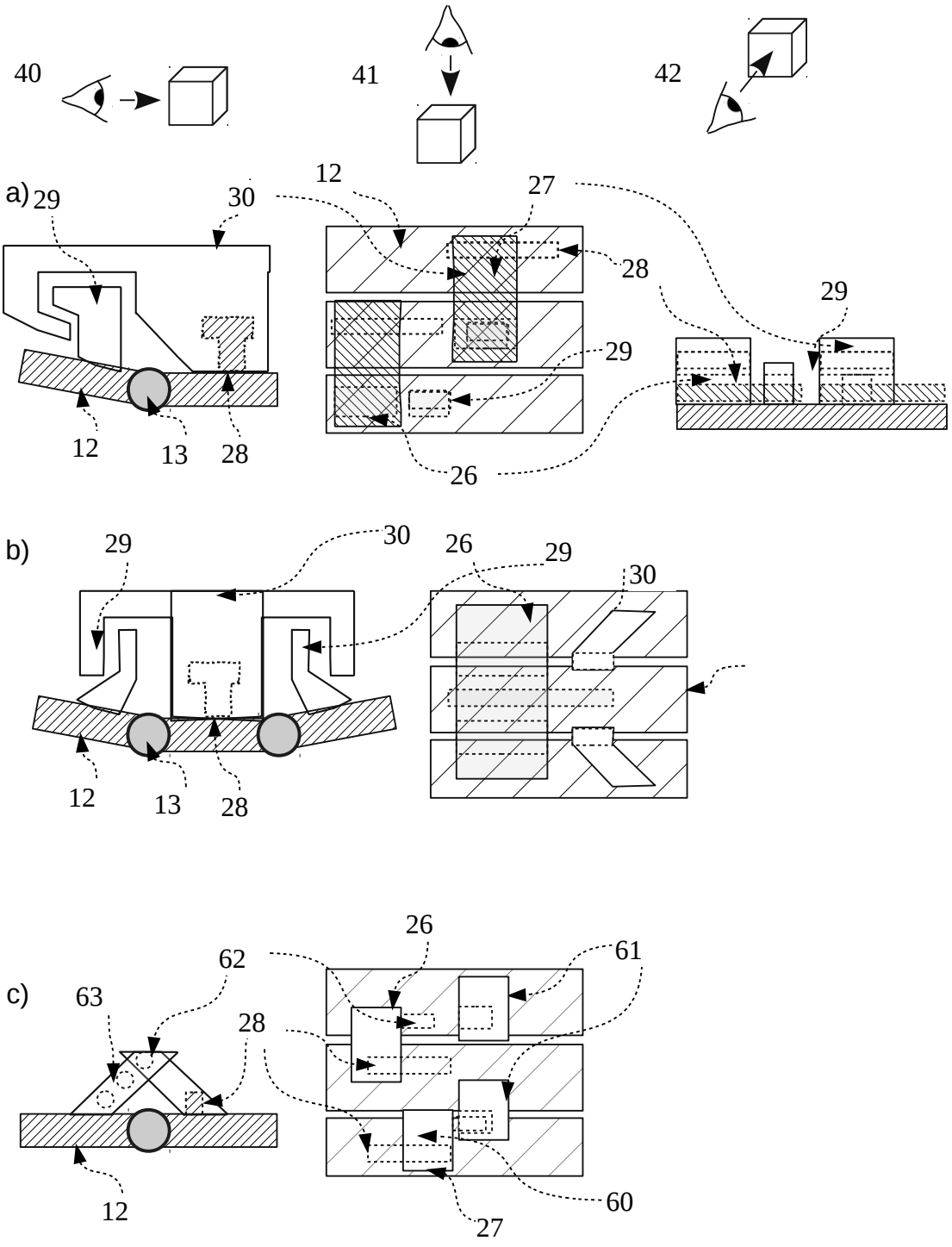
Various configurations of *Locking mechanism 14* embodiments are presented in *Figure 3a-3d*, *Figure 4a-4c*, *Figure 5a-5c*, *Figure 6a-6b* and *Figure 7a-7b*. For simplicity of illustration on this and other figures we use three columns with representing a *Side view 40* a *Top view 41* and *Front view 42*. All solutions above summarize the possibility to have a principle of the "big wheel" realized with tracks.

