

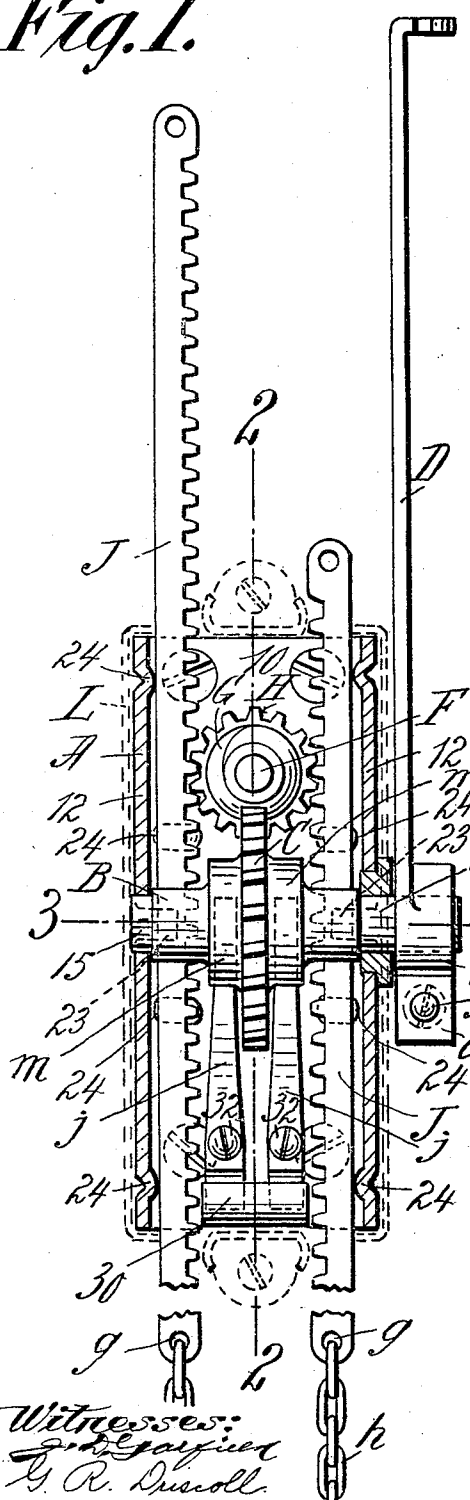
No. 856,288.

PATENTED JUNE 11, 1907.

H. OSBORNE.
TRANSOM LIFTER.
APPLICATION FILED AUG. 27, 1906.

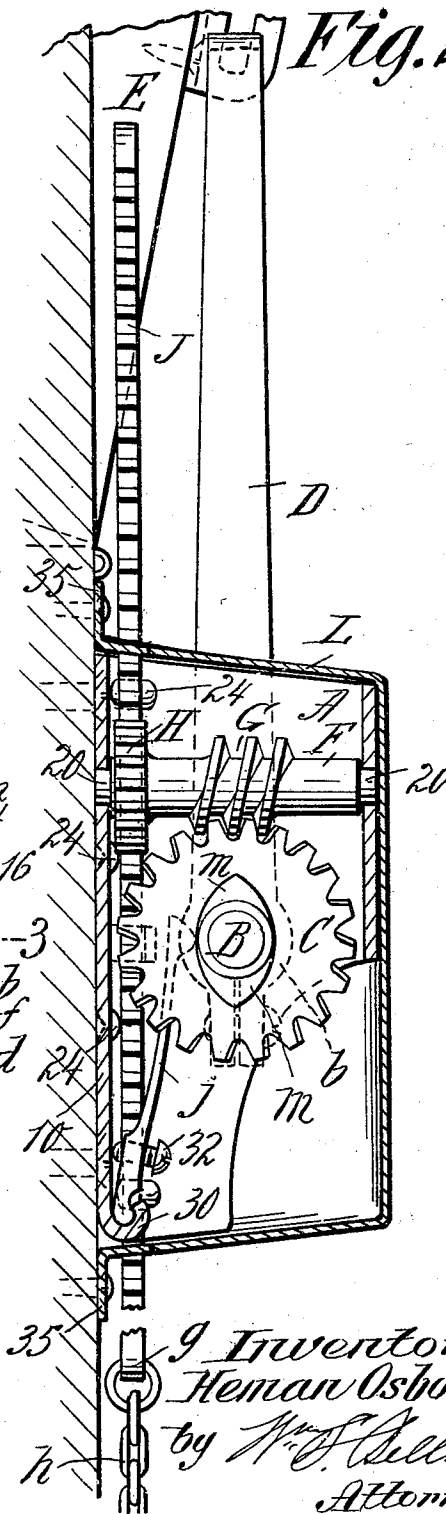
2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
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Fig. 2.



