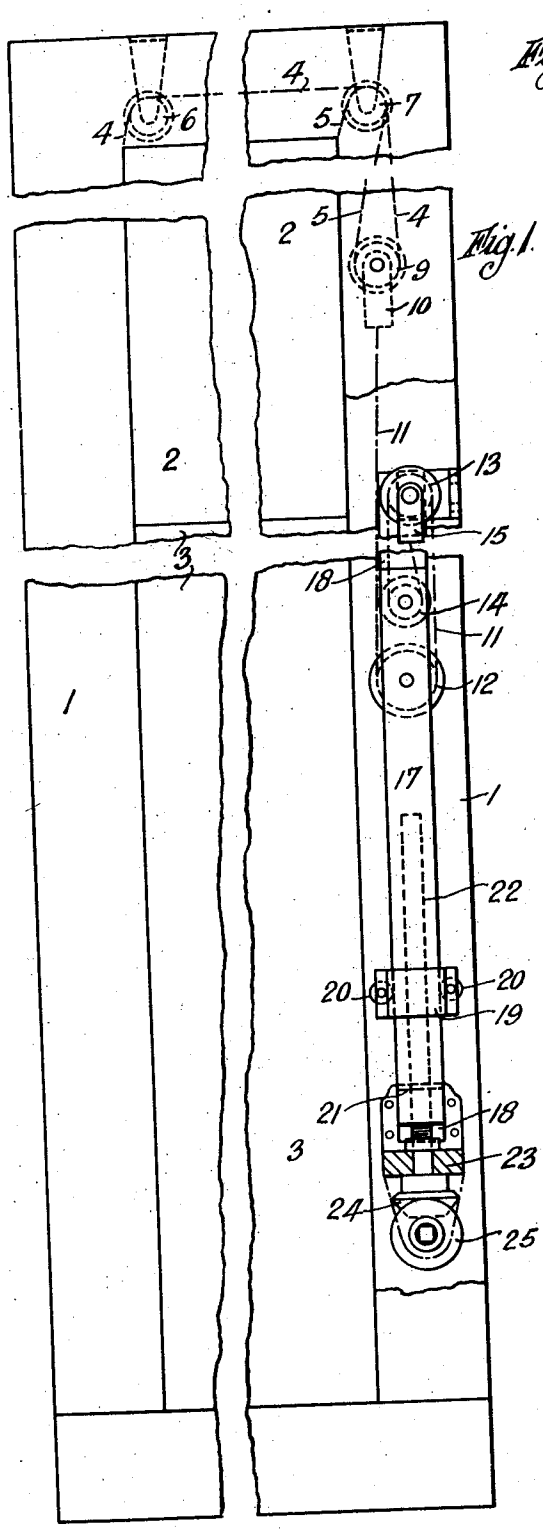
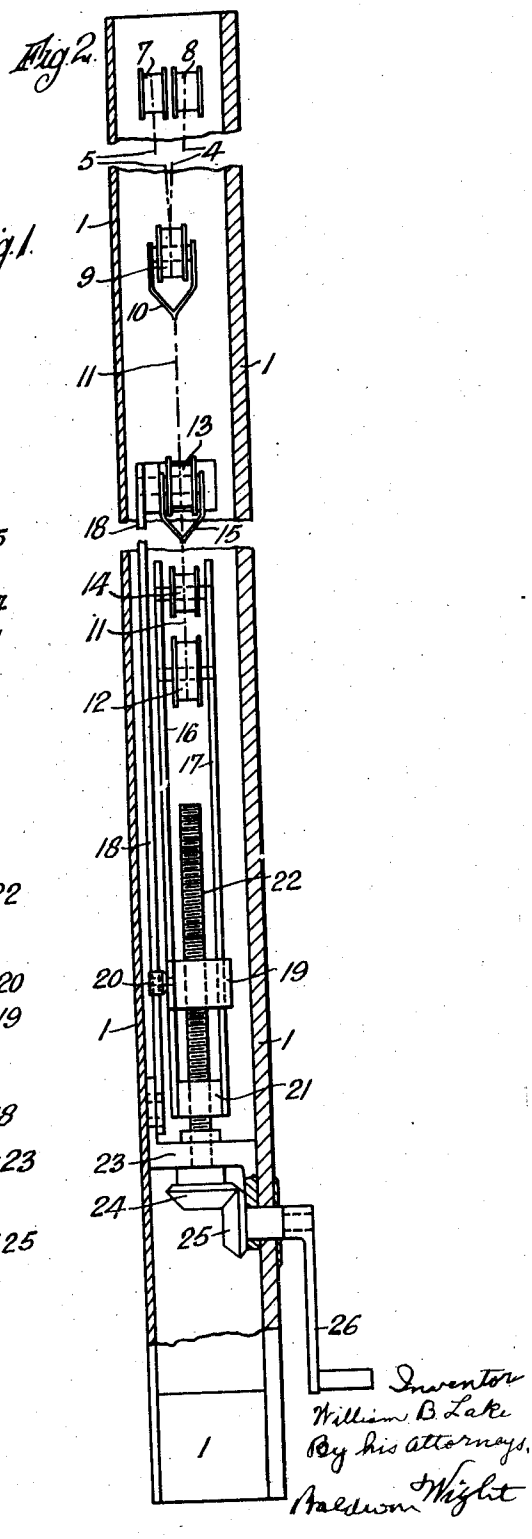
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MEANS FOR OPENING AND CLOSING WINDOWS

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MEANS FOR OPENING AND CLOSING WINDOWS

Application filed March 24, 1931, Serial No. 524,948, and in Great Britain February 21, 1930.

