(No Model.)

J. NAYLOR.

SHUTTER WORKER.

No. 342,123. Patented May 18, 1886.

Fig. 2

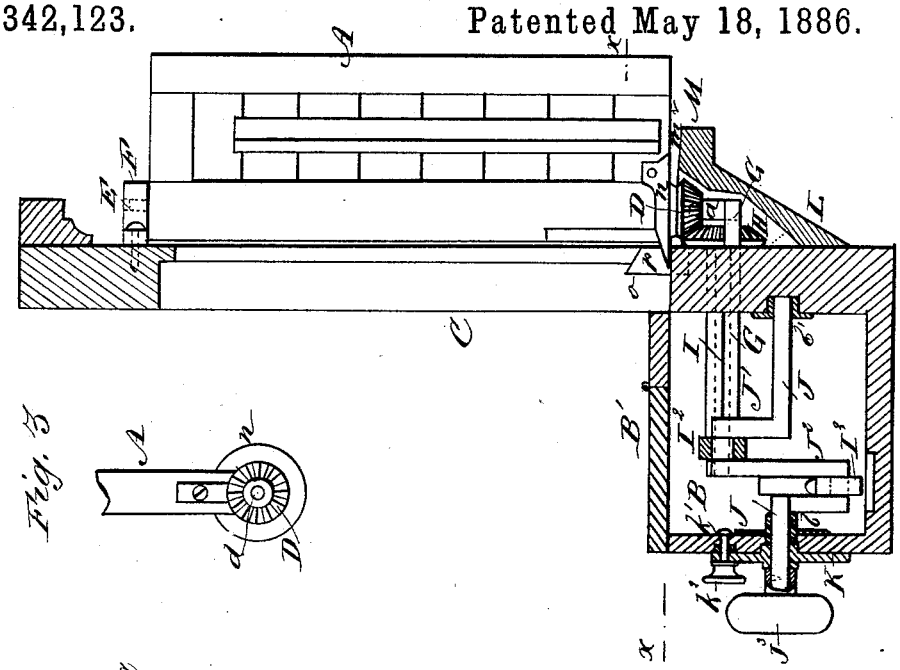


Fig. 3

Fig. 1

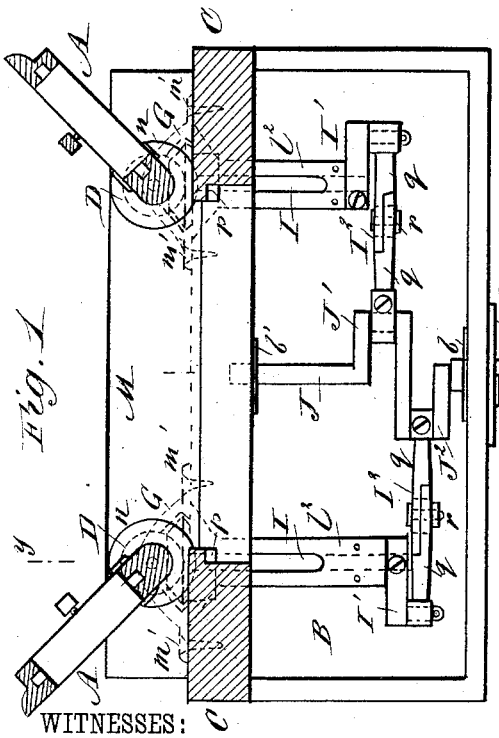


Fig. 5

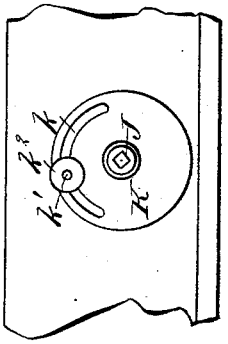
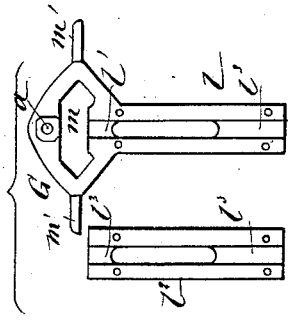


Fig. 4



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JAMES NAYLOR, OF PROVIDENCE, RHODE ISLAND.

SHUTTER-WORKER.

SPECIFICATION forming part of Letters Patent No. 342,123, dated May 18, 1886.

Application filed January 23, 1886. Serial No. 189,470. (No model.)

To all whom it may concern:

Be it known that I, JAMES NAYLOR, of Providence, in the county of Providence and State of Rhode Island, have invented a new and Improved Window-Blind Operator, of which the following is a full, clear, and exact description.

My invention relates to means for operating window-blinds from the inside of the building without opening the window, and to means for operating both of the blinds at the same time and by one knob or operating device.

The invention consists, principally, in combining with the blinds suitable gearing and crank-shafts, the latter being connected to arms of a double-crank shaft, whereby the revolution of the latter will operate both blinds either to open or to close them.

The invention also consists of means for locking the double-crank shaft at any desired position for holding the window-blinds open or closed, or partially open, as desired.

The invention also consists of the special construction of the bracket that supports the window-blinds and extends through the wall of the building and forms a bearing for the crank-shaft.

