No. 832,231. PATENTED OCT. 2, 1906.

G. BICKELHAUPT.

SKYLIGHT OPENER.

APPLICATION FILED DEC. 24, 1904.

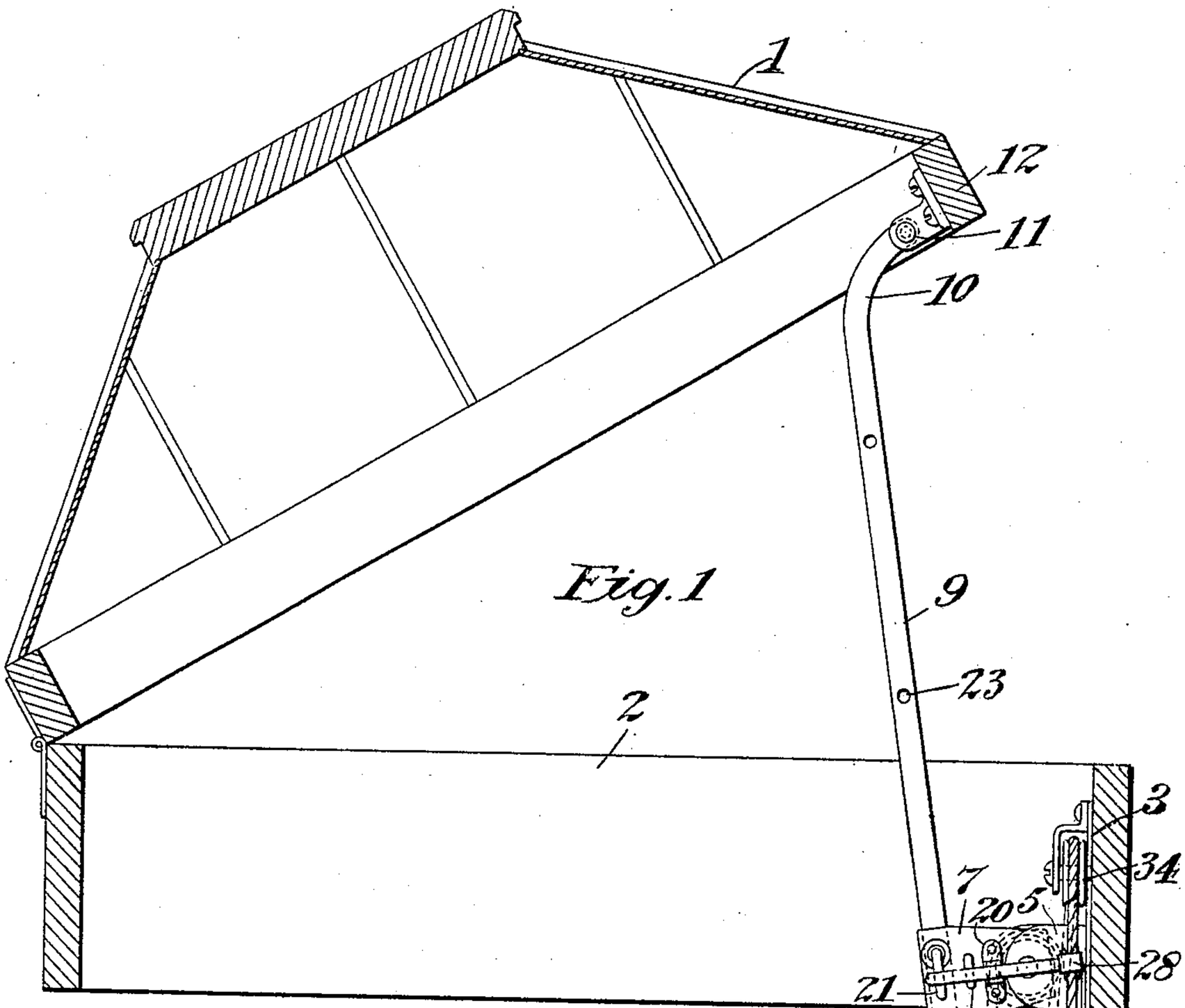


Fig. 1

Fig. 2

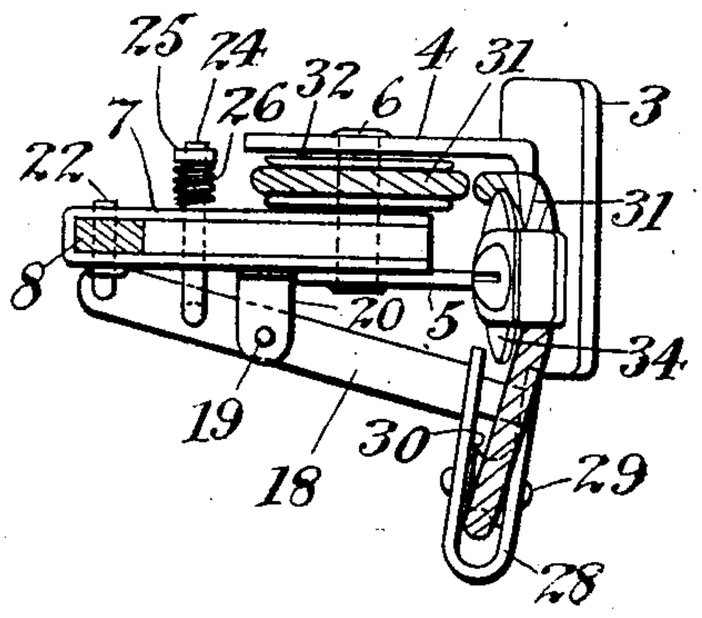
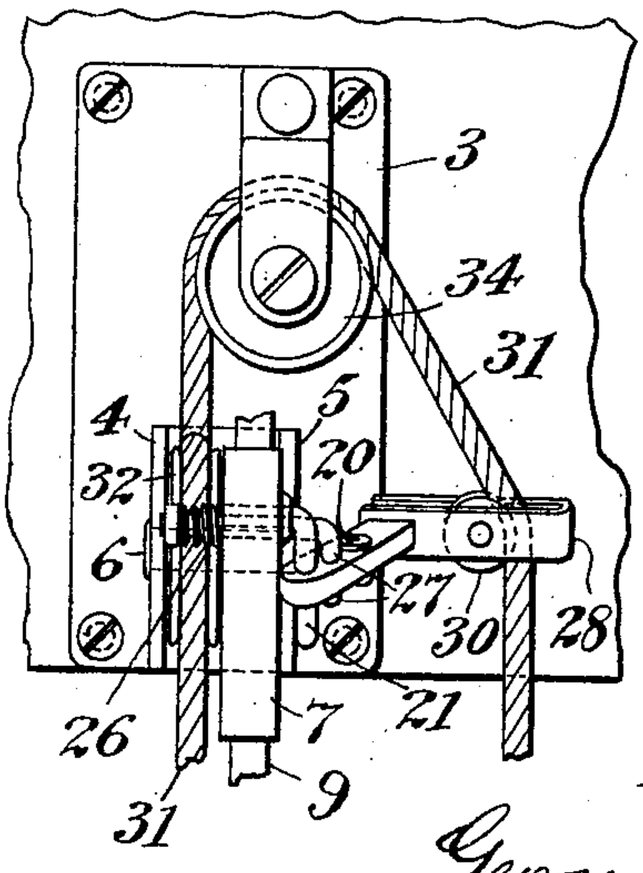


Fig. 3



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UNITED STATES PATENT OFFICE.

GEORGE BICKELHAUPT, OF NEW YORK, N. Y.

SKYLIGHT-OPENER.

No. 832,231. Specification of Letters Patent. Patented Oct. 2, 1906.

Application filed December 24, 1904. Serial No. 238,234.

To all whom it may concern:

Be it known that I, GEORGE BICKELHAUPT, a citizen of the United States, residing in New York city, borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Skylight-Openers, of which the following is a full, clear, and exact specification.

My invention relates to an improved device for opening skylights in which the means for locking the same in open or closed position and of releasing the lock are controlled by the raising means.

