be explained in connection with Fig. 1 that the application of panels might begin, for example, at the lower right corner of Fig. 1, where the lower row of clips 13A is first fastened to a wall or supporting structure, in position to receive between their tongues or fingers the lower peripheral flanges of the panels. The panels of the lower row may then be prepared for application to the supporting structure, by applying to the upper horizontal flanges thereof the mounting clips indicated at 13B. With the clips 13B applied to the upper horizontal flange, the panel may be pressed against the supporting surface, while the lower horizontal flange thereof enters between the tongues or fingers of the lowermost clips 13A. With the panel thereby held by the clips 13A, the clips 13B may be screwed or otherwise fastened to the supporting structure.

In applying the planel next above, it is necessary only to attach to its lower horizontal flange a mounting clip such as 13C, or preferably a plurality thereof; while at the same time a plurality of mounting clips 13D are clipped onto the upper horizontal flange of the panel. The panel is held in place by inserting the bases of the clip or clips 13C behind the lowermost panel a distance such as will provide a desired spacing between panels, and then fixing the mounting clips 13D to the supporting structure. The spacing of panels between the clips 13B and 13C may be varied considerably, thereby making it possible for the mechanic to uniformly space a given number of panels between the floor line and the ceiling line, or between the floor line and any established higher elevation point upon the supporting structure.

In applying the final row of panels, or the uppermost panels of Fig. 1, each upper panel will be prepared for application by attaching thereto one or more clips 13E. Before applying the final panel, the mounting clips 13F will be properly located upon the supporting structure and fastened thereto, so that upon inserting the clip or clips 13E behind the sub-adjacent panel, the upper horizontal flange of the uppermost panel may be forced into engagement with the previously fastened mounting clips 13F.

The foregoing procedure will be found to effect a considerable saving of time and labor, over methods or procedures previously employed in the mounting of porcelain enameled panels. At this point in the explanation, it may be noted that the lowermost clips 13A and the uppermost clips 13F will necessarily be distinguished from clips such as 13B, C, D and E, in that the depressions 21 and ribs 22 are reversed in order to properly accommodate the corresponding depressions and ribs of the panel flanges held thereby. In other words, with reference to Fig. 5, the depressions

21 will be inverted to provide ribs appearing on those upper surfaces of the tongues or fingers that are observable in Fig. 5. The special clip thus provided can be manufactured easily by simply bending the tongues 19—20—19, and the flanges 16, to the opposite or rear face of the mounting clip base 15. This procedure requires no change in the mounting clip, except in the operation of bending in a reverse direction the tongues and the flanges aforesaid. If desired, the use of reverse clips may be avoided by supporting the starting and ending panels with regular clips applied to the vertical flanges of the panels, rather than to the horizontal flanges.

From the foregoing explanation, it will be evident that a very neat spacing of panels vertically may be effected with great speed and facility, as it is only necessary to place a suitable thickness gauge between adjacent panels as they are applied in a row vertically. The spacing of panels laterally may be achieved in a similar manner, and with considerable speed and facility, due to the fact that the continuous channels or recesses in the horizontal flanges permit shifting of the panels horizontally to any desired extent, even after the panels have been applied to the supporting structure. After all panels have been thusly applied to the supporting structure, the space between them may be filled with putty, mortar, or any other suitable filler material, to complete the job.

With further reference to the mode of application, it should be appreciated that the panels in some instances may require the use of a considerable number of mounting clips, applied either along two panel flanges as previously explained, or along all flanges of the panels. In the event that clips be applied to three or four flanges of a panel, rather than to two opposite flanges, the possibility of shifting the panels subsequently to mounting them will necessarily be lost to a great extent, but in the majority of those instances no need arises for the shifting of panels, particularly when the panels are of large dimensions and are used in producing pilaster or like effects. The use of mounting clips upon all flanges of a panel, however, does not interfere with the desired replacement or removal of panels individually, which is an advantage of considerable merit as it allows for repairs or replacements of damaged or defaced panels at any time subsequently to the initial installation.

From the foregoing, it will be observed that the panel mounting means and method of the present invention afford many advantages over the means and methods heretofore resorted to in the art. To mention a few of the advantages, it should be appreciated first, that once the lower row 13A of mounting clips has been applied to the supporting structure, the clips and panels are unitarily applied to the supporting structure, thereby automatically and definitely locating the intermediate clips in position for attachment to the supporting structure. In other words, the clips need not be prepositioned before application of the panels. Another advantageous feature is the fact that the mounting clips may be applied anywhere along any flange of the panel, and in that way a satisfactory surface may be selected upon the face of the supporting structure for proper fastening of the clip bases. This will be seen to have a distinct advantage especially where the surface of the supporting structure may be uneven or otherwise unsuited for the fastening of mounting clips at certain locations thereon.

