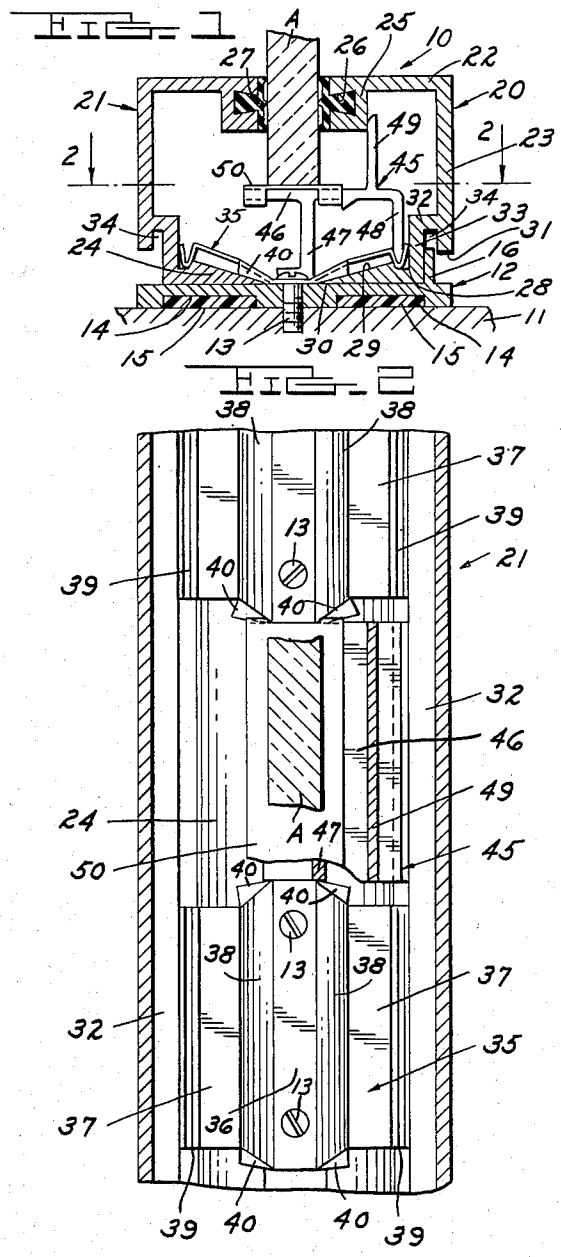
Feb. 14, 1961 M. MAY 2,971,229

SNAP-IN GLASS SETTING CONSTRUCTION

Filed June 3, 1957 2 Sheets-Sheet 1



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FIG. 5

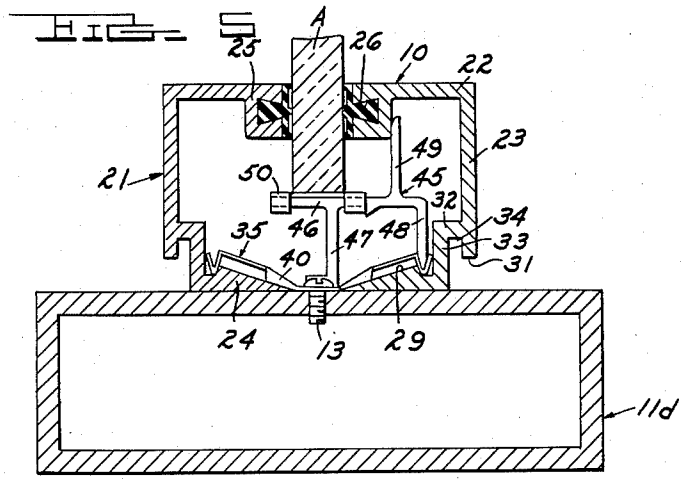


FIG. 3

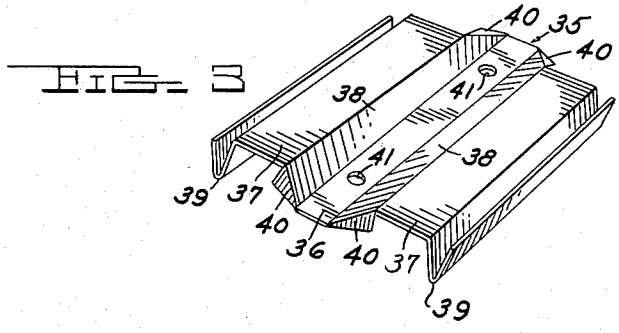
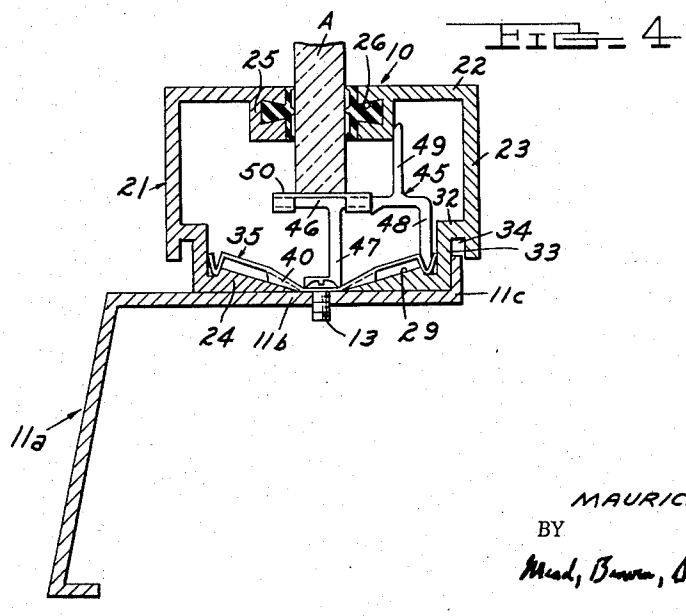


FIG. 4



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SNAP-IN GLASS SETTING CONSTRUCTION

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9 Claims. (Cl. 20—56.4)

The present invention relates to a snap-in glass setting construction and, more particularly, to a glass-retaining assembly wherein a pair of opposed stop members are secured by resilient spring clips in contact with opposed marginal portions of the glass sheet.

The present invention is a continuation-in-part of my earlier application Serial No. 629,415, filed in the United States Patent Office on December 19, 1956.

In this earlier application, I have disclosed an improved glass setting construction of the snap-in type and utilizing a pair of generally channel-shaped stop members adapted to contact opposing marginal portions of a glass sheet interposed therebetween. The stop members are retained by spring clips centrally anchored to a structural support element and having lateral wing portions inserted in interior grooves formed in the stop members.

The present invention constitutes a substantial improvement over my earlier invention in several respects. In order to more firmly anchor the stop members to the spring clips, the clip has been modified to provide greater clip-member contact surface area, this additional contact occurring at a location spaced from the interior groove of the stop member. Also, the exterior stop member and the structural support element preferably are provided with mating angularly disposed portions which prohibit removal of the exterior stop member