

A. A. PAGE.
 TRANSM OPERATOR.
 APPLICATION FILED MAY 24, 1915.

1,159,413.

Patented Nov. 9, 1915.
 3 SHEETS—SHEET 1.

Fig. 1.

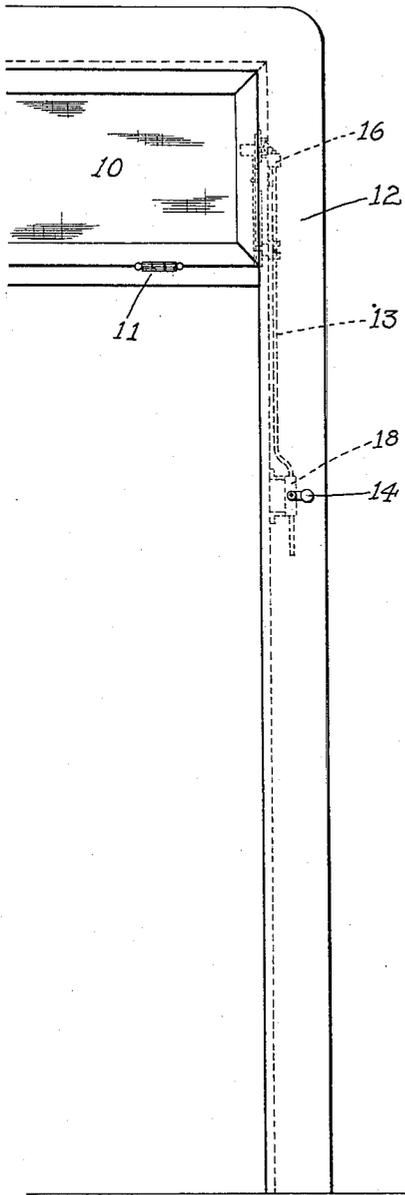
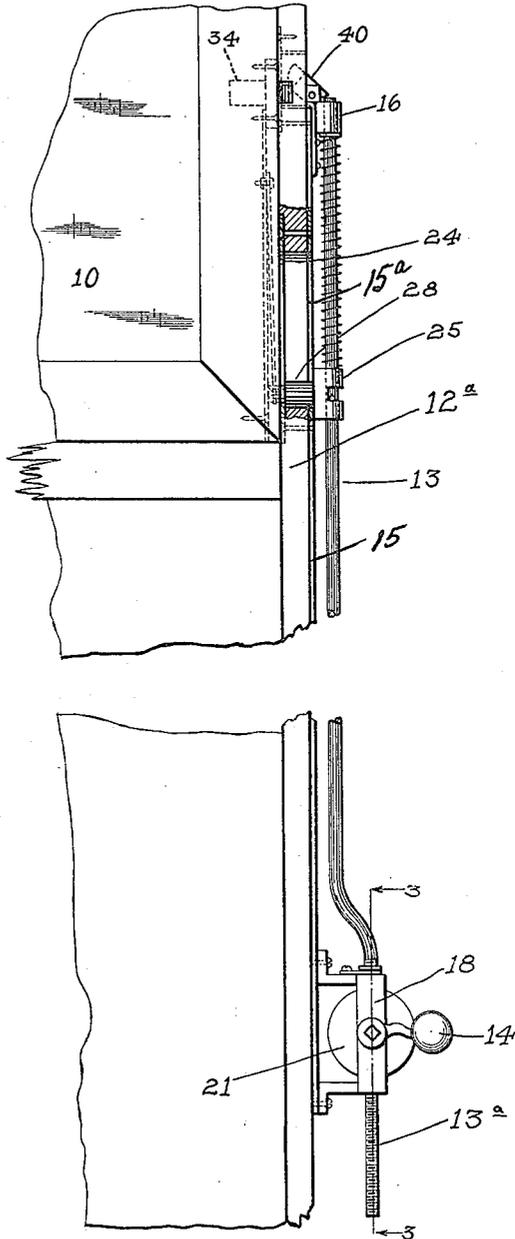


Fig. 2.



