Nov. 20, 1923. 1,475,012

E. P. HARRIS

CONCEALED TRANSOM OPERATING MEANS

Filed Nov. 23, 1918

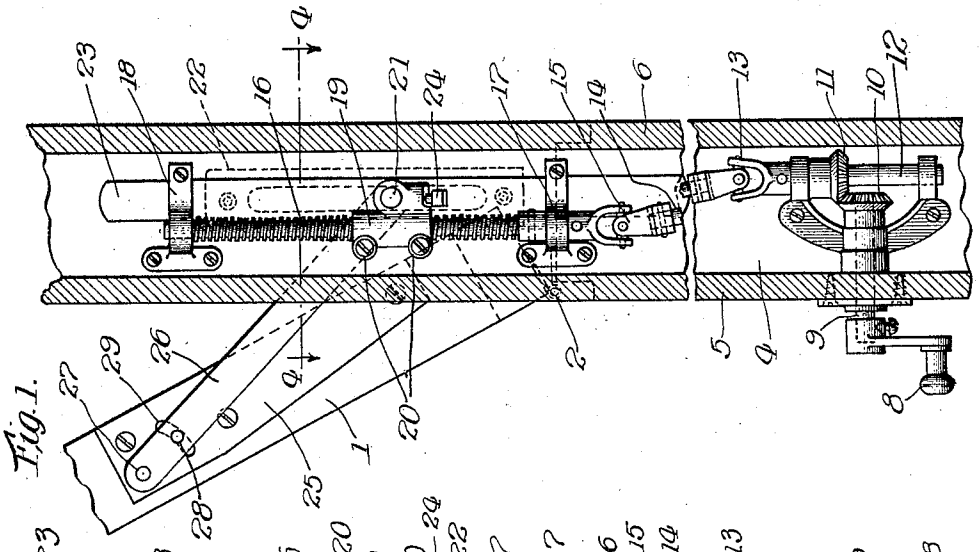


Fig. 1.

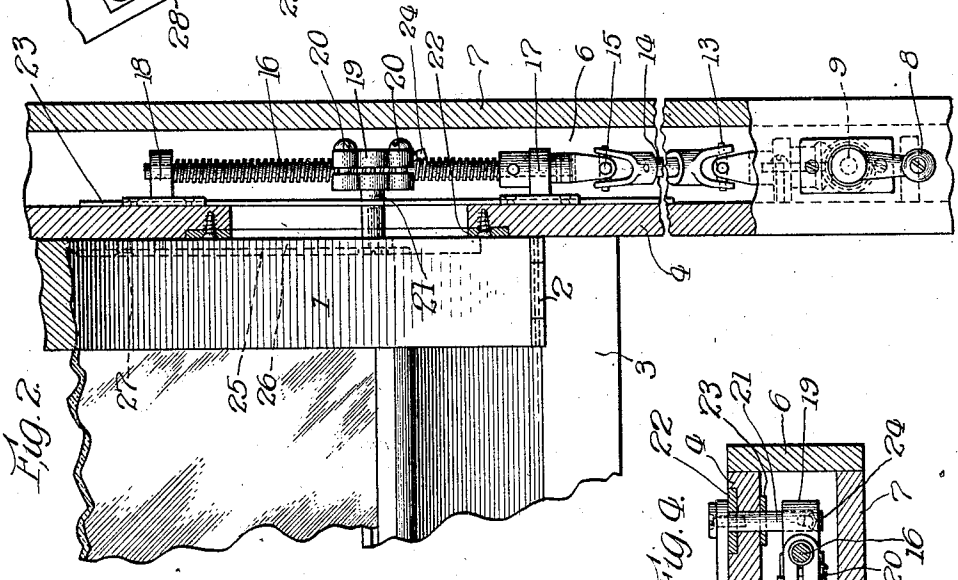


Fig. 2.

Fig. 4.

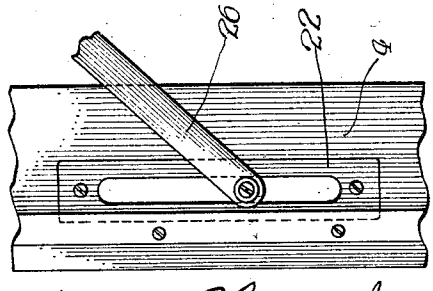


Fig. 3.

