

(No Model.)

W. MORSTATT.  
WINDOW BLIND.

No. 361,019.

Patented Apr. 12, 1887.

Fig. 1.

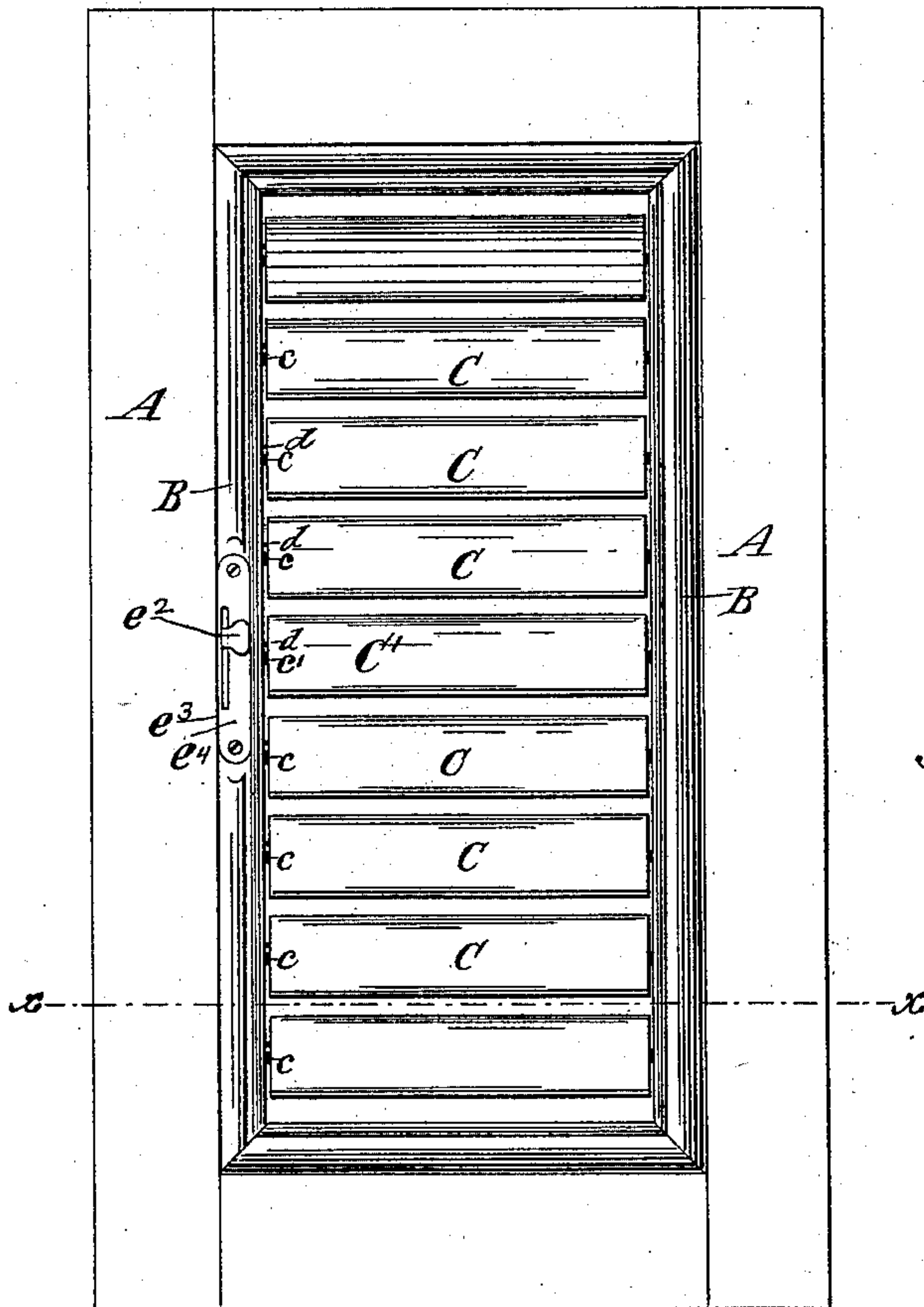


Fig. 3.

