

N<sup>o</sup> 21,648.

*Patented Oct. 5, 1858.*





# UNITED STATES PATENT OFFICE.

S. W. BIDWELL, OF HARTFORD, CONNECTICUT.

## ROLLING WINDOW-BLIND.

Specification of Letters Patent No. 21,648, dated October 5, 1858.

*To all whom it may concern:*

Be it known that I, S. W. BIDWELL, of Hartford, county of Hartford, in the State of Connecticut, have invented a new and useful Improved Window-Blind; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in an improved "roller blind" for windows as hereinafter fully described.

To enable those skilled in the art to make and use my improvement, I will proceed to describe its construction and operation.

In the accompanying drawings, Figure 1, represents a perspective view of a window with my improvement attached thereto. Fig. 2, represents a horizontal section on line *x, x*, Fig. 1. Fig. 3, represents a perspective view of one end of roll and blind wound up (increased scale) and Fig. 4, represents a vertical section through the center of "friction roll fixture."

Similar letters denoting the same parts in different views, A represents the frame of a window in which is arranged one of my improved blinds.

B, represents the blind, which is formed of slats arranged between tapes, *a, a*, in a manner very similar to a "Venetian blind"; the tapes *a, a*, simply passing over the roller and fastened thereto by screws or tacks as seen at *a'*, (Fig. 1.)

C, is the roller or stick on which the blind is wound and which is furnished at one end with a simple grooved face pulley D, and at the other with a cone pulley E having in its face a helical groove; the said shaft or roller, C, has projecting at either end a toothed stud, or pinion rod *i*, which rest upon and meshes into a horizontal rack *k*, which is let into the frame A, of the window (see Fig. 2), *d*, is an endless cord, passing over the pulley D, and also around a friction pulley, in the case *e*, (see Fig. 1,) which will presently be described.

*b* is a single cord, the upper end of which is fastened to the helically grooved pulley E, and to the lower end of which is secured a weighted tassel *c*, for purposes to be explained.

*e*, is a metallic case, or hollow disk, the form of which will be understood by examination of the drawings, where said case is seen in perspective at Fig. 1, and in section

at Fig. 4. The upper portion of the rim *e'*, of said case *e*, is slotted out (as seen at O) to accommodate the endless cord *d*, which passes down into said case *e*, and around a pulley *m*, which lies within the said case, (see Fig. 4,) said pulley *m*, has its central portion cut away as represented at Fig. 4, or consists of an annular ring, with a groove in its external face to accommodate the cord *d*, and of a thickness such that it will just lie, and freely turn, between the inner surface of the case *e*, and the side of the window frame, to which the said case is secured (by the screw *f* as will be directly described).

In the face of the case, *e*, is formed a vertical slot, or opening, *r*, (see Fig. 4,) through which passes the screw *f*, and which allows the said case to move up and down, around the screw *f*, when desired. In the lower extremity of the case, *e*, is an eye, *s*, through which passes a short cord, *t*, to which is attached the weighted tassel, *g*.

It will be observed that the pulley, *m*, is somewhat less in diameter, than the interior of the case, *e*, so that it comes in contact with said case only at a point, *v*, the object of which contact, is to create a sufficiency of friction to retain the blind in any position to which it may be adjusted.

The operation of my improved rolling blind is as follows (supposing the parts to be constructed and arranged together and in the frame as illustrated in the drawings and hereinbefore described, and the blind down as seen at Fig. 1). It is desired to roll up, the blind, take hold of the endless cord, *d*, at the nearest side and pull down, which causes the shaft C, to revolve and wind the blind on it (as seen at Fig. 3) since the shaft, C, receives its support, by the pinion rods, *i, i*, resting in the horizontal racks, *k, k*, it is evident that as said shaft rotates on its axis, it also travels in a horizontal plane; so that, supporting the said shaft or roller to occupy the position represented by the red lines (in Fig. 2) when the blind is down, by the time the blind shall have been wound up, the said roller will have traveled forward, in a horizontal plane, and arrived at the position illustrated by the black lines (in Fig. 2). The object of this traverse, to the roller, C, is to cause the blind in all its variable positions, or when wound up more or less to lie in the same vertical plane or the same dis-



tance, from the window sash, and constitutes an important feature of my invention.

