March 7, 1967 D. E. BLOXSOM 3,307,309

SNAP LOCK FOR CONSTRUCTION FOR LOCKING DOMES IN SKYLIGHT FRAMES

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Fig. 1

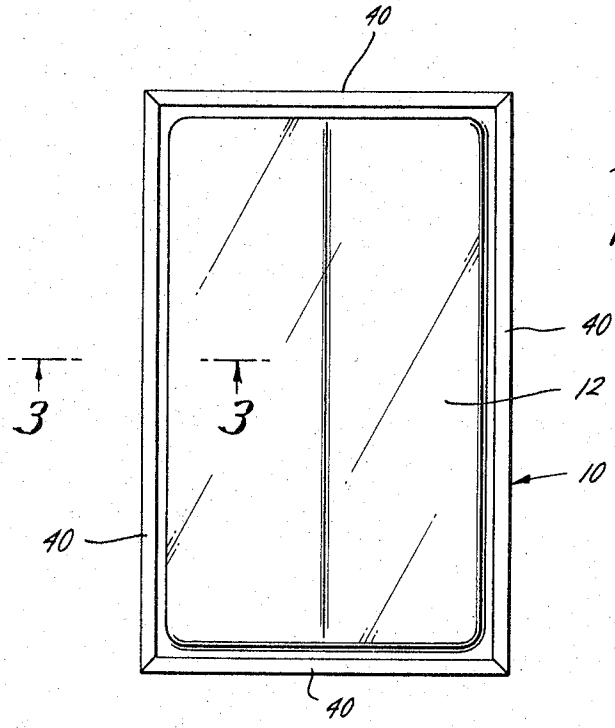


Fig. 2

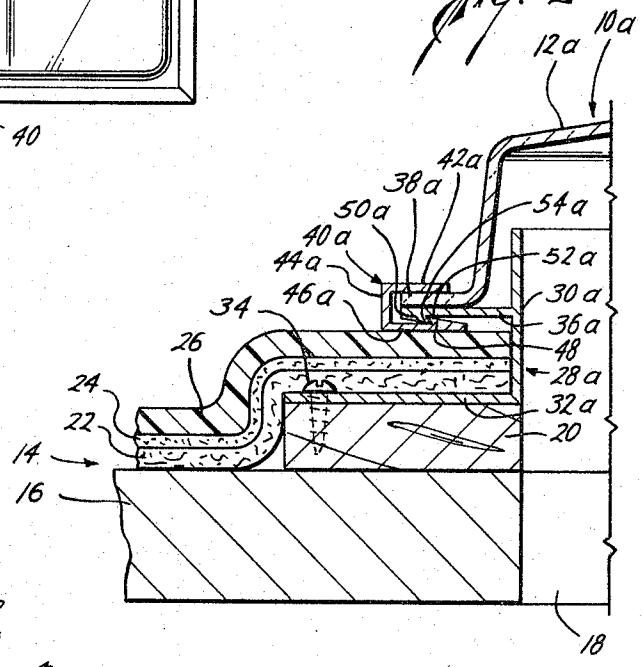
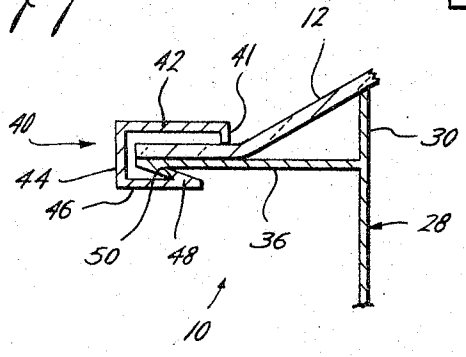