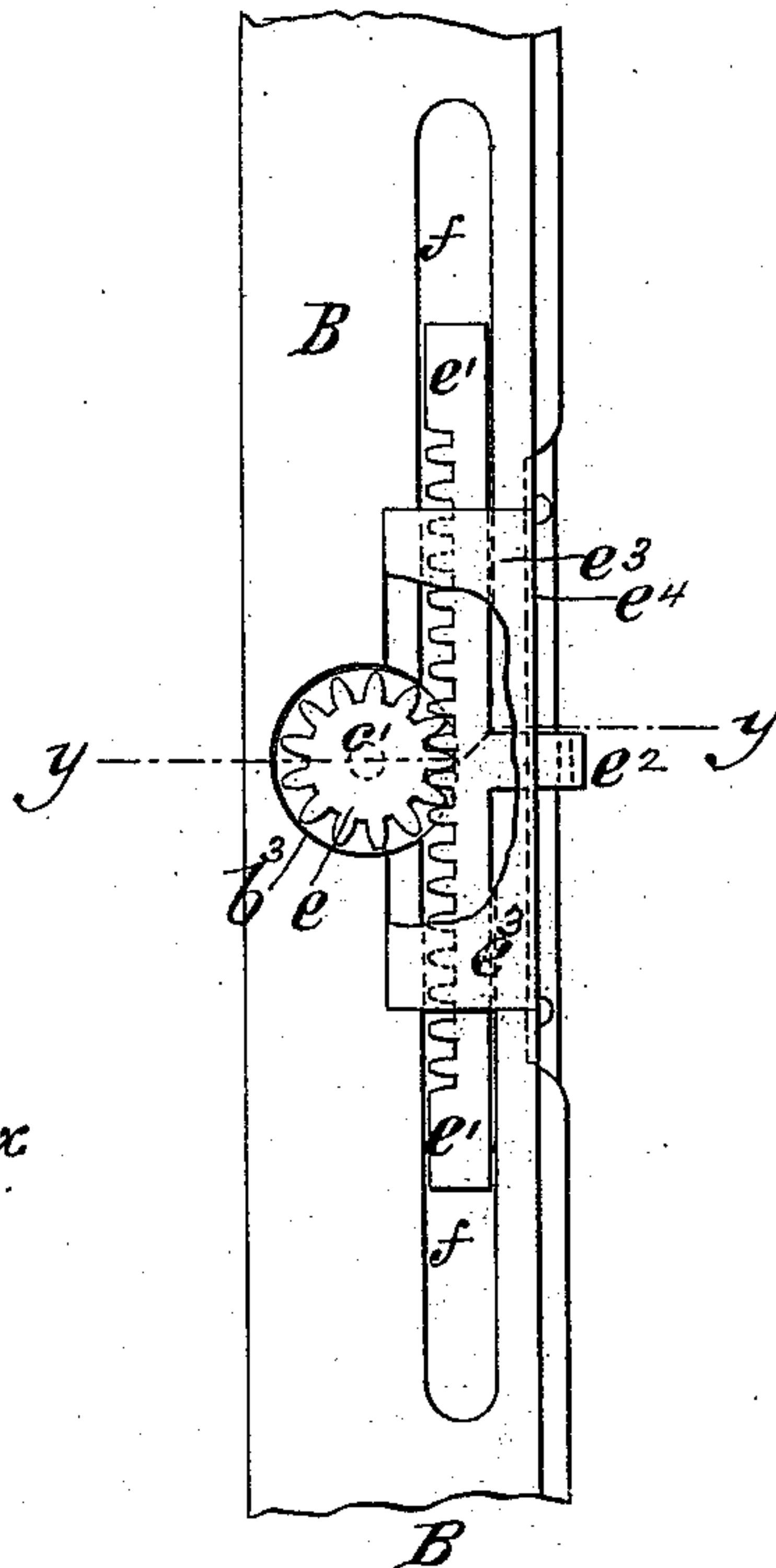


Fig. 2.