by unauthorized persons. Further, an improved glass-supporting element adapted to be interposed between adjacent spring clips is provided for supporting the weight of the glass sheet, this element being particularly useful where the stop members are utilized to retain the glass sheet in position upon a structural footing or at the bottom edge of the glass sheet.

It is, therefore, an important object of the present invention to provide an improved snap-in glass setting construction.

Another important object of this invention is the provision of an improved glass-setting assembly wherein a pair of stop members are retained in glass-supporting relation by spring clips contacting spaced portions of at least one of the stop members.

It is a further object of this invention to provide an improved glass-supporting assembly wherein a pair of elongated stop members are maintained in position by common spring clips, transversely spaced portions of each stop member being contacted by the clips to secure the elements against undesired movement relative to one another and relative to a support surface.

Still another object of the present invention is the provision of a glass-setting construction utilizing elongated stop members retained in position by longitudinally-spaced spring clips disposed generally beneath a glass sheet interposed between the stop members, the weight of the glass sheet being supported by a plurality of individual glass-supporting elements interposed between adjacent spring clips.

It is yet another important object to provide an improved glass setting assembly of enhanced resistance to unauthorized entry and including a pair of stop members disposed to either side of a glass sheet, the exterior one of the stop members and the supporting surface on which the stop member is disposed being provided with mating angularly disposed portions inhibiting separation of the members.

