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FIRE VENTING SKYLIGHT

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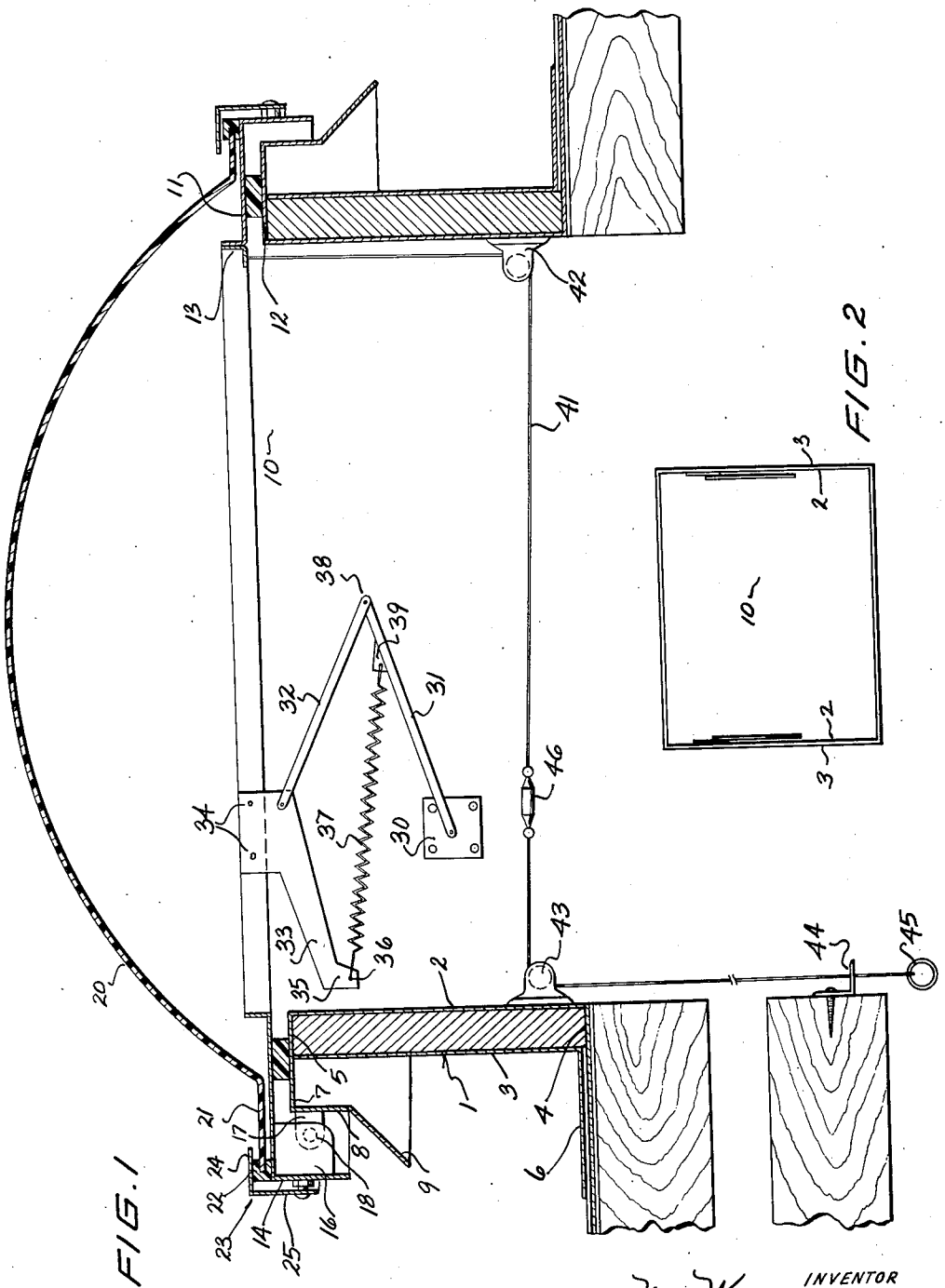


FIG. 1

FIG. 2

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FIRE VENTING SKYLIGHT

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1 Claim. (Cl. 50—50)

The present invention relates to a skylight and more particularly to a skylight adapted for fire venting and ventilation in general.

The present invention has as an object the provision of a unitary skylight construction in which the skylight dome or cover is adapted to be hinged upwardly for the purpose of permitting ventilation through the skylight opening, and in addition provides a means by which the skylight construction may be automatically opened upon the occasion of a fire generating sufficient heat as to release a fusible link incorporated into the structure of the present invention.

A further object of the present invention is to provide a fire venting construction, in which the means which secures the cover or skylight dome closed until the occasion of a fire has a substantial mechanical advantage over the tensioning means which operate to open the cover or dome. By this construction the relatively weak fusible links which are adapted to release the mechanism upon melting, are themselves not subjected to excessive strains which might otherwise cause a premature opening of the dome.

A further object of the present invention is to provide a skylight construction which is both adapted to operate as a fire venting unit and a ventilating structure in which the skylight is adapted to be opened at the operator's will from a considerable distance below.

A further object of the present invention is to provide a skylight construction of the fire venting type which is relatively inexpensive in nature but which operates upon the occasional fire with substantial certainty.

These and other objects of the present invention will be more clearly understood when considered in connection with the accompanying drawings in which:

FIGURE 1 is a cross sectional elevation taken substantially through the center of the skylight construction, and

FIGURE 2 is a top plan schematic view of the skylight construction.