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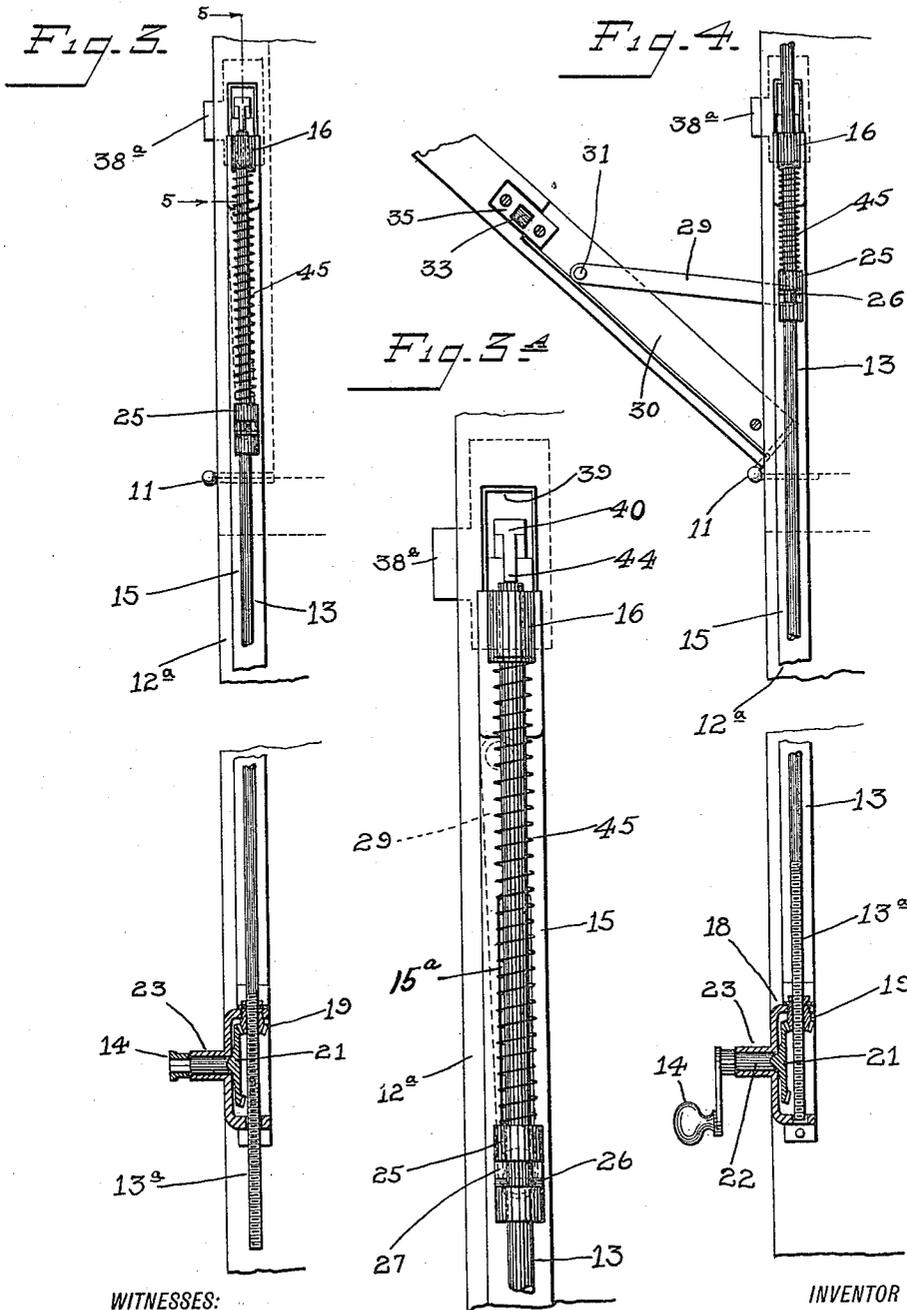
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 5.