These and other objects will be more apparent from the following detailed description of a preferred embodiment of this invention and by reference to the drawings forming a part thereof, wherein:

Figure 1 is a vertical cross-sectional view of a glass setting of the present invention;

Figure 2 is a sectional view taken along the plane 2—2 of Figure 1;

Figure 3 is a perspective view of the improved spring clip of the present invention;

Figure 4 is a view similar to Figure 1 illustrating a modified form of the present invention; and

Figure 5 is a view similar to Figures 1 and 4 showing another modification of the present invention.

In Figure 1, reference numeral 10 refers generally to a glass-setting assembly of the present invention disposed upon a support, such as an architectural structural member 11.

To secure the assembly 10 to the support member 11, a base indicated generally at 12 is utilized. This base 12 is secured to the support member 11, as by a plurality of longitudinally spaced screws 13, the screws being spaced more or less uniformly along the length of the elongated base 12, which preferably is formed as an aluminum extrusion. The base 12 is provided with a pair of recesses 14 formed in the under surface thereof, which recesses are adapted to be filled with a suitable sealing mastic or the like 15. Disposed adjacent one longitudinal edge of the base 12 and lying substantially normal to the plane of the base 12 is an upstanding vertical flange 16. This flange is continuous throughout the length of the member 12 and is utilized to prevent unauthorized removal of the assembly 10 from the support 11, as will be hereinafter more fully explained.

The assembly 10 also includes a pair of identical stop members 20 and 21. These stop members are preferably elongated extruded aluminum shapes. Since each of the stop members 20 and 21 is identical, a description of one will be equally applicable to the other.

The stop member 20 includes an upper flange or wall 22, a vertical web or wall portion 23, and a lower flange or wall 24. It will be realized that the stop members extend the entire length of the associated edge of the glass sheet indicated generally at A, and the individual stop members 20 and 21 will be cut to length from stock strips of the extrusion. The inner longitudinal edge of the upper flange 22 is provided with an enlarged shoulder portion 25 defining a re-entrant mounting channel 26 within which is disposed a glaze strip of suitable elastomeric sealing material 27. The sealing material 27 actually contacts the adjacent marginal side surfaces of the glass panel or sheet A.

A seating groove 28 is provided in the upper surface of the lower flange or wall 24, this groove extending longitudinally of the stop member 20 adjacent the inner wall of the vertical web or side wall 23. The upper surface of the lower flange 24 is beveled, as at 29, the wall 29 lying in a plane inclined upwardly from the inner free longitudinal edge 30 of the flange 29 to the groove 28.

The vertical web 23 terminates, as indicated at 31, in spaced relation to the base 12, and the web is provided with a lateral offset 32 and a depending inner portion 33 cooperating with the lower extremity of the web 23 to define a vertical, downwardly opening slot 34 for a purpose to be hereinafter more fully described.

The stop members 20 and 21 are secured by means of centrally located, longitudinally spaced spring clips 35, best illustrated in Figure 3 of the drawings. Each spring clip 35 comprises a central longitudinally extending planar base portion 36 to which outer laterally extending arms 37 are joined through upwardly and outwardly inclined joining portions 38. Downwardly projecting V-shaped lips 39 are formed integrally with the clip to extend along the respective outer longitudinal edges of the arms 37. Each longitudinal extremity of the adjoining portions 38, respectively, is provided with integrally formed, down-turned flanges or tabs 40, four such flanges being provided for each spring clip.

The base portion 36 of each spring clip is provided with longitudinally spaced apertures 41 adapted to receive the screws or bolts 13 hereinbefore described as interconnecting the base 12 and the support 11. Thus, during assembly, the spring clips are superimposed on the base, with the apertures 41 of the clip 35 being aligned with the apertures in the base for receiving the screws 13. The securing of the base 12 to the support 11 will then secure the spring clips in position as illustrated in Figure 1.

As illustrated in Figure 2 of the drawings, each spring clip is relatively short when compared to the length of each of the stop members 20, 21, and the spring clips 35 are adapted to be disposed along the length of the stop members. Interposed between adjacent spring clips 35 are glass support elements 45, these elements including an upper transverse table surface 46 having transversely spaced depending supporting legs 47 and 48 and an upstanding intermediate flange 49. Superimposed upon the table surface 46 and adapted to be interposed between the table surface 46 and the bottom edge of the glass sheet A is a cushioning strip 50 formed of suitable material, such as lead or the like.