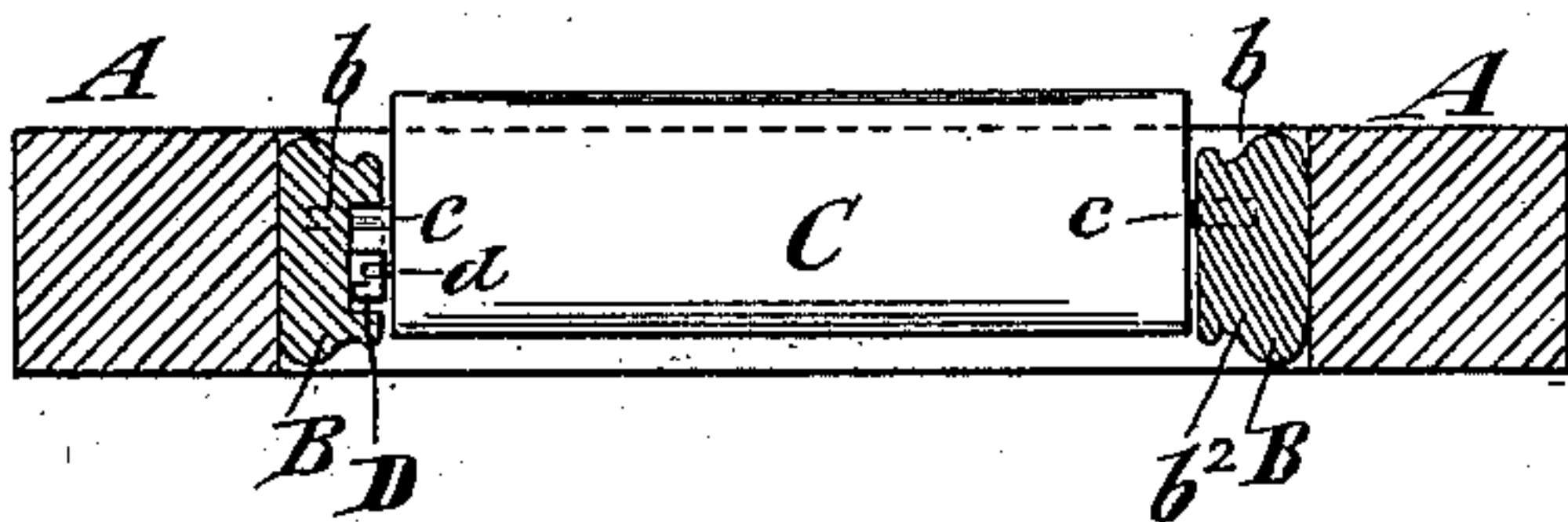


Fig. 4.