Fig. 3



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Fig. 4

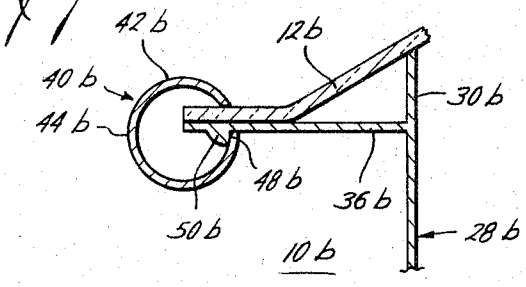


Fig. 5

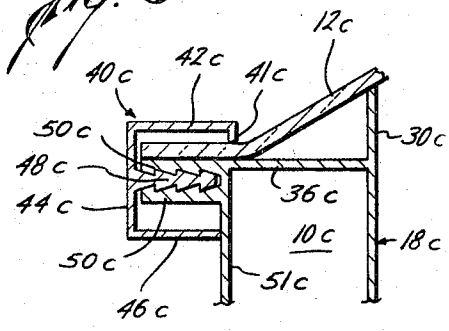


Fig. 6

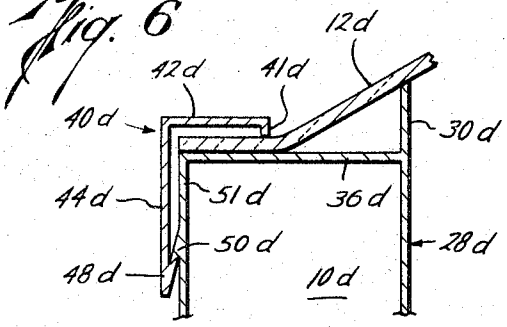


Fig. 7

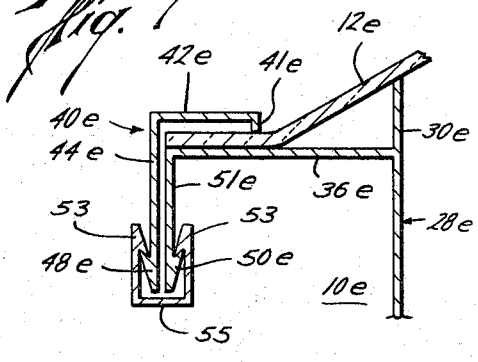


Fig. 8

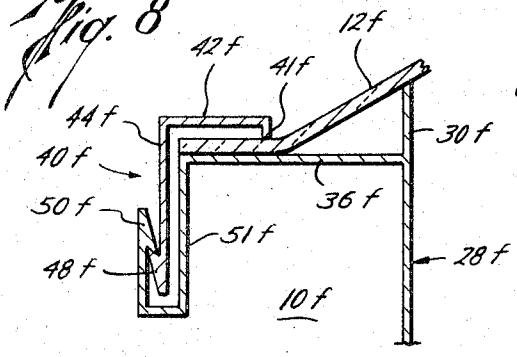
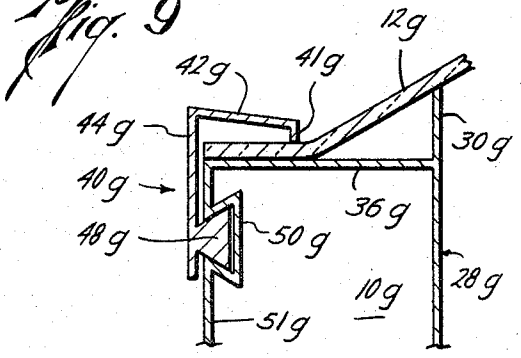


Fig. 9



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3,307,309

SNAP LOCK CONSTRUCTION FOR LOCKING DOMES IN SKYLIGHT FRAMES

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Filed July 1, 1964, Ser. No. 379,565
3 Claims. (Cl. 52—200)

This invention relates to snap lock constructions for locking domes in skylight frames and, more particularly, relates to a skylight construction in which the skylight dome is locked to the skylight frame by interlocking elements which are snapped together.

In previous skylight constructions the frame members of the skylight securing the skylight dome to the skylight frame are welded, screwed or otherwise secured together. This is a time-consuming and relatively expensive manner of securing a skylight dome to the skylight frame. In the use of screws, bolts and the like, these may be removed and the skylight dome removed for unauthorized entry. In addition the expense of transporting assembled skylights is very expensive due to the high rates of shipment and the space required. The shipment of skylight parts unassembled is at a much more favorable rate and the shipment of parts requires considerably less space than assembled skylights. It would be highly advantageous to provide a skylight construction in which the skylight dome is locked to the skylight frame of the skylight construction and which can be accomplished rapidly and quickly and one which can be shipped disassembled and readily and quickly assembled on the job. The present invention is directed to such an improved skylight construction.

It is therefore an object of the present invention to provide a skylight construction in which the skylight dome can quickly and readily be locked to the skylight frame.

A further object of the present invention is the provision of a skylight construction in which the members securing the dome to the frame members of the skylight are snaped into locking engagement.