The cooperation between the various structural elements can best be appreciated from the following description of the assembly procedure.

To assemble the glass-setting elements, a first necessary step is the positioning of the base plate 12 upon the structural support 11. Prior to the positioning of the base plate, the recesses 14 are preferably filled with the mastic or other sealing material 15, and the base plates will then be placed upon the support 11 in a position as indicated in Figure 1. Of course, suitably located holes will be drilled and tapped in the base plate 12 and the supporting structure 11 either prior to or at the time of assembly of these elements. Although it is preferred that the same screws 13 be utilized to interconnect base plate 12 to the support structure 11 and the spring clips 35 and the base plate 12, it is obvious that separate screws may be utilized for this purpose, if so desired.

The next step in assembly is to position the spring clip in longitudinally-spaced relation along the length of the base plate 12 and to loosely assemble the spring clip thereon, either through the same screw 13 or through separate screws, as may be desired. The necessity for merely loosening the spring clip will be appreciated, since the next step involves the assembly of the outer stop member 20 upon the base plate 12. The presence of the flange 16 upon the base plate 12 prevents the mere lateral sliding of the stop member 20 into position beneath the appropriate arm 37 of the spring clip, and the enhanced resiliency of the spring clip 35 will prevent sufficient vertical distortion of the appropriate spring clip arm if the spring clip were fastened in its final assembled position as indicated in Figure 1. By inserting the leading inner longitudinal edge 30 of the lower flange 24 between the terminal lips 39 of the appropriate spring clip arm and the adjacent flange 16, the stop member can then be moved laterally beneath the spring clip arm 37 to assume its position shown in Figure 1, wherein the flange 16 of the base plate 12 is vertically aligned with the recess 34 of the vertical web 23. At this time, the pendant lip 39 at the terminal end of the arm 37 of the spring clip 35 will be entered into the groove 28 of the stop member 20. Next, the spring clips are tightened into firm assembly with the base plate 12, thus confining the lower flange 24 of the stop member 20 beneath the appropriate spring clip arm 37.

Next, the glass support elements 45 are positioned intermediate the spring clips 35, the one dependent leg 48 of the elements 45 being positioned in the groove 28 of the stop member 20 and the upstanding flange 49 abutting the depending shoulder 25 of the same stop member 20. The depending leg 47 contacts the base plate 12 intermediate adjacent spring clips 35.

Next, the glass sheet or panel "A" is superimposed on the cushion surface 50 of the support element 45. The support elements 45 are stabilized to support the weight of the glass sheet by means of the three point contact of the legs 47 and 48 and the flange 49 with the associated parts of the assembly as heretofore described. More specifically, contact between the flange 49 and the shoulder 25 prevents tipping of the glass support element even though the entire weight of the glass sheet may be imposed thereon.

Next, the stop member 21 is positioned in lateral alignment with the stop member 20, and the outer stop member is moved into position by sliding the lower flange 24 thereof into its illustrtaed position beneath the other spring clip arms 37. The beveled upper surface 29 of the flange 24 greatly facilitates this assembly operation, and entry of the lips 39 of the appropriate arm 37 into the groove 28 of the stop member 21 will retain the stop member in its illustrated position.

After the stop members have been assembled, as illustrated in Figure 1, it is obvious that the presence of the angularly-related base plate 12 and the base-plate flange 16, lower flange 24 and upstanding web extension 33 will prevent lateral outward displacement of the stop member 20. The spring resistance of the arms 37 of the clip 35 is such that sufficient vertical movement of the member 20 will not be accommodated to allow vertical clearance between the upper end of the flange 16 and the lower flange or wall 24. Thus, once the spring clips have been secured in position, the stop member 20 cannot be removed by the exertion of an upward or tilting force thereon.

It will be noted from Figure 1 that the downturned flanges or tabs 40 at each longitudinal extremity of the spring clip 35 contact the upper beveled surfaces 29 of the lower flanges 24 of the stop members 20 and 21. Thus, the spring clips contact not only the grooves 28 of each stop member 20, 21, but also the beveled flange surface. In previously suggested designs of this type, some tilting movement of the channels 20, 21 relative to the glass might be accommodated under extreme loads, inasmuch as the spring clip 35 engages the stop members only at the grooves 28. However, such tilting movement is prevented in the present invention by the increased contact area afforded by the downturned flanges 40.