Three configurations of locking mechanism of a sliding type are presented on *Figure 4a-4c*. A configuration on *Figure 4a* is where every *Track element 12* bears a *Locking element 30* that can move along a *Guiding rail 28*, have a form that completes a *Fixed hook 29* and can enter into a rigid configuration of *Locked position 27* with a *Fixed hook 29* on another *Track element 12*. When the *Locking element 30* is in a central *Locked position 27* it hooks to a *Fixed hook 29* and makes two *Track element 12* locked to each other. When the *Locking element 30* is moved aside to an *Unlocked position 26*, the two *Track element 12* are not locked any more and can move freely around the *Track hinge 13* thus putting the track in its usual foldable state. The *Locking element 30* also prevents that *Track element 12* moves in the direction of *Negative folding direction 48*.

A configuration on *Figure 4b* is similar to the previous solution. The difference resides in the fact that three *Track element 12* are locked together.

In configuration on *Figure 4c* one *Track element 12* bears a *Fixed element with holes 61* that is firmly fixed to the *Track element 12* and has one or several *Multiple locking hole 63*. The second track element bears a *Sliding element with rod 60* that moves along a *Guiding rail 28* and has a *Rod 62*. At different angles between the two track elements, the *Sliding element with rod 60* can move along the *Guiding rail 28* and lock the two track elements by positioning the *Rod 62* in one *Multiple locking hole 63.* The selected hole defines the angle between the two track elements. In an unlocked state, the *Sliding element with rod 60* is in an *Unlocked position 26* and the *Track element 12* can move in the positive and the negative folding directions. When the *Sliding element with rod 60* is in the *Locked position 27, a* hole of the *Fixed element with holes 61* and the rod of the *Sliding element with rod 60* are aligned and the *Rod 62* goes into the *Multiple locking hole 63.* The *Multiple locking hole 63* allow various angles of the locking mechanism.


40
41
42
a)
29
30
12
27
28
29
29
12
13
28
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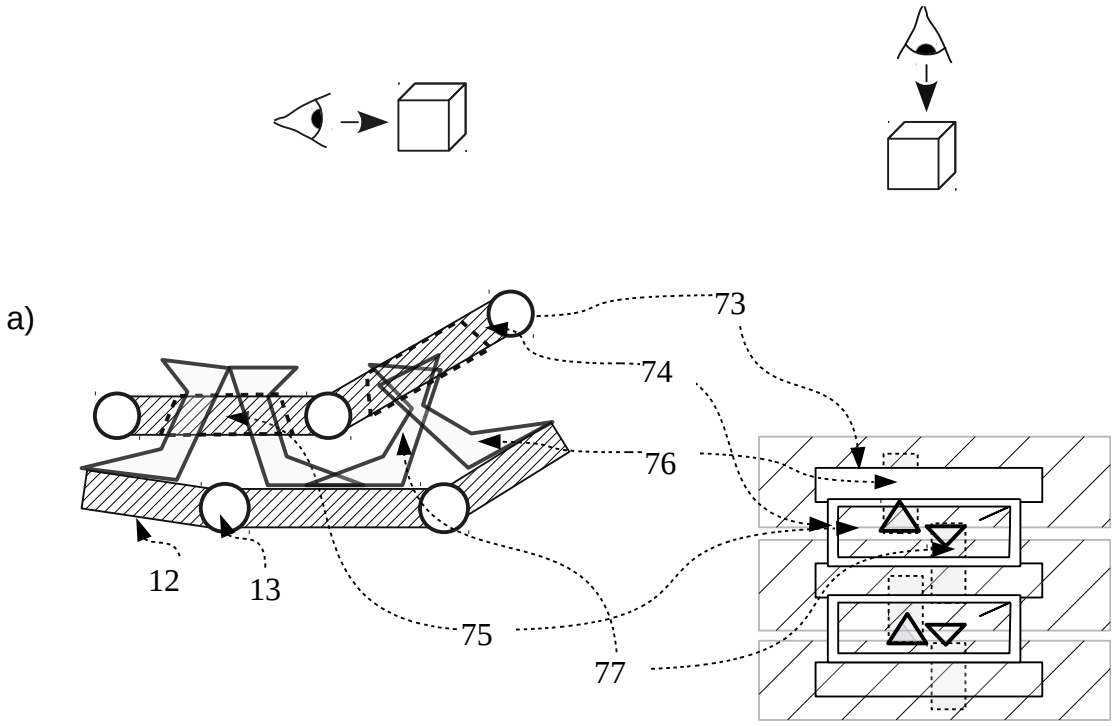
b)
29
30
26
29
30
12
13
28
c)
26
62
61
63
28
12
60
27