A still further object of the present invention is the provision of a snap lock arrangement for securing a skylight dome to frame members which may readily and easily be snapped or otherwise placed into position and be locked on to firmly hold the skylight dome in position on the skylight frame members.

Yet a further object of the present invention is the provision of a skylight construction in which coacting snap lock means are utilized to lock the marginal edges of the skylight dome to a peripheral seat of the skylight frame.

Still a further object of the present invention is the provision of a skylight construction in which the skylight dome is secured to a peripheral seat of the skylight frame by retainer members which have lock elements which interlock with the seat or other members of the frame.

A further object of the invention is the provision of a skylight construction which may be transported in disassembled form and which can be quickly and readily assembled on the job and thus reduce the cost of shipment or transportation of skylights.

Yet a further object of the present invention is the provision of such a skylight construction which is relatively simple, which may quickly and easily be assembled either in the shop or on the job and which is rugged and durable in use and securely locks the skylight dome in place.

Other and further objects, features and advantages of the present invention will appear from the following description of presently-preferred embodiments thereof, given for the purpose of disclosure, and taken in conjunction with the accompanying drawings, in which like reference numerals designate like parts throughout the several views, and where

FIGURE 1 is a top view of a skylight construction according to the invention,

FIGURE 2 is an enlarged, fragmentary view, in section, illustrating a modification of the skylight construction of FIGURE 1 secured to a roof about a skylight opening,

FIGURE 3 is a cross-sectional view taken along line 3—3 of FIGURE 1 illustrating a snap-lock retainer ring for the skylight dome according to the invention,

FIGURE 4 is a view similar to that of FIGURE 3 illustrating a further modification,

FIGURE 5 is a view similar to FIGURES 3 and 4 illustrating a further modification,

FIGURE 6 is a view similar to FIGURES 3–5, inclusive, illustrating a further modification,

FIGURE 7 is a view similar to FIGURES 3–6, inclusive, illustrating a further modification,

FIGURE 8 is a view similar to FIGURES 3–7, illustrating yet a further modification,

FIGURE 9 is a view similar to FIGURES 3–8 illustrating another modification.

Referring now to the drawings, and particularly to FIGURE 1, a skylight construction is generally indicated by the reference member **10** and includes the skylight dome **12** which covers the skylight opening on the roof when placed thereon. The dome **12**, of course, may be made of any suitable material which will withstand the weather conditions to be encountered and yet provide light into the skylight opening in the roof. Since any desired dome made of any suitable material may be used, no detailed description thereof is deemed necessary or given.

The details of the skylight construction **10** are illustrated in FIGURE 2, to which reference is now made. In this illustration the roof, generally indicated by the reference numeral **14**, is of the so-called "built-up type" although it may be of any desired type, for example, shingles and the like.

As illustrated, the built up roof **14** includes the roof decking **16** which is provided with the skylight opening **18**. Disclosed above the skylight opening is a framing or curb member **20**, which in the case of built up roofs of the type illustrated is placed on top of the decking **16** adjacent to the skylight opening **18**.

A typical built up roof is illustrated which includes a first layer of fibrous insulating material **22**, such as felt paper, disposed on the decking **16** and over the curb **20**, ordinarily a second layer of such fibrous insulating material **24** on top of the first layer **22** over which is placed a layer of tar or asphalt material **26** into which is placed gravel, slag and the like, not shown. This is a typical built up roof construction; however, it will be understood that the skylight construction **10** may be applied to any type roof construction.

For convenience of reference the reference letter "*a*" is added to the numerals of the skylight construction of FIGURE 2 since a modification is illustrated. Other than the skylight dome locking arrangement, however, the remainder of the skylight members are the same in the other views.

The general construction of skylight construction **10** is best illustrated in FIGURE 2 and includes a structural or frame member, generally indicated by the reference numeral **28***a*, which includes what might be termed a retaining wall **30***a* which extends upwardly from the curb member **20** around the skylight opening **18** and forms a continuation thereof. The frame member **28***a* includes an outwardly extending peripheral base flange member **32***a* which seats on and is secured to the curb **20** by any suitable means, such as by the screws **34***a*.

It is noted that the base member or peripheral flange **32***a* is disposed under the roof material, here shown as the layers of felt paper **22** and **24**, and the layer of tar or asphaltic material **26**.