As the blind is wound up (by pulling the cord, *d*, as just described) the single cord, *b*, unwinds from the helically grooved pulley E, so that, by the time the blind has been wound entirely up (as seen in Fig. 3), so that its weight acts directly upon the axis of the roll C, or in such manner as to produce in said roll no tendency to rotate on its axis, the cord *b*, has been entirely, unwound, from the pulley E, and hangs from the center of the said pulley so that its weighted tassel, *c*, produces in the roller, C, no tendency to rotate on its axis. As the blind unwinds from the roller C, its weight, becoming pendant from a point distant from the axis of the said roller, causes a tendency in the said roller to rotate on its axis, but this tendency is neutralized by that produced (in an opposite direction) by the weighted tassel, *c*:—the cord, *b*, of which, winds up in the helical groove in pulley E as the blind unwinds. Thus it will be seen, that, the blind and weighted tassel, about balance each other in any position, rendering the great friction on the roller C, which would be necessary to balance the weight of the blind, unnecessary, and only a very slight pull, requisite, to either raise, or lower (wind or unwind) the blind; and this desideratum constitutes another feature of my improvement. Although the weighted tassel, *c*, may be arranged so as to balance, the blind exactly, in any position, still owing to the peculiar bearings which the roller receives (which create scarcely any friction) the nicest adjustment would be requisite in putting up the fixture; which is objectionable, since the blind could only be properly put up by one very skillful, and since my invention has among its objects that of simplicity, in arrangement and ready adaptation, to circumstances, I insure the retention of the roller, C, at any desired point in its plane of motion by the application of a small amount of friction, by means of the "weighted friction fixture," constructed and arranged as hereinbefore described and which operates in the following manner: The endless cord, *d*, passing over the pulley D, and around the friction pulley *m*, and the weighted case, *e*, (held laterally by the screw *f*,) being suspended upon, the pulley *m*, friction is created, between the upper side of the pulley *m*, and the rim of the metallic case, at the point, *v*, (as before described) sufficient, to insure the retention of the blind. Since the roller moves backward and forward in a horizontal plane, it is obvious, that the pulley *m*, cannot remain in one position, and maintain the same degree of friction, because the distance, between the pulleys D, and *m*, is constantly varying; to

overcome this difficulty, in a stationary pulley at *m*, I construct the pulley *m*, as before described, with its central portion cut away, and the case, *e*, with a vertical slot, *r*, in its face, by which peculiarities, the pulley *m*, becomes capable of elevation and depression, moving up and down, carrying with it the metallic case *e*, with its weighted tassel, *g*. It will be observed that by this arrangement the requisite and a uniform, friction, is maintained, while the pulley D, is constantly varying its relative position with the frame A. When the window is of such size that the variation of distance, between the center of pulley D and the screw *f*, is practically nominal, the said screw *f* may be tightened down into the case, *e*, and the latter fastened, against the side of the frame permanently.

The friction produced by the fixture above described is also necessary, in the "shifting of the slats" when the blind is down; which is accomplished, by partially rotating the shaft, in a direction opposite to that in which it turns when winding up the blind, and by virtue of the tapes *a*, *a*, passing around the roller and secured thereto as seen in the illustrative sections in the drawing, marked "diagram," where the operation is fully shown.

Having now fully described the construction and operation of my improvement, what I claim therein as new and desire to secure by Letters Patent is—

1. So hanging, the roller, C, upon which the blind is hung, that it shall traverse in a horizontal plane (or nearly so) by means of the racks *k*, *k*, and toothed journals *i*, *i*, or their equivalent, substantially as and for the purpose hereinbefore set forth.

2. In connection with the above the combination, with a rolling blind, of a weighted cord *b*, arranged with a helically grooved pulley E, on the end of roll C, or in any other way substantially the same, for the purpose of counteracting, the weight of the blind, as hereinbefore described.

3. The combination, with the traversing roll C, of a weighted, self adjusting, "friction fixture," consisting, essentially of a weighted case, *e*, and inclosed pulley *m*, the whole constructed and operating substantially as described for the purpose set forth.

4. So arranging the tapes, *a*, *a*, of a rolling blind, with the shaft C, on which the slats are wound; that the slats may be shifted by the partial rotation of the said shaft as hereinbefore described.

In testimony whereof I have hereunto set my hand this day of August, 1838.

S. W. BIDWELL.

Witnesses:

GEO. S. GILMAN.

C. E. WILLIAMS.