Figure 4:

On *Figure 6a,6b* embodiments based on double-chain approach are presented. *Figure 6a* shows an embodiment where a *Track element 12* rotates around *Track hinge 13* and can be locked by a second chain also composed of an *Element of second chain 74* with an *Opening 75* rotating around a *Hinge of second chain 73*. The first main chain bears *Forward pointing hook 76* and *Backward pointing hook 77*. To reach a locking position, two elements of the first chain are folded so that tips of the two hooks of adjacent elements align and can be passed into the *Opening 75* of the *Element of second chain 74* by lowering the second chain on the first. Then by unfolding the two elements of the track tips of the two hooks are locked in the *Opening 75* due to their form and are set in a locked position. If the *Opening 75* thas several separated holes, locking is possible at various angles and at negative folding as well (e.g. necessary to keep the track having a specific form on it upper side with respect to rollers).

Figure 6b shows an embodiment where the track elements contains the same *Forward pointing hook 76* and *Backward pointing hook 77*. The second upper chain contains a locking element being a *Dovetail hook 78* to keep the track elements in a locked position. It operates in a similar way as the previous solution. The two elements of the track need to be folded to align two hooks and let them enter into the *Dovetail hook 78* of the second chain by lowering it. Once done, the track elements unfolds and lock themselves reaching the situation shown on the figure where two hooks of the first main chain are locked in the *Dovetail hook 78* of the second chain. The form of *Dovetail hook 78* also prevents negative folding.



