

ABSTRACT

ROPED ELEVATOR

Problem

Even if rope (13) and spring (15) oscillate, to suppress these oscillations as much as possible.

Means to solve

[The device] is equipped with a car (1) that is installed such that it can freely move up and down in a hoistway, a sheave (14) that is installed at the top of the hoistway, a rope (13) for pulling the above-mentioned car that is suspended from this sheave (14), a suspension rod (9) to which the end of this rope (13) is attached, a spring (15) for damping vibrations which is installed between this suspension rod (9) and the above-mentioned car (1), a cylinder device (16) which attenuates the above-mentioned vibrations and has a flow volume control valve (22), a rotary encoder (24) for detecting the position of the car (1) in order to calculate the length of the rope, a load sensor (25) for detecting the load of the car (1) and a control panel (23) which calculates the characteristic vibration frequency f of the above-mentioned rope (13) from the length of the above-mentioned rope, the characteristic vibration frequency f_N of the spring from the car (1) load, and the vibration frequency ratio u ($u = f/f_N$), and is made so as to constrict the flow volume control valve (22) of the above-mentioned cylinder device (16) when $u = 1$.

Selected figure: Figure 1