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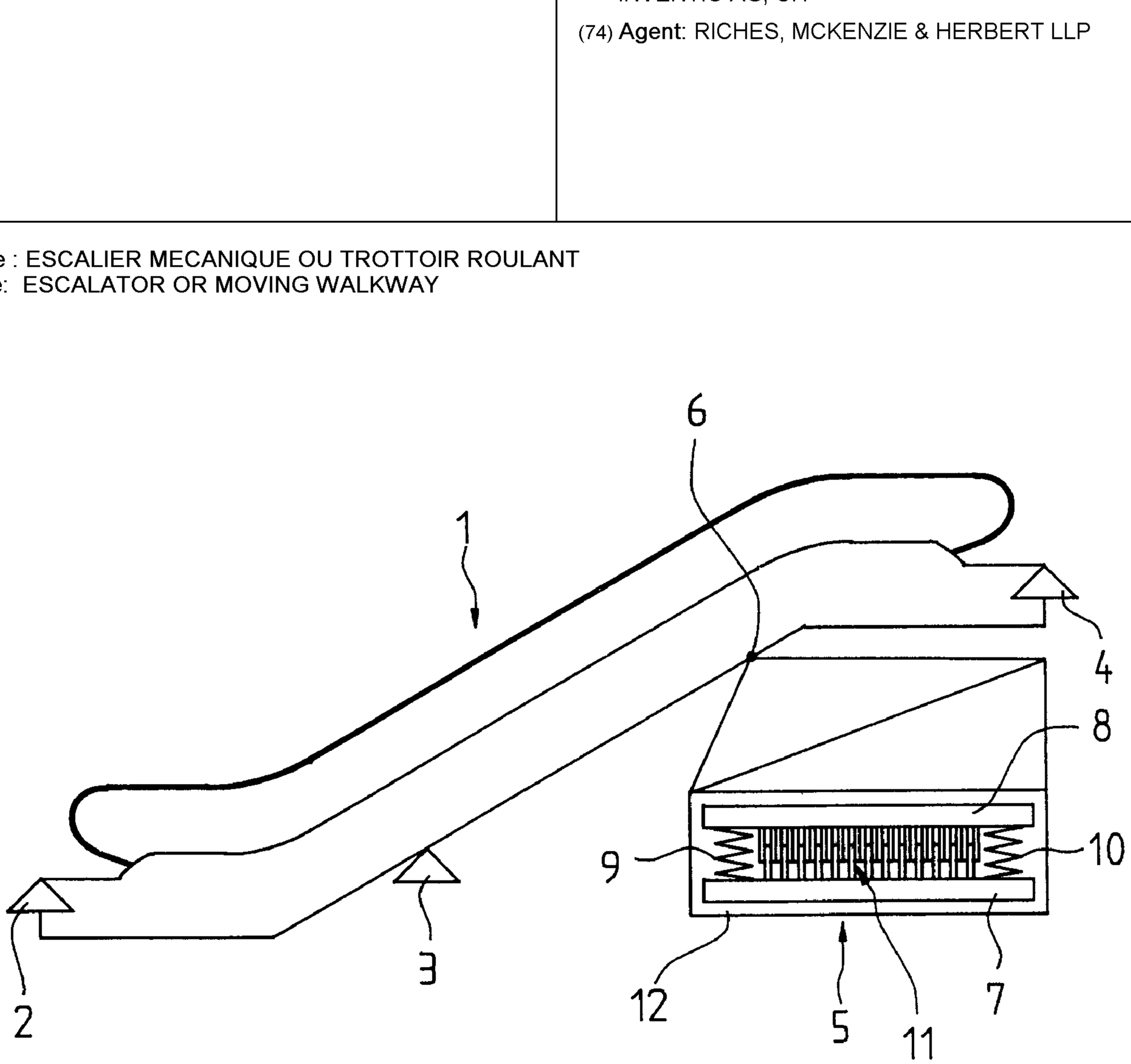
(54) Titre : ESCALIER MECANIQUE OU TROTTOIR ROULANT
(54) Title: ESCALATOR OR MOVING WALKWAY



(57) Abrégé/Abstract:
For reduction in externally excited oscillations there is provided at an escalator (1) or a moving walkway an oscillation damper (5) which is connected with the escalator (1) or the moving walkway within a self-supporting region, preferably at the point (6) of the greatest elongation of the oscillations. The oscillation damper (5) is preferably a speed-proportional plate damper comprising plates which move relative to one another in viscous oil.