This invention relates to means for opening and closing windows.

The object of the present invention is to provide improved means for opening and closing sliding windows by means of reduction gearing.

In mechanism constructed according to the present invention the sash lines are actuated by pulley tackle which is itself actuated by reduction gearing, preferably of the irreversible type, such as a threaded rod and nut. The employment of pulley tackle enables the movement of the windows to be multiplied to any desired extent for a given movement of the tackle, and thereby enables economy to be effected as regards the head room required for housing the tackle, and the irreversible reduction gearing automatically holds the window in any desired position.

Preferably all the pulleys of the tackle, and consequently the sash lines, lie in the same plane.

In the accompanying drawings which illustrate the invention, Figure 1 is a front elevation and Figure 2 a section at right angles to Figure 1.

1 is a sash frame, and 2, 3 top and bottom windows respectively. 4 and 5 are chains which are connected to the top of the window 2 and pass over pulleys 6, 7 and 8, carried by the sash frame, and around a pulley 9, the ends of the chains being either joined or connected to the pulley 9.

A Y-piece or yoke 10, in which the pulley 9 is mounted, is connectd to a chain 11 which passes around a pulley 12, then around a pulley 13, around a third pulley 14, the end of the chain being secured to a Y-piece or yoke 15 carried by the spindle on which the pulley 13 is mounted.

The spindles of the pulleys 12 and 14 are mounted in a pair of plates 16, 17 which together form a sliding member.

18 is a guide plate which is secured at its lower end to the sash frame 1.

Secured to the plates 16, 17 is a bracket 19 carrying rollers 20 which bear against the guide plate 18. Secured to the bottom of the plates 16, 17, is a block 21 having a screw-threaded hole engaged by a threaded rod 22 which is rotatably mounted in a bracket 23 fixed to the sash frame 1. The block 21 and threaded rod 22 form an irreversible reduction gear.

The lower end of the rod 22 is provided with a bevel gear 24 in mesh with a second bevel gear 25 rotatably mounted in the sash frame 1.

26 is a handle by means of which the bevel gear 25 can be actuated.

In operation, if it be desired to lower the window, the handle 26 is turned by the operator, thus rotating the rod 22 through the gearing 24, 25: this in turn allows the sliding member carrying the pulleys 12, 14, to rise, so that they approach the pulley 13 and pay out the chain 11 which in turn allows the pulley 9 to rise and the window to descend. When the operator ceases to turn the handle 26 the irreversible gear automatically holds the window in position.

What I claim is:—

1. In mechanism for opening and closing windows, pulley-tackle, sash lines passing over the pulleys of the tackle and adapted for operative mounting with respect to the window and reduction gearing through which the pulley tackle is operated.

2. In mechanism for opening and closing windows, pulley tackle the pulleys of which lie in the same plane, sash lines passing over the pulleys of the tackle and adapted for operative mounting with respect to the window, and reduction gearing through which the pulley tackle is operated.

3. In mechanism for opening and closing windows, pulley-tackle, sash lines passing over the pulleys of the tackle and adapted for operative mounting with respect to the window and irreversible reduction gearing through which the pulley tackle is operated.

4. In mechanism for opening and closing windows, pulley tackle the pulleys of which lie in the same plane, sash lines passing over the pulleys of the tackle and adapted for operative mounting with respect to the window, and irreversible reduction gearing through which the pulley tackle is operated.

5. In mechanism for opening and closing windows, pulley tackle, sash lines passing

over the pulleys of the tackle and adapted for operative mounting with respect to the window, a sliding member for actuating the pulley tackle, and screw and nut mechanism for reciprocating the sliding member.

6. In mechanism for opening and closing windows, pulley tackle, sash lines passing over the pulleys of the tackle and adapted for operative mounting with respect to the window, a sliding member for actuating the pulley tackle, screw and nut mechanism for reciprocating the sliding member, an operating handle whose axis of rotation is at right angles to that of the screw and nut mechanism, and gearing for transmitting drive from the handle to the screw and nut mechanism.

7. In mechanism for opening and closing windows, a flexible element adapted for attachment of its ends in spaced relation to a window, a second flexible element, said second flexible element being anchored at one end to the first flexible element and jointly therewith adapted to suspend a window, a slidable body having guide means over which said second flexible element passes so that the window may be raised and lowered according to the direction of movement of the body, and reduction gearing operable to slide said body.

8. In mechanism for opening and closing windows, a flexible element anchored at one end and adapted to suspend a window, a slidable body having guide means over which said element passes so that the window may be raised and lowered according to the direction of movement of the body, and screw and nut gearing operable to slide said body.

9. In mechanism for opening and closing windows, a flexible element adapted to suspend a window, a bracket, a guide plate extending from the bracket and to which one end of said element is anchored, a slidable body, guide means for the flexible element located on said body below the point of anchorage of the flexible element thereto, guide means on the body coacting with said guide plate, and reduction gearing partly journaled in said bracket and operable to slide said body.

10. In mechanism for opening and closing windows, according to claim 9, wherein said reduction gearing is of the screw and nut type.

In testimony that I claim the foregoing as my invention I have signed my name this 12th day of March, 1931.

WILLIAM BEARD LAKE.