Few or many mounting clips may be applied to each panel, as may be required under varying circumstances or conditions of application, and it is unnecessary to permanently fasten any of the mounting clips to the panels as a factory operation. By providing mounting clips with the spacing flanges 16, the clips perform to hold the panels on a definite plane from the building, once the panels have been applied.

In addition to the facility with which adjacent panels may be spaced apart, as hereinbefore explained, it may be noted that the panels are independently mounted and any one of them may be removed without disturbing contiguous panels. In the exemplification of Fig. 1, removal and replacement of panels is unnecessary for the establishment of vertical spaces between vertical columns of panels, for the reason that any of the panels may be slid sidewise or horizontally to provide the desired spacings between vertical rows of panels.

The panels and clips of the present invention may be manufactured at low cost, and without the use of complicated machinery, due to the standardization and uniformity practiced in the shaping of the several elements. For example, it will be noted that all panels are identical, and the flanges thereof are indistinguishable in shape and size. This feature not only facilitates application of the panels on the job, but simplifies also the manufacturing procedure. So far as the reverse type of starting and ending clips is concerned, these may be dispensed with under conditions of application requiring no concealment of the mounting clip bases at the lowermost and uppermost horizontal courses of panels. When conditions require it, however, the mounting clip bases may be concealed as previously explained.

As was stated previously herein, the ribs and recesses of the panel flanges may be either continuous or interrupted along the length of the flanges, so long as ample provision is made for the application of sufficient numbers of mounting clips. It is desirable also that the ribs and recesses be sufficiently long, where engaged by a clip, to allow for at least a limited amount of panel shiftability as explained in connection with Fig. 1.

Fig. 7, which is a fragmental view similar to Fig. 2, shows a modification wherein the flange 90 of a panel 80 is made plain, that is, without forming ribs and recesses therein, the plain flange of the panel being held by the tongues or fingers 190 and 200 of the mounting clip 130, with the aid of sharp pointed barbs 191, which are best illustrated by Fig. 8. Except for the provision of the barbs in place of the recesses or depressions 21 on the mounting clip tongues or fingers, the mounting clip of Fig. 7 is a duplicate of that illustrated by Figs. 2 and 5. The tongues or fingers 190 and 200 are preferably of spring metal properly tempered, so that when the barbs 191 are punched therefrom, they will present exceedingly sharp and hard points such as may partially penetrate the porcelain enamel or other coating carried by the panels and their flanges. The panel flanges are presented to the barbed tongues in the same manner as was explained in connection with the type of clip illustrated by Fig. 5, and the application of panels to a supporting structure employing the modified clip of Figs. 7 and 8 may follow the same procedure as was previously related herein. It may be noted,

in connection with the application of plain flanged panels, utilizing the barbed form of clip, that the reverse type of clip need not be resorted to for the application of the starting and ending panels, since the barbs of the tongues or fingers need not be registered with any definite portion or area of the panel flanges. The mounting clip base 130 of Fig. 7 performs the same function as is performed by the base of the mounting clip illustrated by Fig. 5, and the tongues or fingers 190 and 200 may be three or more in number, arranged in the staggered fashion of Fig. 5.

Although panels mounted in accordance with the teaching of Figs. 7 and 8 might not in all cases be as readily removable as the panels held by clips of the Fig. 5 variety, they nevertheless may be expected to produce a satisfactory paneling job.

What is claimed is:

1. In a surface covering system of the class described, a supporting structure, facing panels each having a body portion and flanges directed rearwardly at approximately a right angle to the body portion, said flanges being uniform in shape, size, and angularity, and each bearing a continuous depression coextensive with the length of the flange, the reverse side of the depression forming a corresponding rib, and means engageable with the depressions and ribs anywhere along the extent of the panel flanges, for mounting the panel upon the supporting structure in condition to be shifted bodily relative to an adjacent panel, and in the plane of the latter, for establishment of a predetermined spacing between panels.

