

W. M. LANPHERE.
SHUTTER-WORKER.

No. 174,963.

Patented March 21, 1876.

Fig. 1

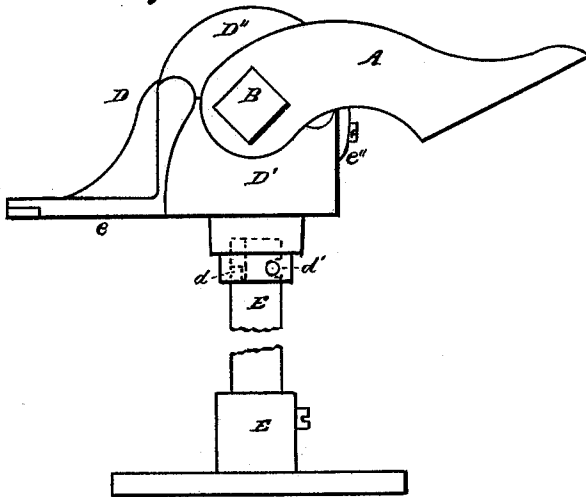


Fig. 2

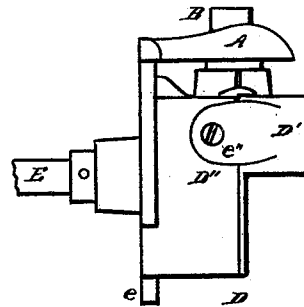


Fig. 3

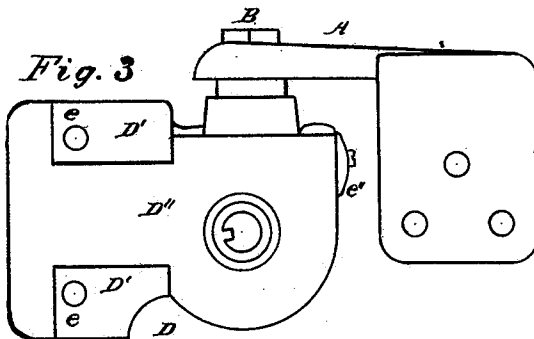


Fig. 4

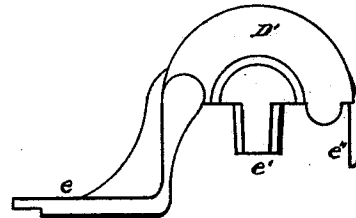
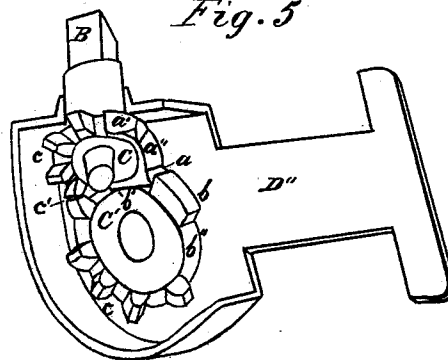


Fig. 5



WITNESSES.

Ullman Strong.
H. M. Matthews

INVENTOR

William M. Lanphere
By F. T. Warner
his atty.

UNITED STATES PATENT OFFICE.

WILLIAM M. LANPHERE, OF WATERLOO, IOWA.

IMPROVEMENT IN SHUTTER-WORKERS.

Specification forming part of Letters Patent No. **174,963**, dated March 21, 1876; application filed February 19, 1876.

To all whom it may concern :

Be it known that I, WILLIAM M. LANPHERE, of Waterloo, in the county of Black Hawk and State of Iowa, have invented certain new and useful Improvements in Shutter-Workers, of which improvement the following is a full, clear, and exact description, which will enable others skilled in the art to which my invention appertains to make and use the said improvements, reference being had to the accompanying drawing, forming a part hereof, and in which—

Figure 1 is a top or plan view of a shutter-worker embodying my invention; Fig. 2, an end elevation; Fig. 3, a rear elevation; Fig. 4, a top or plan view of the outer part of the box or case, and Fig. 5 a perspective of the other part and of the gears arranged therein.

Like letters of reference indicate like parts.

My invention relates to that class of shutter-workers, in which beveled gears are employed to regulate the position of the shutter, by the aid of an actuating rod or handle arranged for access within the building.