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2 SHEETS—SHEET 2.

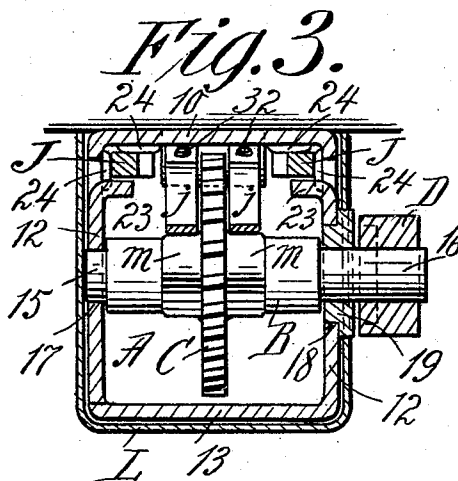
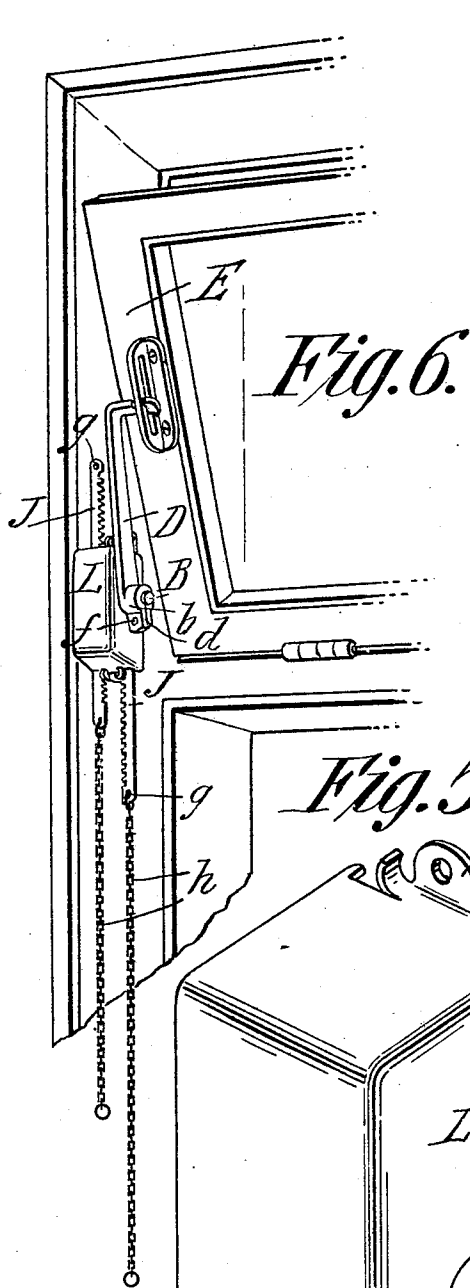
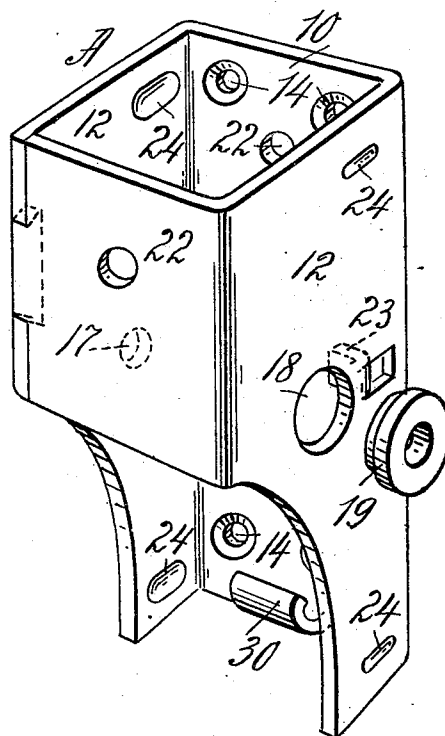


Fig. 4.



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UNITED STATES PATENT OFFICE.

HEMAN OSBORNE, OF SPRINGFIELD, MASSACHUSETTS.

TRANSOM-LIFTER.

No. 856,288.

Specification of Letters Patent.

Patented June 11, 1907.

Application filed August 27, 1906. Serial No. 332,117.

