W. W. BYAM.

BLIND-SLAT ADJUSTER.

No. 182,992. Patented Oct. 10, 1876.

Fig. 1.

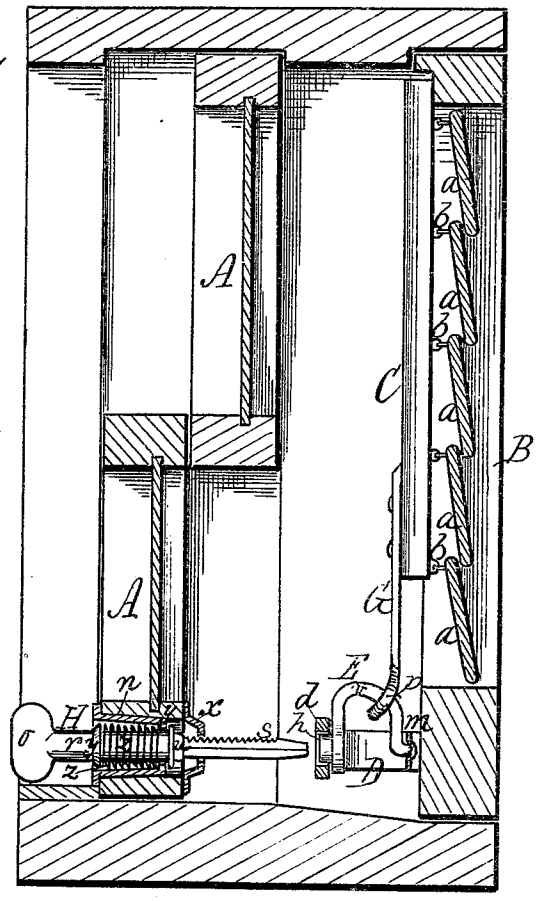

Fig. 2.

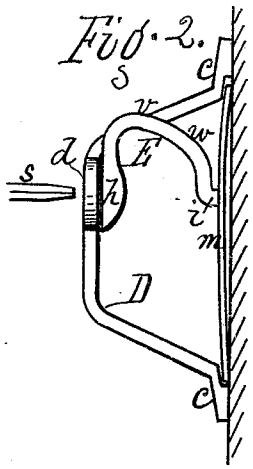

Fig. 3.

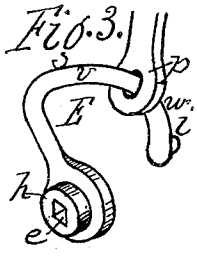

Fig. 4.

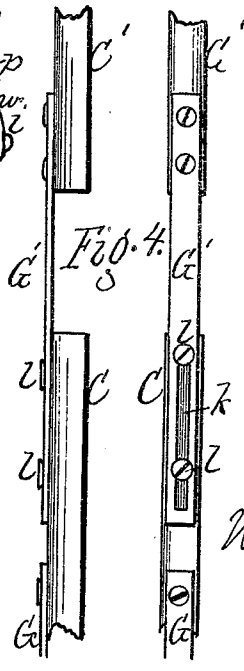

Fig. 5.

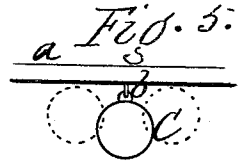

Fig. 6.

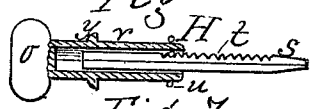

Fig. 7.

Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM W. BYAM, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO E. C. BYAM, OF SAME PLACE.

IMPROVEMENT IN BLIND-SLAT ADJUSTERS.

Specification forming part of Letters Patent No. **182,992**, dated October 10, 1876; application filed February 28, 1876.

To all whom it may concern:

Be it known that I, WILLIAM W. BYAM, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Blind-Slat Adjusters; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical section of a window, showing my improvement applied thereto. Fig. 2 is a plan of the fixture which is attached to the blind. Fig. 3 is a perspective view of the cam. Fig. 4 is a side and front elevation of the connecting-rod. Fig. 5 is a diagram, illustrating the action of the connecting-rod and slats. Figs. 6 and 7 are longitudinal and cross sections of the key.

This invention relates to devices for operating the slats of window-blinds from the inside of the room with the window closed. It is an improvement on the patent issued to me December 14, 1875, No. 171,096; and consists in the novel construction and arrangement of parts hereinafter more fully described and definitely claimed.

