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PATENTED DEC. 4, 1906.

J. W. McGRAIN.
SLAT LOCK FOR BLINDS.
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Fig. 1

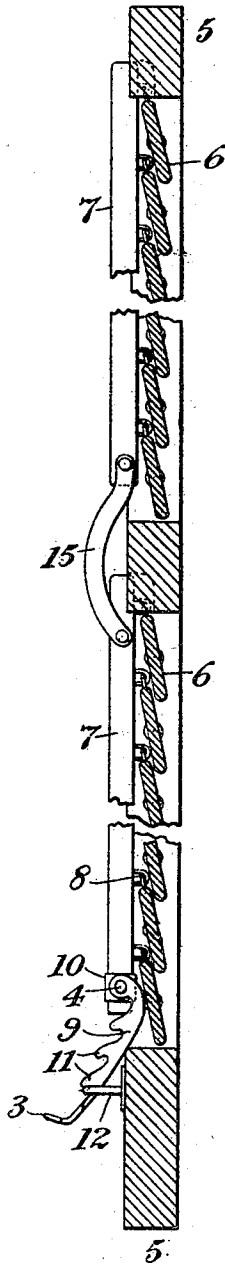


Fig. 2

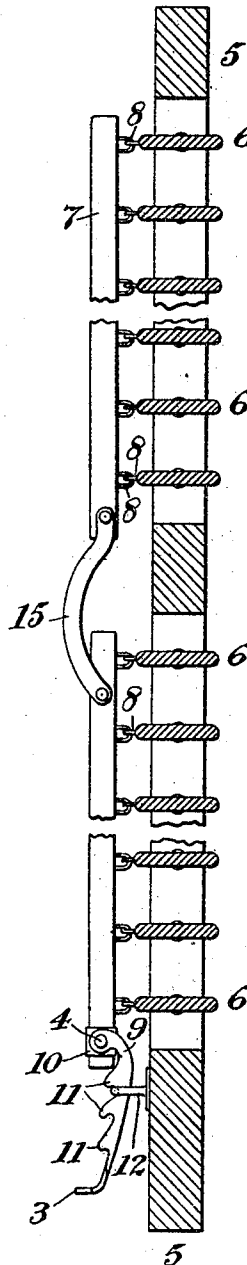
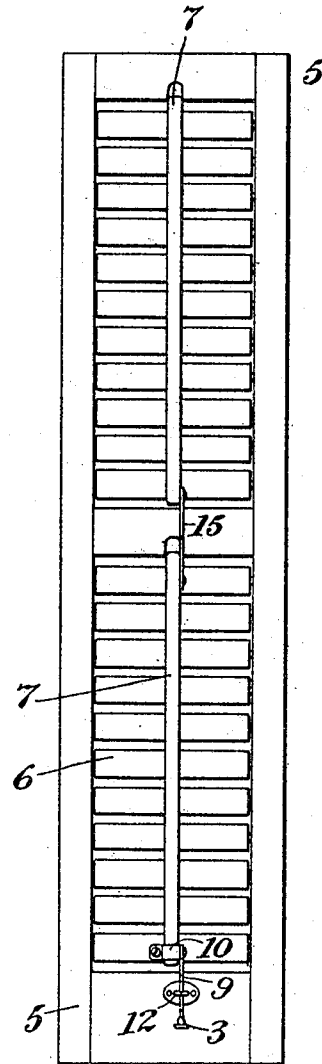


Fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN WILLIAM McGRAIN, OF NEWARK, NEW JERSEY.

SLAT-LOCK FOR BLINDS.

No. 837,419.

Specification of Letters Patent.

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Application filed February 27, 1905. Serial No. 247,402.

To all whom it may concern:

Be it known that I, JOHN WILLIAM McGRAIN, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Slat-Locks for Blinds, of which the following is a specification, reference being had therein to the accompanying drawings, forming a part thereof.