To all whom it may concern:

Be it known that I, HEMAN OSBORNE, a citizen of the United States of America, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Transom-Lifters, of which the following is a full, clear, and exact description.

An object of this invention, for improvements in devices for opening transoms, and blinds or shutters, is to provide an operating mechanism of the class indicated which is extremely simple, as regards the components thereof, and their assemblage in cooperative relations; and which is capable of operating easily and smoothly; and another object is to provide a transom or shutter operating mechanism which is "reversible,"—that is as well applicable for operation at the right as the left of a transom or shutter, rendering unnecessary the production of some of the appliances especially designed as "rights" and the production of others thereof especially designed as "lefts."

Other objects and advantages are attained in and by the organization, or combination, and arrangement, and the construction of the parts as hereinafter fully described and set forth in the claims.

The improved transom operating device is illustrated in the accompanying drawings, in which,—

Figure 1 is a front elevation thereof, the supporting frame being shown in vertical section and the inclosing casing is represented in dotted lines. Fig. 2 is an elevation of the same as seen at right angles to Fig. 1,—portions of the frame and inclosing casing being shown in vertical section, as taken on the line 2—2, Fig. 1. Fig. 3 is a horizontal sectional view as seen on line 3—3, Fig. 1,—the worm wheel and shaft being, however, shown in plan view. Fig. 4 is a perspective view of the supporting frame. Fig. 5 is a perspective view of the inclosing casing, and Fig. 6 is a perspective view showing the operating device as applied in its relation to the transom.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings,—A represents the frame or support which may be of any suitable metal and design, the same, as shown, comprising a back wall 10, opposite side walls 12, 12, and a front wall 13, the same being bent or formed in rectangular shape; and the back wall is provided with screw holes

whereby the frame may be screwed to the casing in a building.

B represents a shaft horizontally rotatably mounted within the frame having intermediately thereon a worm wheel C, and having one end thereof projecting outwardly beyond the side of the frame, and having thereon an arm or lever D for operating the transom E or shutter. As shown, the worm wheel shaft B has necked down journals or gudgeons 15 and 16, the shorter one 15 being engaged in a circular journal hole 17 therefor in one of the frame sides, while the longer journal 16 is passed through a larger hole 18 receiving a bushing or annular plug 19 before the transom operating arm D is fastened on the extremity of the worm wheel shaft.

F represents another shaft horizontally journaled in a line at right angles to and above the worm wheel shaft, the same having necked down end gudgeons 20, 20, which are fitted in circular journal holes 22, 22, in the front and back of the frame. The said shaft F has a worm G intermediately formed thereon which meshes into the worm wheel C; and the said worm shaft F also has integrally formed or affixed thereon a spur gear wheel H at its end portion near and inside of the back wall 10 of the frame.

J J represent oppositely located rack bars, oppositely in mesh, by their inwardly facing teeth, with the said spur gear wheel on the worm shaft; and said rack bars are slidable vertically within and through the frame.

Guides and means for restraining the rack bars against lateral displacement are constituted by lips or lugs 23, 23, which may be "struck-up" from portions of the opposite side walls 12, 12, of the frame adjacent but separated from the back wall; and the back wall, and also the opposite side walls may have internal bosses or inwardly displaced portions 24, 24, to serve as bearings at widely separated parts for the back and side of each rack, and lessening the friction between the racks and the walls of the frame.

The transom operating arm D has at its lower end portion a split hub or collar *b* with ear pieces *d* at either side of the cleft engaging with which is a constricting screw *f*; and thus the arm *d* is reversible on the worm wheel shaft and may be turned end for end accordingly as the device as a whole is applied as a right or left hand appliance in relation to a transom.

The rack bars which are of considerable

length, and extend both above and below the frame, have eyes at both ends thereof; and chains *h* or like flexible connections are secured to and depend below the lower eye 5 formed ends of the racks, and serve as means within convenient access for operating either one of the racks accordingly as the transom is to be opened or closed.

j j represent duplicated springs operable 10 against the rotary movement of the worm wheel shaft in a direction corresponding with the swinging movement in the opening direction of the transom, such springs, preferably duplicated as stated, being effective by their 15 reaction to compensate for or counter the stress brought against the worm wheel shaft by the opening or opened transom, more especially in cases where the transom is pivotally hung at its lower edge and swings from above 20 such edge; and in the present instance for co-operation with the said springs *j j* are cams *m m* integrally formed or affixed on the worm wheel shaft at opposite sides of the worm wheel.