A A represent the ordinary sashes of a window. B is the blind. The slats *a a* of the blind are attached in the ordinary manner, and are operated by the usual rod C, which is connected with the slats by hook-and-eye joints *b b*. D is a frame or fixture made of cast-iron, and attached to the lower rail of the blind by feet *c c*, so as to stand off from the rail, as shown in Fig. 2. It has a bearing-head, *d*, with a round hole to receive the hub of the cam, as will presently be described. E is the cam. It is a loop or scroll of cast-iron, in crank form, and has two journals or bearings *h i*, situated in the same axial line. The front journal *h* forms the hub which rests in the head *d*, while the rear bearing *i* is a simple boss, which enters a corresponding socket or cavity formed in the spring-bar *m*. This spring-bar is a narrow plate of cast-iron or other metal, made slightly curved outward, and having its ends resting within or beneath the feet *c c* of the frame D. This bar being made very thin and bowing outward, it forms a natural spring to hold the cam forward against the head *d*, thereby producing friction upon the cam, and enabling the latter to hold its position at any point in its turning movement, and consequently hold the blind-slats fast at any degree of opening. The backward bearing of the cam against the face of this spring-bar has the tendency to expand the ends of the latter against the feet *c c*, by which means it is always retained in place. I find the spring-plate *m* very efficient, since its elasticity is permanent, and it is attached outside, requiring no boring or other fitting. It can also be applied or removed while the frame D is attached in place. G is a connecting-rod attached to the lower end of the blind-slat rod C, and having on its lower end a loop or socket, *p*, which fits upon the crank portion of the cam. It is made close fitting to the cam, but loose enough to allow the proper working of the cam forward and back. The cam is constructed with a crank portion, *v*, in the center, which throws the connecting-rod up and down, and with a spiral length, *w*, on the back side, which draws the connecting-rod out and in to compensate for the turning of the blind-slats in opening or closing. This form of the cam is such, as shown in the drawings, and the fitting of the loop *p* to it is such that as the blind-slat rod C moves up and down to turn the slats it also turns from one side to the other on the axis of the hook-and-eye joints *b b*, and thereby bears bodily against the edges of the blind-slats in all positions of the latter in their turning movement, thereby holding them firmly at all positions by the simple friction of the two parts together. This is clearly shown in Fig. 5. The frame D, when fixed in place, can be adjusted to the lateral throw of the slat-rod in turning upon the joints *b b*, and the movement of the cam E and the axial turning of the slat-rod are so adjusted that they move without binding. G′ is a supplementary rod, connecting the lower slat-rod C with an upper one, C′, where double or divided blinds are employed. This supplementary rod extends across the lower rail of the upper blind. It has a slot, *k*, in which are inserted screws *l l*, Fig. 4. This is for the purpose of allowing the slats of the upper blind to

open but partially, while those of the lower blind open to the full extent. It is frequently the case that the upper blind stands so near the upper sash that the slats of that blind cannot open to the full extent owing to the striking of the slat-rod against the sash. In that case, when the slat-rod C′ strikes the sash the lower slat-rod C slides down in the slot *k* till the lower slats are fully opened, the upper slats meanwhile remaining stationary. The screws *l l* can be placed at any adjustment in the slot *k* to allow the proper action to take place. This same arrangement of the supplementary connecting-rod may be used with single long blinds in which the upper slats can open but part way. H is the key-shaft, by which the cam E is operated. It passes through the lower rail of the sash and strikes into a square socket, *e*, of the hub *h*. To enable the shaft to center itself, the face of the head *d* and hub *h* are made concave. The shaft rests in and passes through a barrel, *n*, of the escutcheon, which is fastened upon the sash-rail, and has upon its outer end a thumb-piece, *o*, by which it is operated. The shaft is composed of two parts, *r s*, one sliding within the other, as shown. The inner part *s* has a series of notches, *t t*, cut into one edge, and into any one of these notches fits a wire, *u*, which encircles the shank of the part *r*, passing through holes of the shank, as represented in Fig. 7. This wire also serves the additional purpose of a stop, striking against the end of the barrel *n* to prevent the withdrawal of the key-shaft from the sash. In the barrel *n* is a coiled spring, *z*, which encircles the key-shaft, resting between the shoulders *y y*, and thereby throwing the key-shaft outward, with the wire stop *u* resting against the end of the bearing, as before described.

To engage the key-shaft with the cam, it is pressed in against the spring, and the moment it is released it is thrown out again automatically. By this means the key-shaft remains disengaged at all times when not forcibly pressed in, and therefore is available for raising and lowering the window-sash. Two of these key-shafts are used in each sash. The adjustment in the length of the key-shaft by the notches *t* and wire *u* is to adapt the length of the key-shaft to different thicknesses of the sash-rail, or to the different distances at which the blind stands from the sash.

Having thus described my invention, what I claim as new is—

1. The combination, with the frame D and cam E, of the spring-plate *m*, arranged to operate in the manner and for the purpose specified.

2. The combination, with the slat-rods C C′, of the supplementary connecting-rod G′, provided with the slot *k* and screws *l l*, as and for the purpose specified.

3. The key-shaft H, constructed with the two adjusting portions *r s*, in combination with the barrel *n* and reaching-spring *z*, as and for the purpose specified.

4. The combination, with the sections *r s* of the key-shaft, of the wire stop *u*, passing through holes of the shank and entering notches in the part *s*, as and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM W. BYAM.

Witnesses:
R. F. OSGOOD,
E. B. SCOTT.