2. In a surface covering system of the class described, a supporting structure, facing panels each having a body portion and flanges directed rearwardly at approximately a right angle to the body portion, said flanges being uniform in shape, size, and angularity, and each bearing a continuous depression coextensive with the length of the flange, the reverse side of the depression forming a corresponding rib, and means engageable with the depressions and ribs anywhere along the extent of the panel flanges, for mounting the panel upon the supporting structure in condition to be shifted bodily relative to an adjacent panel, and in the plane of the latter, for establishment of a predetermined spacing between panels, and an abutment on each mounting means for contacting the panel flanges and maintaining the panels in a common plane spaced from the supporting structure.

3. In a surface covering system of the class described, a supporting structure, finishing panels to overlie the supporting structure, each including a plurality of identical flanges extended in a common direction, and means mounting said panels shiftably upon said structure for varying the spacing between adjacent panels, said mounting means including a flanged base, the flanges of which base serve as spacers for the panels in their relationship to the supporting structure.

4. In a surface covering system of the class described, a supporting structure, facing panels each having a body portion and flanges directed rearwardly at approximately a right angle to the body portion, said flanges being uniform in shape, size, and angularity, and each bearing a depression, the reverse side of the depression forming a corresponding rib, and means engageable with the depressions and ribs anywhere along the extent of the depressions and ribs, for mounting the panel upon the supporting structure in condition to be shifted bodily relative to an adjacent panel, and in the plane of the latter, for establishment of a predetermined spacing between panels.

5. In a surface covering system of the class described, a supporting structure, facing panels each having a body portion and flanges directed rearwardly at approximately a right angle to the body portion, said flanges being uniform in shape, size and angularity, and each bearing a depression, the reverse side of the depression forming a corresponding rib, and means engageable with the depressions and ribs anywhere along the extent of the depressions and ribs, for mounting the panel upon the supporting structure in condition to be shifted bodily relative to an adjacent panel, and in the plane of the latter, for establishment of a predetermined spacing between panels, and an abutment on each mounting means for contacting the panel flanges and maintaining the panels in a common plane spaced from the supporting structure.

6. As a new article of manufacture, a mounting clip for facing panels, comprising a base portion and a series of resilient tongues extending from the base portion substantially at right angles thereto, alternate ones of said tongues being in different planes spaced apart, said tongues being deformed transversely to provide opposed holding recesses and holding ribs for accommodating similar recesses and ribs of a panel, and panel spacing means in the form of a flange turned upon an edge of the base portion in the direction of extension of the tongues.

7. As a new article of manufacture, a mounting clip for facing panels, comprising a base portion and a series of resilient tongues extending from the base portion substantially at right angles thereto, alternate ones of said tongues being in different planes spaced apart, said tongues being deformed transversely to provide opposed holding recesses and holding ribs for accommodating similar recesses and ribs of a panel, and panel spacing means in the form of a flange turned upon an edge of the base portion in the direction of extension of the tongues, said flange intersecting the plane of at least one tongue and resting in substantial spanning relationship to the space between the planes of the tongues.

8. As a new article of manufacture, a mounting clip for flanged facing panels, comprising a base portion and a series of resilient tongues extending from the base portion substantially at right angles thereto, alternate ones of said tongues being in different planes spaced apart in substantial parallelism for snug reception of a flange of the panel, and a panel leveling stop on the base portion, comprising a base flange extending in the same direction as the tongues, and substantially spanning the space between the planes of the tongues to limit insertion of the panel flanges therebetween.

9. Surface covering means for a supporting structure, comprising facing panels each having a body portion and flanges directed rearwardly at approximately a right angle to the body portion, said flanges being substantially uniform in depth and angularity and each bearing an elongated depression formed lengthwise of the flange, the reverse side of the depression forming a corresponding rib, and means engageable with the depressions and ribs anywhere along the extent of the depressions and ribs, for mounting the panel upon a supporting structure in condition to be shifted bodily relative to an adjacent panel, and in the

plane of the latter, for establishment of a predetermined spacing between panels.

10. Surface covering means for a supporting structure, comprising facing panels each having a body portion and flanges directed rearwardly at approximately a right angle to the body portion, said flanges being substantially uniform in depth and angularity and each bearing an elongated depression formed lengthwise of the flange, the reverse side of the depression forming a corresponding rib, and means engageable with the depressions and ribs anywhere along the extent of the depressions and ribs, for mounting the panel upon a supporting structure in condition to be shifted bodily relative to an adjacent panel, and in the plane of the latter, for establishment of a predetermined spacing between panels, and a panel flange stop on each mounting means for contacting the flange and maintaining the panel at a predetermined spacing from the supporting structure.

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