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(54) RESILIENT SUSPENSION DEVICE FOR CATERPILLAR VEHICLES

(54) SUSPENSION ELASTIQUE DE VOITURE A CHENILLES

(57) Abstract:

In order to effectuate the suspension of caterpillar vehicles either of the two following methods is at present used : the one consists in interposing springs between the rolling underbody and the trailing or carrier axle, with the other the springs are interposed between the trailing axle and the chassis or frame of the vehicle.

Neither of these two methods permits to be achieved a perfect suspension calculated to absorb all jolts and shocks both light and heavy.

As a matter of fact, if the springs used are sufficiently hard set to damp or absorb heavy shocks or jolts, they will not be sensitive to light jolts or vibrations and will act, respecting these, as a rigid system.

If, on the contrary, relaxed springs are used, these will perfectly damp or absorb light jolts or vibrations ,but will prove inefficient , since not powerful enough, as regards heavier shocks or jolts.

The object of my invention is to provide a suspension device which will remedy the above set forth shortcomings and effectuate a perfect suspension being adapted to damp or absorb all and any jolts and shocks whether light or heavy.

My suspension device is characterized by the combination of two sets or systems of springs, one of which is interposed between the chassis or frame of the vehicle and the trailing or carrier axle and the springs of which are powerful enough to damp or absorb heavy jolts or shocks, while the other one, interposed between the trailing carrier axle and the rolling under body ,

is constituted by relaxed springs adapted to damp or absorb light jolts or vibrations, the ratio between the tensions of the said two sets or systems of springs being such, however, that the first one will come into play before the second one has reached its resiliency limit, so that, within limits, the action of the two sets or systems may be superadded.

In order to make my invention more clearly understood , I have illustrated, as an example, an embodiment thereof in and by a drawing appended hereto and wherein :

Figure 1 is an elevation of a caterpillar device equipped according to my invention.

Figure 2 is a plane view of the same.

In both figures the same reference numerals denote the same parts.

1 denotes the chassis of the vehicule, A and B denote the two pulleys(drive and guide) on which is mounted the caterpillar C; on the drawing the upper reach of said caterpillar is cut off to reveal the suspension parts.

On chassis 1 of the vehicle are secured on either side springs 2 of any type currently used in automobile construction; said springs 2 constitute the first set or system of springs, sufficiently powerful to ensure damping or absorbing of heavy jolts or shocks.

3 denotes the trailing or carrier axle of the caterpillar system, said axle being supported in the ordinary way by springs 2.

Between said axle 3 and the underbody rollers is interposed a second resilient device purposed, as hereinbefore explained, to damp or absorb light jolts and the power of which is established according to the above set forth considerations. In the example shown, this device is constituted by a rigid beam 4 linked on axle 3 and by coil springs 5 coming to bear on the beams 6 which connect rollers 7 with the under body.

Figure 2 shows a portion of beam 4cut off so as to reveal the parts located underneath.

I wish it to be clearly understood that the embodiment shown is given merely as an example and that I reserve the right to introduce any constructional modifications without being deemed to depart from the scope of my invention.The resilient device formed by beams 4 and 6 and spiral springs 5 may be replaced by any other analogous or similar resilient device and especially by plate springs such as those described in and by my French Patents Nos 543 514 and 563 250, for instance, or by springs of any other type.

Similarly, springs 2 might be replaced by spiral springs or by a resilient device of any other type suitable to ensure suspension of the trailing axle.

Furthermore and as will be readily realized, I can, without departing from the scope of my invention, invert the respective functions of the combined two resilient devices making, for instance, the resilient device interposed between the chassis and the trailing axle of restricted power to damp or absorb light jolts while giving to the device comprised between the trailing axle and the rollers all the power required

to damp or absorb heavy jolts and shocks, the ratio between the power of the two devices always being so determined as to permit the effects of the said two devices to become superadded one to the other within certain limits.

Besides the advantages evidenced by the foregoing description the device which is the object of my invention offers the advantage of materializing the conditions required for high speed vehicle propelling.

Persons skilled in the art are, of course, aware that one of the conditions of the possibility of imparting high speeds to any vehicle is that the weight of non suspended parts be minimized.

Now due to the double suspension effectuated by my invention the weight of non-suspended parts is materially and substantially reduced.

Having now particularly ascertained and described the nature of my said invention as well as the manner in which the same is to be performed, I declare that what I claim is:

1.