Abstract

For reduction in externally excited oscillations there is provided at an escalator (1) or a moving walkway an oscillation damper (5) which is connected with the escalator (1) or the moving walkway within a self-supporting region, preferably at the point (6) of the greatest elongation of the oscillations. The oscillation damper (5) is preferably a speed-proportional plate damper comprising plates which move relative to one another in viscous oil.

Escalator or moving walkway

The present invention relates to an escalator or a moving walkway, which is self-supporting over certain regions.

In the case of static calculation for escalators, consideration must be given to vertical framework oscillations which can be excited by chain engagement (resonant oscillations). If sufficient safeguards are adopted, then due to the sensitivity of the framework oscillation system relatively large forbidden regions result in the case of moving walkways with equal bay divisions. In the case of escalators with unequal bay divisions, these regions are even larger due to the generalisation. For these reasons only relatively small bay widths are available.

It is the object of the present invention to eliminate the restrictions on available bay widths.

According to the invention this object is met by an escalator of the kind stated in the introduction in that for reduction in externally-excited oscillations there is provided an oscillation damper which is connected with the escalator or the moving walkway within a self-supporting region, preferably at the point of the greatest elongation of the oscillations.

According to the invention there is thus provided an oscillation damper which damps the resonant oscillations - should they occur - so that they no longer need to be taken into consideration in the static calculation. In this manner substantially more bay widths can be realised.

The oscillation damper is preferably a speed-proportional plate damper comprising plates which move relative to one another in viscous oil. Since the oscillations to be damped have only a very small amplitude, a powerful damper is needed. Such a speed-proportional plate damper is suitable for this purpose.

In one aspect, the present invention resides in an escalator or moving walkway comprising at least one self-supported suspended region located between a pair of

spaced weight-bearing supports and an oscillation damper for damping vertical oscillations mounted to the escalator or the moving walkway within one of the self-supported regions the oscillation damper comprising a speed-proportional plate damper having plates which move relative to one another in viscous oil.

In another aspect, the present invention resides in an escalator or moving walkway comprising at least one self-supported suspended region located between a pair of spaced weight-bearing supports attached to the escalator or moving walkway and an oscillation damper mounted to the escalator or the moving walkway within a self-supported regions, the oscillation damper being a combined damper comprising an elastomeric damper and a damper loaded by gas pressure.

The present invention is explained in more detail by reference to the accompanying drawings, wherein

Figure 1 shows an escalator with an oscillation damper according to the invention; and

Figure 2 shows an escalator with an oscillation damper comprising a damper loaded by gas pressure.

The escalator 1 illustrated in Figure 1 rests on the points 2, 3 and 4. A relatively short self-supporting region between the points 2 and 3 and a substantially longer self-supporting region between the points 3 and 4 result. An oscillation damper 5 is provided for damping the resonant oscillations. This is connected with the escalator 1 at the point 6, which lies in the longer self-supporting region where the oscillation has maximum elongation.

The oscillation damper 5 comprises two plates 7 and 8 connected together by way of springs 9 and 10. Between the springs 9 and 10 there is a region 11 where the two plates 7 and 8 interengage in comb-like manner. The entire space 12 is filled with viscous oil.

Since the oscillation damper 5 must allow only the smallest possible deflections, the spring constants of the springs 9 and 10 must be high. The mass/spring ratio is established by the oscillation equation and the frequency to be damped. By virtue of the region 11 where the two plates 7 and 8 interengage in comb-like manner in viscous oil there is achieved a powerful damping, which is also necessary here because the oscillation amplitudes are very small.

It is possible by such an oscillation damper 5 to damp not only polygon-effect oscillations, but also other externally-excited oscillations.

Instead of a plate damper, other constructional forms of dampers, such as, for example, dampers loaded by gas pressure, elastomeric dampers or combination forms of these dampers, can also be provided in principal without thereby changing the essence of the invention.

Figure 2 shows an escalator 20 which is similar to the escalator 1 shown in Figure 1. However, the escalator 20 shown in Figure 2 has an oscillation damper 5 comprising dampers loaded by gas pressure 13 to replace the plate damper with two plates 7 and 8 that move relative to one another in viscous oil 12, shown in Figure 1.