Disposed intermediate the ends of the retaining wall or member **30***a*, and extending outwardly is the peripheral flange **36***a*, which extends completely around and outwardly from the retaining wall **30***a*, and which forms a seat on which the outer marginal ends **38***a* of the skylight dome **12***a* are placed and tightly secured to the seat **36***a* by the snap-lock securing or retaining member **40***a*.

The snap-lock retaining member **40***a* extends completely about the marginal edge **38***a* of the skylight dome **12***a* and the peripheral seat **36***a*, for example, as illustrated in FIGURE 1, and, with reference again to FIGURE 2, is generally U-shaped in cross-section and includes the top leg or wall **42***a* which engages the upper surface of the marginal edge **38***a* of the skylight dome **12***a*, the side leg or wall **44***a* generally disposed at right angles to the upper wall **42***a* and which encloses the outer ends of the the seat **36***a*, the marginal end **42***a* of the skylight bubble **12***a*, and the inwardly turned bottom leg or wall **46***a* which fits under the peripheral seat **36***a*.

The upper inner surface of the bottom wall or leg **46***a* and the outer nether surface of the seat **36***a* are provided with the interlocking projections **48***a* and **50***a*, respectively, which terminate in the outwardly and upwardly inclined engaging surfaces **52***a* and **54***a*.

The interlocking projections **48***a* and **50***a* may be spaced or continuous, as desired.

The snap-lock retaining member **40***a* or seat **36***a* or both are made of some metal or other material which is strong and which is sufficiently resilient so that the projections **48***a* and **50***a* will snap over one another and spring back and provide a locked interfitting connection as illustrated. Any of the various metals, such as aluminum, steel and the like, are satisfactory as well as other materials which have the necessary strength, can withstand the weather conditions encountered, and which are sufficiently yielding to be able to be snapped into position.

In assembling the skylight construction, the dome **12***a* is placed upon the seat **36***a* in the manner illustrated, and the snap lock retaining members **40***a* are snapped inwardly over their ends as shown. If desired, three of the snap lock retaining members **40***a* may be placed into position by sliding them from the end in which event it would only be necessary to snap on the final or fourth snap-on retaining member. The skylight dome **12***a* is then securely held in place on the peripheral seat **36***a* and without any welding, screwing, bolting or other time-consuming securing or fastening operation. In addition, the skylight dome cannot be removed readily. For example, if the skylight dome were secured in place by screws, it could readily be disconnected by unauthorized persons; whereas, by the present construction it is exceedingly difficult to remove the snap lock securing retainers **40***a* without a special tool or without destroying a portion of the skylight construction.

Referring now to FIGURE 3, the snap lock arrangement is the same as that of FIGURES 1 and 2 except that the upper member **42** of the snap lock retainer ring **40** is spaced above the upper surface of the marginal edges **38** of the dome **12** and a downwardly turned lip **41** is provided which securely engages their upper surface as illustrated. The remainder of the parts in the assembly is the same as that previously described with respect to FIGURE 2 and no further description of this embodiment is deemed necessary or given.

As previously mentioned, FIGURES 4–9, inclusive, illustrate the additional embodiments of the locking arrangement for locking the dome to the frame structure of the skylight construction. For convenience of reference, the reference letters "*b*," "*c*," "*d*," "*e*," "*f*" and "*g*" have been added to reference numerals of FIGURES 4, 5, 6, 7, 8 and 9, respectively, to indicate parts corresponding to those of FIGURES 1, 2 and 3.

FIGURE 4 is similar to the skylight construction illustrated in FIGURES 1–3, inclusive, except that the snap lock retainer member **40***b* is generally in the form of a ring in cross section, as illustrated, and the upper inner end **48***b* snaps over and interlocks with the projection **50***b* provided on the nether surface of the outer portion of the peripheral seal **36***b*. The remainder of the parts of the assembly are the same as the skylight construction previously described and, accordingly, no further description is deemed necessary or given.

Referring now to FIGURE 5, this arrangement is somewhat similar to the previous constructions except the depending wall member **51***c* is provided extending downwardly from the peripheral seat **36***c* and which is provided with a pair of spring-like serrated interlocking members **50***c* into which a coacting locking serrated projection **48***c* extending inwardly from the wall **44***c* of the snap lock ring **40***c* is provided. The remainder of the parts and assembly are the same as those previously described except that the snap lock ring **40***c* is inserted over the end of the flange **36***c* with the dome **12***c* in place and the ring **40***c* is placed over and the latching projection **48***c* inserted into the two spring locking members **50***c*.

