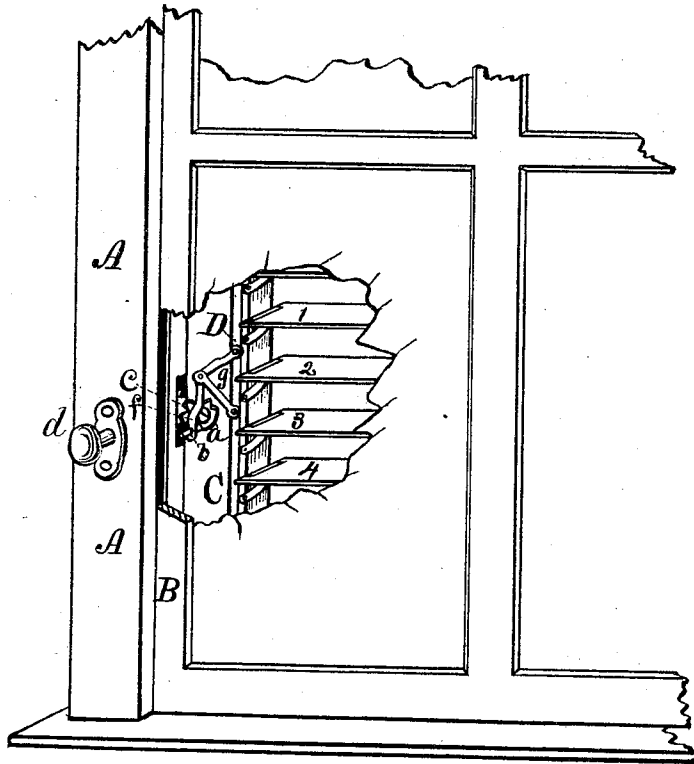


E. C. BYAM.

Window-Blind Slat Operators.

No. 145,842.

Patented Dec. 23, 1873.



Witnesses

J. S. Lewis.
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Eber C. Byam, Inventor

Thomas G. Orwig, atty.

UNITED STATES PATENT OFFICE.

EBER C. BYAM, OF FORT DODGE, IOWA.

IMPROVEMENT IN WINDOW-BLIND-SLAT OPERATORS.

Specification forming part of Letters Patent No. **145,842**, dated Decen. 23, 1873; application filed September 30, 1873.

To all whom it may concern:

Be it known that I, EBER C. BYAM, of Fort Dodge, in the county of Webster and State of Iowa, have invented an Improved Attachment for Operating Window-Blinds, of which the following is a specification:

My invention is an improved attachment for operating the window-blind described in the three United States Letters Patent numbered, respectively, 84,913, 95,737, and 117,001. It consists in attaching a crank-pin to the pinion or toothed wheel on the blind-frame, and in connecting it, by means of a pitman or pivoted link, to the movable rod which carries and adjusts the blind-slats, all as hereinafter fully set forth.

My drawing is a perspective view, illustrating the construction, application, and operation of my invention.

A A represent a window-frame and casing. B is a movable window-sash. C is the stile or side piece of the blind-frame, hinged to the outside of the window-frame in any suitable manner. D is the movable rod, to which the metal ends of the blind-slats are pivoted. *a* is the toothed wheel, pivoted to the surface of the blind frame or stile C.

The teeth or cogs may vary in form and number, and must extend around half-way. The size of the wheel may vary to correspond with windows of different sizes.

b is a crank-pin, cast solid with the wheel *a*, or attached thereto in any suitable manner. It is at the outside or edge of the wheel, and at the point directly opposite the center of the toothed portion. It stands at a right angle from the face of the wheel, and varies in length to correspond with the thickness of the movable rod D and the space in which that rod moves laterally. The wheel *a*, with the pin *b* attached, is pivoted to the inside surface of the blind-stile C, at any point desired, by means of a common screw passed through its center. An elastic washer is placed in a cavity formed in the wood, and a metal washer placed on top of it, before the wheel *a* is attached. The screw is then passed through the wheel *a*, and through the elastic and metal washers, into the wood, to hold the three separate parts together and to the blind-frame. The wheel *a* is thus pivoted and allowed to turn on the axis formed

by the screw. The elastic washer presses the metal washer constantly against the wheel *a*, and prevents friction against the wood, and prevents the wheel moving by force of gravity, and also prevents rattling when operated. *c* is the toothed wheel connected with the shaft, terminating in the knob *d* on the inside of the window. A slot or cornered opening in the center of the wheel *c* admits the end of the shaft, which is shaped to correspond with the opening. A cavity mortised in the wood allows an unrestricted revolving of the wheel by means of the shaft terminating in the knob *d*, or a crank that may be substituted for the knob. An escutcheon secured to the shaft, and then to the window-facing, retains the shaft in its proper place, and also in the wheel *c*, and also forms a bearing in which to turn the shaft. *f* is the pitman-connection between the crank-pin *b* and the movable rod D. *g* is an adjustable fastening, by means of which the pitman or link *f* is secured to the rod D. It consists in two bars elbowed at their right ends to fit on the square corner of the rod D, and to bring their opposite ends close to the face of the wheel *a*. A pin on the left end of the one, and a corresponding hole in the left end of the other, allows them to be hinged together. A corresponding hole in the upper end of the link *f* allows it to be placed between the ends forming the hinge-joint, and thus a link-connection is formed between the ends of the three separate pieces. The width of the stile in the blind-frames varies, and consequently the space between the movable rod D and crank-pin *b* will vary. By spreading or closing the bars of the fastening *g* before fastening them rigidly with screws to the rod D, I can bring the fixed end of the hinged link *f* to the precise point required to form a connection with the crank-pin *b* and wheels *a* and *c*. A hole in the end of link *f* allows it to be passed over and form a loose joint with the pin *b*.

Solid plates of various sizes, having a transverse slot in which the pin *b* can slide, may be used in place of the adjustable fastening *g*.

1 2 3 4 is a series of adjustable blind-slats, connected with the movable rod D.

In the operation of my improvement, the hinged blind must be closed in order to con-

nect the toothed wheels *a* and *c*. My drawing represents the slats 1 2 3 4 in a horizontal and open position, and the pin *b* on the under side. To close the slats, turn the knob *d* to the right, and the wheel *c*, engaging the wheel *a*, will reverse it and bring the crank-pin to the top, and the link *f* will lift the rod *D* a corresponding distance, and thereby turn the slats 1 2 3 4 into a vertical and closed position. The link *f* is now in a straight line between the center of the wheel *a* and the point where it is connected to the fastening *g*, and a dead-center lock will retain the slats in a fixed position, even when the blind is turned out and opened, and the toothed wheels *a* and *c* thereby disengaged.

This dead-center lock is efficient to hold the

slats stationary whenever desired. When the blinds are closed, the slats can be adjusted and held in any position desired by simply turning the knob, and the trouble and danger of opening the window to turn the slats and regulate the light of a room are avoided.

I claim as my invention—

The crank-pin *b* on the toothed wheel *a*, when combined and operated with the movable rod *D* by means of a link or pitman connection, *f*, and the adjustable fastening *g*, substantially as described, and for the purposes specified.

EBER C. BYAM.

Witnesses:

JOHN RUTHERFORD,
C. S. GUILLY.