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UNITED STATES PATENT OFFICE.

ELIJAH PREBLE HARRIS, OF CHICAGO, ILLINOIS, ASSIGNOR TO PAYSON MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CONCEALED TRANSOM-OPERATING MEANS.

Application filed November 23, 1918. Serial No. 263,940.

To all whom it may concern:

Be it known that I, ELIJAH PREBLE HARRIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Concealed Transom-Operating Means, of which the following is a specification.

My invention relates to improvements in means for operating transoms.

The object of my invention is to provide an improved concealed device of this character whereby the appearance of the door frame is not marred by the auxiliary attachments usually mounted thereon.

Other objects of the invention are—to provide a concealed transom operator which is simple and direct in its operation; to provide one which is powerful and which does not bind or stick; to provide one in in which there is no lost motion, in which there is a minimum wear and by the use of which the transom is automatically locked in any position in which it may be left, and to provide one in which the operating mechanism may be adjusted to the transom independently of the location of the operating handle. Other objects and advantages may be inferred from the subsequent description.

This application is filed as a continuation in part of my co-pending application Serial No. 26,212, filed May 6, 1915.

In the accompanying drawings, I have illustrated one embodiment of my invention. It will be understood, however, that said invention may be embodied in other forms.

Fig. 1 is a side elevation of the transom operating means showing portions of the door frame and transom sash.

Fig. 2 is a front elevation thereof.

Fig. 3 is a partial elevation of certain details.

Fig. 4 is an enlarged, transverse sectional view through the door frame on the line 4—4, Fig. 1.

The sash 1 of the transom is secured by hinges 2 to the top of the usual transom rail 3, constituting a part of the door frame, the vertical side elements or jambs 4 being shown in part in the drawings. The transom is thereby pivotally supported at its lower side, although, of course, it might be pivotally supported at its upper side or at some intermediate axis. The jamb 4, together with the ornamental wood trim 5, 6, forms a hollow enclosure, a clearance being thus provided between the jamb and the upright member 7 to which the laths are nailed.

This clearance space, which in many instances is no larger than one inch by two inches, is nevertheless large enough to accommodate the major portion of the transom operating means, the parts of the latter being so positioned and so arranged as to occupy very little space. The transom is operated by the means of a handle 8 arranged to rotate an operating shaft 9 which, through suitably mounted beveled gears 10, 11, rotates a vertical shaft or spindle 12. Said spindle has a universal joint 13 at its upper end connecting it with a second shaft 14 which in turn is connected through a universal joint 15 to a third shaft 16. The latter shaft is screw-threaded and is mounted in brackets 17, 18. A nut 19 engages said screw-threaded spindle, said nut being split (see Fig. 4) and provided with screws 20, in order to adjust said nut to take up wear. Said nut is provided with an opening which receives a pin or stud 21, said pin projecting through a slot in the jamb and through a slot in the metal plate 22 mortised into said jamb. Said pin prevents the nut from rotating and, therefore, insures an up and down movement thereof when the spindle is rotated in one direction or the other. In order to close said slot and thereby prevent the entrance of dust as well as to improve somewhat the appearance of the device, a cover plate 23 is provided. Said plate is supported by the pin 21, which passes through it and is guided in its movement by the supports 17, 18, as shown in Figs. 1 and 2. The cover plate, while advantageous, may be omitted. A set screw 24 permits the pin to be secured to the nut in any desired position thereby adapting the structure to door frames of different dimensions.

One side of the transom sash is provided with a reinforcing plate 25 mortised therein.

A link or lever 26 is pivotally secured to said plate at the point 27 at one end and is pivotally secured to said pin 21 at its other end. Said lever also carries a pin or stud 28, which slides within the curved slot 29 in the plate 25, thereby limiting the angular swing of the transom.