This invention relates to devices for adjusting, controlling, or locking the slats of blinds, shutters, or the like, and has for its objects simplicity of construction and ease of operation, strength and durability, the avoidance of all springs or resilient devices, the utilization of gravity and inertia in the control and locking of the slats, and economy in cost.

Other objects and advantageous features of my invention will appear from the following particular description of the construction embodying my invention illustrated in the accompanying drawings.

I will now particularly describe such construction and will thereafter point out my invention in claims.

Figure 1 is a vertical transverse section of a blind with the slats in closed position. Fig. 2 is a similar view with the slats in open position. Fig. 3 is a front elevation of the blind, on a smaller scale, showing the slats in a position intermediate between the positions shown in Figs. 1 and 2.

The blind is of ordinary construction, no alteration in this ordinary construction being necessary for the attachment thereto of the adjusting means embodying my invention. The frame 5 contains the slats 6, which are pivoted at each end on a medial axis in the usual manner and are connected by staples 8 with the vertical controlling-bar 7. The slats are shown as arranged in two separate series, one vertically over the other, and the controlling-bars of the two series are connected by a link 15, so that they operate substantially as one bar.

At the lower end of the lower controlling-bar 7 is movably attached a slat-retaining device or locking-bar 9, which is shown as pivotally carried upon a sleeve 10, this sleeve 10 being suitably secured to the controlling-bar 7 by means of a clamping-screw, as shown. The pivot-pin 4 of the locking-bar 9 projects laterally from the sleeve 10, so that the locking-bar is permitted to swing in a plane perpendicular to the face of the blind.

The locking-bar 9 is provided with projections or ratchet-teeth 11, of which three are shown, and has at its lower end a thumb-piece 3. This locking-bar passes through a second cooperating slat-retaining device, which in this case is a projecting staple or stop device 12, shown as projecting from a base-plate secured to the frame of the blind. The locking-bar passes through this guide and stop in all phases of its movement and is locked in desired position by the engagement of one or other of its ratchet-teeth with this guide and stop. The locking-bar is peculiarly shaped, so as to accommodate the outward movement of the slat-controlling bar 7 as the slats are moved to open position and so as to utilize gravity and inertia in the manipulation and control of the slats. At its upper part the locking-bar is rather sharply curved inward, so that the pivot-point is offset inward of the general direction of the locking-bar. The ratchet-teeth of the locking-bar are suitably undercut on their lower faces, so that in the different positions in which the locking-bar is arrested with one or the other of its teeth in engagement with the guide and stop 12 the engagement of the teeth will be such that gravity or downward pressure will not cause disengagement.

In the closed position of the slats (shown in Fig. 1) the lower ratchet-tooth is in engagement with the guide and stop 12. In this position the slats are firmly locked against any action of wind-pressure or any control from the outside of the blind. A movement to open or partially open position is effected by manipulation of the thumb-piece 3, a slight pressure disengaging the ratchet-tooth and a downward pull carrying the locking-bar to desired position. Should it be desired to move the slats to the extreme reversed position with their extreme inward and downward slant, the locking-bar is merely pulled down to lowest position.

Should it be desired to hold the slats in intermediate position, as the wide-open position (shown in Fig. 2) or the half-open position, (shown in Fig. 3,) a slight outward movement at the desired point engages the ratchet-tooth corresponding to that position. This operation is simple and is performed in a continuous movement by the manipulation of one part and without shifting the grip or touching any other part; but the movement from any other position than that of extreme closure may be effected by manipulation of

the vertical controlling-bar 7 and without touching the thumb-piece or locking-bar or may be effected by manipulation of the locking-bar, as may be most suitable or convenient to the user.

Should the user desire to secure the slats in a position maintained by a higher position of the controlling-bar, the controlling-bar may be directly raised without touching the locking-bar, and the rotative movement of gravity on the locking-bar and about its offset pivotal axis will tend to swing the locking-bar toward the stop, so as to engage its teeth with the stop and secure the controlling-bar in higher position.