The invention finally consists in the construction, arrangement, and combination of parts, all as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional plan view taken on the line *x x*, Fig. 2. Fig. 2 is a sectional elevation on the line *y y*, Fig. 1. Fig. 3 is a detail view showing the bottom of one of the blinds. Fig. 4 is a disassembled view of one of the brackets. Fig. 5 is a detail view showing the devices for locking the double-crank shaft.

The mechanism for operating the window-blinds A A is contained within and attached to the inclosure B, which is formed or placed in the wall of the building beneath the window-frame C, or the cover B′ of said inclosure may constitute the window-sill. The lower inner corners of the blinds A are provided with the bevel cog-wheel D, and at their upper inner corners the blinds are provided with the short studs E, which are journaled in the keepers F, attached to the wall of the building, or to the window-frame C. The cog-wheels D are each formed with a central socket, *d*, (see Fig. 3,) to receive an upright step or spindle, *a*, formed upon or secured to the outer end of the bracket G, or other support for the blind. The cog-wheels D mesh with the bevel cog-wheels H, secured to the outer ends of the horizontal shafts I, which pass through the wall of the building and project into the inclosure B. The inner end of each shaft I is provided with a crank, I′, and these cranks are connected by the connecting-rods I^2 to the cranks J′ J^2 of the double-crank shaft J, which is journaled midway between the shafts I I in the socket-plates *b b′*, secured to the walls of the inclosure B. The outer end of the double-crank shaft J is provided with a crank or knob, J^3, for revolving the double shaft J, which will act, through the connecting-rods I^2, cranks I′, shafts I, and bevel gear-wheels, to simultaneously swing the blinds A open or closed, according to the direction in which the shaft J is turned.

Upon the shaft J, inside of the inclosure B, is secured a metal disk, K, in which is formed a circular slot, *k*, struck from the axis of the shaft J as a center, and in the outer wall of the inclosure B is secured a screw-threaded bolt, *k′*, which projects through the slot *k*, and on the outer end of this bolt outside of the plate K is placed a thumb-nut, k^2, which, when screwed down upon the bolt, serves to lock the plate K, and through it the shaft J, in any desired position, so that by this means the window-blinds A may be conveniently locked in an open, a closed, or a partially-closed position.

While various forms of brackets for supporting the blinds at the bottom may be used, I prefer the brackets G, which also constitute the bearings for the horizontal shafts I. The brackets are by preference made of malleable cast-iron, each with an arm, *l*, which reaches through the walls of the building, and is grooved, as shown at *l′*, to receive the shaft. A cap-plate, l^2, formed with a groove, l^3, is provided, corresponding in size with the arm *l*, and adapted to be placed upon said arm and secured by screws or other suitable means for

holding the shaft in the bearing. The outer end of each bracket G is diamond-shaped, as shown in Fig. 4, and is formed with an opening, *m*, to receive the bevel cog-wheel H, and supports the upright stud *a*, above mentioned, outside the gear-wheels H. The side angles of the bracket are each formed with a plate, *m'*, through which bolts or screws may be passed for securing the bracket to the wall of the building, or to the window-sill.

For protecting the brackets G and the gearing from the weather, I inclose them with housings L, of wood or metal, secured to the wall of the building under the window-sill M, and to prevent snow and rain from passing through the openings m^2, made in the sill M, I secure to the blinds the circular shields *n*, which entirely cover the openings m^2 and run in close contact with the upper surface of the sill, as shown clearly in Figs. 1 and 2.

A notch, *o*, is made in each side of the window-frame C, to form a clearance for the flanges or shields *n*, and these notches are by preference dovetailed, as shown in Fig. 2, each to receive a block or key, *p*, which, acting in connection with the flanges *n*, prevents the blinds A from upward movement, so that there is no danger of the blinds being blown from their hangings by the wind. By removing the blocks *p* the blinds A may easily be detached from their hangings and taken down for repairs.

The connecting-rods I^2 are each made of two parts, *q*, connected together by a bolt, *r*, which passes through corresponding slots made in the sections *q*, so that by loosening the bolts *r* the connecting-rods may be adjusted as to length to suit the window-blinds.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the blinds and the horizontal crank-shafts I, and gearing connecting the shafts with the blinds, of the double-crank shaft J, the cranks of which are connected to the cranks of the shafts I, substantially as and for the purposes set forth.

2. The combination, with the blinds, horizontal crank-shafts connected to the blinds by gearing, and a double-crank shaft connected to the cranks of the horizontal crank-shafts, of a slotted plate on the double-crank shaft, and a thumb-screw working in the slot of the said plate, substantially as herein shown and described.

3. The bracket G, for supporting the blinds, formed with the arm *l*, to pass through the wall of the building, said arm being grooved to receive the shaft I, substantially as and for the purposes set forth.

4. In a window-blind operator, the combination, with a window-sill having an opening in it for receiving the gearing which operates the blinds, of shields *n*, secured to the blinds, for covering the said openings, substantially as herein shown and described.

5. The window-frame C, notched, as shown at *o*, and the window-blinds provided with the flanges *n*, in combination with the block *p*, arranged to fit in the notch *o* above the flange *n*, substantially as and for the purposes set forth.

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