To disassemble the glass-setting assembly illustrated in Figure 1, it is first necessary to remove the inner stop members 21. This may be accomplished by engaging a tool, such as a conventional screw driver, in the slot 34 on the inner stop member 21 and prying the stop member upwardly. The resiliency of the spring clip 35 is such that direct transverse pull will force the lip 39 of the spring clip to ride out of the notch 28 of the stop member. When the inner stop member 21 has been removed, the glass sheet A may be removed and the glass support element 45 removed from the stop member 20. The outer stop member 20 may be removed only after complete removal, or at least considerable loosening, of the spring clips 35.

In that embodiment of the invention illustrated in Figure 4 of the drawings, the glass-setting assembly 10 is illustrated as disposed on a modified type of structural

support member 11*a*. This support member is provided with an upper lateral support surface 11*b* which terminates in an upturned flange 11*c*. The flange 11*c* cooperates with the outer stop member notch 34 in the same manner as the base plate flange 16 heretofore described. It will be noted that the entire base plate 12 has been eliminated from that form of the invention illustrated in Figure 4, but the security provided by the flange 16 is still provided by the flange 11*c*. In this instance, the spring clip 35 is connected directly to the structural supports 11*a* by the screws 13. Otherwise, the glass-setting assembly is unchanged.

In that form of the invention illustrated in Figure 5 of the drawings, the base plate 12 has again been eliminated, and the glass-setting assembly 10 is directly disposed upon a support beam or the like 11*d*. Here, the support beam 11*d* is not provided with any flange or similar projection for cooperation with the notch 34 of the inner stop member 20. Consequently, this type installation is recommended for interior use in which security against entry by unauthorized persons is of no importance. Once again, the spring clips 35 are secured directly to the support elements 11*b* by screws 13. Otherwise, the assembly is unchanged.

Thus, it will be readily appreciated that the present invention provides an improved glass-setting construction wherein a pair of opposed stop members are secured by resilient spring clips in contact with the opposed marginal portions of a glass sheet. The position of the flanges 40 on the resilient spring clips 35 prevents any unwarranted pivotal movement between the spring clips and the stop members 20, 21. This construction reduces the danger of accidental displacement of the stop members in the event of high winds or similar forces being exerted upon the glass panel A. Further, the entire assembly is tightened and provides a more secure assembly. The cooperation of the angularly-disposed flanges 16 and 11*c* upon the base plate 12 and the structural member 11*a*, respectively, will be readily appreciated, since it makes impossible the removal of the stop assembly from the exterior of a building or the like and inhibits the entry of unauthorized persons. The utility of the glass supporting elements 45 will likewise be appreciated by those skilled in the art, since it makes possible the assembly of the glass sheet A with respect to the support element 11, and the base plate 12 (if utilized) and the one stop member 20 prior to the assembly of the second stop member 21.

While a preferred embodiment of my invention has been described above in detail, it will be understood that numerous modifications may be resorted to without departing from the scope of the following claims.

I claim:

1. A glass setting assembly for supporting a sheet of glass or the like on edge with respect to a structural member, said assembly comprising a channel shaped stop member including a web portion and an upper flange and a lower flange projecting from said web portion, said upper flange terminating in an end portion which is in contact with one side of said glass or the like sheet, said lower flange resting upon said structural member and having an upper surface which includes a groove located adjacent to and extending substantially parallel to said channel web portion, and a spring clip fixed to said structural member, said spring clip including an upwardly extending arm having a downwardly extending tab adjacent the base of the arm and a downwardly extending lip member at the upper end of the arm, said lip member being biased by said arm into seating engagement in said groove and said tab member being biased by said arm into engagement with the upper surface of said lower flange adjacent the projecting end of said lower flange, the resiliency of said spring arm being such that said stop member may be detached readily with respect to said structural member to permit said glass sheet or the like to be removed.

2. A glass setting assembly according to claim 1, wherein the upper surface of said lower flange is a bevelled surface which slopes downwardly from said groove to the projecting end of said lower flange and said downwardly extending tab presses downwardly on said bevelled surface adjacent the projecting end of said lower flange.