My object is to so construct these gears or wheels that they may be locked and unlocked with facility by the same act or operation by which they are turned in order to regulate the position of the shutter or blind, and so that the latter will be thereby fastened at the termination of movement in either direction, and be incapable of being unlocked except by means of the rod or handle above referred to. I also aim to improve the construction of the box or bearings in which the gears are arranged. For the purpose of accomplishing these objects my invention consists, first, in the novel manner of constructing the cogs, and in the peculiar way in which they are arranged with relation to each other; and, second, in the novel manner of constructing the box or bearings for the gears, all substantially as hereinafter set forth.

In the drawing, A represents an arm, or that part of the hinge which is attached to one end or corner of the shutter or blind. In the outer end of this arm is a polygonal hole or opening, which receives a correspondingly formed end of the spindle or pintle B, on which is fastened the beveled gear C. This spindle has a bearing in the box or case D,

and C' is a beveled gear, the hub of which also has a bearing in the box D. These gears are arranged to engage each other. To the hub of the gear C' is attached the actuating rod or handle E, intended to extend into the interior of the building for convenience of access, the box and its contents being arranged on the outside of the window-case or building. When this handle is turned in either direction, the shutter will be turned in a corresponding direction. In order to cause the shutter to be locked when it is either entirely open or shut, I make two broad cogs or spurs, *a* and *a'*, on the gear C, and between these spurs the perimeter of the gear is smooth, as shown at *a''*. I also make a broad cog, *b*, on the gear C', and on both sides of this cog are the cogless spaces *b'* and *b''*. *c c* are smaller cogs consecutively arranged. The spaces *b'* and *b''* are longer by about the width of one of the cogs *c c* than the cogs *a* and *a'* are broad. When the cog *a*, therefore, finds the space *b'*, the gear C' will slip until the outer faces or ends of the cogs *c c* (which are nearest to the cog *a*) stand together, as shown at C', and the cogs *a* and *b* are also then in contact. When the cogs are in this position the shutter is locked. The gear C', however, can be turned in the reverse direction by means of the rod or handle E, and this movement will release the gear C and move the shutter around a full semicircle, when it will be again locked, for the reason that the cog *a'* will then have found the space *b''*, and a slipping and locking movement similar to that already described will then take place. A reverse movement of the handle E will result in unlocking the shutter, and returning it to its original position. The outer ends of the terminal cogs *c c* should be beveled or flattened, so that when they stand together, as shown at C', they will not be likely to slip apart accidentally and thus unlock the blind. The handle E may be made to operate the hub of the gear C' by making the hub hollow, and fixing therein a key, *d*, entering a longitudinal groove in the end of the handle. The handle may be fastened in place by means of a pin, *d'*, passing through the hub and entering a groove or notch on the side of the handle, as represented by the broken lines in Fig. 1. The

handle is thus rendered easily removable by removing the pin *d'*, but may be made removable, and so as to engage and work the gear *C'* in various other ways.

I do not, therefore, here claim the particular way of producing these results, as herein shown and described, neither do I intend to limit myself thereto. I make the box *D* in two parts, *D'* and *D''*, and in such a manner that these will, when arranged together, entirely inclose the gears, and so that each part may be cast with facility, and the box, as a whole, be simple, compact, strong, and well adapted to the purpose for which it is intended. It will be perceived that the part *D'* is adapted, by means of the flange *e*, to be fastened to the building; that it is provided with an interior post, *e'*, arranged to form a bearing for the lower spindle of the gear *C*, and to prevent the gear *C'* from being crowded in upon the gear *c*; that it clasps or engages the part *D''*, so as to hold the latter firmly in place. The employment of a small screw passing through the lip *e''* is preferable to aid in holding the parts of the box together. The body of the box is rectangular, so as to accommodate the gear, and at the same time be compact.

I am aware that shutters have heretofore been worked by means of beveled gears, and I do not here claim such, broadly, for that purpose; but

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

1. The combination, in a shutter-work-er, of beveled gears, provided, in addition to the ordinary working spurs, with broad cogs or locking-spurs, and correspondingly broader cogless parts, the said cogs and spaces arranged substantially as specified, with relation to each other, for the purposes specified.

2. The case or box *D*, consisting of the parts *D'* and *D''*, the part *D'* having therein the post *e'*, and both constructed, substantially as shown and described, to match each other, and for attachment to the building, in combination with gears and their spindles or arbors, having bearings therein, a shutter-arm, and a rod or handle for actuating the gears, for the purposes set forth.

WILLIAM M. LANPHERE.

Witnesses:

J. C. SMITH,
F. F. WARNER.