Referring now to FIGURE 6, this embodiment is very similar to that of FIGURE 3 except that the interlocking member **50***d* is provided upon the depending wall **51***d* extending downwardly from the outer ends of the peripheral seat **36***d* and the interlocking projection **48***d* is provided at the lower end of the outer wall member **44***d*. Again, the remainder of the parts, assembly and the like are the same as in the constructions previously described and the snap lock ring **40***d* is put in place and snap-locked into position as shown.

Referring now to FIGURE 7, this embodiment is similar to that of FIGURE 6 except that a separate locking arrangement **55** provided with the interlocking members **50***e* is provided which snaps over and locks about the locking projection **48***e* at the lower end of the wall **44***e* and the locking projection **50***e* at the lower end of the wall member **51***e*. The remainder of the parts, assembly and the like are the same as in the constructions previously described and the assembly is made by first placing the portion of the snap lock retainer member **41***e*, **42***e*, **44***e*, and **48***e* in position as illustrated and then snapping the generally U-shaped snap lock member **55** over the locking projections **48***e* and **50***e* as illustrated.

Referring now to FIGURE 8, an arrangement is illustrated which is similar to that of FIGURE 7 except that the wall member **51***f* extending downwardly from the end of the peripheral flange **36***f* is turned outwardly and upwardly and the interlocking projection **50***f* is provided at this outer end which interlocks with the projection **48***f* at the lower end of the downwardly extending wall member **44***f* of the snap lock retainer **40***f*. The assembly and the remainder of the parts are the same as previously mentioned, the snap lock retainer **40***f* being snapped into place as illustrated.

Referring now to FIGURE 9, this embodiment is somewhat similar to FIGURE 6 except that the interlocking members **48***g* and **50***g* are generally in the form of truncated triangular members which interfit as illustrated. In this embodiment, the triangularly-shaped projection **48***g*, in cross section, is inserted into the triangularly-shaped channel **50***g* to provide the interlock between the members. The remaining parts and assembly are the same as previously mentioned with respect to the other embodiments.

In all of the foregoing arrangements, either or both the member which is being snapped over or disposed about the other interlocking members is of some resilient material which will yield and spring back into position to provide the necessary interlock. As previously mentioned, any suitable material may be used, such as metals

which have resiliency as well as other materials which have the required resiliency and which are strong and sturdy and which will stand the weather conditions encountered in use.

The interlocking arrangement may take a wide variety of forms and the interlock according to the present invention may be provided to almost any type of skylight construction to securely hold and retain a skylight dome on a skylight frame member.

The present invention, therefore, is well-suitable and adapted to obtain the objects and ends and has the advantages mentioned as well as others inherent therein.

While a variety of typical embodiments have been given for the purpose of disclosure, numerous changes in details, arrangement and construction of parts can be made which are within the spirit of the invention as defined by the scope of the appended claims.

What is claimed is:

1. In a skylight construction,
a frame for securing the skylight construction about a skylight opening,
a peripheral seat carried by the frame,
a skylight dome, the marginal ends of which are seated on and supported by the seat,
retaining means securing the marginal ends to the seat, and
coacting locking means locking the retaining means to the frame,
said coacting locking means including interengaging locking elements snapped into locking engagement,
said coacting locking means being the sole means of securing the retaining means and thereby the skylight dome to the frame.

2. The skylight construction of claim 1 where the retaining means includes,

a first wall member extending over the upper surface of the marginal ends of the skylight dome, and
a second wall member extending from the first wall member and over the edges of the peripheral seat and the marginal ends, and
the coacting locking means are disposed on the peripheral seat and on the second wall member.

3. The skylight construction of claim 1 where said retaining means includes,
a first wall member disposed over the upper surfaces of the marginal ends,
a second wall member extending from the first wall member and disposed over the edges of the marginal ends and the peripheral seat, and
a third wall member extending from the second wall member and under the nether portion of the peripheral seats, and
where said locking means includes,
a first set of locking elements disposed on the nether portion of the peripheral seat, and
a second set of coacting interengaging locking elements disposed on the upper surface of the third wall and engaged in interlocking relationship with the first set of locking elements.

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