Referring now to FIGURE 1, there is illustrated an enclosing well 1, preferably rectangular in form. This well 1, comprises inner and outer walls 2 and 3 respectively, joined together at their lower edges by base 4 and at their upper edges by covering web 5. Base 4 extends outwardly about the periphery of the well 1, forming an outwardly extending flange 6 through which securing means, such as nails may pass to secure the unit over a skylight opening in a roof. The covering web 5 also extends outwardly of the outer wall 3 and forms an outwardly extending flange 7 about the periphery of the unit. This outwardly extending flange 7 terminates in a downwardly extending section or flange 8 in turn having a flared lower end 9. Positioned above the skylight opening 10 formed by the inner walls 2, is a frame 11 which extends parallel to and above the covering web 5. This frame 11 extends outwardly beyond the covering web 5 and is spaced from it by a series of intermittently positioned gaskets 12, which may for example be made of any suitable material such as neoprene or the like. The inner edge of frame 11 which is preferably vertically aligned with walls 2, extends upwardly into a gutter flange 13, while the outer edge of frame 11 extends downwardly forming an outer apron 14 about the periphery of the well 1. One end

of this frame 11 is hingedly connected to the curbing by means of a pair of hinges at either end of one side of the downwardly extending apron 14. One of these pair of hinges is illustrated in FIGURE 1. It provides a reinforcing member 16 extending inwardly from the corner of the apron 14 to a point in facing relation with the hinged support member 17 extending parallely outward from opposite sides of the flange 8. A hinging pin 18 extends between the members 16 and 17 thereby providing support and a hinging axis for the frame 11.

Positioned above the frame is an acrylic plastic dome 20 having outwardly extending peripheral flanges 21 which are positioned with their outer edges in a spacer member, preferably of the resilient material such as vinyl indicated at 22. Preferably this spacer 22 is intermittent to permit drainage of water from the interior of the skylight construction. The dome is secured in position by a retaining apron 23 having an inwardly extending flange 24 and a downwardly extending flange 25 with the inwardly extending flange 24 in facing contact with the spacer 22 and the downwardly extending flange 25 in spaced relation to the downwardly extending apron 14. The aprons 25 and 14 are secured together in spaced relation with one another by suitable means such as a screw and nut arrangement as illustrated.

Positioned within the skylight opening 10 on opposite side walls adjacent the side wall from which the dome is hinged, are a pair of lifting lever systems. As these systems are identical in construction, only one need be described. This arrangement as shown in FIGURE 1, provides a base plate 30 which is suitably secured to the side wall 2. From this base plate 30 there is pivotally secured a lever arm 31 with the point of pivot being located at one end of the lever arm 31. A link 32 is pivotally connected at the other end of the lever arm 31. This link 32 is almost as long as the lever arm 31. The other end of the link 32 is connected to the base of a fixed arm 33. This fixed arm 33 is suitably secured to the frame 11, preferably by screw means 34 which pass through the frame 33 into the upwardly extending flange 13. The fixed arm 33 in the closed position of the skylight extends substantially parallel to arm 31. The end of fixed arm 33 terminates in a downwardly extending lip 35 provided with an opening 36 or other suitable means to which the spring member 37 may be secured. This spring member 37 is interconnected between the end of the fixed arm 33 at the opening 36 and an intermediate position on the first lever arm 31, with the connection at the first lever arm 31 being close to the hinged interconnecting ends 38 of arm 31 and link 32. A boss 39 may be positioned on arm 31 having an opening formed therein for engagement with the end of the spring 37.

The spring 37 is a compression spring and thereby maintains tension on arms 33 and 31, tending to pivot them towards one another, thus acting through link 32 to pivot the dome to an open position. The dome itself is maintained in a closed position under this constant tension by a chain means.

This chain means comprises a chain 41 secured at its upper end by suitable means to the frame 11 just above the wall opposite the wall from which the dome is hinged. This chain extends downwardly through a pully 42, across the center preferably, of the skylight opening 10, to a second pulley 43 and downwardly through a key-hole lock 44 terminating in a pull ring 45 or other similar member. Intermediate the pulleys 42 and 43, on the chain, is a fusible link 46.

It will thus be observed that by properly engaging the chain 41 in the key-hole 1, the dome may be maintained in a closed position against the tension of the spring 37, with the chain and fusible link being subjected to less

constant tension than the lever systems due to the mechanical advantage of the arrangement of the chain.

Having now described my invention I claim:

In a roof covering construction having sidewalls forming an enclosure well and a cover positioned over the top edges of said well and carrying hinges at an end connecting it with one of said sidewalls and permitting it to swing upwardly to an open position, a pair of lever systems located in said well on opposite sides thereof and tending to open said cover, each of said lever systems comprising a lever arm having a lower end pivotally attached to a fixed pivot carried by the adjacent sidewall below the level of said cover and a link pivotally attached at one end to the upper end of said lever arm and at its other end to a pivot carried by a side of said cover, the length of said arm and link being materially greater than the distance between the two pivots when the cover is in closed position and said arm and link extending on the side of said pivots away from said hinges, a fixed arm rigidly attached to the side of said cover and extending

downwardly therefrom to a point located between said hinges and said fixed pivot, a compression spring attached to said fixed arm at said point and extending therefrom to a point on said lever arm spaced from but adjacent to its pivotal connection with the link, and means normally maintaining said cover in a closed position against the tension of said spring at a leverage distance from said hinges greater than the distance of said lever systems therefrom.

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