A resilient suspension system for caterpillar vehicles comprising in combination with a vehicle chassis, a carrier axle, and a rolling underbody, two resilient suspension devices of different power, one of said devices being interposed between the vehicle chassis and the carrier axle, the other device being interposed between the carrier axle and the rolling underbody, one of said devices being of sufficient power to damp heavy jolts and shocks, while the other device is given less power but power enough to damp or absorb lighter jolts, the ratio between the powers of the said two resilient devices being, however, such that the first mentioned one will begin to act before the second mentioned one has reached its resiliency limit in view of permitting the effect of the two said devices to become superadded within certain limits.

2.

A resilient suspension system for caterpillar vehicles comprising in combination with a vehicle chassis, a carrier axle, and a rolling underbody, two resilient suspension devices of different power, one of said devices being interposed between the vehicle chassis and the carrier axle and being of sufficient power to damp heavy jolts and shocks, while the other device, interposed between the carrier axle and the rolling underbody is given less power but power enough to damp or absorb lighter jolts, the ratio between the powers of the said two resilient devices being, however, such that the first mentioned one will begin to act before the second mentioned one has reached its resiliency limit in view of permitting the effect of the two said devices to become superadded within certain limits.

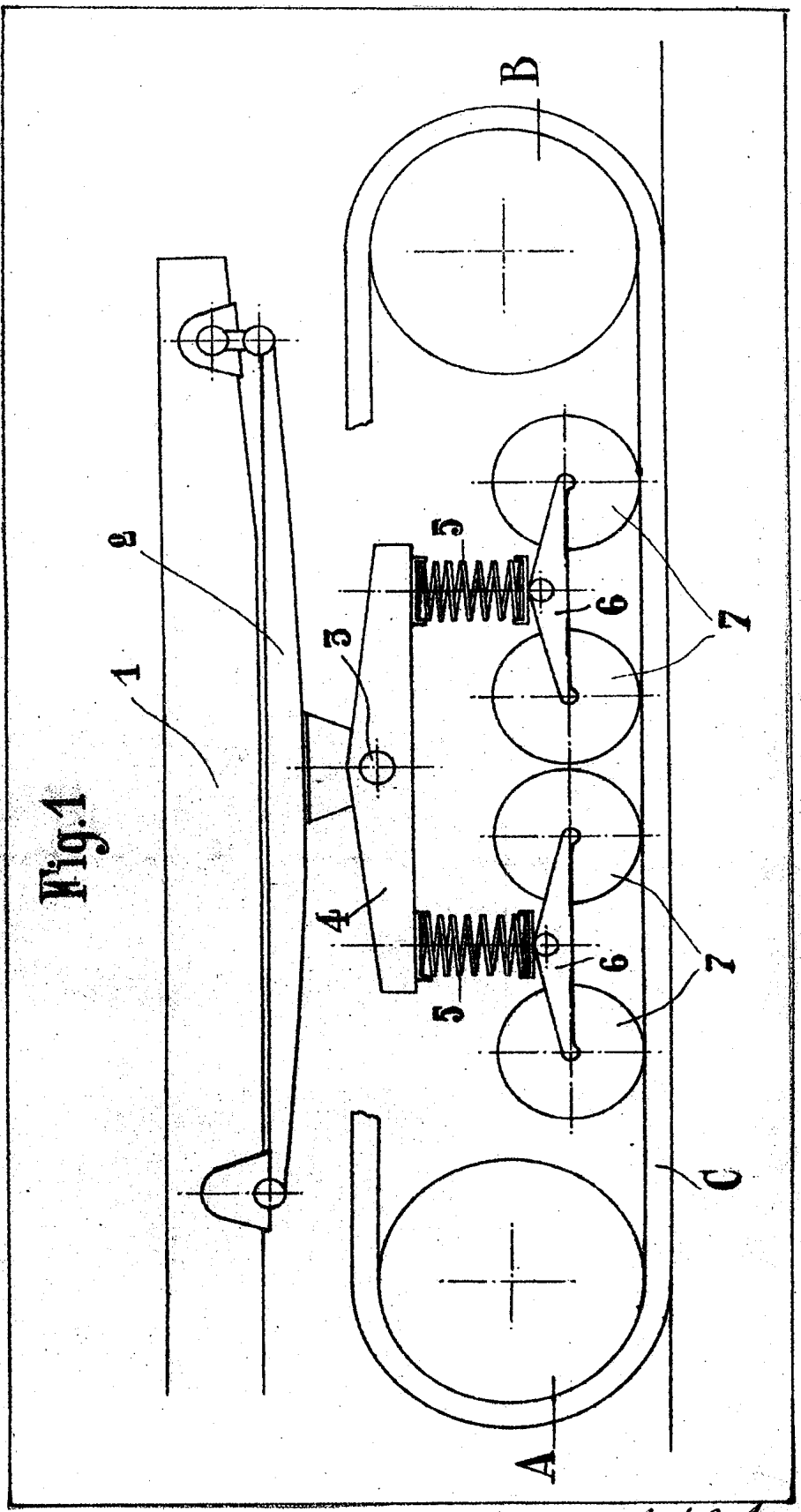

Fig. 1

Inventor
Adolphe Regresse

In presence of

Certified to be the drawing referred to in the specification hereunto annexed.