The objects of my invention are to produce a simple and strong device which can be used as well with hipped skylights as with flat skylights; to use the lifting-bar not only for the purpose of lifting the skylight, but also as part of the locking means; to support and guide said bar in a pivoted block which carries the locking device, and to control the said lock by the same cord which lifts the skylight.

Other details of my invention are fully illustrated in the accompanying drawings, illustrating one form in which I have embodied my invention, wherein—

Figure 1 illustrates in side elevation my improved device applied to a skylight which is partly in section and is shown in raised position. Fig. 2 is a top view of the bracket, pivoted block, and locking device, the block being tilted with respect to the bracket; and Fig. 3 is a front elevation of the bracket, pivoted block, and locking means.

I have illustrated my device as applied to a hipped skylight 1, hinged to a curb 2; but my improvements render the device equally applicable to a flat skylight.

Attached to the inside of the curb 2 is a bracket 3, carrying inwardly-projecting ears 4 5, in which is mounted pivot 6, which furnishes a bearing for the pivoted block 7. This block is provided at its outer end with a passage-way 8, extending through the block from top to bottom and which is just large enough to receive the lifting-bar 9 and permit the same to move freely therein without any unnecessary play.

The pivoted block 7 permits the lifting-bar to freely swing as the skylight is raised. This is a valuable feature and contributes greatly to the efficiency of the device. In applying the device to flat skylights which are inclined toward the front and wherein when the skylight is lifted to a horizontal position its forward end will be outside of a vertical line drawn through the forward end of the curb this pivoted block will be of great assistance, as it will permit the lifting-bar to be applied to the front of the skylight, where it will have the greatest lifting effect.

Lifting-bar 9 is bent inwardly near its upper end, as at 10, so that the body of said bar will assume a substantially vertical position when the skylight is closed. This bend will be useful when the device is applied to a flat skylight to prevent extreme tilting of the block. It also enables said block to be made shorter. Bar 9 at its upper end is attached to the forward end of skylight 1 by a pivot 11, journaled in lugs on a bracket 12, and this pivot is through bend 10 offset from the center of bar 9. At its lower end bar 9 is bent at 13 in the opposite direction to bend 10 and to a less extent. The extreme lower end of said bar carries a pin or bolt 14, which projects to one side thereof sufficiently to provide a bearing for sheave 15, housing 16, and hook 17.

I will now describe the means whereby the lifting-bar is locked in its adjusted position.

On the right-hand side of the pivoted block 7 is a lever 18, mounted to freely swing on a pin 19, carried by lugs 20, that are fixed to block 7. At its forward end this lever 18 carries a stop 21 of L shape, mounted therein so as to turn and having an arm 22, which passes through openings in the pivoted block 7 and traverses the passage-way 8 in said block.

Lifting-bar 9 is provided with openings 23, located therein at convenient points. These openings determine the points at which the skylight can be locked in position and pass through bar 9 from side to side, being of such a size as to receive stop-arm 22. One of them should be so placed that the skylight will be locked when closed.

Rod 24 passes through block 7 about midway between the bearings 20 and arm 22 and is designed to pull the stop-arm 22 at all times toward lifting-bar 9, so as to enter any desired hole therein. To accomplish this, the said rod has a threaded end upon which is screwed nut 25. Between this nut and the block 7 the rod 24 is encircled by a spiral spring 26. At its opposite ends this rod 24 has a portion thereof bent rectangularly, producing elbow 27, which passes through a hole in lever 18 about midway between bearing 19 and L-stop 21.

The force of spring 26 tends to pull that

end of lever 18 which carries L-stop 21 constantly toward the block 7. The tension of the spring 26 may be increased or diminished, as desired, by turning nut 25 one way or the other. The opposite or, as it might be called, the "free" end of the lever 18 has fixed upon it an outwardly-projecting U-shaped strap 28, closed at its outer end and supporting bearings 29 and a sheave 30, over which passes the lifting-cord 31, which is held in place by the closed end of said strap 28. Suitable pressure upon sheave 30, through cord 31, will rock the lever 18 and cause arm 22 to emerge from that one of recesses 23 of bar 9 in which it may be, and the bar 9 may then be adjusted to a new position.