Fig. 6.

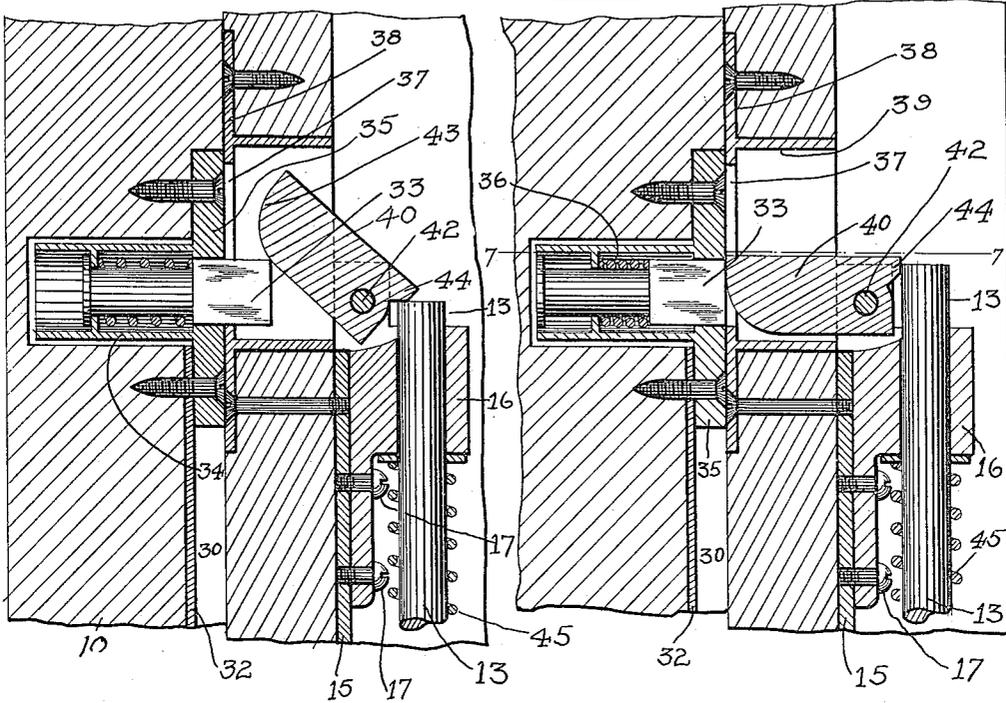


Fig. 7.

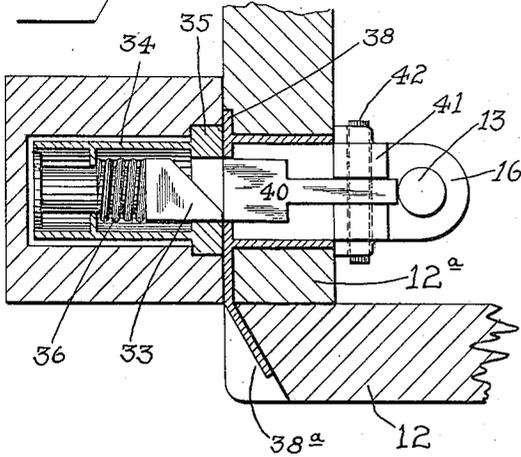


Fig. 8.

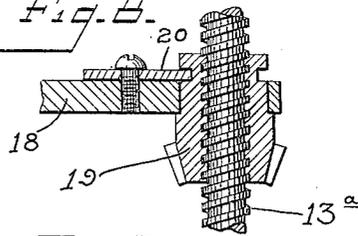
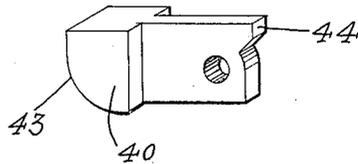


Fig. 9.



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TRANSOM-OPERATOR.

1,159,413.

Specification of Letters Patent.

Patented Nov. 9, 1915.