25 When the worm wheel shaft has a degree of rotation imparted thereto to swing the transom open, the eccentric portions of the cams are crowded against and deflect, and increase the tension of the springs, counterbalancing 30 the gravitative force exerted on the mechanism by the transom; and by having the cams and springs duplicated, with means for adjusting the springs for changing the tension thereof, the mechanism may be regulated to 35 be sensitive in operation in relation to either heavy or light under pivoted transoms.

As shown in Fig. 2, the springs *j* have rounded ends which are substantially pivotally engaged or fulcrumed within the partially circular 40 turned portion 30 of the back of the frame; and as a means for varying the tension of the springs, screws 32 have thread engagements through the springs, and their projecting rear ends constitute adjustable 45 shoulders in bearing against the frame back.

L represents a sheet metal inclosing casing or housing for the frame and mechanism supported by and inclosed therewithin,—said casing having ear lugs 35 through which, by 50 screws, the casing is affixed on the same support as the frame. The said casing is provided with suitable recesses and apertures to give play to certain of the movable parts, as apparent. This mechanism is equally operable 55 either end up, and in a case where it is necessary or more convenient that the same be employed at the right hand side of a door and transom casing instead of at the left hand side, as shown in Fig. 6, it is only necessary to 60 mount the device in its position endwise reverse from that shown in Fig. 6, so that the arm carrying end of the worm wheel shaft will project to the leftward instead of to the rightward, reversing the position of the transom operating arm *D* on the worm wheel

shaft, and hanging the chains on the depending ends of the rack bars.

I claim:—

1. In a transom operating device, the combination with a suitable supporting frame or 75 casing having worm wheel rotatably mounted therein which is provided with a transom operating element, of a shaft, rotatably mounted in said casing having a worm in engagement with the worm wheel, and having 75 a spur gear wheel thereon, and a rack bar slidable in the casing and in mesh with the said gear wheel.

2. In a transom operating device, the combination with a supporting frame having, 80 rotatably mounted therein, a worm wheel provided with a transom operating element, of a shaft, rotatably mounted in said casing, having a worm in engagement with the worm wheel and having a spur gear wheel thereon, 85 and oppositely located rack bars slidable in the casing and both in mesh with the said gear wheel.

3. In a transom operating device, the combination with a supporting frame having, 90 rotatably mounted therein, a worm wheel provided with a transom operating element, of a shaft, rotatably mounted in said casing, having a worm in engagement with the worm wheel and having a spur gear wheel thereon, 95 oppositely located rack bars slidable in the casing and both in mesh with the said gear wheel, and flexible operating connections secured to, and depending below, the rack bars. 100

4. In a transom operating device, the combination with a supporting frame having, 100 rotatably mounted therein, a shaft having a worm wheel thereon, also provided with a transom operating element, and having 105 oppositely located cams, of a shaft, rotatably mounted in said casing, having a worm in engagement with the worm wheel and having a spur gear wheel thereon, oppositely located rack bars, slidable in the casing and both in 110 mesh with the said gear wheel, and a pair of springs applied in resistance against said cams.

5. In a transom operating device, the combination with a frame having a back and 115 opposite vertical side walls constructed with intumed lugs or lips adjacent but separated from the back and constituting rack bar guides, and a shaft rotatably mounted in said frame, having a worm wheel thereon, and 120 having an extremity thereof projecting outwardly beyond the frame and provided with a transom operating arm, of another shaft rotatably mounted in the frame at right angles to the worm wheel shaft, having a worm 125 in mesh with the said worm wheel and having a spur gear wheel thereon, oppositely located rack bars slidable vertically through the frame, and both thereof in mesh with said spur gear, and flexible operating connections 130

secured to, and depending below, the lower ends of both said rack bars.

6. In a transom operating device, the combination with a frame having a back wall and
5 opposite vertical side walls constructed with intumed lugs or lips adjacent but separated from the back wall and constituting rack bar guides, and the frame walls having inwardly
10 located bosses to constitute separated rack bar bearings, and a shaft rotatably mounted in said frame, having a worm wheel thereon, and having an extremity thereof projecting
15 outwardly beyond the frame and provided with a transom operating arm, of another shaft rotatably mounted in the frame at right

angles to the worm wheel shaft, having a worm in mesh with the said worm wheel and having a spur gear wheel thereon, oppositely located rack bars slidable vertically through the frame, and both thereof in mesh with said 20 spur gear, and flexible operating connections secured to, and depending below, the lower ends of both said rack bars.

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

HEMAN OSBORNE.

Witnesses:

WM. S. BELLOWS,
G. R. DRISCOLL.