Should the user desire to change the slats by lowering the controlling-bar and by manipulation of the controlling-bar, only and without touching the locking-bar, an upward movement of the controlling-bar will disengage the engaged ratchet-tooth, and the contact of the guide and stop with the inclined upper face of the next tooth below will throw the locking-bar toward the blind. A quick following movement will carry the slats to desired position, and the cessation of this movement at the desired position will develop a swinging movement of the locking-bar away from the blind which will cause the corresponding tooth of the locking-bar to engage with the guide and stop. Generally the quick downward movement of the controlling-bar will cause the locking-bar to swing toward the blind by reason of the location of the center of gravity of the locking-bar at a point nearer to the blind than the pivotal center or point of suspension of the locking-bar, the inertia or resistance to movement of the locking-bar causing such movement, and the quick upward movement of the controlling-bar will also cause the locking-bar to swing toward the blind as a result of the contact between the guide and stop and the inclined upper surface of a tooth of the locking-bar. Therefore the quick upward movement of the controlling-bar will result in swinging the locking-bar out of locking position, and the continued upward movement of the controlling-bar or quick following movement in a downward direction may be effected without manipulation of the locking-bar. The effect of gravity when the controlling-bar is brought to rest is to swing the locking-bar away from the blind and into engaging position, this movement resulting from the location of the center of gravity of the locking-bar at a point nearer the blind than the pivotal center or point of suspension of the locking-bar. Thus in the downward movement the inertia of the locking-bar is utilized to swing the locking-bar out of locking position, and in the upward movement the cam action of inclined teeth also causes the locking-bar to be

swung out of locking position, and when the parts are brought to rest gravity swings the locking-bar into locking position.

The manipulation by actuation of the controlling-bar 7 is especially easy for the closing movement, and a quick upward movement of the controlling-bar 7 to extreme upward position will result in the self-engagement of the locking-bar in upper position with the slats locked in closed position, and this upward movement to locked position may be effected from any position of the slats and bars. Manipulation by actuation of the controlling-bar may, however, be employed for movement from any position except the locked and closed position to any other position—as, for example, to the lowest position of the controlling-bar and locking-bar—a sufficiently quick downward movement carrying the teeth past the guide and stop, as above described. Obviously this manipulation of the controlling-bar is in the closing movement merely the ordinary movement now employed in blinds unprovided with locking means and in the other movements simple and easily learned and in both directions and from all positions excepting extreme closed position permits a quick and ready adjustment to desired position.

The device will be held by gravity in any position to which it has been adjusted. External wind-pressure will be exerted equally above and below the pivotal axes of the slats, but directly against the vertical controlling-bar 7, and will tend to force this bar away from the blind and downward, augmenting the gravity-lock.

As above stated, the connecting-link 15 causes the upper and lower controlling-bars 7 to be connected so that they move together and so that either one may be grasped and actuated. This connecting-link is shaped so as to clear the frame in its movement, curving sharply around the middle bar of the frame.

It is obvious that various modifications may be made in the construction shown and above particularly described within the principles and scope of my invention.

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

1. The combination, with a blind and its slats, of a pivoted locking-bar movable with the slats and having its pivot offset relatively to the general direction of the locking-bar, and a stop for the locking-bar, the bar and stop having a ratchet-toothed engagement only against downward movement of the locking-bar, whereby the locking-bar is momentarily held out of engaging position to permit of the movement of the slats and whereby gravity is utilized to swing the locking-bar into engaged position.

2. The combination, with a blind and its

slats and a controlling-bar for the slats, of a locking-bar pivotally suspended from the controlling-bar with its pivot offset away from the slats relatively to the general direction of the locking-bar, the locking-bar having a plurality of ratchet-teeth engageable only against downward movement of the locking-bar, and a guide and stop for the locking-bar, substantially as shown and described.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN WILLIAM McGRAIN.

Witnesses:

THEO. J. BADGLEY,
LIONEL H. LADAM.