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To all whom it may concern:

Be it known that I, ALBERT A. PAGE, a citizen of the United States, residing in East Haven, county of New Haven, and State of Connecticut, have invented certain new and useful Improvements in Transom-Operators, of which the following is a full, clear, and exact description.

This invention relates to transom operators, and more particularly to devices of the type in which the main operating parts are concealed from view within the casing of the door frame.

One of the primary objects of the invention is to provide a transom operator in which the transom when in closed position is locked in place by means other than the transom swinging means, which locking means, however, is automatically released by the transom swinging or opening means in the operation of moving the transom to open position. By this arrangement or construction, the transom may be securely locked and firmly held in the closed position, and yet the opening and closing operations are not complicated in any way, owing to the fact that the manipulation of the transom can be controlled entirely by a single hand crank, or the like.

Another object of the invention is to provide a simple, inexpensive, compact transom operator, which is very efficient in use, and which can be very readily applied.

To these and other ends, the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front elevation of a portion of a door frame and transom, to which my improvements are applied; Fig. 2 is a fragmentary front elevation on a larger scale, with certain parts broken away; Fig. 3 is a side elevation of the parts shown in Fig. 2, with the transom in a closed position, partly in section on line 3—3 of Fig. 2; Fig. 3^a is an enlarged detail of a portion of Fig. 3; Fig. 4 is a view similar to Fig. 3, but showing the transom in the open position; Fig. 5 is a detail vertical section, through the transom lock and its releasing means, with the bolt

in locking position; Fig. 6 is a view similar to Fig. 5, showing the bolt in the released position preparatory to opening the transom; Fig. 7 is a section on line 7—7 of Fig. 6; Fig. 8 is a detail of the mechanism for lifting and lowering the operating rod; and Fig. 9 is a detail perspective view of the releasing cam for the transom locking bolt.

Referring to the drawings, the transom of usual form is hinged to its frame in the customary manner by hinges 11 (of which only one is shown), and the transom operating means is housed for the most part in the door casing 12. This operating means includes a vertically movable rod 13 adapted to be raised and lowered by means projecting out of the door casing, such, for example, as the hand crank 14. On the rear surface of the plate or member 12^a, which carries the door jamb or stop bead, is applied a carrier for the main parts of the transom operator, which carrier is preferably in the form of a metallic strip or bar 15, which may be conveniently attached to its support by means of screws or the like. At its upper end, the strip or bar 15 carries a bracket 16, which may be formed separately from the bar 15 and attached thereto by means of screws 17, as shown in Figs. 5 and 6. The bracket 16 forms a bearing for the upper end portion of the upright rod 13. At its lower end portion, the supporting bar carries a U-shaped bracket 18, which may be conveniently secured thereto. The lower end portion of the rod is offset and threaded, as indicated at 13^a, and this offset threaded portion passes through registering perforations in the upper and lower portions of the bracket, as shown in Figs. 3 and 4. In the upper perforation, a small bevel gear 19 is rotatably mounted and held against vertical displacement by a plate 20 on the bracket, as shown in Fig. 8. The gear 19 is provided with interior screw threads engaging the threads on the rod such that, as the gear is turned on its axis, the rod is raised or lowered, depending upon the direction of rotation. The gear 19 is given this rotary movement by means of a larger bevel gear 21, having a stem or arbor 22, journaled in a hub portion 23 on the in-

intermediate portion of the bracket 18. The hand crank 14 previously mentioned is mounted on the stem 22 so that by rotating the gear 21, in one or the other direction, the rod 13 may be raised or lowered through the described connections.