What is claimed is:

1. An escalator or moving walkway comprising at least one self-supported suspended region located between a pair of spaced weight-bearing supports and an oscillation damper for damping vertical oscillations mounted to the escalator or the moving walkway within one of the self-supported regions the oscillation damper comprising a speed-proportional plate damper having plates which move relative to one another in viscous oil.

2. The escalator or moving walkway of claim 1, wherein the oscillation damper is mounted within the self-supported region at a point of maximum oscillation displacement.

3. The escalator or moving walkway according to claim 1 or claim 2, characterized in that the oscillation damper is a combined damper comprising a speed-proportional plate damper and a damper loaded by gas pressure.

4. The escalator or moving walkway according to claim 1 or claim 2, characterized in that the oscillation damper is a combined damper comprising a speed-proportional plate damper and an elastomeric damper.

5. An escalator or moving walkway comprising at least one self-supported suspended region located between a pair of spaced weight-bearing supports attached to the escalator or moving walkway and an oscillation damper mounted to the escalator or the moving walkway within a self-supported regions, the oscillation

damper being a combined damper comprising an elastomeric damper and a damper loaded by gas pressure.

6. The escalator or moving walkway of claim 5, wherein the oscillation damper is mounted within the self-supported region at a point of maximum oscillation displacement.

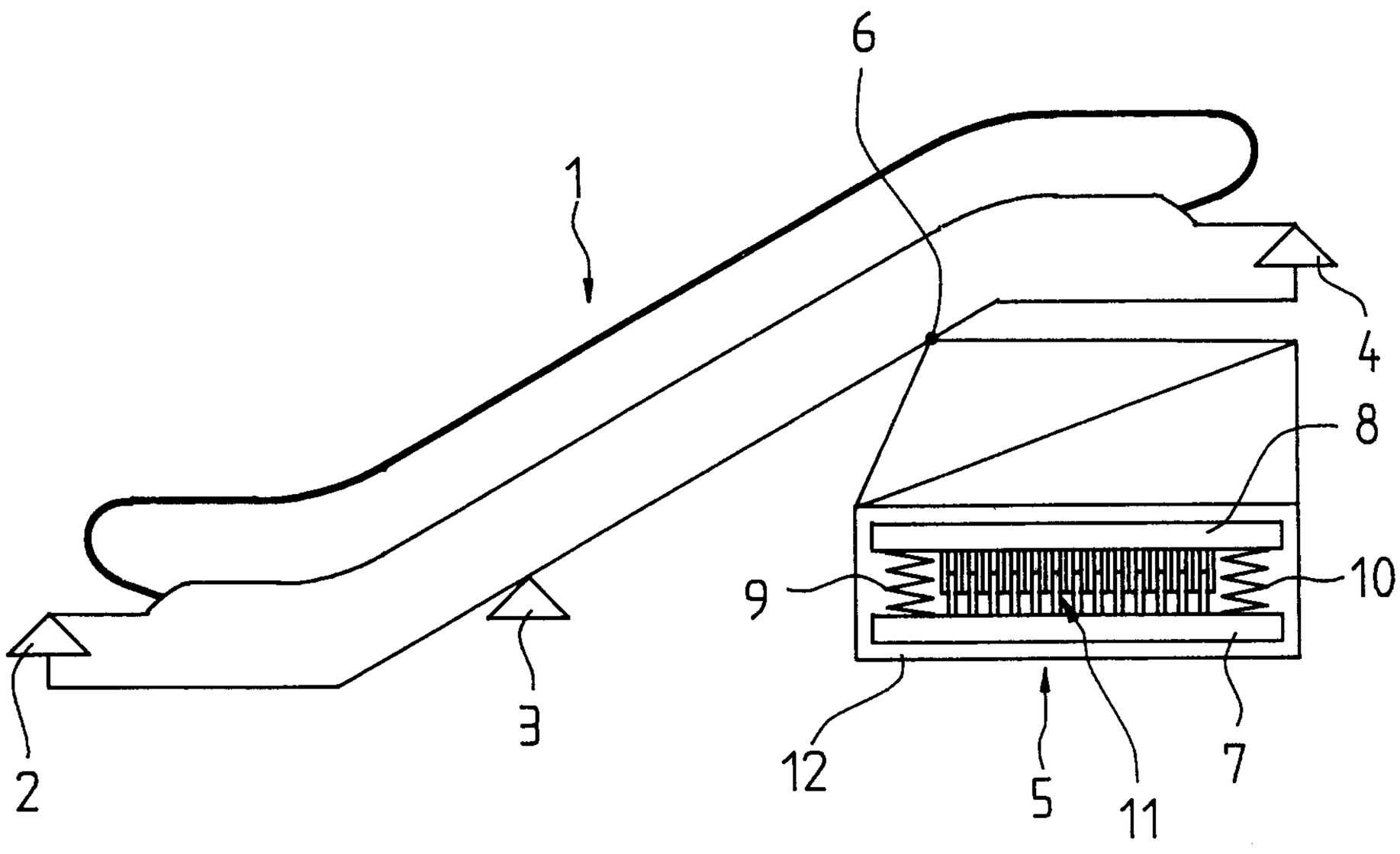


FIGURE 1

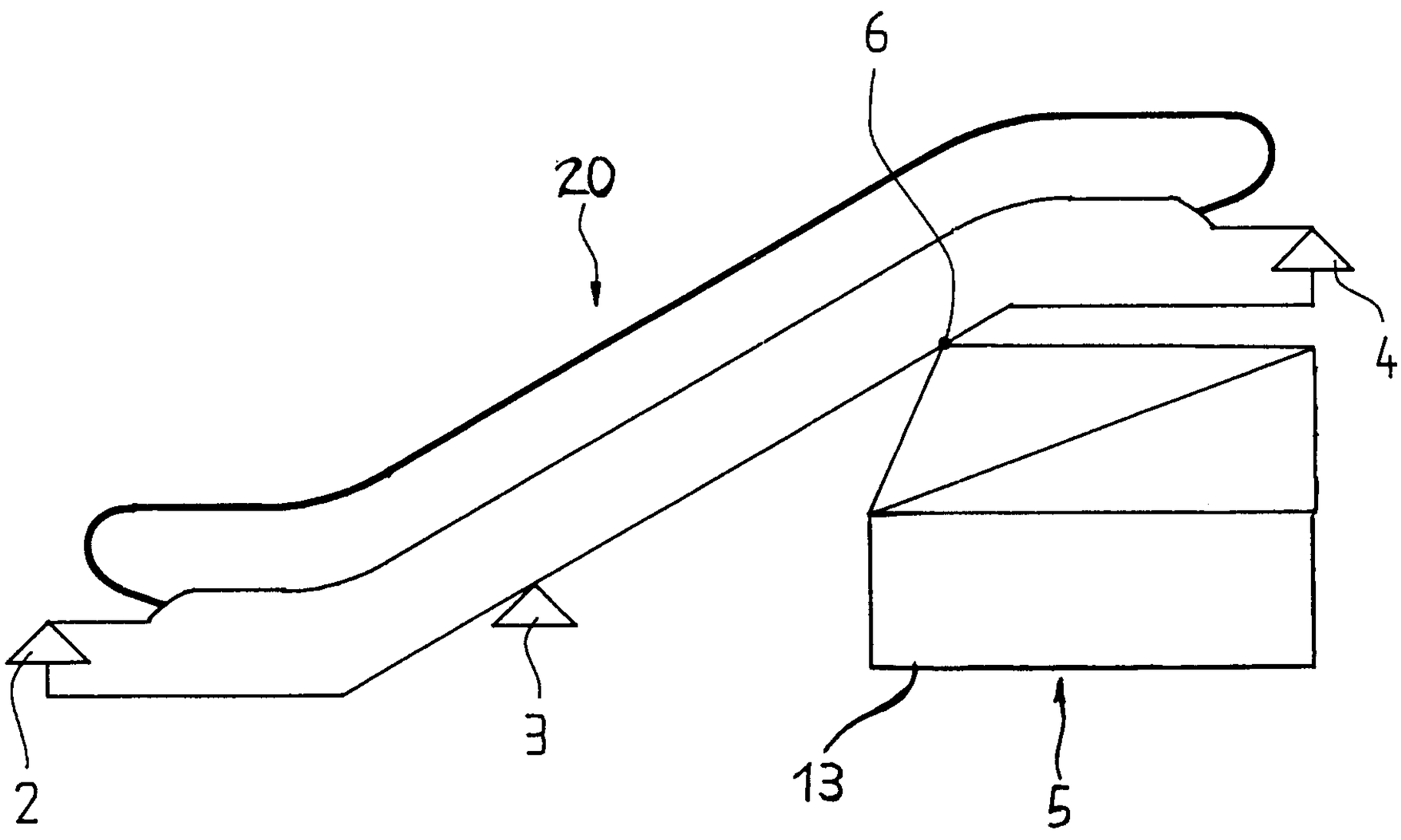
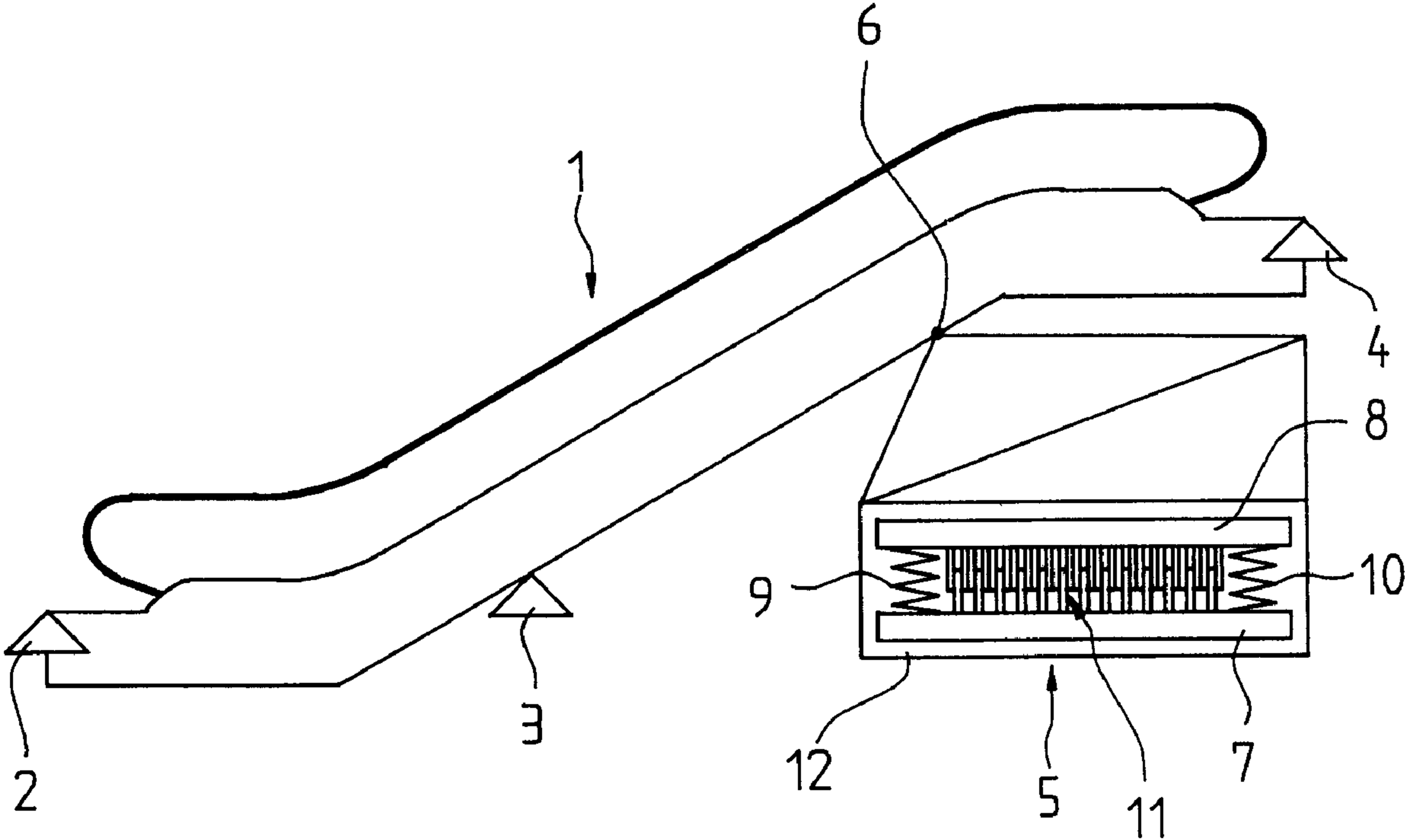


FIGURE 2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