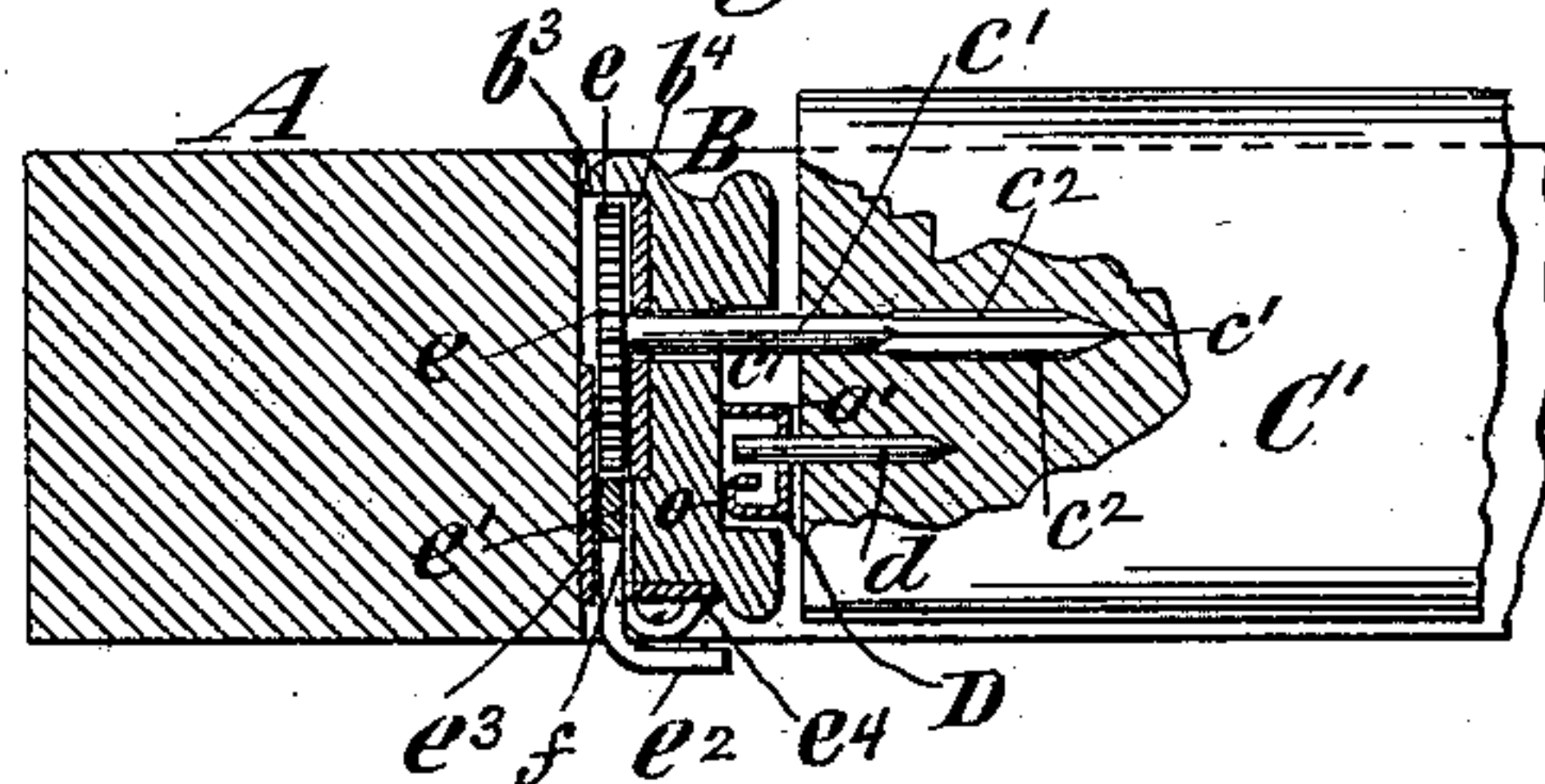


Fig. 5.

Fig. 6.

Witnesses.

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# UNITED STATES PATENT OFFICE.

WILLIAM MORSTATT, OF NEW YORK, N. Y.

## WINDOW-BLIND.

SPECIFICATION forming part of Letters Patent No. 361,019, dated April 12, 1887.

Application filed December 6, 1886. Serial No. 220,783. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM MORSTATT, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Window-Blinds, of which the following is a specification.

My invention relates to that class of blinds in which the series of slats have, in addition to their pivot-pins, by which they are supported in the frame, pins which are eccentric to the pivot-pins, and a rod whereby the several slats are through these eccentric pins connected together, so that the slats will be swung or moved simultaneously in opening and closing them.