The rod 13 is operatively connected with the transom, so as to swing the latter to open and closed positions, by means of the following mechanism: The door frame member 12^a is provided with an upright slot adjacent the lower portion of the transom 10, as indicated at 24. In this slot, a sliding member 25 is guided. The member 25 includes a sleeve portion embracing the rod 13, as best shown in Fig. 3^a, and is held in a predetermined position relative to said rod by means of a transverse pin 26 extending through the rod and located in a notch 27 in the sleeve portion. From this sleeve portion of the slide member extends a shank portion 28 which is guided in a slot 15^a of plate or bar 15, and in the previously mentioned slot 24 in the door frame. The inner end of the shank portion 28 is pivoted to one end of a link 29, and the other end of the link is pivoted in a mortise 30 on the side edge of the transom by means of a pivot 31 of suitable form. The mortise in the transom stile is lined by a suitable metal plate, as best shown at 32, in Figs. 5 and 6, and this mortise accommodates the link 29, so that the outer face of said link will be flush with the edge of the transom stile. When the transom is in the closed position, the slide 25 is adjacent the lower hinged edge of the transom, as shown in Figs. 2 and 3. As the rod 13 is raised by means of the crank 14, the slide is carried up with it by virtue of the engagement of the pin 26 with the upper edge of the notch 27, and as the slide is raised, carrying with it the lower end of the link, the transom is forced outward into the open position, and held in that position by means of the link, as shown in Fig. 4.

Referring now to the means for locking the transom in the closed position, I prefer to use a construction substantially like the following: About midway of the height of the transom at that edge which is disposed adjacent the operating mechanism, I provide the stile of the transom with a locking device which preferably takes the form of a sliding spring pressed bolt 33. Preferably, the bolt 33 will form a part of a mortise latch having a case 34 and front or face plate 35. Within the casing a spring 36 embracing the shank of the bolt 33 normally holds the latter in an outwardly projected position. The face plate 35 is substantially flush with the edge of the transom stile above the mortise 30. The bolt is adapted to engage an elongated opening 37 of a strike member 38 applied to the supporting member 12^a, as shown in Figs. 5 and 6,

adjacent the upper bearing 16 for the operating rod. The strike 38 is formed with a hollow portion or recess 39, within which is movable a latch actuating member 40. In the form shown, this member 40 is pivoted between lugs 41 on the bracket 16 by means of a pin 42, in such a manner as to swing in a vertical plane. It is provided at its forward end with a curved surface 43 in the nature of a cam, to act upon the latch bolt in the manner hereinafter described. At its rear end, the pivoted member 40 is provided with a shoulder 44, whereby it is actuated by the operating rod 13. In the locked position of the transom, the unlocking member 40 has an inclined position, as shown in Fig. 5, with its shoulder 44 overhanging the upper end of the operating rod; but as the rod is moved upwardly, it swings down the unlocking member, as shown in Fig. 6, and thereby causes said member to force the latch bolt back into its case, and thereby release the transom so that it can be swung open by further movement of the operating mechanism. Fig. 5 shows how the latch bolt is engaged in the strike member 38 to lock the transom in position, and Figs. 6 and 7 show how the member 40 pushes back the latch bolt to release the transom, as said member is forced downwardly. It will be observed that after the member 40 has reached the unlocked position shown in Fig. 6 the upper end of the rod 13 may be moved upward beyond the member 40, while said member by engaging the side surface of the rod is held in the unlocked position.

The operation of the device is substantially as follows: Assuming the parts to be in the position shown in Figs. 1, 2 and 3, the transom can be opened by turning the crank 14 in a direction to raise the operating rod 13. During the preliminary part of the upward movement of the rod, the slide 25 is inactive, it being held in the lowermost portion of the guide slot 24 by means of a spring 45, embracing the rod 13 between said slide and the upper bearing 16, while the pin 26 moves from the lower edge of the notch 27 to the upper edge thereof. During this time, the upper end of the rod engages the releasing member 40, and releases the latch 36 in the manner previously described. Thus, the transom is released for opening movement by the time the pin 26 reaches the upper edge of the notch 27, and begins to carry along the slide 25 to operate the actuating link 29, as will be understood. The transom may then be opened to the desired angle, and it will be held in the adjusted position in an obvious manner. When it is desired to close the transom, the crank 14 is rotated in the opposite direction so as to pull down the operating rod, and thus return the transom to the initial position

by virtue of its connection with the downwardly moving slide 25, which begins to descend as soon as the pin 26 reaches the lower edge of the notch in the slide. As the transom 5
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frame, and a link pivoted to said slide and to the transom; substantially as described.