It will be seen that when the handle 8 is rotated, the transom will be open or closed, the entire apparatus being concealed except said handle. The link on the transom is exposed only to a limited extent, depending on the amount the transom is open and it is entirely concealed when the transom is closed. The door frame, therefore, presents a neat appearance and is not marred by projecting brackets and other attachments which characterize certain devices used heretofore. The link 26 and its associated parts are reversible, that is, they may be attached to either side of a transom, rendering the device right handed or left handed. The apparatus is powerful in its operation owing to the leverage obtained through the screw and nut. Furthermore, it cannot bind or stick and the operation is non-reversible as a result of which the transom is locked in whatever position it may be left. It will be noted that the point where the lever is secured to the transom sash is well removed from the pivotal axis, thus relieving the hinge, the sash and the door trim from unnecessary stresses. In certain prior art devices, the transom is operated directly through the pivotal support or hinge, which is an undesirable arrangement. Instead of being manually operated, the device may, of course, be power operated, a motor being used to rotate the spindle.

With the construction described, the upper portion of the transom lifter may be connected to the transom and the transom installed independently of the handle and the lower portion of the transom lifter. Thereafter it is necessary merely to provide the rod 14 of the proper length to meet the requirements. If the upper and lower parts of the three part spindle do not happen to be in alinement, the universal joints permit the device to be operated without making adjustments of the apparatus to bring these sections in line. Furthermore, the adjustments of the pin 21 by means of the set screws 24 enables the device to be applied to door frames having parts of varying thicknesses or other variable dimensions. The split nut prevents undue looseness or backlash, which would result in allowing the transom to rattle.

Various changes may be made in the structure described without departing from the invention as defined in the appended claims.

What I claim is:

1. In combination, a hollow door frame, a transom hinged at the lower side of its sash to the transom rail, a vertically arranged screw-threaded spindle mounted within one of the hollow members of said frame, a plurality of supports therefor, a pair of beveled gears for rotating said spindle, an operating rod projecting through the door trim and provided with a handle, a screw-threaded nut on the upper end of said rod arranged between two of said supports, an extension thereon projecting through a slot in said hollow member, a plate on the jamb face of said hollow member, having a slot therein through which said extension projects and a link pivotally secured to said transom and to said extension between said transom and said door frame.

2. In combination, a door frame having a clearance space behind a jamb, a transom hinged at the lower side of its sash to the transom rail, a metal plate mortised in one side of said transom sash, a vertically arranged screw-threaded spindle behind one of said jambs, supports therefor secured to said frame, one of said supports being near the bottom of said spindle, a pair of beveled gears for rotating said spindle, an operating rod projecting through the door trim and provided with a handle, a screw-threaded nut on the screw-threaded portion of said rod arranged between two of said supports, an extension thereon projecting through a slot in said jamb at right angles to the axis of said operating rod, a plate carried by said extension for closing said slot and guided by said two supports, a plate mortised on the outside of said jamb and provided with a slot through which said extension projects, and a link pivotally secured to said transom plate and to said extension.

3. In combination, a door frame having a hollow side member, a transom pivotally supported by said frame, a screw-threaded spindle rotatably mounted in said hollow member, beveled gears associated with said spindle, a crank for rotating said gears and said spindle, a nut on said spindle arranged to be moved by the rotation of the latter, and a lever pivotally secured to the transom sash at one end and to said nut at the other end and located between said sash and frame whereby it is normally concealed.

4. The combination with a hollow door frame having a transom pivoted therein, of a rotatable spindle mounted within said hollow frame, means projecting through an opening in said frame between the latter and said transom and arranged to be reciprocated by the rotation of said spindle, connections between said reciprocable member and said transom, said connections being located between said frame and transom to conceal the same, and a member arranged to move with said first member and serving to close said slot.

5. In a device of the class described, a pivoted transom, a substantially screw-threaded rod having a nut thereon for operating said transom, a rotatable rod, means for mounting the same substantially parallel to said screw-threaded rod, a third rod connecting said first two rods and having a loose connection therewith whereby said first two rods may be mounted independently of each other and out of alinement and means inclosing said rods.

In testimony whereof I have subscribed my name.

ELIJAH PREBLE HARRIS.

Certificate of Correction.

It is hereby certified that in Letters Patent No. 1,475,012, granted November 20, 1923, upon the application of Elijah Preble Harris, of Chicago, Illinois, for an improvement in "Concealed Transom-Operating Means," an error appears in the printed specification requiring correction as follows: Page 3, line 2, claim 5, after the word "substantially" insert the word *vertical;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 12th day of February, A. D., 1924.

[SEAL.]

KARL FENNING,
Acting Commissioner of Patents.