lowering the cradle \( b \); and, it will be seen that on such application of power sufficient to overcome the friction of the working parts, the cradle being exactly balanced by the weights \( w \), the two line shafts, with the sheaves upon them respectively, must revolve uniformly, carrying the ropes along in the grooves of the sheaves, and raising or lowering all parts of the cradle uniformly, while the balance weights \( w \), move in the opposite direction.

It is therefore only necessary to reverse the motion of the shaft \( f \), to move the cradle up and down alternately as often as required.

The sheaves not connected with the line shafts, move with the others, the cradle being stiff enough to overcome the small resistance at those points, since the endmost sheaves sustain only half as much weight as the intermediates.

Working loose upon the shaft \( f \), is the large gear wheel \( n \), attached to the winding drum \( m \), and carrying a reversible spring catch (not shown) which plays into the teeth of the ratchet wheel \( o \), made fast on the shaft \( f \). Then, by applying power to the wheel \( n \), with the catch in the proper position, a line is made to wind upon the drum \( m \), (in either direction, as required) so as to raise a power weight \( p \), capable by its descent, of raising or lowering the cradle through the required space in a few seconds of time. The line raising the weight \( p \), is carried from the drum \( m \), by means of sheaves \( s \), to any convenient position.

One movement of the cradle being effected, the catch is reversed, the weight \( p \) is immediately wound up in the opposite direction, and retained by a catch or bolt until the draw requires another movement. Then, the weight is disengaged, and the movement