The skylight is raised in the following manner: Lifting-cord 31 is attached to the lower end of bar 9 in any suitable manner—as, for instance, hook 17, the closed end of which encircles pin or bolt 14 between sheave 15 and bar 9 and the open end of which is hooked into a loop in the cord 31, as shown by dotted lines in Fig. 1. From hook 17 the cord passes up over sheave 32, mounted on shaft 6 to the left of pivoted block 7, down again and under sheave 15, then up, passing behind sheave 32 and between that and bracket 3 and over sheave 34, which is mounted in the upper part of bracket 3. The cord then passes over sheave 29, by which the locking mechanism is controlled and which is purposely placed to one side of sheave 34 rather than directly beneath it, so as to increase the control over the locking mechanism. The cord then passes down within reach of a person's hand.

A suitable stop—such as cotter-pin 35, which passes through bar 9—may be employed to limit the height to which the skylight may be raised.

The operation of my device is very simple and will be easily understood from the foregoing description of the mechanism. The skylight being closed will be locked in such closed position by stop-arm 22 having entered the uppermost hole 23 in bar 9, in which it is held by rod 24, spring 26, nut 25, and elbow 27. When it is desired to raise the skylight, the lifting-cord 31 is held taut and pressed toward the left, whereupon lever 18 will be rocked and stop 22 withdrawn. A continued pull upon cord 31 will then raise the skylight to the desired position, the stop 22 having been in the meantime restrained from entering the intervening holes 23 by reason of the continued pressure upon sheave 30. The cord is then held to the right and the skylight raised or lowered until the stop 22 enters the desired hole 23, where it will stay until released.

It is obvious that I have shown but one form of a number in which my invention may be embodied, and numerous changes may be made therein without departing from my invention—for instance, the particular manner of locking or unlocking the lifting-bar or the form of said bar may be changed, &c. The material which I have employed for all parts of my device excepting the cord is iron; but other material may be used.

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

1. In a skylight-opener, a lifting-bar having a series of locking-apertures, a guideway therefor pivotally mounted upon the curb, a locking-lever pivotally mounted upon said guideway, a locking projection upon the outer end thereof, pulleys upon the lower end of said lifting-bar, upon the pivot of the guideway and upon the curb above said guideway, a single lifting and lock-controlling cord attached to the lower end of said lifting-bar and passing over said pulleys, said cord engaging the inner end of said locking-lever, whereby the said locking device is controlled by the lifting means, but is free of the weight of the skylight, substantially as described.

2. A skylight-opener, comprising a bracket upon the skylight, a lifting and locking bar pivoted thereto and curved at its upper end toward said bracket and at its lower end from said bracket, a bracket upon the curb, a block pivotally mounted upon said last-mentioned bracket in which said bar slides, pulleys, and a cord to lift said bar, locking means for said bar intermediate the upper and lower pulleys and controlled by said lifting-cord, whereby the locking means may be freely operated, substantially as described.

3. In a skylight-opener, a lifting-bar having a series of locking-apertures, a pivoted guideway therefor upon the curb, a locking-lever pivoted upon said guideway having its pivotal axis parallel with the longitudinal axis of said lifting-bar, a locking projection at the outer end thereof, a cord to lift said bar and pulleys for said cord, said cord engaging the inner end of said locking-lever at a point in said cord after it has left the last pulley and before it reaches the hand of the operator, whereby the locking means may be operated by the lifting device, but are free of the weight of the skylight, substantially as described.

4. In a skylight-opener, a lifting-bar provided with stops, a non-traveling guideway in which said bar slides, pivotally mounted upon the curb, a locking-lever pivotally mounted upon said guideway, transverse to said lifting-bar and adapted to engage said stops and retain said bar in position, means for maintaining said locking-lever normally in locking position, a single lifting and lock-controlling cord connected to the lower end of said bar, pulleys therefor, a connection between said cord and the free end of the lock-

ing-lever between the last pulley and the end of said cord in the hand of the operator, the said parts so combined and operating that as said lifting-cord is swung, said locking-lever engages or releases said lifting-bar, and said lever is operated free of the weight of the sky-light, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE BICKELHAUPT.

Witnesses:

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