





# UNITED STATES PATENT OFFICE.

CARL AUGUST BERGERSEN, OF PALMERSTON NORTH, NEW ZEALAND.

## APPLIANCE FOR RAISING OR LOWERING WINDOW-SASHES.

SPECIFICATION forming part of Letters Patent No. 775,122, dated November 15, 1904.

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*To all whom it may concern:*

Be it known that I, CARL AUGUST BERGERSEN, engineer, of Palmerston North, in the Colony of New Zealand, have invented an Improved Appliance for Raising or Lowering Window-Sashes and Retaining Them in Any Desired Position, of which the following is a specification.

This invention consists in apparatus enabling window-sashes to be operated by means of worms mounted in the window-frame engaging with racks fixed to the sash.

Means are also provided for readily inserting the sash after the rack is fixed.

By my invention sash-weights are dispensed with.

The drawings illustrate the invention.

Figure 1 is an elevation of a window with my invention in position; Fig. 2, an elevation of the worm and its mechanism; Fig. 3, a plan of the same; Fig. 4, an elevation of the face of the worm; Fig. 5, a view of a key; Fig. 6, a section of the side of the window-frame opposite to the worm and mechanism.

The worm 1 is mounted in a bearing 2 of the bracket 3, which is fixed to the window-frame 4. A bevel-pinion 5 is fixed upon an axle 6 of the worm and meshes with a bevel-wheel 7, fixed to a spindle 8, mounted in the said bracket. The outer end 9 of this spindle is made to receive a key 10, which is preferably made with a cylindrical socket 11, which fits the end 9 of the spindle 8, and with slots 12 to engage pins 13, projecting radially from the spindle. The end 9 of the spindle passes into the architrave on the inside of the building, so that the key may be applied and operated from the interior of a room only. The wheel 7 is fixed to its spindle by a pin 14, which passes through a boss 15 of the wheel and through the spindle. Holes 16 are provided, whereby the spindle may be made to project through the toothed wheel more or less to suit different thicknesses of window-frames.

The worm 1 engages the teeth 17 of the rack 18, which is sunk into a groove 19, formed in the sash-frame 20, and is secured therein by pins 21. The teeth of the rack project beyond the edge of the sash. The

sashes are raised or lowered by placing the key 10 in position on the end 9 of the spindle 8 and rotating the wheel 7 to turn the pinion 5 and the worm 1, which causes the rack 18 and the sashes to travel up or down, as required. Until the worm is revolved the rack cannot be raised or lowered, and as the key can be worked from the interior of the room only the sashes are so secured at any desired height that they cannot be opened or shut from the outside. Rollers 22 are fitted into the sides of the sash to overcome friction on the side opposite to the worm.

The teeth 17 of the rack run in a groove 23, formed in the frame, and in order to readily insert the sash with the teeth so projecting I make the opposite side of the frame as shown in Fig. 6. In this figure, 24 is the architrave; 25, the outer molding; 26, the frame; 27, the top or outer sash; 28, the lower or minor sash; 29, the parting-bead, fitting against a shoulder 30, formed upon the frame. The parting-bead is integral with a batten 31, which has tenons 32 and 33 let into mortises at the top and bottom of the frame. The top mortise is deeper than the bottom one, and the batten is inserted by placing the top tenon 32 in its mortise and then dropping the lower tenon 33 into the bottom mortise. The batten is met by a stile 34, which has a rabbet 35 to fit against the architrave. The stile is mitered at the top and bottom of the window to meet corresponding upper and lower rails 36 and 37 and is further held in position by hooks 38, which engage studs 39 upon the architrave.

To remove the sashes from the frame, the hooks 38 are unhooked from the studs 39, the stile 34 removed, and the sash 28 taken out. The batten 31, with its bead 29, is then removed, when the sash 27 can be taken out. This ready means for removing the sashes also affords facility for cleaning the windows on the outside.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

In apparatus for the purpose described, in combination, a worm mounted on an axle

revoluble in a bracket fixed to the window-  
frame, a toothed pinion fixed upon the axle  
of the said worm, a toothed wheel gearing with  
the pinion and fixed by a pin passing through  
5 its boss upon a spindle revoluble in the said  
bracket, pins projecting radially from the  
spindle, a key having a socket to fit the spin-  
dle and slots to engage the pins projecting  
from the spindle, the said spindle having a  
10 number of holes to adjust the distance at which

it projects through the toothed wheel, and a  
rack fixed to the side of the sash, the teeth of  
the rack engaging with the worm, substan-  
tially as set forth.

Dated this 26th day of November, 1903. 15

CARL AUGUST BERGERSEN.

Witnesses:

E. P. O'DONNELL,

G. A. ELLIS.