4. The combination of a frame, a transom hinged at its lower end to said frame, a rod movable upwardly and downwardly on said frame, a slide movable in a slot in said frame, a lost motion connection between said slide and said rod, a link pivoted to said slide and to the transom, and a transom lock releasable by said rod prior to the movement of said slide; substantially as described.

5. In a transom operator the combination of a carrier strip having a longitudinally extending slot, an operating rod having bearings on said carrier strip, means mounted on said carrier strip to raise and lower said rod, a slide operatively connected with said rod and having an inwardly projecting part guided in the slot of said carrier strip, and a link pivoted to the inwardly projecting part of said slide and adapted for connection with a side edge of the transom; substantially as described.

6. The combination of a frame, a transom hinged at its lower end to said frame, a rod extending alongside the frame, means for raising and lowering said rod, transom swinging means including a slide guided in said frame, a transom lock directly releasable by said rod, and means of connection between said slide and said rod whereby the slide remains stationary until the transom lock is released and is then carried along by the rod; substantially as described.

7. The combination of a frame, a transom mounted therein, a sliding spring latch carried by the transom, a strike plate or keeper on the frame for engaging said latch, a member for pushing the latch out of the keeper, and a rod for operating said latch pushing member; substantially as described.

8. The combination of a frame, a transom mounted therein, a latch carried by the transom, a cooperating strike on the frame, a releasing member mounted on the frame for pushing the latch out of said strike, and means for operating said releasing member; substantially as described.

9. The combination of a frame, a transom hinged at its lower edge to said frame, an upright rod carried by said frame, means associated with the lower end portion of the rod for raising and lowering the latter, a slide having a lost motion connection with the intermediate portion of the rod, a link connecting said slide with said transom at a point removed from the hinged edge of the latter, and a transom locking device operable by the upper end portion of the rod; substantially as described.

10. The combination of a frame, a transom hinged at its lower edge to said frame, an upright rod carried by said frame, means for operating said rod, a slide operatively connected with said rod and guided in a

It will be understood that the connection of the operating rod to the slide by means of the pin 26 provides a certain amount of lost motion between the operating member and the transom swinging mechanism, so that said member may unlock the transom preparatory to effecting the swinging movement thereof. At the same time, the pin 26 prevents the rod from rotating, and thereby insures the proper raising and lowering of said rod by means of the threaded connection with the gear 19, which acts in the nature of a fixed nut. The spring 45 cushions the lost motion connection between the rod and the transom swinging mechanism, and makes the operation of the device steady and noiseless.

The foregoing description is necessarily a detailed one, in so far as it concerns the particular embodiment selected for illustration and description, and it will be understood that various changes in the details of the construction may be adopted within the scope of the claims.

What I claim is:—

1. The combination of a transom, an operating link pivoted thereto, a sliding member for actuating said link, an operating rod having a lost motion connection with said sliding member, and a transom lock releasable directly by said rod prior to the movement of said sliding member; substantially as described.

2. In a transom operator, the combination of a carrier strip having a longitudinally extending slot, an operating rod, having bearings on said carrier strip, a slide having an inwardly projecting part guided in the slot of said carrier strip, a link pivoted to the inwardly projecting part of said slide, and adapted for connection with a side edge of the transom, and means for raising and lowering said slide by manipulation of said operating rod; substantially as described.

3. The combination with a frame and a transom hinged at its lower end to said frame, of a rod extending alongside of said frame, means for raising and lowering said rod, a slide movable up and down by means of said rod, and guided in a slot in said

slot in the frame, said slide occupying a position adjacent the lower edge of the transom when the latter is closed, a link pivoted at one end to said slide, and operating in a mortise in the stile of the transom, and means for pivoting the other end of the link

to the transom at a point above the lower edge of the transom; substantially as described.

In witness whereof, I have hereunto set my hand on the 21st day of May, 1915.

ALBERT A. PAGE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."