In a blind embodying all the features of my invention I secure within the ordinary frame of the blind an inner frame, in which the pivots of the slats are journaled and which may be fitted complete with all the mechanism for operating the slats according to the dimensions furnished and shipped to a distant point, where it is secured within the ordinary blind-frame. The several slats are connected by a rod, which receives pins eccentric to the pivots of the slats, and this rod works on the inner side of the inner frame. The eccentric pins, and also the pivots, are formed by metal pins driven into the ends of the slats, and one of the pivots is prolonged through the upright stile of the inner frame and has secured to it, on the outer side of the inner frame, a pinion, with which engages a rack having a handle accessible at the face of the blind. The pinion and rack are arranged in a suitable recess in the outer surface of the inner frame, and are confined and protected by a covering-plate secured to the inner frame. I term the pivot-pin, on which is the pinion, and the slat in which it is driven, the "master pivot" and the "master slat," because through them the other slats are operated; and in order to give the master pivot a better hold in its slat I prefer to make the portion of the pivot which is driven into the wood substantially round and provided with longitudinal fins, which project from its round surface, and give the pin a better hold in the wood than it would have if square or round and plain.

The invention consists in novel combinations of parts, hereinabove referred to and

hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a face view of a blind embodying my invention. Fig. 2 is a transverse section upon the plane of the dotted line *x x*, Fig. 1. Fig. 3 is an exterior view of a portion of the inner frame upon a larger scale than Fig. 1, showing the mechanism whereby the master slat of the blind is operated. Fig. 4 is a horizontal section upon the plane of the dotted line *y y*, Fig. 3. Fig. 5 is a side view of a portion of a rod of novel construction, which connects the slats; and Fig. 6 is a transverse section of the rod.

Similar letters of reference designate corresponding parts in all the figures.

A designates an outer frame, which may be like the blind-frames in ordinary use, save that no holes need be bored for the reception of the slat-pivots in the side stiles thereof; and B designates an inner frame, which is made externally of a size to fit snugly within the outer frame, A, and there secured.

When blinds are constructed according to my invention, I provide for making the inner frame and all the parts which are contained therein for operating the slats at the factory, and exactly to the inner dimensions of any outer frame which are furnished, and then upon the arrival of the inner frame, with its contained mechanism, at the place where the blind is to be used it will only be necessary to place and secure it in position within the outer frame, A, no cutting of the outer frame being necessary.

In the inner frame are pivoted a series of slats, one of which, C', I term the "master slat," and which is operated, primarily, to produce the simultaneous movement of all the other slats C. The slats are provided with pivot-pins, which may be of brass, and are driven into their ends, and the pin *c'*, which is driven into the end of the master slat C', I may term the "master pivot," while the pins *c*, which are driven into the remaining slats, constitute simple pivots. All the pivots *c* *c'* are properly journaled at *b* in the inner frame, B.

It is through the master pivot *c'* of the master slat C' that all the slats are operated, and



in order to give such master pivot a very firm hold in the wood of the slat C', I have shown it in Fig. 4 as provided with longitudinal fins or projections  $c^2$ , which engage with the wood and prevent the pivot  $c'$  from becoming loose in the slat C', notwithstanding the slight strain which is exerted through said pivot in the direction to turn the slat. The portion of the pivot  $c'$  which is driven into the wood of the slat is substantially round, and the longitudinal fins  $c^2$ , which may have any desired projection from the round surface, give it a much more secure hold in the slat than a square pin would have.

The slats C C' are provided, in addition to their pivot-pins  $c c'$ , with other pins,  $d$ , which are driven into their ends eccentric to the pivot-pins  $c c'$ ; and D designates a rod, extending lengthwise of the blind, and which receives the eccentric pins  $d$  of all the slats. It will therefore be understood that if a turning movement be transmitted through the master pivot  $c'$  to the master slat C', such turning movement will, through the rod D and eccentric pins  $d$ , be transmitted to all the slats C from the master slat. I have here shown a rod, D, as consisting of a strip of sheet metal having its opposite edge portions bent longitudinally of the strip, so as to form parallel flanges  $o o'$ , extending from the strip in the same direction. This rod is advantageous, because it is of considerable thickness in its extreme dimensions and is withal light and strong.