Montreal, AUG 1 1925

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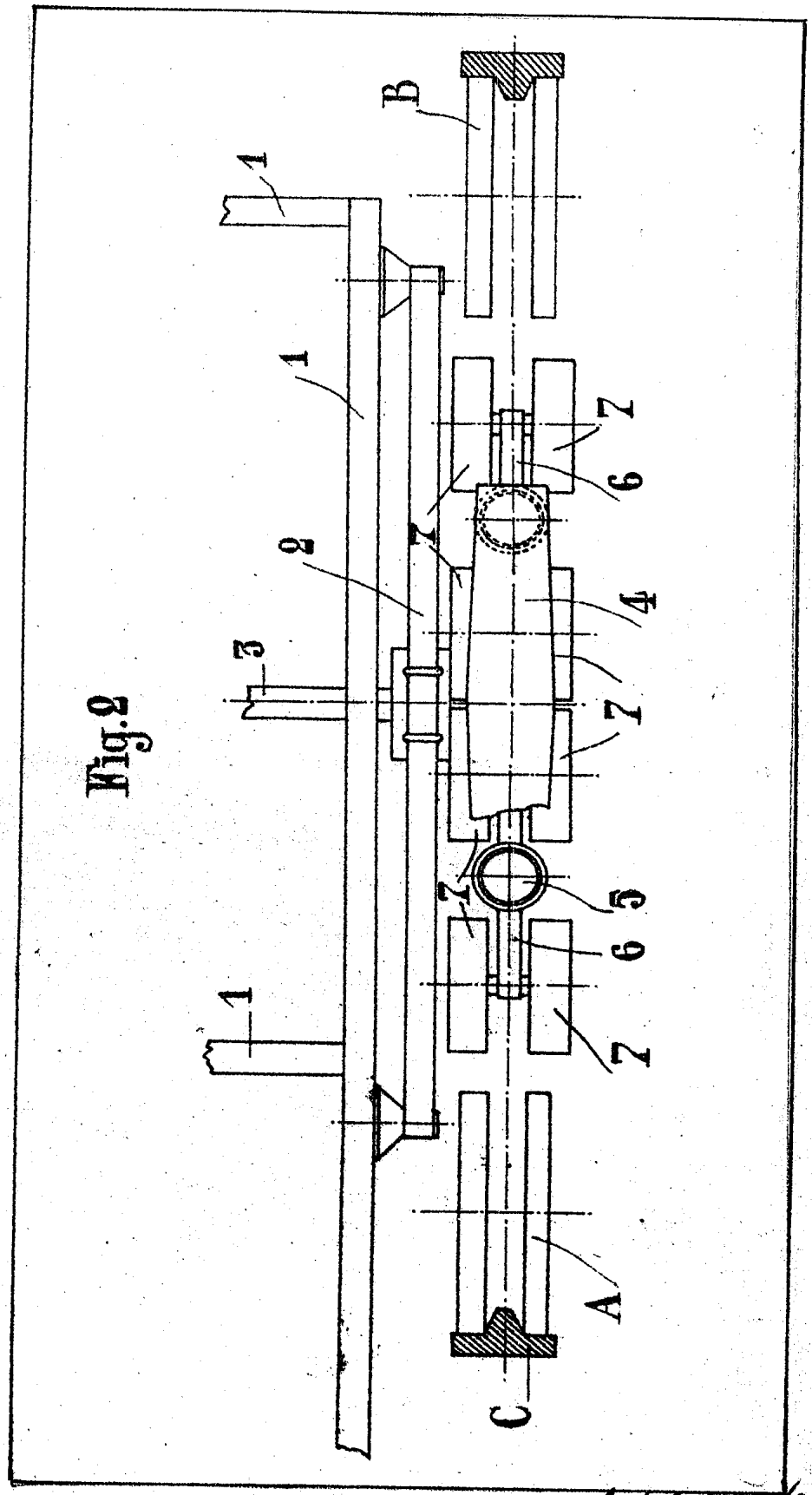

Fig. 2

Inventor.
Adolphe Regresse

In presence of
L. Haskell
R. Robic

Certified to be the drawing referred to in the specification hereunto annexed.
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