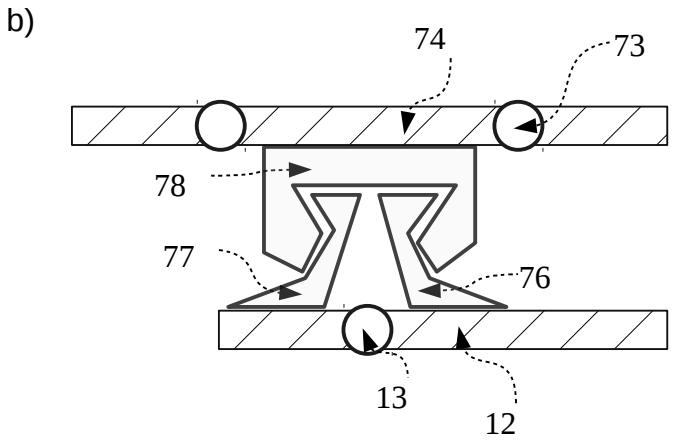


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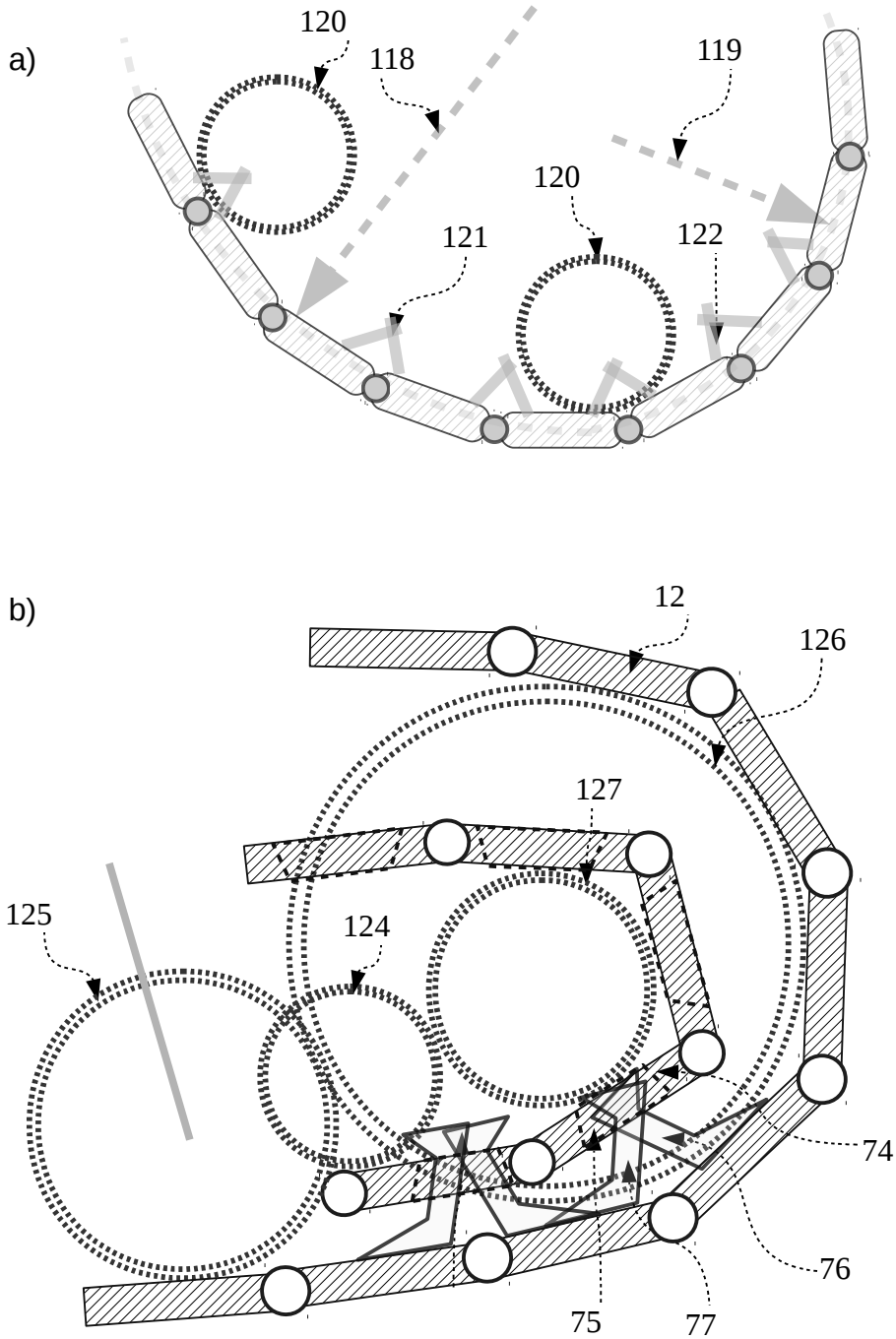
Figure 6:

On *Figure 9a* a locking process is illustrated for the locking mechanism of type shown on *Figure 6*) where a locking chain is used to lock the track.

The vehicle leans on a *Lean roller for track 125* that rolls on track in already locked state. Therefore, the vehicle weight is transmitted to those rollers which transmit this weight to rigid track which in turn with its inherent flexibility lean on the ground. Bigger the lean rollers, smother the motion but track folding radius is a constraint.

To convert a track to a rigid state other elements are required. An *Encoding roller for track 126* positions adjacent track elements at specified angle with respect to each other and a specified position with respect to a locking chain. An *Encoding roller for chain 127* positions the chain so that an *Element of second chain 74* position and angle allows that a *Forward pointing hook 76* and a *Backward pointing hook 77* can enter into an *Opening 75* of the locking chain coinciding with track hooks. The locking occurs by lowering the chain on the track to overlay opening on the hooks and further unfolding of the track with a *Lean roller for track 125* and a *Guiding roller for chain 124*. The correct locking occurs at specific position of two rollers.



127

Figure 9:

A top view of the rollers positions is explained on *Figure 10.* A platform leans on *Lean roller for track 125*. The *Encoding roller for track 126* and the *Encoding roller for chain 127* are positioned so that to achieve locking effect. Track elements and their *Forward pointing hook 76* and *Backward pointing hook 77* are positioned with respect to the *Element of second chain 74* so that they can enter into the *Opening 75* at a specific time. Then, the *Guiding roller for chain 124* unfold the locking chain and when the *Lean roller for track 125* is in contact with rigidly locked track elements, it's already a rigid system.

Various functionalities of a track derive from its ability to change curvature and are explained on *Figure 9b.* A *Roller 120* (or system of rollers as explained above) can set the angle of locking mechanism for every pair of track elements from a *Locking mechanism position one 121* to a *Locking mechanism position two 122* (and vice versa depending on the direction of motion). The combined effect of angles between individual track elements is the change of a curvature of the track from a *Larger radius 118* to a *Smaller radius 119*.