3. A glass setting assembly for supporting a sheet of glass or the like on edge with respect to a structural member, said assembly comprising a pair of elongated channel shaped stop members each including a web portion having an upper flange and a lower flange projecting therefrom, each upper flange terminating in a glaze strip and the respective glaze strips being located in opposed relation with respect to each other with a glass sheet or the like received therebetween and engaged thereby, each lower flange resting upon said structural member and having an upper surface including a groove located adjacent to and extending substantially parallel to the associated channel web portion, a spring clip having a central portion fixed to said structural member and two arms extending oppositely from said central portion, each arm terminating in a downwardly extending lip member and each arm including a downwardly extending tab located adjacent said central portion, each arm overlying an associated lower flange of a stop member with the lip member at the end of the arm being in seated engagement with the groove in the upper surface of the lower flange and the downwardly extending tab member of the arm being in engagement with the upper surface of the lower flange adjacent the projecting end of the lower flange whereby each lower flange is gripped by said arm at at least two spaced apart locations, the resiliency of each arm being such that the stop member retained thereby may be detached readily with respect to the structural member to permit the glass sheet or the like to be removed with respect to said structural member.

4. A glass setting assembly according to claim 3, wherein each upper surface of each lower flange is a bevelled surface which slopes downwardly from the groove in the surface to the projecting end of the lower flange, and each downwardly extending tab of the associated spring arm presses downwardly on the bevelled surface adjacent the projecting end of the associated lower flange.

5. A glass setting assembly for supporting a sheet of glass or the like on edge with respect to a structural member, said assembly comprising an elongated channel shaped stop member including a web portion and an upper flange and a lower flange projecting from said web portion, said lower flange resting upon said structural member and having an upper surface including a groove located adjacent to and extending substantially parallel to said web portion, said upper flange terminating in an end portion engaging one side of said glass or the like sheet, a spring clip detachably connected to said structural member and including an arm terminating in a downwardly extending lip member and having a downwardly extending tab located in spaced relation to said lip member, said arm overlying the upper surface of said lower flange with said lip member being in seated engagement with said groove and said tab member engaging the upper surface of said lower flange adjacent the projecting end of said lower flange, and a table member having an upper surface on which said glass or the like sheets rests and two downwardly projecting legs, one of said legs resting upon said structural member and the other leg being seated in said groove.

6. A glass setting assembly according to claim 5, wherein the upper flange of said stop member includes a shoulder portion located adjacent the projecting end of the upper flange and said table member includes an upwardly extending arm which abuts against said shoulder portion to steady said table member when a glass or the like sheet rests thereon.

7. A glass setting assembly according to claim 6, wherein said structural member has a flange projecting upwardly therefrom and said channel web portion abuts against said last named flange to prevent lateral movement of said stop member with respect to said structural member in a direction away from said spring arm.

8. A glass setting assembly for supporting a sheet of glass or the like on edge with respect to a structural member, said assembly comprising a pair of elongated stop members each including a web portion and an upper flange and a lower flange projecting from said web portion, said stop members being positioned so that the lower flanges rest upon said structural member and the upper flanges are in spaced apart opposed relation with respect to each other with a glass or the like sheet being received therebetween and engaged on opposite sides thereby, a spring clip having a central portion and two arms extending oppositely from said central portion, said central portion being detachably connected to said structural member and each arm extending upwardly with respect to said structural member and terminating in a downwardly extending lip member, each arm also including a downwardly extending tab located adjacent said central portion, the central portion of said spring clip being located between the projecting ends of the lower flanges of said stop members with each arm overlying an associated lower

flange, each lower flange having an upper surface including a groove located adjacent to and extending substantially parallel to the associated channel web portion with the downwardly extending lip member of the associated spring arm being in seated engagement in said groove and the downwardly extending tab engaging the upper surface of said lower flange adjacent the projecting end thereof, and a table member having an upper surface on which said glass or the like sheet rests and two downwardly projecting legs, one of said legs resting upon said structural member and the other leg being seated in one of said grooves.

9. A glass setting assembly according to claim 8, wherein one of said stop member upper flanges has a shoulder portion thereon adjacent the projecting end thereof, and said table member includes an upwardly extending arm which abuts against said shoulder portion to steady said table member against tilting when a glass or the like sheet rests thereon.

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