In my allowed application for Letters Patent, Serial No. 202,233, filed May 15, 1886, I have described a rod consisting of a strip having its edge portions folded or bent to form parallel flanges, and one of such flanges has notches to receive the eccentric pins  $d$  when the slats are closed, and which are similar to the notches  $o^2$  in the flanges  $o'$ , as most clearly shown in Fig. 5. The rod D differs from that shown in my former application in having the edge of the flange  $o$  rolled over or inward, as shown at  $o^3$  in Fig. 6 and in Fig. 4. This stiffens the rod and also gives a better and broader surface to bear on the inner side of the inner frame, B.

Upon the outer end of the master pivot  $c'$ , as shown in Fig. 4, is secured a pinion,  $e$ , with which engages a rack,  $e'$ , adapted to slide lengthwise of the blind, and provided with a handle or hand-piece,  $e^2$ , accessible at the front or face of the blind. The outer side of the upright stile of the inner frame, B, is recessed at  $b^3$  to receive the pinion  $e$ , and a wearing plate or disk of metal,  $b^4$ , may be inserted in the bottom of said recess, as shown in Fig. 4, in order to reduce friction and enable the pinion and the pivot which it controls to turn more easily. The said upright stile of the inner frame, B, is, on its outer face or side, recessed, as shown at  $f$ , in Figs. 3 and 4, so as to accommodate the rack  $e'$ , and the rack and pinion are covered by an outer plate,  $e^3$ , which is of angular construction, so that its flange  $e^4$  overlaps the front of the inner frame, B, as shown in Figs. 1 and 4. It will be seen from the above de-

scription that by means of the handle or hand-piece  $e^2$  a sliding movement may be imparted to the rack  $e'$ , and through the pinion  $e$  such sliding movement of the rack will be converted into a rotary movement of the master pivot  $c'$  and a corresponding turning of the master slat C'.

It will be understood that through the rack  $e'$  and the pinion  $e$  the handle or hand-piece  $e^2$  is indirectly connected with the master pivot  $c'$  of the master slat C'.

It is advantageous to have the pinion  $e$ , the rack  $e'$ , and the covering-plate  $e^3$  all recessed into the outer side of the inner frame, B, because then the inner frame will have no projections beyond its plain outline, and may, with all its contained mechanism, be inserted directly into an outer frame, made of proper size for it, without any preliminary cutting or fitting of said outer frame to receive the parts of the blind-operating mechanism.

It is obvious that instead of employing the rod D, of skeleton or box-like construction, such as is shown in my aforesaid Letters Patent, a rod of other ordinary form may be employed.

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

1. The combination, with an outer frame and the inner frame, B, fitting therein, of the slats C C', having pivot-pins  $c c'$  journaled in the inner frame, the pivot-pin  $c'$  of the master slat C' being extended through the upright stile of the inner frame, and having a pinion,  $e$ , secured upon it on the outer side of said inner frame, the eccentric pins  $d$  in the slats, a rod connecting the eccentric pins of the slats and working on the inner side of the frame B, and a rack engaging the pinion  $e$  and having a handle accessible at the face of the blind, substantially as herein described.

2. The combination, with the outer frame and the inner frame, B, fitting therein and recessed on its outer side at  $b^3 f$ , of the slats C, provided with pivots  $c c'$  and eccentric pins  $d$ , inserted directly into their ends, the rod D, connecting the eccentric pins of the several slats C, a pinion secured upon the pivot of one slat, a rack engaging the pinion and provided with a handle accessible at the face of the blind, the rack and pinion being arranged in the recess  $b^3 f$  on the outer side of the inner frame, and a cover-plate,  $e^3$ , applied over the recess  $b^3 f$  and confining the pinion and rack, substantially as herein described.

3. The combination, with a blind-frame, of the slats having their main pivots and the eccentric pins  $d$ , and the operating-rod D, having the longitudinal flanges  $o o'$ , the flanges  $o'$  being notched to pass over the pins  $d$ , and the flange  $o$  having its edge rolled over or inward, substantially as herein described.

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Witnesses:

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FREDK. HAYNES.