A change of curvature occurs in various embodiments adapted for each locking mechanism. For locking mechanism as shown on *Figure 7* and *Figure 9* a first embodiment is that track does not change and bears a *Forward pointing hook 76* and a *Backward pointing hook 77* but angle at which they are blocked is controlled by the *Opening 75* of locking chain. The *Element of second chain 74* could have openings of several sizes that would block hooks of the track at different angles. Size of such openings are controlled for example by sliding elements reducing the opening or that opening has various gradations of gaps and by positioning the locking chain hooks are locked at desired angles. Another embodiment is where opening remains the same, but hooks have several steps at different heights which with same opening of locking chain would correspond to different angles of locking between track elements. The advantage of the second embodiment is a difference in lever allowing to lock track elements at more open angles with bigger lever (where more force is needed) and at higher curvatures (where less force is needed) the lever is smaller.

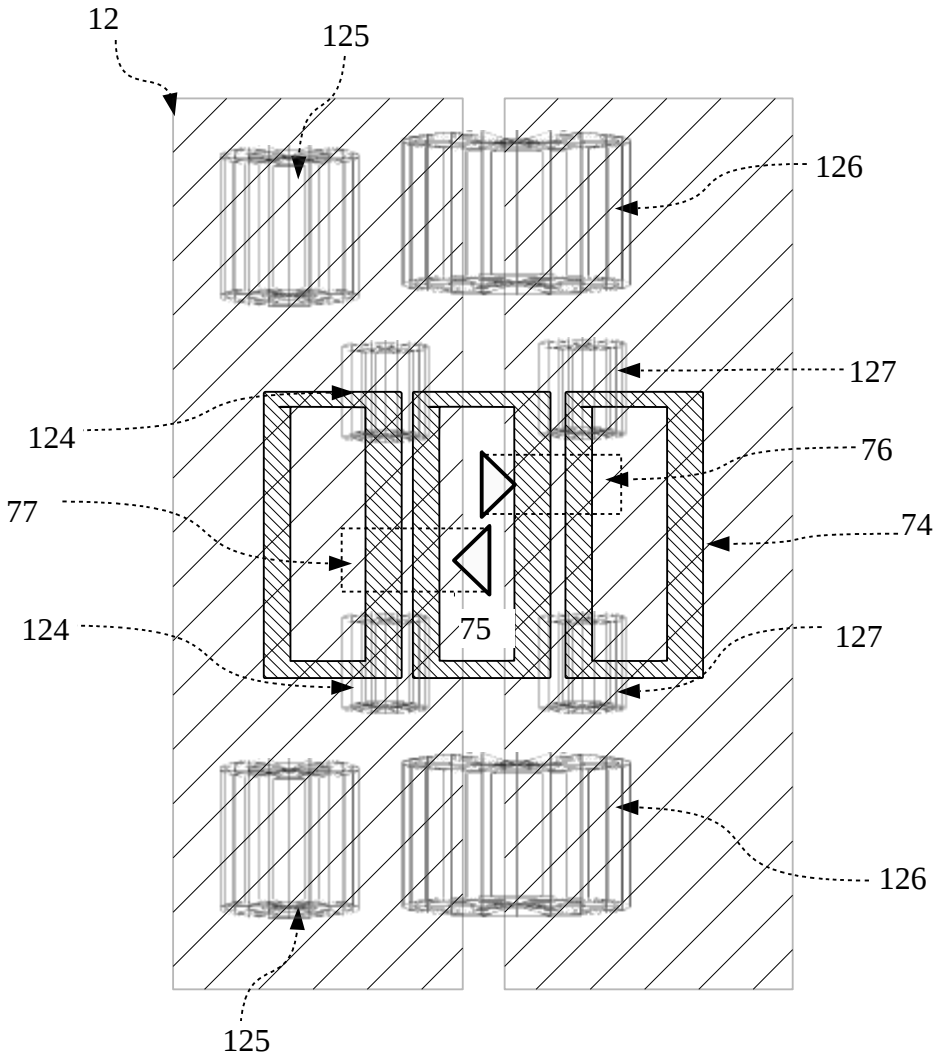


Figure 10: